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Adviser's guide to health care: Volume 2, Professional Practices

Robert James Cimasi

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The most detailed reference tool to help you understand medical specialty practices, *Professional Practices* is the one-stop source for a deep understanding of current and emerging medical practice structures, specialties, and professionals.

The U.S. healthcare delivery system's organizational structures are complex and evolving. This up-to-date reference will guide you through both current and emerging healthcare systems. Additionally, specific considerations for healthcare specialty practice industries are discussed in terms of reimbursement, regulation, competition, and technology metrics. You will find full coverage of the following core topics within this book, which are based on the four pillars framework taxonomy:

- Emerging models of healthcare enterprises
- Physician practice analyses
- Mid-level provider data
- Technician and paraprofessional component models
- Allied health professional practices
- Alternative medicine practitioners
- A new paradigm for organizational structures of healthcare service delivery

The Adviser's Guide to Healthcare is a comprehensive resource and reference guide for professionals seeking a working knowledge of the factors involved in consulting with and valuing healthcare practices. Developed by one of the foremost consultants in the healthcare industry, Robert James Cimasi, this *Guide* is founded on his seasoned knowledge and industry experience. This 18-chapter, three book set is built around a new taxonomy framework for approaching economic value for the healthcare industry—the four pillars of **reimbursement, regulation, competition, and technology**. The four pillars framework is carried throughout each of the three books that comprise this set:

An Era of Reform: Provides in-depth discussions of the four pillars and the landmark legislation that has contributed to the current healthcare environment.

Professional Practices: Introduces different models of emerging healthcare practices and details industry subspecialties in terms of the four pillars framework.

Consulting with Professional Practices: Covers consulting related to healthcare practices and practice valuation strategies.

Keep up with the changing face of healthcare services and consulting practices with *The Adviser's Guide to Healthcare*!

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THE ADVISER'S GUIDE TO HEALTHCARE

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Dedication

Dedicated to my wife

Laura M. Baumstark, MBA, CAE



Acknowledgements

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Foreword

Whether we have been providing professional consulting services for many years, as I have, or we are relative newcomers to the field of consulting services, the current state of the healthcare environment certainly can tend to make us all feel a bit bewildered. The ongoing technological, economic, and political changes that are happening require all of us to arm ourselves with the knowledge and skills necessary to address these changes. Bob Cimasi's new, comprehensive, reference work is an essential tool if we are to be able to provide useful specialized advice to our clients.

This *Guide*, containing 18 chapters of up-to-date specialized information concerning every aspect of healthcare Professional Practices, is a monumental collection of detailed, useful information for CPAs, Business Valuators, Attorneys, Financial Planners, Health Care Executives, Administrators, and even for Physicians and Surgeons. It covers the waterfront of the types of entities providing healthcare services with specific attention to each medical and dental specialty.

In examining this vast range of entities and professionals, this *Guide* does not confine its presentations to highlights only. Rather, it delves deeply and precisely into the finer points of problems and opportunities confronting each of the specialized healthcare professional practice entities. A recurring theme throughout the book is to consider the delivery of healthcare professional services within the context of what Bob Cimasi terms "the four pillars of the healthcare industry, i.e., *regulatory, reimbursement, competition, and technology.*"

As a CPA, business appraiser, and consultant who has practiced for 56 years, I believe that this monumental book should be in the library of every CPA firm, business valuation firm, legal firm, financial planner, and consultant who hopes to continue to serve clients in the healthcare field competently in these rapidly changing times. As I have learned as the father of a long-time practicing critical-care internist and hospitalist, I believe that the book also is a must for the libraries of professional physicians, surgeons, dentists, and administrators who are on the every-day firing lines trying to survive the sea of change in their respective professions. And before closing, I want to say some words about the author, Bob Cimasi. I have known Bob for many years, first as a participant in professional seminars and conferences in which he has been a presenter, and later on a more direct professional and personal basis. Throughout these years, I have been impressed with both his technical knowledge, and even more importantly, the unselfish and tireless sharing of his time, talent, and accumulated knowledge with his professional colleagues in the accounting, business valuation, and consulting professions. There are few people in the world that I have known who are of his caliber! This *Guide* confirms again what many of us know. Bob Cimasi is truly one-of-a-kind dedicated professional whose writings are worth reading.

Richard D. Thorsen, CPA/ABV, CMEA, CVA

May 2010

Past Member, Board of Directors and Vice President of the American Institute of CPAs (AICPA)



Preface

"Tho' much is taken, much abides." (Ulysses) Lord Alfred Tennyson, 1833

I was born in 1950, the fourth child in our family, and the first born in a hospital—my older brothers and sisters having been delivered in my grandmother's bed. In the small, upstate New York farming community where I was raised, doctor house calls were not unusual. When an injury or sudden illness required a response by emergency services, the dispatcher would sound the community sirens, signaling the volunteer firemen on duty to radio ahead from their emergency vehicle to the small, four-bed, rural hospital, which would then alert one of the three physicians in the community to rush to the hospital to provide emergency care. When our neighbors developed musculoskeletal conditions from working on the farms or in small manufacturing plants and machine shops, they would visit the town chiropractor who would perform manipulation and prescribe vitamins and various homeopathic remedies. The local dentist's services were in great demand with the prefluorination, widespread incidence of juvenile tooth decay. This was a time in U.S. history when *Marcus Welby* was not only a regular family television drama but was also a reasonable characterization of how healthcare services were perceived to be delivered by professional practices throughout much of the country.

During the sixty year period since 1950, the U.S. population has doubled from just more than 150 million to an estimated 300 million in 2010,¹ and the average life expectancy has increased from approximately 68 years to 78 years.² With the record number of births of the "baby boomer" generation from the late 1940s through the early 1960s, the proportion of the U.S. population over the age of 65 increased from 8.1 percent in 1950 to an estimated 13.2 percent in 2010.³ This demographic shift is expected to continue, with the proportion of Americans over 65 expected to reach 20 percent of the total population by 2050—an estimated 360 percent increase over a single century.⁴

This increased life expectancy, and the subsequent "graying" of the U.S. population, with the accompanying rise in the incidence and prevalence of the diseases, conditions, and injuries for which the elderly are more at risk, is expected to continue driving demand for healthcare services, as well as a dynamic evolution in the demand for, the supply of, and the very nature of healthcare professional practices.⁵

Although age-related population trends are one of the key contributors to the changing demand for health services, other changes in the U.S. demographic and economic climate have significant bearing as well. The accelerated population shift from rural to urban areas during the last sixty years also may have influenced the increased incidence and prevalence of disease. Although the urbanization of the United

1 "Current Population Reports," Series P-25, Nos. 311, 917, 1095, National Population Estimates, U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, April 11, 2000, <http://www.census.gov/population/estimates/nation/popclockest.txt> (accessed 03/26/2010); "Current Population Reports: Population Projections of the United States by Age, Sex, Race, and Hispanic Origin: 1995 to 2050," Series P25-1130, U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, 1996, p. 1. "Table 1. Projections of the Population and Components of Change for the United States: 2010 to 2050 (NP2008-T1)," by U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, Population Division, August 14, 2008.

2 "United States Life Tables, 2003," by the U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics Report, Volume 54, Number 14, (April 19, 2006), p. 34; "International Data Base," United States Census Bureau, March 19, 2010, <http://www.census.gov/ipc/www/idb/country.php> (accessed 03/26/2010).

3 "Chapter 2—Age and Sex Composition," in "Demographic Trends in the 20th Century: Census 2000 Special Reports," by Frank Hobbs and Nicole Stoops, U.S. Department of Commerce, Economics and Statistics Administration, United States Census 2000, November 2002, CENSR-4, p. 56; "Table 3: Projections of the Population by Age, Race, and Hispanic Origin for the United States: 1995–2050—Principal Alternative Series," in "Current Population Reports: Population Projections of the United States by Age, Sex, Race, and Hispanic Origin: 1995 to 2050," Series P25-1130, U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, 1996, p. 90.

4 *Ibid.*

5 "The Impact of the Aging Population on the Health Workforce in the United States," by the National Center for Health Workforce Analysis, Bureau of Health Professions Health Resources and Services Administration, December 2005, p. 10; "Health, United States, 2008, With Special Feature on the Health of Young Adults," U.S. Department of Health and Human Services, National Center for Disease Statistics, March 2009, <http://www.cdc.gov/nchs/data/abus/abus08.pdf#120> (accessed 09/11/2009), p. 4.

States was already under way in 1950, this shift continued to reshape the population distribution, with the urban population increasing from 64 percent of the U.S. population in 1950, to almost 80 percent in 2010.⁶

Additionally, the shift from an agrarian into an industrialized society, and once again into a service-driven economy, has affected the American lifestyle and related health trends.⁷ The waning of family farms and rise of industrialized agriculture resulted in a shift in the U.S. diet. High-calorie commodities laden with fats, oils, and sugars, were mass produced at the expense of farming affordable, fresh, and nutritious produce.⁸ With this increased availability, and, consequently, the consumption of high caloric-energy, came a decrease in energy expended, arising from the sedentary, high stress, and extended work day practices characteristic of many service industry sectors (for example, finance, legal, insurance and real estate, retail trade, and public utilities). The emergence and proliferation of automobile transportation, decreased emphasis on the family unit, and sedentary recreational habits led to a decrease in physical activity. These factors further fueled the impact of the fast food industry and processed food consumption on the health of the U.S. population, now plagued by chronic diseases for which obesity and poor diet are often major co-morbidities.⁹

The increased demand driven by these changes and other economic and demographic variables may have, in part, fueled the increase in healthcare expenditures from 5 percent of GDP in 1950, to more than 17 percent in 2010.¹⁰ Increased spending also may be a consequence of the surge in technological and other medical advances in the healthcare industry, promulgated at the close of World War II and encouraged by the increase in federal and state funding for healthcare expenditures.¹¹ Since the adoption of Medicare in 1965, public (government) payors have come to fund more than half of all healthcare expenditures.¹²

Also, among the driving forces of U.S. healthcare industry trends that impact professional practices are the supply and distribution of various types and multiple levels of healthcare professionals who work within a dynamic framework of myriad competing interests in order to meet the growing needs of an aging and, in many ways, less healthy population. As a result of technological and medical advances, specialized medicine flourished across the healthcare workforce, growing as a significant trend in the 1950s.¹³ In response to the past and present surge in demand, the physician population has increased from 219,997 in 1950 to 954,224 in 2009, and the number of physicians per 100,000 individuals has increased from 142.2 to 316.4.

Despite these growing workforce trends, it is expected that, with a disproportionate number of physicians retiring, an inadequate supply medical graduates, and the expected continuing growth in demand, the present shortage in supply of physician manpower will continue to worsen.¹⁴ As a result, there has

6 "Table 1. Urban and Rural population: 1900–1990," by the U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, October 1995, <http://www.census.gov/population/censusdata/urpop0090.txt> (accessed 03/26/2010); U.S. Census Bureau 2010 Census Planning Data Base, U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, 2010, <http://www.census.gov/procur/www/2010communications/tract%20level%20pdb%20with%20census%202000%20data%2001-19-07.pdf> (accessed 03/26/2010).

7 "Obesity and the Economy: From Crisis to Opportunity," by Davis S. Ludwig, MD, PhD and Harold A. Pollack PhD, the Journal of the American Medical Association, Volume 301, Number 5, (February 4, 2009), p. 533; "The Role of Services in the Modern U.S. Economy," by Douglas B. Cleveland, Office of Service Industries, January 1999.

8 *Ibid.*

9 *Ibid.*

10 "Health Care Expenditures in the OECD," by the National Bureau of Economic Research, 2006, <http://www.nber.org/aginghealth/winter06/w11833.html> (accessed 03/26/2010); .

11 "Plunkett's Health Care Industry Trends and Statistics 2008 (Summary)," By Jack W. Plunkett, Plunkett Research Ltd., 2007, p. 3.

12 "Chapter 6—Health Care Personnel," and "Chapter 7—Financing Healthcare" in "Health Care USA: Understanding its Organization and Delivery," by Harry A. Sultz and Kristina M. Young, Jones and Bartlett Publishers, Sixth Edition (2009), p.196, 234–235.

13 "Chapter 7—Financing Healthcare" in "Health Care USA: Understanding its Organization and Delivery," by Harry A. Sultz and Kristina M. Young, Jones and Bartlett Publishers, Sixth Edition (2009), p. 231.

14 "Physician Characteristics and Distribution in the US 2010 Edition" American Medical Association, 2010, p. 458; "Table 201—Total and Active Physicians (MDs) and Physician-to Population Ratios, Selected Years: 1950-2000," in "Health Resources Statistics, 1965," by the U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, PHS Pub. No. 1509, 1966.

been a further increase in diversification of the healthcare workforce, comprised of more than 13 million individuals, with fewer than one million being physicians.¹⁵ The diversification, specialization, and collaboration of physician and nonphysician practitioners has increased, expanded, and enhanced to meet the compounding demand. This *Guide* addresses not just physician medical practices but discusses a comprehensive array of professional practice types, as well as the various practitioners that comprise the healthcare workforce, including allied health professionals, mid-level providers, and technicians and paraprofessionals, as well as complementary and alternative medical practitioners.

Although professional practice enterprises currently account for \$447 billion of a \$2.26 trillion healthcare market (19.8 percent), recent efforts at regulatory and reimbursement reform suggest that healthcare professional practices may be facing an unprecedented dramatic transition.¹⁶ The evolution and increasing complexity of healthcare reimbursement, regulatory, competitive, and technological environments has made it more difficult for professionals to maintain revenue yield while avoiding running afoul of regulatory edicts.

A notable element of these challenges is an industry transition reflected in the recent increase in the number of hospital-employed physicians, and the dwindling of physician-ownership of private, independent practices. A growing number of young physicians, plagued by medical school debt and intent upon achieving a more comfortable work-life balance, are opting out of private, independent practice and pursuing salaried employment by hospitals and health systems.

These trends have made it increasingly difficult for older independent practitioners to recruit junior partners, a struggle which, paired with the burden of rising costs, has led many physician-owners to sell their practices to hospitals and enter into salaried employment arrangements as well. This shift further away from the independent practice of medicine as a “cottage industry” in the United States may be viewed by patients as both a blessing and a burden of the changing healthcare delivery system. On one hand, the trend away from small, physician- or provider-owned, independent private practices holds the promise of improved quality and cost efficiency for the delivery of better and integrated medical care. Alternately, the “corporatization” of healthcare professional practices may result in a weakening of the independent physician- or provider-patient relationship, an intimacy and level of trust that was long a characteristic of the cottage industry healthcare delivery system of old.¹⁷ Given these trends in healthcare professional practices, it may not be far-fetched to believe that “Marcus Welby is dead!” (see chapter 2 of *Emerging Models*).

These dramatic and ongoing changes, as well as the sheer size and complexity of the healthcare delivery system, have provided new opportunities in healthcare consultancy. Responding to the expanding market in the current era of reform, many financial and management consulting firms have extended their service line to include healthcare advisory services. Accounting firms, which traditionally have served as primary business and financial advisors for their clients, also have steadily increased the scope of their healthcare professional practice advisory services.

The persistent volatility of the healthcare industry landscape can be difficult to navigate. To be effective in offering services to healthcare professional practice clients, consulting professionals should possess an understanding of the history and background of professional practice enterprises, as well as the market mechanisms at work in the current healthcare environment—in particular, how those forces

¹⁵ *Ibid.*

¹⁶ “Plunkett’s Health Care Industry Trends and Statistics 2008 (Summary),” By Jack W. Plunkett, Plunkett Research Ltd., 2007, p. 44.

¹⁷ “More Doctors Giving Up Private Practices,” by Gardiner Harris, New York Times, March 25, 2010; “The Social Transformation of American Medicine,” by Paul Starr, Basic Books Inc. 1982, p. ix.

interact to shape the future direction of professional practices in the healthcare delivery system under pending legislative reform.

Although consultancy for healthcare professional practices may present an attractive business development opportunity for consultants, it is not an area that lends itself to ad hoc, generic advisory services. In light of the increasingly complex, diverse, and ever-changing scope and volume of information that contributes to a comprehensive understanding of the healthcare industry, consulting professionals who possess a more general background and expertise and pursue providing services to healthcare professional practices may endeavor to become better informed to avoid being viewed, in some regard, as jacks of all trades and masters of none.

This three book set is designed to serve as a reference guide for those seeking a more in-depth knowledge of the healthcare marketplace; a working and applied understanding of the forces that affect the industry within which healthcare providers operate; and a primer regarding how consulting services may be offered to these enterprises specifically, healthcare professional practices, in an ever-changing reimbursement, regulatory, competitive, and technological healthcare environment. Such industry-specific knowledge should serve as a catalyst for these consulting professionals to better serve their existing clients and expand their services for potential new engagements.

This *Guide* may also prove useful to the licensed healthcare professionals who own independent practices, as well as their professional advisors, managers, and administrators. Providing these stakeholders with in-depth background information and a context within which to view professional practice enterprises as part of a dynamic healthcare marketplace may enhance their ability to assist their organizations in surviving and thriving in the future.

With the first publication of this *Guide*, we earnestly solicit reader comments, criticisms, and suggestions for improvements in future editions.

Sincerely,

Robert James Cimasi, MHA, ASA, CBA, AVA, CM&AA
HEALTH CAPITAL CONSULTANTS
Saint Louis, Missouri
November, 2010

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Robert James Cimasi is President of Health Capital Consultants (HCC), a nationally recognized healthcare financial and economic consulting firm. With more than twenty-five years of experience in serving healthcare clients in forty-nine states. Mr. Cimasi's professional focus is on the financial and economic aspects of healthcare organizations including the valuation of enterprises, assets, and services; litigation support and expert testimony; business intermediary and capital formation services for healthcare industry transactions; certificate-of-need; and other regulatory and policy planning consulting.

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Introduction

These papers, advocating a more active participation in public affairs by physicians than has been the custom in this country, are reprinted with the belief that such broader activity on the part of my colleagues will help to free the State from many present evils. A good doctor must be educated, honest, sensible and brave. Nothing more is needed in its citizens to make a state great.

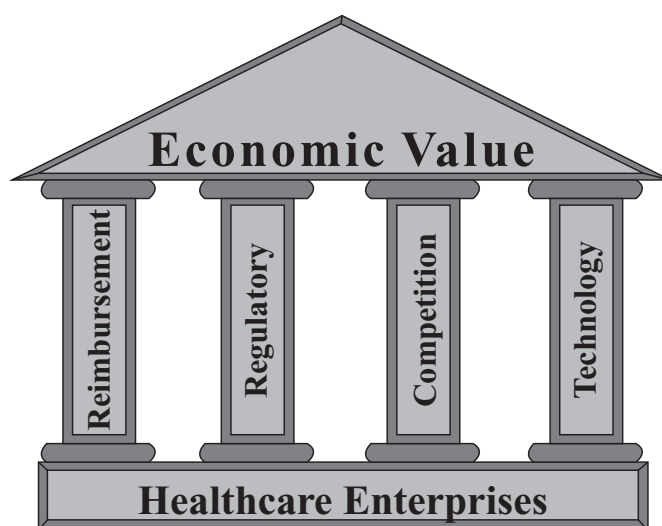
John B. Roberts, 1908



THE FOUR PILLARS OF THE HEALTHCARE INDUSTRY

When developing an understanding of the forces and stakeholders that have the potential to drive healthcare markets, it is useful to examine professional practice enterprises as they relate to the “four pillars” of the healthcare industry: reimbursement, regulatory, competition, and technology (see the following figure I-1). These four elements shape the professional practice and provider dynamic, while serving as a framework for analyzing the viability, efficiency, efficacy, and productivity of healthcare enterprises. The four pillars, discussed briefly in this introduction, are discussed at length in chapters 2-5 in *An Era of Reform*.

Figure I-1: Four Pillars of Healthcare Enterprises



REIMBURSEMENT

Chapter 2 of *An Era of Reform* provides an overview of current and future trends in healthcare reimbursement. With healthcare reform on the horizon, it is vital for providers to maintain an applied understanding of healthcare payment sources (for example, Medicare, Medicaid, State Children’s Health Insurance Program, etc.), revenue and billing procedures (for example, the resource-based relative value scale payment system, relative value units and their components, Current Procedural Terminology codes, etc.), and payment plans (for example, fee-for-service plans, performance-based payment plans, and consumer driven health plans).

As healthcare expenditures rise, proponents of reform advocate for both a reduction in service costs and increases in quality of care. To achieve these goals, the industry variously has moved toward managed care, pay-for-performance programs, gainsharing arrangements, and patient-centered models of medical practice (for example, boutique medicine, the medical home model, etc.). In addition, reimbursement for physician services has become a highly contested issue; repeated annual congressional overrides of reductions to physician payment rates for services under the sustainable growth rate system have created a large gap in current healthcare spending and target (sustainable) expenditures. To combat

these rising costs, for example, the high expenditures for imaging services, billing codes have, during the past decade, been “bundled.” Bundling has been utilized to reduce the overall payment for certain interrelated services by billing for them under one, combined code, rather than under independent codes. The emergence of bundled codes, among other trends, is evidence of the rapidly changing reimbursement environment within the U.S. healthcare delivery system.

REGULATORY

The U.S. healthcare industry is governed by a network of ever-changing state and federal regulations, relating to both physician and nonphysician professionals. Chapter 3 of *An Era of Reform* contains a detailed overview of the general provisions that apply to the various practitioners and providers in the healthcare industry.

Various key regulatory issues may influence the healthcare climate. For example, in recent years, there has been increased government scrutiny of regulatory violations of fraud and abuse laws, particularly as the violations relate to acquisition and compensation transactions between hospitals and physicians. Failure to comply with valuation standards for physician and executive compensation arrangements (for example, fair market value and commercial reasonableness) may result in liability under the False Claims Act, the antikickback statute, and the Stark law. Chapter 3 of *An Era of Reform* includes a discussion of these concepts and regulations along with the definitions, applications, implications, and trends of additional federal and state healthcare laws and regulations (for example, Certificate of Need programs).

COMPETITION

Additionally, rapid changes in the healthcare competitive market may be attributed to the ever-increasing demand for care from the aging baby boomer population and to the continuous development of new technologies, the latter which may enhance the quality and efficiency of the healthcare delivery system. In recent years, there has been a rapid growth in the number of limited-service providers, or “niche providers,” such as specialty and surgical hospitals (for example, orthopedic and heart hospitals), which are sometimes referred to as “focused factories.”¹ As a result of this trend toward specialization, concern has been raised that the medical care offered by niche providers may have a negative impact on the profitability of general acute care hospitals, which traditionally have provided specialty and primary care to patients. Similarly, there has been a movement toward increasing the scope and volume of mid-level provider-issued care, resulting in additional market competition for physicians.

The changing demographics of the patient population (that is, the baby boomer population) and the physician workforce also may have a lasting impact on the healthcare competitive environment. There has been an increase in concern related to the shortage of physician manpower and the limited number of available residency slots that restrict physician entry into the healthcare market. Among the most notable concerns is the perceived shortage of primary care physicians; with many medical students opting for careers in higher-paying medical specialties, primary care physicians are pressed more than ever to meet patient demand for services. Additionally, women and minorities make up a much higher percentage of the physician workforce than they have in the past (in most specialties), effectively diversifying the traditionally Caucasian male physician demographic. Although they provide patients with more choices for care, they also are presenting challenges related to the demands of achieving a practice—lifestyle balance.

These issues and numerous others, such as healthcare and insurance reform, shape the unique and dynamic healthcare competitive environment. Chapter 4 of *An Era of Reform* includes a more detailed examination of these issues within the context of Porter's five forces of competition.

TECHNOLOGY

Significant technological advances during the past few decades have had a notable impact on the U.S. healthcare delivery system. Electronic health record technologies gradually have been integrated into medical records maintenance systems, replacing traditional paper files. Similarly, Computerized physician order entry has streamlined the process of ordering prescriptions and minimized error caused by handwritten orders. Although these new electronic approaches to healthcare delivery are saving employers money, physician unwillingness to adopt these new technologies has impeded their widespread emergence into the healthcare market. Regardless, new and improved management technology is slowly becoming an important facet of the healthcare industry.

Progress in clinical technology also has flourished in recent years, including highly controversial practices such as stem cell research. However, one of the various genres of medical services that may have drawn the most attention is *imaging*; services that utilize the technology, such as the various types of magnetic resonance imaging, computed tomography (for example, positron emission tomography-computed tomography, single photon emission computed tomography, and picture archiving and communications systems), and teleradiology services, have become a staple in modern diagnostic radiology practice.

Oncologists and surgeons also have seen major advancements in the treatment and detection of cancer and in minimally invasive or noninvasive surgery, respectively. For oncologists, radiation therapy methods are improving continuously, and their use of innovative alternative and supporting technologies, such as image-guided radiation therapy, which is used during intensity-modulated radiation therapy; gamma knives; and stereotactic radiosurgery, is increasing. The use of robotics has become a rapidly advancing trend, and surgeons with robotics experience are sought after for their skills. Robotic technologies have been used for urologic, gynecologic, and cardiothoracic procedures, among others. Although expensive, robotic technology minimizes the degree of invasiveness, shortens recovery time, and improves patient outcomes.

These advancements in medical technology have helped to revolutionize modern medicine. The cost of implementing and maintaining these new devices and procedures, however, may counterbalance efforts to control healthcare expenditures. The future of healthcare may well depend on a compromise between the advancement of medical technological capabilities and the cost of supporting those technologies that allows practitioners to provide the best quality care possible. Chapter 5 of *An Era of Reform* includes a more detailed discussion of the impact of technology on healthcare practices.

STRUCTURE OF THIS GUIDE

This *Guide* serves as a resource for consulting professionals who provide services to professional practices and related healthcare providers. It is divided into three books:

1. *An Era of Reform*, consisting of six chapters, begins with an abridged history of healthcare, from the origins of medicine to the transformation of modern healthcare in the twentieth and twenty-first centuries (chapter 1). The next several chapters (chapters 2–5) provide a more comprehensive look at the reimbursement, regulatory, competitive, and technological environments as they

apply to healthcare practice. The last chapter (chapter 6) provides an overview of the healthcare environment and related healthcare reform bills, at the time of the submission of this *Guide*.

2. *Professional Practices*, consisting of eight chapters, discusses the myriad of practice structures (chapter 1), medical specialties, and professionals seen in healthcare to date. This discussion includes emerging models of healthcare enterprises, physicians, mid-level providers, technicians and paraprofessionals, allied health professionals, alternative medicine practitioners, and a new paradigm for professional practices (chapters 2–8, respectively), as well as information regarding the scope of subspecialties, types of providers, and practitioners of each service type.
3. *Consulting with Professional Practices*, consisting of four chapters, provides a descriptive overview for consultants advising professional practice clients on matters related to healthcare consulting (chapter 1); benchmarking strategies related to healthcare and valuation (chapter 2); compensation and income distribution (chapter 3); and financial valuation of healthcare enterprises, assets, and services (chapter 4). The information provided in these chapters should supply the reader with the tools necessary to translate healthcare consulting theory into practice.

It should be noted that this book and third book of this *Guide* focus on the professional practice component of the U.S. healthcare delivery system and do not directly address other healthcare sectors, including inpatient (for example, hospitals), outpatient and ambulatory (for example, ambulatory surgery centers and diagnostic imaging centers), long term care (for example, nursing homes and hospice), and home health sectors. However, many of the concepts and much of the content in this book and third book of this *Guide* may be applicable to consulting projects in these other healthcare sectors, as well.

READER TOOLS: SIDEBARS, TABLES, AND FIGURES

To enhance the utility of this *Guide* as a navigable source for readers of various backgrounds, certain tools have been developed and appear throughout:

1. **Sidebars.** These supplemental features have been integrated into the content of each chapter and have been grouped as follows:
 - a. **Key terms.** Key terms are important words used in text that may need to be defined for the reader. This tool can be found at the beginning of each chapter and serves to identify those terms that appear within the text of corresponding chapters as well as in the glossary at the end of this book. Key terms may be discussed, or, at least, mentioned in multiple chapters.
 - b. **Key concepts.** Similar to key terms, key concepts are the important concepts mentioned in text that may require further elaboration or emphasis and a list of key concepts can be found at the beginning of each chapter. This tool serves a bimodal role, to further stress important ideas discussed in the chapter and to further discuss ideas that may have only been mentioned in passing.
 - c. **Key sources.** This feature points to significant sources, both used within this *Guide* and fundamental to the chapter content. These sources serve as chapter-specific bibliographies, and, therefore, may be found in multiple chapters. Key sources can be found at the end of each chapter.
 - d. **Associations.** A brief list of topic-relevant associations provides the reader with contact information for associations referenced within a chapter. A list of related associations can be found at the end of each chapter.

- e. **Factoids.** These are brief, related facts of interest either mentioned in text or supplemental to a topic discussed in a particular chapter that help build a contextual framework for the reader that may aid in explaining the material. You will find factoids located close to the content that they address within each chapter.
2. **Tables.** Tables are used to display benchmark data, to demonstrate numerical trends, and to draw comparisons. They are referenced in text, but they may be used to display extra information not discussed in the content of the chapter.
3. **Figures.** Pictorial and graphical depictions have been used to complement the text and enhance the reader's comprehension of the material. These figures are referenced and discussed in text.

PROFESSIONAL PRACTICE TAXONOMY

Healthcare reform is driven by complex, polar, and potentially conflicting market factors, such as increased spending; a growing and graying demographic; workforce shortages and inefficiencies; problematic chronic and acute health indicators; and shortcomings in the delivery of efficient, quality care. The subsequent chapters detail these issues, their implications, and the reform initiatives proposed to delicately counterbalance the U.S. healthcare delivery system on the nation's scale of justice. However, before delving into the complexities of healthcare reimbursement, regulation, competition, and technology, the dynamic healthcare provider workforce should be addressed.

Provider versatility has been growing and changing to complement an evolving healthcare industry.² The diverse healthcare workforce is instrumental to improving efficacy, quality of care, financial efficiency, patient satisfaction, workforce productivity, and professional satisfaction.³ In order to capitalize on this potential, institutions adopt models that strategically allocate physician and nonphysician manpower resources on the basis of scope and skill set—ensuring that the right care is provided by the right provider at the right time and place.”⁴ Implementation models are characterized by (1) the site of service (for example, hospital, clinic, or community), (2) the guidelines that regulate provider practice and compensation within an intraprofessional care model, (3) the system by which scope of practice is defined for each provider classification, (4) the degree to which providers are liable for their professional actions, and (5) the degree to which they model efficacy and efficiency.⁵

The intraprofessional care models that have been implemented most successfully stem from several provider taxonomies, which were intended to mirror the complex relationships within the existing healthcare workforce. The most influential provider taxonomies (detailed in tables I-1[A-D] and I-2) are each based on a different system of classification that focuses on a portion of the industry dynamic and include those developed by (1) the Human Resources and Services Administration, which utilizes a four-tiered hierarchical system and aggregates specific occupations based on the degree of training and type of services provided (table I-1A); (2) the American Medical Association, which classifies professionals based on the specialized area of medical practice under which they provide their services (table I-1B); and (3) the Centers for Medicare and Medicaid Services, which categorizes professionals based on how they bill these professionals for services (table I-1C). Although these taxonomies are based on key structural considerations, they each neglect certain industry facets, and discrepancies arise due to the limitations that this unilateral rationale presents. The models used to enhance the delivery of intraprofessional care face similar limitations, as institutions typically focus on only one, highly customized model, foregoing a more industrywide perspective by neglecting models that represent the other industry sectors.⁶

Alternately, multiple models can be synthesized to represent an industrywide, intrapersonal dynamic.⁷ Elements from three models, the physician extender model, the triage model, and the parallel model, were used to derive the taxonomical system for classifying healthcare professionals that is utilized in this *Guide* (detailed in tables I-1D and I-2).

Traditionally, all nonphysician clinicians are referred to as “allied health professionals.”⁸ However, advances in technology and capability paired with the change in healthcare demand during the course of medical history have rendered this system of classification far too rudimentary for the diversity that the workforce now holds. As the healthcare industry continues to change and market demand for primary, preventative, and rehabilitative care increases, the varying degrees of responsibility, expertise, and autonomy afforded to the increasingly diverse nonphysician healthcare workforce is reassessed and the scope of practice continues to expand.⁹ By creating a taxonomy based on these three representative models, allied health professionals may be partitioned into appropriate substrata of nonphysician providers, because they would function within the ideal intraprofessional workforce dynamic.

Under the physician extender model, the scope of nonphysician professional practice lies entirely within the scope of physician practice.¹⁰ These *physician extenders* (hereinafter “technicians and paraprofessionals”) supplement physician care, either as highly technical or technological support or as manpower support.¹¹ Specifically, one subset of the professionals defined within this model is trained in a highly specialized technical or technological field and provides services that physicians rely upon but are incapable of providing independently. The other subset of professionals, physician extenders, provides routine medical and administrative services to relieve physicians of a portion of their workload, allowing them to focus on more difficult and complex tasks. From an official standpoint, these professionals may or may not be licensed or certified (depending on which subset of the provider population they belong to or which role they tend to fill most appropriately).

The original rationale behind the classification of “mid-level providers,” as defined for the purposes of this *Guide*, derives from the *triage model*.¹² Under this model, nonphysician professionals are trained to provide a specific subset of physician services, and they traditionally serve as a source of physician relief by providing triage care and enhancing patient throughput.¹³ Historically, these providers could only practice under direct or indirect supervision of a physician.¹⁴ As demand increased, namely for the provision primary care services, the autonomy of mid-level providers increased.¹⁵ To date, these professionals are relied upon for the provision of specialized services that are incident to physician services but also exercise a certain measure of independence, because they can autonomously provide a specific scope of services in lieu of physicians.¹⁶ The services which mid-level providers are authorized to provide in lieu of physicians typically are limited to a portion of primary care practice healthcare services, and, consistent with the triage model, complex cases are handed off to physicians, because they may fall outside that predetermined scope of service.¹⁷

The *parallel model* lies on the opposite end of the spectrum. Under this model, the scope of the allied health professional practice is separate, distinct, and, essentially, parallel to the scope of physician practice.¹⁸ These allied health professionals are nonphysician practitioners who practice independently and offer services that, despite some overlap with physician care, are largely outside the scope of physician practices.¹⁹ Although allied health professionals (as defined in this *Guide*) and physicians sometimes may compete due to shared patient populations and practice objectives, the specific services they provide typically have distinct differences.

Table I-1A: Healthcare Professional Practices Provider Taxonomies

Organization: Bureau of Labor Statistics **Classification System:** A six-digit hierarchal structure resulting in four levels of aggregation (categories): Category 1=Major Group, Category 2=Minor Group, Category 3=Broad Occupation, Category 4=Detailed Occupation.

Category	Definition	Subcategories
Healthcare Practitioners and Technical Occupations	Major Occupational Group A—Professional occupations concerns with the study, application, and/or administration of medical practices or theories. Some occupations are concerned with interpreting, informing, expressing, or promoting ideas, products, etc. by written, artistic, sound, or physical medium. This category also includes technical occupations, involved in carrying out technical and technological functions in health. May perform research, development, testing, and related activities. May operate technical equipment and systems.	Health Diagnosing Occupations
		<i>Chiropractors</i>
		<i>Dentists</i>
		Dentists, General Prosthodontists
		Oral and Maxillofacial Surgeons Dentists, All Other Specialties
		Orthodontists
		<i>Optometrists</i>
		<i>Physicians and Surgeons</i>
		<i>Podiatrists</i>
		<i>Veterinarians</i>
		Health Assessment and Treating Occupations
		<i>Dietitians and Nutritionists</i>
		<i>Pharmacists</i>
		<i>Physician Assistants</i>
		<i>Therapists</i>
		Occupational Therapist Respiratory Therapists
		Physical Therapist Speech-Language Pathologist
		Radiation Therapists Exercise Physiologists
		Recreational Therapists Therapists, All Other
		<i>Registered Nurses</i>
		<i>Nurse Anesthetists</i>
		<i>Nurse Midwives</i>
		<i>Nurse Practitioners</i>
		<i>Miscellaneous Health Diagnosing/Treating Practitioners</i>
		Health Technologists and Technicians
		<i>Clinical Laboratory Technologists/Technicians</i>
		Medical and Clinical Laboratory Technologists Medical and Clinical Laboratory Technicians
		<i>Dental Hygienists</i>
		<i>Diagnostic Related Technologists and Technicians</i>
		Cardiovascular Technologists and Technicians Radiologic Technologists
		Diagnostic Medical Sonographers Magnetic Resonance Imaging Technologists
		Nuclear Medicine Technologists

INTRODUCTION

Table I-1A: Healthcare Professional Practices Provider Taxonomies (*continued*)

Organization: Bureau of Labor Statistics **Classification System:** A six-digit hierarchal structure resulting in four levels of aggregation (categories): Category 1=Major Group, Category 2=Minor Group, Category 3=Broad Occupation, Category 4=Detailed Occupation.

Category	Definition	Subcategories		
Healthcare Practitioners and Technical Occupations (<i>continued</i>)		<i>Emergency Medical Technicians/Paramedics</i>		
		<i>Health Practitioner Support Technologists/Technicians</i>		
		Dietetic Technicians Surgical Technicians		
		Pharmacy Technicians Veterinary Technicians		
		Psychiatric Technicians Ophthalmic Medical Technicians		
		Respiratory Technicians		
		<i>Licensed Practical and Licensed Vocational Nurses</i>		
		<i>Medical Records and Health Information Technicians</i>		
		<i>Opticians, Dispensing</i>		
		<i>Miscellaneous Health Technologists/Technicians</i>		
		Orthotists and Prosthetists Other		
		Hearing Aid Specialists		
		Other Healthcare Practitioners/Technical Occupations		
		<i>Occupational Health and Safety Specialists/Technicians</i>		
		Occupational Health and Safety Specialists Occupational Health and Safety Technicians		
		<i>Miscellaneous Health Practitioners/Technical Workers</i>		
		Athletic Trainers Other		
		Healthcare Support Occupations	Major Occupational Group K - Occupations concerned with other health care services for children and adults, mainly cater to the provision of support services.	Nursing, Psychiatric, and Home Health Aides
				Home Health Aides Nursing Assistants
				Psychiatric Aides Orderlies
Occupational Therapy/Physical Therapist Assistants/Aides				
<i>Occupational Therapy</i>				
Occupational Therapy Assistants Occupational Therapy Aides				
<i>Physical Therapy</i>				
Physical Therapy Assistants Physical Therapy Aides				
Other Healthcare Support Occupations				
<i>Massage Therapists</i>				
<i>Miscellaneous Healthcare Support Occupations</i>				
Dental Assistants Medical Equipment Preparers				
Medical Assistants				

Notes:

* "Chapter 6. Occupation and Industry Classification Systems," in "Nursing Aides, Home Health Aides, and Related Health Care Occupations—National and Local Workforce Shortages and Associated Data Needs" by the U.S. Department of Health and Human Services, Health Resources and Services Administration, 2009, <http://bhpr.hrsa.gov/healthworkforce/reports/nursing/nurseaides/chap6.htm>.

** "2010 Standard Occupational Classification," by the Bureau of Labor Statistics, January 2009, p. 16-19.

† "MOG—Level Definitions," in "Occupational Classification System Manual," by the U.S. Bureau of Labor Statistics, National Compensation Survey, <http://www.bls.gov/ncs/ocs/ocsm/comMOGADEF.htm#mogaanchor> (accessed 01/04/09).



Table I-1B: Healthcare Professional Practices Provider Taxonomies

Organization: Centers for Medicare and Medicaid **Classification System:** Based on System for Billing for Services

Category	Definition	Subcategories	
Physician	As stated in Section 1861(r) SSA to include the professionals listed here	N/A	
		MDs*	Doctor of Optometry†
		DOs*	Chiropractor†
		Doctor of Dental Surgery/ Dental Medicine*	Interns and Residents*
		Doctor of Podiatric Medicine*	
Allied Health Providers	As stated in 42USC sec. 295p to include those professionals who: (A) who has received a certificate, an associate's degree, a bachelor's degree, a master's degree, a doctoral degree, or post baccalaureate training, in a science relating to health care; (B) who shares in the responsibility for the delivery of health care services or related services, including: (i) services relating to the identification, evaluation, and prevention of disease and disorders; (ii) dietary and nutrition services; (iii) health promotion services; (iv) rehabilitation services; or (v) health systems management services; and (C) who has not received a degree of doctor of medicine, a degree of doctor of osteopathy, a degree of doctor of dentistry or an equivalent degree, a degree of doctor of veterinary medicine or an equivalent degree, a degree of doctor of optometry or an equivalent degree, a degree of doctor of podiatric medicine or an equivalent degree, a degree of bachelor of science in pharmacy or an equivalent degree, a degree of doctor of pharmacy or an equivalent degree, a graduate degree in public health or an equivalent degree, a degree of doctor of chiropractic or an equivalent degree, a graduate degree in health administration or an equivalent degree, a doctoral degree in clinical psychology or an equivalent degree, or a degree in social work or an equivalent degree or a degree in counseling or an equivalent degree.	Mid-Level Provider—also known as: Non-Physician Practitioner/Physician Extender—Health professionals who may deliver covered Medicare services if the services are incident to a physician's service or if there is specific authorization in the law	
		<i>Physician Assistant/Advanced Practice Nurses</i>	
		Physician Assistant**†	Certified Registered Nurse Anesthetists**†
		Nurse Practitioners**†	Certified Nurse Midwives**†
		<i>Other</i>	
		Qualified Clinical Psychologists**†	Respiratory Therapy Workers††.‡.§
		Clinical Social Workers**†	Speech Pathologist/Audiologists††.‡.§
		Dieticians/Dietetic Technicians**†.‡.‡.§	Dietetic Assistants††.‡.§
		Dental Hygienists/Assts/Lab Techs††.‡.§	Genetic Assistants††.‡.§
		EMT/Paramedic††.‡.§	Operating Room Technicians††.‡.§
		Health Information Admin/ Tech††.‡.§	Ophthalmic/Optometric Medical Assistants††.‡.§
		Occupational Therapists††.‡.§	Medical Transcriptionists††.‡.§
		Orthotists and Prosthetists††.‡.§	Vocational Rehab Counselors††.‡.§
		Physical Therapists††.‡.§	Other Rehabilitation Workers††.‡.§
		Radiologic Service Workers††.‡.§	Other Social and Mental Health Workers††.‡.§

Notes:

- * "Physicians" in "The Public Health and Welfare," United States Code Title 42 1395x(r).
- ** "Ratio of Physician to Physician Extenders (Resolution 303, I-97)," by Kay K. Hanley, MD, December 1998, CMS Report 10-1-98.
- † " 'Incident to' Services," MLN Matters, SE0441.
- †† "Definitions, Federal Health Insurance for the Aged and Disabled, Center for Medicare and Medicaid Services, Department of Health and Human Services" 42 CFR 405.400.
- ‡ "Chapter 6A: Definitions, General Provisions, Health Professions Education, Public Health Service, The Public Health and Welfare," United States Code Title 42 p.295.
- ‡‡ "Civil Remedies Decision CR1961," by the Departmental Appeals Board, Department of Health and Human Services, June 16, 2009, p. 3.
- § "Interdisciplinary, Community-Based Linkages, Title VII, Part D, Public Health Service Act," by the Advisory Committee on Interdisciplinary, Community-Based Linkages, 2006, Fifth Annual report to the Secretary of the U.S. Department of Health and Human Services and to the Congress.

Table I-1C: Healthcare Professional Practices Provider Taxonomies

Organization: American Medical Association **Classification System:** As utilized in the Health Care Careers Directory 2009-2010

Category	Definition	Subcategories
Physician	There are two types of physicians: MD—Doctor of Medicine—and DO—Doctor of Osteopathic medicine . . . Both MDs and DOs may legally use all accepted methods of treatment, including drugs and surgery.	N/A MDs [*] DOs [*]
Optometry		Optometrist ^{**}
Complementary and Alternative Medicine		Chiropractic ^{**}
Dentistry		Dentist ^{**}
Pharmacy		Pharmacist ^{**}
Podiatry	“Specialize in diagnosing and treating disorders, diseases, and injuries of the foot, ankle, and lower leg”	N/A Podiatrist ^{**}
Veterinary Medicine	Provide healthcare professional and support services for the care of pets, livestock, and zoo, sporting, and laboratory animals	N/A Veterinarian ^{**}
Nursing		Registered Nurses ^{**} Licensed Vocational Nurses ^{**} Licensed Practical Nurses ^{**} Mid-Level Provider - also known as: Non-Physician Practitioner/ Physician Extender - Health professionals who may deliver covered Medicare services if the services are incident to a physician's service or if there is specific authorization in the law <i>Advanced Practice Nurses</i> Nurse Practitioners ^{†,††,‡} Certified Nurse Midwives ^{†,††,‡} Certified Registered Nurse Anesthetists ^{†,††,‡}
Psychology		<i>Clinical Psychologists</i> Clinical Psychologists ^{†,††,‡}
Allied Health Professional	“Participate in the delivery of health care, diagnostic, and rehabilitation services, therapeutic treatments, or related services,” and excludes “the MODVOPP professions: medicine (allopathic), osteopathic medicine, dentistry, veterinary medicine, optometry, podiatry, and pharmacy—as well as chiropractic, clinical psychology, any level of nursing education, and graduate degrees in public health or health administration.”	<i>Physician Assistant</i> Physician Assistant ^{†,††,‡} Dieticians/Dietetic Technicians ^{†,††,‡} Clinical Social Workers ^{†,††,‡} Dietetics Dietitian/Nutritionist ^{**} Dietetic Technician ^{**} Dentistry and Related Fields Dentist ^{**} Dental Hygienist ^{**} Dental Assistant ^{**} Dental Lab Technician ^{**} Communication Sciences Audiologist ^{**} Speech-Language Pathologist ^{**} Complementary and Alternative Medicine Massage Therapist ^{**} Counseling Counselor ^{**} Rehabilitation Counselor ^{**} Genetic Counselor ^{**} Expressive/Creative Art Therapies Art Therapist ^{**} Music Therapist ^{**} Dance/Movement Therapist ^{**}

Table I-1C: Healthcare Professional Practices Provider Taxonomies (*continued*)

Organization: American Medical Association **Classification System:** As utilized in the Health Care Careers Directory 2009-2010

Category	Definition	Subcategories	
Allied Health Professional (<i>continued</i>)		Health Information and Communication	
		Cancer Registrar**	Medical Coder**
		Health Information Administrator**	Medical Librarian**
		Health Information Technician**	Medical Transcriptionist**
		Laboratory Science	
		Blood Bank Technology-Specialist**	Clinical Laboratory Technician/ Medical Laboratory Technician**
		Clinical Assistant**	Cytogenetic Technologist**
		Clinical Laboratory Scientist/Medical Technologist**	Cytotechnologist**
		Medical Imaging	
		Diagnostic Molecular Sonographer**	Magnetic Resonance Technologist**
		Histotechnician**	Medical Dosimetrist**
		Histotechnologist**	Nuclear Medicine Technologist**
		Pathologists' Assistant**	Radiation Therapist**
		Phlebotomist**	Radiographer**
		Diagnostic Medical Sonographer**	Registered Radiologist Assistant**
		Vision-Related Professions	
		Ophthalmic Assistant/Technician/ Technologist**	Orthoptist**
		Ophthalmic Dispensing Optician**	Teacher of the Visually Impaired**
		Optometrist**	Vision Rehabilitation Therapist**
		Orientation and Mobility Specialist**	
		Therapy and Rehabilitation	
		Occupational Therapist**	Physical Therapist Assistant**
		Occupational Therapy Assistant**	Therapeutic Recreation Specialist**
		Physical Therapist**	
		Other	
		Anesthesiologist Assistant**	Nursing Aides, Orderlies, Attendants**
		Anesthesia Technologist/Technician**	Occupational Health and Safety Technician**
		Athletic Trainer**	Orthotists and Prosthetists**
		Cardiovascular Technician/Technologist**	Orthotics and Prosthetics Technicians**
		Electroneurodiagnostic Technologist**	Perfusionist**
		Emergency Medical Technician-Paramedic**	Pharmacy Technician**
		Exercise Science (Personal Fitness Trainer, Exercise Physiologist, and Exercise Science Professional)**	Polysomnographic Technologist**
Home Health, Personal Care, and Psychiatric Aides**	Psychiatric Aides/Technicians**		
Kinesiotherapist**	Respiratory Therapist**		
Medical Assistant**	Respiratory Therapy Technicians**		
Medical Equipment Preparer**	Surgical Assistant**		
Medical Illustrator**	Surgical Technologist**		

Notes:

- * "Health Care Careers Directory 2009-2010," by the American Medical Association, p. iii-iv.
- ** "Coming Together, Moving Apart: A History of the Term Allied Health in Education, Accreditation, and Practice," by Fred G. Donini-Lenhoff, MA, Journal of Allied Health, Spring 2008, Volume 37, Number 1, p. 46-49
- † "Physicians" in "The Public Health and Welfare," United States Code Title 42 1395x(r).
- †† "Ratio of Physician to Physician Extenders (Resolution 303,I-97)," by Kay K. Hanley, MD, December 1998, CMS Report 10-I-98.
- ‡ "Incident to Services," MLN Matters, SE0441.

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Table I-1D: Healthcare Professional Practices Provider Taxonomies (*continued*)

Organization: Health Capital Consultants **Classification System:** N/A

Category	Definition	Subcategories		
Technicians & Paraprofessionals (<i>continued</i>)		Technologists		
		Medical and Clinical Laboratory Technologists		
		Cardiovascular		
		Radiologic		
		Technicians		
		Cardiovascular		
		Medical and Clinical Laboratory		
		Radiologic		
		Emergency Medical		
		Dietetic		
		Pharmacy		
		Nurses		
		Licensed Vocational Nurses		
		Other		
		Medical Dosimetrist		
		Diagnostic Medical Sonographers		
		Athletic Trainers		
		Alternative Medicine Providers	Providers who may or may not be physicians, but who practice forms of therapy and treatment outside the mainstream practice of medicine, e.g. homeopathic medicine. Alternative medicine practitioners may provide primary or secondary care, and are generally licensed to work independently of supervision by another licensed provider.	Whole Medical Systems
				<i>Eastern Whole Medical Systems</i>
				Traditional Chinese Medicine
<i>Western Whole Medical Systems</i>				
Homeopathic				
Mind-Body Medicine				
Aromatherapy				
Cognitive Behavioral Theory				
Meditation & Prayer				
Biologically Based Practices				
Dietary Supplements				
Manipulative & Body-Based Practices				
Massage Therapy				
Energy Medicine				
Biofield Therapy				

Table I-2: Healthcare Professional Practices Provider Taxonomies Comparison Chart

Profession	Health Capital Consultants	BLS ^{1, 2, 3}	CMS ^{4, 5, 6, 7, 8, 9, 10, 11, 12}	AMA ^{11, 12, 13, 14, 15}
Chiropractors	Allied Health	Health Diagnosing Occupations	Physician	Complementary and Alternative Medicine
Dentists	Allied Health	Health Diagnosing Occupations	Physician	Dentistry and Related Fields
Psychologists	Allied Health	Social Scientists and Urban Planners	Mid-Level Provider*	Mid-Level Provider*
Podiatrists	Allied Health	Health Diagnosing Occupations	Physician	Podiatrists
Optometrists	Allied Health	Health Diagnosing Occupations	Physician	Optometry
Aromatherapy	Alternative Medicine	Other Health Diagnosing/Treating Practitioners	Auxiliary personnel—not covered for therapy services	Allied Health
Ayurvedic Medicine	Alternative Medicine	Miscellaneous Health Diagnosing/Treating Practitioners	Auxiliary personnel—not covered for therapy services	Allied Health
Bioelectromagnetic-Based Therapy	Alternative Medicine	Other Health Diagnosing/Treating Practitioners	Complementary and Alternative Medicine	Allied Health
Biofield Therapy	Alternative Medicine	Other Health Diagnosing/Treating Practitioners	Complementary and Alternative Medicine	Allied Health
Cognitive Behavioral Theory	Alternative Medicine	Other Health Diagnosing/Treating Practitioners	Auxiliary personnel—not covered for therapy services	Allied Health
Dietary Supplements	Alternative Medicine	Other Health Diagnosing/Treating Practitioners	Auxiliary personnel—not covered for medical services	Allied Health
Expressive Creative Arts Therapy	Alternative Medicine	Other Health Diagnosing/Treating Practitioners	Complementary and Alternative Medicine	Allied Health
Herbal Remedies	Alternative Medicine	Other Health Diagnosing/Treating Practitioners	Auxiliary personnel—not covered for medical services	Allied Health
Homeopathic	Alternative Medicine	Miscellaneous Health Diagnosing/Treating Practitioners	Auxiliary personnel—not covered for medical services	Allied Health
Massage Therapy	Alternative Medicine	Other Health Diagnosing/Treating Practitioners	Auxiliary personnel—not covered for therapy services	Allied Health
Meditation & Prayer	Alternative Medicine	Other Health Diagnosing/Treating Practitioners	Complementary and Alternative Medicine	Allied Health
Mental Healing	Alternative Medicine	Other Health Diagnosing/Treating Practitioners	Auxiliary personnel—not covered for medical services	Allied Health
Naturopathic	Alternative Medicine	Miscellaneous Health Diagnosing/Treating Practitioners	Auxiliary personnel—not covered for medical services	Allied Health
Reiki	Alternative Medicine	Other Health Diagnosing/Treating Practitioners	Auxiliary personnel—not covered for medical services	Allied Health
Therapeutic Touch	Alternative Medicine	Other Health Diagnosing/Treating Practitioners	Complementary and Alternative Medicine	Allied Health
Traditional Chinese Medicine	Alternative Medicine	Other Health Diagnosing/Treating Practitioners	Auxiliary personnel—not covered for medical services	Allied Health
Prosthetists & Orthotists	Mid-Level	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health

(continued)

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Table I-2: Healthcare Professional Practices Provider Taxonomies Comparison Chart (*continued*)

Profession	Health Capital Consultants	BLS ^{1, 2, 3}	CMS ^{4, 5, 6, 7, 8, 9, 10, 11, 12}	AMA ^{11, 12, 13, 14, 15}
Audiologists/Speech-Language Pathologists	Mid-Level	Health Assessment and Treating Occupations	Allied Health—Professionals/Qualified Auxiliary Therapy Personnel	Allied Health
Dental Hygienists	Mid-Level	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Dieticians & Nutritionists	Mid-Level	Health Assessment and Treating Occupations	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Certified Registered Nurse Anesthetists	Mid-Level	Health Assessment and Treating Occupations	Mid-Level Provider*	Mid-Level Provider*
Nurse Midwives	Mid-Level	Health Assessment and Treating Occupations	Mid-Level Provider*	Mid-Level Provider*
Nurse Practitioners	Mid-Level	Health Assessment and Treating Occupations	Mid-Level Provider*	Mid-Level Provider*
Physician Assistants	Mid-Level	Health Assessment and Treating Occupations	Mid-Level Provider*	Mid-Level Provider*
Registered Nurses	Mid-Level	Health Assessment and Treating Occupations	Allied Health—Professionals/Qualified Auxiliary Personnel	Nursing
Pharmacists	Mid-Level	Health Assessment and Treating Occupations	Pharmacists	Pharmacy
Occupational Therapists	Mid-Level	Health Assessment and Treating Occupations	Allied Health—Professionals/Qualified Auxiliary Therapy Personnel	Allied Health
Physical Therapists	Mid-Level	Health Assessment and Treating Occupations	Allied Health—Professionals/Qualified Auxiliary Therapy Personnel	Allied Health
Opticians	Mid-Level	Health Assessment and Treating Occupations	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
DOs	Physician	Health Diagnosing Occupations	Physician	Physician
MDs	Physician	Health Diagnosing Occupations	Physician	Physician
Anesthesiologist Assistants	Technicians and Paraprofessionals	Other Healthcare Support Occupations	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Athletic Trainers	Technicians and Paraprofessionals	Other Healthcare Practitioners/Technical Occupations	Allied Health—Auxiliary Personnel—not covered for therapy services	Allied Health
Cardiovascular Technicians	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Cardiovascular Technologists	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Emergency Medical Technicians	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Home Health Aides	Technicians and Paraprofessionals	Nursing, Psychiatric, and Home Health Aides	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health

Table I-2: Healthcare Professional Practices Provider Taxonomies Comparison Chart (*continued*)

Profession	Health Capital Consultants	BLS ^{1, 2, 3}	CMS ^{4, 5, 6, 7, 8, 9, 10, 11, 12}	AMA ^{11, 12, 13, 14, 15}
Medical Assistants	Technicians and Paraprofessionals	Other Healthcare Support Occupations	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Medical Equipment Preparers	Technicians and Paraprofessionals	Other Healthcare Support Occupations	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Nursing Aides, Orderlies, Attendants	Technicians and Paraprofessionals	Nursing, Psychiatric, and Home Health Aides	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Occupational Health and Safety Technicians	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Orthotics and Prosthetics Technicians	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Personal Care Aides	Technicians and Paraprofessionals	Nursing, Psychiatric, and Home Health Aides	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Psychiatric Aides	Technicians and Paraprofessionals	Nursing, Psychiatric, and Home Health Aides	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Psychiatric Technicians	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Respiratory Therapists	Technicians and Paraprofessionals	Health Assessment and Treating Occupations	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Respiratory Therapy Technicians	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Surgical Technologists	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Social and Human Service Assistants	Technicians and Paraprofessionals	Other Healthcare Support Occupations	Clinical Social Workers are Mid-Level Providers*; others are Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Dental Assistants	Technicians and Paraprofessionals	Other Healthcare Support Occupations	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Dietetic Technicians	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Medical Records and Health Information Technicians	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Medical Transcriptionists	Technicians and Paraprofessionals	Other Healthcare Support Occupations	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Medical and Clinical Laboratory Technicians	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Medical and Clinical Laboratory Technologists	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Diagnostic Medical Sonographers	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Medical Dosimetrist	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health

(continued)

Table I-2: Healthcare Professional Practices Provider Taxonomies Comparison Chart (*continued*)

Profession	Health Capital Consultants	BLS ^{1, 2, 3}	CMS ^{4, 5, 6, 7, 8, 9, 10, 11, 12}	AMA ^{11, 12, 13, 14, 15}
Nuclear Medicine Technologists	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Radiation Therapists	Technicians and Paraprofessionals	Health Assessment and Treating Occupations	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Radiologic Technicians	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Radiologic Technologists	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Licensed Practical Nurses	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Nursing
Licensed Vocational Nurses	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Nursing
Pharmacy Aides	Technicians and Paraprofessionals	Other Healthcare Support Occupations	Allied Health—Professionals/Qualified Auxiliary Personnel	Pharmacy
Pharmacy Technicians	Technicians and Paraprofessionals	Health Technologists and Technicians	Allied Health—Professionals/Qualified Auxiliary Personnel	Pharmacy
Occupational Therapist Assistants	Technicians and Paraprofessionals	Occupational Therapy/Physical Therapist Assistants/Aides	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Physical Therapist Aides	Technicians and Paraprofessionals	Occupational Therapy/Physical Therapist Assistants/Aides	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health
Physical Therapist Assistants	Technicians and Paraprofessionals	Occupational Therapy/Physical Therapist Assistants/Aides	Allied Health—Professionals/Qualified Auxiliary Personnel	Allied Health

Notes

- 1 “Chapter 6. Occupation and Industry Classification Systems,” in “Nursing Aides, Home Health Aides, and Related Health Care Occupations—National and Local Workforce Shortages and Associated Data Needs” by the “U.S. Department of Health and Human Services, Health Resources and Services Administration, 2009, <http://bhpr.hrsa.gov/healthworkforce/reports/nursing/nurseaides/chapt6.htm>.”
 - 2 “2010 Standard Occupational Classification,” by the Bureau of Labor Statistics, January 2009, p. 16-19.
 - 3 “MOG—Level Definitions,” in “Occupational Classification System Manual,” by the U.S. Bureau of Labor Statistics, National Compensation Survey, <http://www.bls.gov/ncs/ocs/ocsm/comMOGADEF.htm#mogaanchor> (accessed 01/04/09).
 - 4 “Definitions, Federal Health Insurance for the Aged and Disabled, Center for Medicare and Medicaid services, Department of Health and Human Services” 42 CFR 405.400.
 - 5 “Chapter 6A: Definitions, General Provisions, Health Professions Education, Public Health Service, The Public Health and Welfare,” United States Code Title 42 295p.
 - 6 “CR1961,” by the Departmental Appeals Board, Civil Remedies Division, Department of Health and Human Services, June 16, 2009, p. 3.
 - 7 “Interdisciplinary, Community-Based Linkages, Title VII, Part D, Public Health Service Act,” by the Advisory Committee on Interdisciplinary, Community-Based Linkages, 2005, Fifth Annual report to the Secretary of the U.S. Department of Health and Human Services and to the Congress.
 - 8 “Chapter 15—Covered Medical and Other Health Services,” in: “Medicare Benefit Policy Manual,” Centers for Medicare and Medicaid Services, Rev. 109, August 7, 2009.
 - 9 “Chapter 5—Definitions,” in “Medicare General Information, Eligibility, and Entitlement,” Centers for Medicare and Medicaid Services, Rev. 58, March 6, 2009.
 - 10 “Medicare National Coverage Determinations,” by the Department of Health and Human Services, Centers for Medicare and Medicaid, Transmittal 2 (Pub. 100-03), October 17, 2003.
 - 11 “Physicians” in “The Public Health and Welfare,” United States Code Title 42 1395x(r).
 - 12 “Incident to Services,” MLN Matters, SE0441.
 - 13 “Health Care Careers Directory 2009–2010,” by the American Medical Association, p. iii-iv.
 - 14 “Coming Together, Moving Apart: A History of the Term Allied Health in Education, Accreditation, and Practice,” by Fred G. Donini-Lenhoff, MA, Journal of Allied Health, Spring 2008, Volume 37, Number 1, p. 46–49.
 - 15 “Ratio of Physician to Physician Extenders (Resolution 303,I-97),” by Kay K. Hanley, MD, December 1998, CMS Report 10-I-98.
- * also known as: Non-Physician Practitioner/Physician Extender.

This *Guide* distinguishes among five general types of health professionals. The trifurcation of non-physician practitioners in mainstream medicine, as described previously, serves as the rationale behind allied health professionals, mid-level providers, and technicians and paraprofessionals, as they are defined herein. In addition to the physician and nonphysician professionals who practice conventional medicine, a class of professionals exists that provides complementary and alternative medical services that, to date, is treated as a parallel (sometimes intertwined) but unconventional subset of the healthcare workforce. In brief, the five taxonomical categories of professional providers, as they are discussed in this *Guide*, are defined as:

1. *Physicians*—Doctors of allopathic or osteopathic medicine. Both allopathic and osteopathic physicians may specialize in many of the same areas, though the process required to achieve specialization certifications occasionally differs between the two forms of medicine.
2. *Allied health professionals*—Nonphysician providers of health services who provide primary healthcare services. Allied health professionals may work with physicians, mid-level providers, and paraprofessionals and technicians, but they are professionally licensed to work autonomously in the provision of services. This *Guide* discusses five distinct allied health professions: dentists, optometrists, chiropractors, psychologists, and podiatrists.
3. *Mid-level providers*—Nonphysician providers who may or may not provide healthcare services independently of a superior licensed provider but are, by in large, moving into increasingly autonomous practice types. These professionals typically provide primary care services in lieu of physicians. Depending on state licensing criteria, mid-level providers (such as nurse practitioners, physicians' assistants, and dental hygienists) may work independently in the provision of services. Mid-level providers are further divided between clinical service providers and technical service providers.
4. *Technicians and paraprofessionals*—Nonphysician providers who may never provide healthcare services independently of a supervising licensed provider. These individuals either serve to alleviate a manpower deficit or to contribute to the technological sophistication, efficiency, and quality of physician services; in either case, their scope of practice is contingent upon the scope of their physician's practice and nonexistent otherwise. On the basis of these two types of physician extenders, this category of provider is divided between licensed and unlicensed technicians and paraprofessionals.
5. *Alternative medicine practitioners*—Providers who may or may not be physicians but who practice forms of therapy and treatment outside the mainstream practice of medicine, for example, homeopathic medicine. Alternative medicine practitioners may provide primary or secondary care, and they generally are licensed to work independently of supervision by another licensed provider.

Endnotes

- 1 “Specialty Hospitals, Ambulatory Surgery Centers, and General Hospitals: Charting a Wise Public Policy Course,” by David Shactman, *Health Affairs*, Volume 24, Number 1, (May/June 2005), p. 869; “The Attack on Ancillary Service Providers at the Federal and State Level,” by Robert Cimasi MHA, ASA, CBA, AVA, CM&AA, CMP, *Orthopedic Clinics of America*, Volume 39, Issue 1, (January 2008), p. 118.
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1

Organizational Structure

The emergence of the hospital as a health center has been occasioned by the success of medical science. The doctor has seen himself change from an intuitive, independent artist far removed from the hospital as a House of Despair to a scientific social worker, heavily dependent on what is now a House of Hope with its centralization of specialist and expensive machinery.

John H. Knowles, 1965

KEY TERMS

- Acute Care
- Allopathic Medicine
- Ambulatory Surgery Centers
- Assisted Living Facilities
- Boutique Medicine
- C Corporations
- Chronic Care
- Civil Liability
- Commercially Directed Health Plans
- Community Orientation
- Cost Containers
- Direct-to-Consumer Medicine
- Durable Medical Equipment
- Emerging Healthcare Organization (EHO)
- Facilities and Services
- Facility Metrics
- Financial Liability
- Fully Integrated Medical Group (FIMG) Model
- General Partnership
- Group Model HMO
- Health Maintenance Organization (HMO)
- Horizontal Integration
- Hospitalists
- Incorporated Practices
- Independent Diagnostic Testing Facilities
- Independent Practice Association (IPA) Model
- Integrated Delivery System (IDS) Model
- Jumbo Employers
- Large Employers
- Limited Liability Corporations
- Limited Liability Partnerships
- *Locum Tenens*
- Long Term Acute Care Hospitals
- Managed Care Organization (MCO)
- Management Services Organization (MSO) Model
- Medicare Advantage
- Network Model HMO
- Osteopathic Manipulative Treatment (OMT)
- Osteopathic Medicine
- Physician Hospital Organization (PHO) Model
- Physician Practice Management Companies
- Point of Service Plans (POS Plans)
- Preferred Provider Organization (PPO)
- Psychiatric Hospitals
- Rehabilitative and Chronic Disease Hospitals
- Research Facility
- Resistors
- S Corporations
- Short Term Acute Care Hospitals
- Skilled Nursing Facilities
- Small Employers
- Sole Proprietorship
- Specialty Hospital
- Staff Model HMO
- Surgical Hospital
- Tax Liability
- Teaching Facility
- True Integrators
- Unincorporated Practices
- Vertical Integration



Key Concept	Definition	Citation
Sites of Healthcare Services	Fundamentally classified as office-based or hospital-based.	"A Guide to Consulting Services for Emerging Healthcare Organizations" by Robert James Cimasi, CBI, CBC, John Wiley and Sons, Inc., p. 24–25.
Classification of Healthcare Organizations	Classifying entities by their (1) community orientation, (2) facility metrics; (3) facilities and services, and (4) organizational structure.	"AHA Hospital Statistics," by the American Hospital Association, 2008.
Subclassifications within Organizational Structure	A more detailed classification that considers (1) sites of healthcare services, (2) types of organizations responsible for developing and implementing policies, (3) business structures adopted by practices, and (4) the types of emerging health organizations (EHOs).	"AHA Hospital Statistics," by the American Hospital Association, 2008.
Descriptors of Community Organization That Relate to Organizational Structure	(1) research facilities and (2) teaching facilities	"AHA Hospital Statistics," by the American Hospital Association, 2008.
Descriptors of Facility Metrics That Relate to Organizational Structure	Diversity of providers as it relates to use of physicians, allied health practitioners, midlevel practitioners, and technician or paraprofessional providers to maximize efficiency and quality of care.	"AHA Hospital Statistics," by the American Hospital Association, 2008.
Descriptors of an Organization's Facilities and Services That Relate to Organizational Structure	(1) acute versus chronic, (2) general versus specialty, (3) inpatient versus outpatient, (4) long-term versus short-term, (5) direct-to-consumer medicine versus reimbursed medicine, and (6) boutique medicine versus traditional medicine	"AHA Hospital Statistics," by the American Hospital Association, 2008.
Average Length of Stay (ALOS)	Directly attributed to whether a facility provides acute or chronic care services.	"AHA Hospital Statistics," by the American Hospital Association, 2008.
Long-Term Care Facilities ALOS	Thirty or more days	"AHA Hospital Statistics," by the American Hospital Association, 2008.
Acute Care Facilities	Less than thirty days	"AHA Hospital Statistics," by the American Hospital Association, 2008.
Long-Term Acute Care Facilities ALOS	Twenty-five or more days	"AHA Hospital Statistics," by the American Hospital Association, 2008.
Short-Term Acute Care Facilities ALOS	Less than twenty-five days	"AHA Hospital Statistics," by the American Hospital Association, 2008.
Inpatient Services	Typically involve overnight care	"AHA Hospital Statistics," by the American Hospital Association, 2008.
Outpatient Services	Usually result in same-day discharge	"AHA Hospital Statistics," by the American Hospital Association, 2008.
General Medical or Surgical Care	Provision of acute care to patients in medical and surgical units under physician ordinance and nursing supervision.	"AHA Hospital Statistics," by the American Hospital Association, 2008.
Requirements for Hospitals	(1) Must include at least six inpatient beds that are continuously available to nonrelated patients who stay, on average, longer than twenty-four hours,	"AHA Guide Hospital Listing Requirements," by the American Hospital Association, 2006, p. A2-A3.
	(2) Must be built to ensure patient safety and health by maintaining a comfortable and sanitary environment despite potentially busy and overcrowded facilities,	"AHA Guide Hospital Listing Requirements," by the American Hospital Association, 2006, p. A2-A3.
	(3) Must be governed by an authoritative body that assumes legal and moral responsibility for the hospital,	"AHA Guide Hospital Listing Requirements," by the American Hospital Association, 2006, p. A2-A3.
	(4) Must appoint a chief executive that the governing body delegates to on matters of hospital operation and compliance with policy,	"AHA Guide Hospital Listing Requirements," by the American Hospital Association, 2006, p. A2-A3.
	(5) Must employ an organized medical staff of licensed physicians,	"AHA Guide Hospital Listing Requirements," by the American Hospital Association, 2006, p. A2-A3.

Key Concept	Definition	Citation
	(6) Must assign patients to members of the medical staff who are permitted to provide inpatient services in compliance with state laws and criteria,	"AHA Guide Hospital Listing Requirements," by the American Hospital Association, 2006, p. A2-A3.
	(7) Must ensure that continuous nurse supervision and nursing services are afforded to patients,	"AHA Guide Hospital Listing Requirements," by the American Hospital Association, 2006, p. A2-A3.
	(8) Must ensure the maintenance for continuous and complete medical records for all patients,	"AHA Guide Hospital Listing Requirements," by the American Hospital Association, 2006, p. A2-A3.
	(9) Must provide pharmacy services managed by a registered pharmacist, and	"AHA Guide Hospital Listing Requirements," by the American Hospital Association, 2006, p. A2-A3.
	(10) Must provide amenable food services to patients.	"AHA Guide Hospital Listing Requirements," by the American Hospital Association, 2006, p. A2-A3.
Types of Hospitals	(1) chronic care and (2) acute care	"AHA Guide Hospital Listing Requirements," by the American Hospital Association, 2006, p. A2-A3.
Types of Chronic Care Hospitals	(1) rehabilitation and chronic disease hospitals and (2) psychiatric hospitals	"2004 Financial Analysis: Volume 2: Non-General Acute Care Facilities," Pennsylvania HealthCare Cost Containment Council, September 2005, p. 44.
Types of Acute Care Hospitals	(1) general and (2) specialty	"Physician Characteristics and Distribution in the US 2009 Edition" American Medical Association, 2009, p. xvii-xix.
Most common kinds of Specialty Hospitals	(1) surgical, (2) orthopedic, (3) spinal, (4) cardiac	"Physician Characteristics and Distribution in the US 2009 Edition" American Medical Association, 2009, p. xvii-xix.
Scope of Long-Term Acute Care Hospitals (LTACHs)	Target patients who do not require intensive care but who need more medical attention than other long-term post-acute care settings can provide. Patients who require continuous care due to persistent conditions are often relocated to LTACHs either from short-term acute care hospitals (due to insufficient resources in specialized care) or from intensive care units (due to prolonged stays that do not necessitate ICU services).	"Physician Characteristics and Distribution in the US 2009 Edition" American Medical Association, 2009, p. xvii-xix.
Inclusion Criteria for Office-Based Practices	All practices that are not hospital-based.	"Physician Characteristics and Distribution in the US 2009 Edition" American Medical Association, 2009, p. xvii-xix.
Types of Office-Based Practices	(1) solo, (2) group, (3) specialty, or (4) multi-specialty group	"Physician Characteristics and Distribution in the US 2009 Edition" American Medical Association, 2009, p. xvii-xix.
Common Outpatient Services	(1) outpatient diagnostics and surgery, (2) long-term care, and (3) home health	"Senior Housing: Looking Toward the Third Millennium" by Arthur E. Gimmy, IL: Appraisal Institute, 1998, p. 199; "Nursing Home Info" by Nelson & Wallery, Nursing Home INFO, 2003, www.nursinghomeinfo.com/nhserve.html (accessed July 26, 2009); "Senior Housing: Looking Toward the Third Millennium" by Arthur E. Gimmy, IL: Appraisal Institute, 1998, p. 24.
Types of "Short Term Care" Outpatient Facilities	(1) ambulatory surgical centers, (2) independent diagnostic testing facilities, and (3) primary care physician practices	"Medicare Coverage of Skilled Nursing Facility Care" by Centers for Medicare and Medicaid Services, Department of Health and Human Services, April 2002, p. 3.
Benefits to Ambulatory Surgical Centers (ASCs)	(1) ASCs outnumber specialty hospitals and tend to be less capital-intensive. (2) Physicians are able to set and maintain their own schedules, which minimizes turnaround time and maximizes the number of procedures efficiently performed. (3) Patients like ASCs due to less paperwork, lower costs, and shorter waiting times. (4) Surgeons prefer ASCs because they are able to operate on more patients because it takes less time to prepare the operating room between surgeries.	"Specialty Versus Community Hospitals: What Role for Law?" Sujit Choudhry, Nitessh K. Choudhry, and Troyen A. Brennan, Health Affairs, August 9, 2005, p. 362; "Intellimarker: Ambulatory Surgical Centers Financial and Operational Benchmarking Study," Informed Healthcare Media, 2006, p. 6, 7.
Benefits to Independent Diagnostic Testing Facilities (IDTFs)	(1) continuity of care, and (2) practitioners are more familiar with their patients' backgrounds and can therefore more effectively care for their patients	"Are Cardiologists the Q's of Cardiac Imaging," By Cristen Bolan, Diagnostic and Invasive Cardiology, July/August 2008, http://new.reillycomm.com/diagnostic/article_detail.php?id=641 (accessed January 6, 2009).

(continued)

Key Concept	Definition	Citation
Types of Long-Term Care Facilities	(1) skilled nursing, (2) assisted living, and (3) home health	"AHA Hospital Statistics," by the American Hospital Association, 2008, Health Forum LLC.
Types of Skilled Nursing Staff	(1) Registered Nurses, (2) licensed practical and vocational nurses, (3) physical and occupational therapists, (4) speech pathologists, and (5) audiologists	"AHA Hospital Statistics," by the American Hospital Association, 2008, Health Forum LLC.
Characteristics of Business Structures Adopted by Healthcare Professional Practices	(1) ownership and tax structure (2) governance	"Buying, Selling, and Owning the Medical Practice: The Physician's Handbook to Ownership Options," by the American Medical Association, Coker Publishing LLC 1996, p. 41–43.
Three Kinds of Liability	(1) financial liability, (2) professional liability, and (3) tax liability	"S Corp, C Corp, LLC, LLP which is best?" by Dennis Murray, Medical Economics, March 5, 2004, http://license.icopyright.net/user/viewFreeUse.act?fuid=NDIxMzI4MA%3D%3D (accessed July 30, 2009).
Three Primary Ownership Structures Used to Represent the Different Means of Weighting Legal Ownership	(1) sole proprietorships, (2) partnerships, and (3) corporations	"Buying, Selling, and Owning the Medical Practice: The Physician's Handbook to Ownership Options," by the American Medical Association, Coker Publishing LLC, 1996, p. 31.
Hybrid Business Structures Used for Allocating Ownership	(1) joint ventures, (2) limited liability companies (LLCs), (3) professional limited liability companies (PLLCs), and (4) limited liability partnerships (LLPs)	"Buying, Selling, and Owning the Medical Practice: The Physician's Handbook to Ownership Options," by the American Medical Association, Coker Publishing LLC, 1996, p. 41–43.
Types of Professional Corporations	(1) Subchapter C corporations or (2) Subchapter S corporations	"Choosing a professional legal entity," by Dana L. Holtz, Esq. and Mark D. Abruzzo, Esq., Physician's News Digest, July 1999, www.physiciansnews.com/law/799.html (accessed March 5, 2010).
Advantages and Disadvantages to C Corporations	<p>Advantages include (1) through issuance of stocks, physicians can become shareholders or sell their shares without disrupting the corporate infrastructure, and (2) to designate practice seniority, C corporations can issue voting and nonvoting shares.</p> <p>Disadvantages include (1) Profits of C corporations are taxed twice: first at the corporate level and again when physician shareholders are given their portion. Also, (2) C corporations see startup losses "trapped within the business" resulting in "no immediate benefit to the doctors.</p>	"S Corp, C Corp, LLC, LLP which is best?" by Dennis Murray, Medical Economics, March 5, 2004, http://license.icopyright.net/user/viewFreeUse.act?fuid=NDIxMzI4MA%3D%3D (accessed July 30, 2009).
Advantages and Disadvantages to S Corporations	<p>One advantage is that stock profits are distributed directly to the owners' personal tax returns in proportion to their ownership interests, so S corporations only get taxed once for their profits.</p> <p>Disadvantages include (1) S corporations are limited to a certain number of shareholders and can only issue one class of stock, either common or preferred, and (2) S corporations do not allow employee benefits to be written off as a tax deduction.</p>	"S Corporation versus C Corporation," by Peter Jason Riley, Riley and Associates, P.C., 2009 http://cpa-services.com/special_sco.shtml (accessed September 24, 2009); "S Corp, C Corp, LLC, LLP which is best?" by Dennis Murray, Medical Economics, March 5, 2004, http://license.icopyright.net/user/viewFreeUse.act?fuid=NDIxMzI4MA%3D%3D (accessed July 30, 2009).
Types of Organizations That Control Policy Development Within Healthcare Institutions	(1) government-based and (2) nongovernment-based	"AHA Hospital Statistics," by the American Hospital Association, 2008, Health Forum LLC.

Key Concept	Definition	Citation
Government-Based Policy Makers	(1) federal government, (2) state government, (3) city government, (4) county government, (5) city-county organization, and (6) hospital district control or authority control	"AHA Hospital Statistics," by the American Hospital Association, 2008, Health Forum LLC.
Control by a City-County Organization	Agencies of municipal and county governments collaborate to establish policies.	"A Guide to Consulting Services for Emerging Healthcare Organizations," by Robert J. Cimasi, John Wiley & Sons, Inc., 1999, p. 24.
Hospital District or Authority Control	Entities within state, county, or city governments that are tasked with establishing the medical policies for facilities.	"A Guide to Consulting Services for Emerging Healthcare Organizations," by Robert J. Cimasi, John Wiley & Sons, Inc., 1999, p. 24.
Types of Nongovernment Hospitals	(1) for-profit and (2) nonprofit	"A Guide to Consulting Services for Emerging Healthcare Organizations," by Robert J. Cimasi, John Wiley & Sons, Inc., 1999, p. 24.
Types of Nonprofit Hospitals	(1) religious organizations, (2) community hospitals, (3) cooperative hospitals, (4) hospitals formed from fraternal societies, and (5) other facilities	"AHA Hospital Statistics," by the American Hospital Association, 2008, Health Forum LLC.
Types of Managed Care Organizations (MCOs)	(1) preferred provider organizations, (2) health maintenance organizations, (3) point of service plans, (4) consumer-directed health plans, and (5) Medicare Advantage	"A Guide to Consulting Services for Emerging Healthcare Organizations," by Robert J. Cimasi, John Wiley & Sons, Inc., 1999, p. 24.
Types of Health Maintenance Organizations (HMOs)	(1) staff model HMOs, (2) group model HMOs, (3) network model HMOs, and (4) independent practice association (IPA) model HMOs	"A Guide to Consulting Services for Emerging Healthcare Organizations," by Robert J. Cimasi, John Wiley & Sons, Inc., 1999, p. 24.
Primary Catalyst for Physician Integration	Provide negotiating power for contracting with hospitals and MCOs.	"A Guide to Consulting Services for Emerging Healthcare Organizations," by Robert J. Cimasi, John Wiley & Sons, Inc., 1999, p. 24.
Physician Integration Models	(1) IPA model, (2) physician-hospital organization model, (3) group practices without walls, (4) management services bureau model, (5) management services organization model, (6) fully integrated medical group model, and (7) integrated delivery system model	"A Guide to Consulting Services for Emerging Healthcare Organizations," by Robert J. Cimasi, John Wiley & Sons, Inc., 1999, p. 24.
Factors That Influence the Role of an EHO	(1) various kinds of potential MCOs, (2) liability, (3) types of integration, and (4) level of integration	"A Guide to Consulting Services for Emerging Healthcare Organizations," by Robert J. Cimasi, John Wiley & Sons, Inc., 1999, p. 24.
Types of Integration	(1) horizontal integration, and (2) vertical integration	"The Capitation Sourcebook," by Peter Boland, Boland Healthcare, 1996, p. 618.
Levels of Integration	(1) resisters, (2) cost containers, and (3) true integrators	"A Guide to Consulting Services for Emerging Healthcare Organizations," by Robert J. Cimasi, John Wiley & Sons, Inc., 1999, p. 24.
Types of EHOs	(1) IPA model, (2) physician-hospital organization model, (3) physician practice management groups, (4) managed services organizations, (5) fully integrated medical groups, and (6) integrated delivery systems	"A Guide to Consulting Services for Emerging Healthcare Organizations," by Robert J. Cimasi, John Wiley & Sons, Inc., 1999, p. 24.
Types of Practice Transitions	(1) consolidation, (2) merger, (3) integration, and (4) affiliation	"A Guide to Consulting Services for Emerging Healthcare Organizations," by Robert J. Cimasi, John Wiley & Sons, Inc., 1999, p. 24.
Types of Healthcare Professionals	(1) physicians, (2) allied health professionals, (3) mid-level providers, (4) technicians and paraprofessionals, and (5) alternative medicine professionals	n/a

OVERVIEW: TRENDS TOWARD A “CONTINUUM OF CARE” IN A GROWING AND GRAYING POPULATION

Healthcare spending comprised approximately 16.2 percent of the U.S. gross domestic product in 2007, a number expected to climb to 19.6 percent by 2016 in the absence of reform.¹ However, the cost of hospital care accounted for approximately 30 percent of the nation's healthcare expenditures in 2007, down from 47 percent of total healthcare expenditures in 1980.² Additionally, major U.S. employers suffered a 6.1 percent increase in employee health insurance cost.³

Healthcare spending comprised approximately 16.2 percent of the U.S. gross domestic product in 2007. It is expected to reach 19.6 percent by 2016 unless extreme reform measures are implemented.

“Plunkett's Health Care Industry Trends & Statistics 2008 (Summary),” by Jack W. Plunkett, Plunkett Research, Ltd., Ch. 1.

Healthcare costs continue to rise faster than inflation in the overall economy, driven by advances in technology and treatment, as well as the aging baby boomer population. It is likely that pressures to reduce costs will result in a new paradigm for healthcare delivery that promotes a managed “continuum of care” in lieu of the United States's traditional, hospital-centric system.⁴

As discussed briefly in chapter 1 of *An Era of Reform*, managed care plans emerged from the demand for cost containment magnified by the unmet manpower demand of a growing and graying population within a fee-for-service system.⁵ Due to this demographic shift, the entire U.S. healthcare system is subject to radical change during the next two decades.⁶

The impact of managed care paired with market conditions in 2010 and demographic and manpower trends will likely continue to augment the growth in inpatient and outpatient demand, resulting in potential changes to the organizational structure of healthcare professional practices, namely in both hospital-based and office-based sites of service, in their integrated and diversified business structures, and in the diverse workforce.

CLASSIFICATION OF HEALTHCARE ORGANIZATIONS

Healthcare professional services may be classified as either office-based or hospital-based. Historically, the delineation between office-based and hospital-based practitioners was distinct. However, as the demand for healthcare continues to grow, the site of service in its traditional form is experiencing a simultaneous transformation.⁷ Healthcare organizations have become increasingly diverse, namely as they relate to four differentiating criteria: community orientation, facility metrics, facilities and services, and organizational structure.⁸ Various subclassifications within each of these criteria contribute to diversity within the healthcare industry.⁹

ORGANIZATIONAL STRUCTURE

In this chapter, the distinguishing characteristics of a healthcare practice's organizational structure will be discussed. These characteristics include: the sites of healthcare services, the types of governance, the

business structures adopted by practices, and the types of emerging health organizations (EHOs) that have been driven largely by insurance products, managed care contracts, and affiliations.¹⁰ However, it is imperative to recognize that the other three criteria used to classify healthcare organizations (that is, community orientation, facility metrics, and facilities and services) also contribute tremendously to a practice's organizational structure; these criteria are discussed within subsequent sections and are depicted in figure 1-1.¹¹

COMMUNITY ORIENTATION

The **community orientation** of a healthcare organization is comprised of the company's mission statement, health status indicators, and methods of self-assessment.¹² A careful look at a practice's community orientation will reveal whether a practice functions as a **research facility**, a **teaching facility**, or both.¹³ These practice attributes are directly related to the facility's organizational structure because they help organizations to diversify providers in order to meet the growing demand for healthcare.¹⁴ Additionally, details regarding methods of self-assessment, specifically hospital outcomes research and benchmarking techniques, will be addressed at greater lengths in chapters 1 and 2 of *Consulting with Professional Practices*. Also, the use of benchmarking in the development of compensation plans will be discussed in chapter 3 of *Consulting with Professional Practices*.

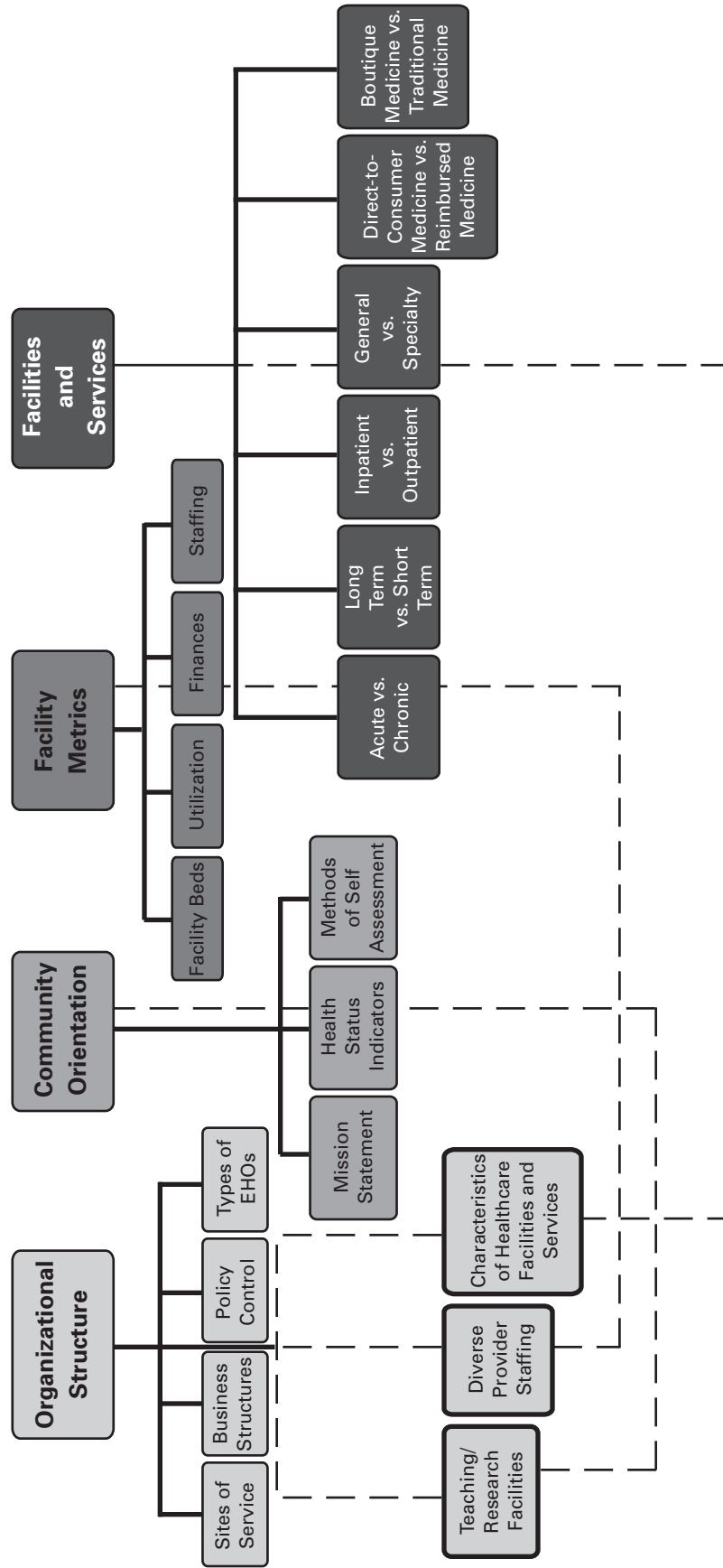
FACILITY METRICS

A healthcare organization can implement several quantifiable **facility metrics** for clinical and financial benchmarking, including (1) the number beds in the facility, (2) utilization, (3) finances, and (4) staffing.¹⁵ These characteristics affect the business dynamic and will become even more important as the United States's population ages. Additionally, facility metrics are related directly to a facility's organizational structure. Most specifically, the diversity of providers is an indicator of how well an organization maximizes its resources in the wake of a severe manpower shortage.¹⁶ An introduction to provider diversity in the market as of 2010 can be found in *Healthcare Professionals*. A detailed discussion of each provider type, including key practice considerations and trends across and between the workforce sectors, can be found in chapter 3, *Physician Practices*; chapter 4, *Mid-Level Provider Professional Practices*; chapter 5, *Technicians and Paraprofessionals*; chapter 6, *Allied Health Professionals*; and chapter 7, *Alternative Medicine Practices*.

FACILITIES AND SERVICES

The scope of a healthcare practice depends on the types of **services** that its **facilities** support. These services generally are contingent upon the specialty area of the practice. To some extent, a healthcare organization's specialty characteristics are suggestive of the infrastructure it embraces. A general overview of healthcare specialization as it relates to a facility's organizational structure will be provided briefly in this chapter, but for more detailed specialty information pertinent to each provider type, see the corresponding sections in chapter 3, *Physician Practices*, chapter 4, *Mid-Level Provider Practices*, chapter 5, *Technicians and Paraprofessionals*, chapter 6, *Allied Health Professionals*, and chapter 7, *Alternative Medicine Practices*.¹⁷

Figure 1-1: Classification of Healthcare Organizations



Source: "AHA Hospital Statistics," by the American Hospital Association, 2008, p. 213-224, 225-233.

ACUTE CARE VERSUS CHRONIC CARE

Health conditions are characterized by their expected duration and may be either acute or chronic. A facility may focus on providing diagnostic and therapeutic services for relatively short periods of time, often stemming from brief or unexpected (**acute**) illnesses and injuries or for long-lasting or recurrent (**chronic**) illnesses and diseases.¹⁸ Although a facility *may* have departments that provide both acute and chronic care, most healthcare practices will focus their attention on one type of care.¹⁹

SHORT-TERM VERSUS LONG-TERM CARE

The average length of stay (ALOS) at any healthcare facility is related to the conditions that the facility treats. Acute care facilities provide short-term or long-term care; long-term acute care is defined by an ALOS of twenty-five days or more.²⁰ Long-term care facilities treating chronic conditions generally have an ALOS of thirty or more days.²¹ However, the parallel relationship between duration of illness and duration of stay is not without exception.

As of 2010, patients are no longer limited to a particular facility based on the duration of their condition. Medical developments have broadened the scope of services that short-term care facilities can provide.²² Procedures that once required significantly longer ALOSs have become commonplace in short-term care facilities.²³ Additionally, chronic conditions that historically required long-term care may now be managed without such extensive services in alternate settings, such as healthcare practices.²⁴ Finally, enrollment in long-term care facilities has increased as a result of the aging population.²⁵ Demand for care in assisted living facilities and skilled nursing facilities (SNF) has grown not only because of chronic conditions but also in efforts to prevent acute ones.²⁶

INPATIENT CARE VERSUS OUTPATIENT CARE

Inpatient care typically involves overnight patient stays; outpatient care usually results in same-day discharge.²⁷ As mentioned in chapter 1 of *An Era of Reform*, advances in technology paired with heightened demand for healthcare services has resulted in increased use of both inpatient and outpatient services of various kinds.

GENERAL CARE VERSUS SPECIALTY CARE

A healthcare facility can provide an array of federally mandated general services, or it can provide an array of highly specialized services in a focused area of expertise.²⁸ General medical or surgical care facilities provide acute care to patients in medical and surgical units under physician ordinance and nursing supervision.²⁹ Specialty and surgical services have been implemented by practitioners in highly specialized settings.³⁰

DIRECT-TO-CONSUMER MEDICINE VERSUS REIMBURSED MEDICINE

Direct-to-consumer medicine is used in this *Guide* to describe medical services that are driven largely by consumer demand.³¹ Aesthetic procedures, laser hair removal, anti-aging procedures, and LASIK eye surgery are examples of direct-to-consumer medical services.³² Because most direct-to-consumer procedures are not covered by private or governmental insurance, their demand level is affected primarily by cultural acceptance and discretionary income levels.³³

Direct-to-consumer medical procedures continue to increase in the United States, both in terms of the procedures available and the volumes at which they are performed. In 2008, approximately 10

million surgical and nonsurgical cosmetic procedures were performed in the United States, representing an increase of more than 160 percent since the late 1990s.³⁴ Only 17 percent of this figure represents the number of surgical procedures.³⁵ These trends suggest rapid growth in demand for nonsurgical cosmetic procedures. This, in turn, should indicate an increasing demand for physician, as well as nonphysician, providers of these services.³⁶ Services within these specific service areas, namely plastic and reconstructive surgery, ophthalmology, and dermatology, will be discussed in detail in respective sections of chapter 3, *Physician Practices*.

BOUTIQUE MEDICINE VERSUS TRADITIONAL MEDICINE

Boutique medicine, also known as **concierge medicine**, is the delivery of care to a limited number of patients who pay an annual retainer fee.³⁷ Boutique medicine was formed in part due to dissatisfaction with Managed Care Organizations in the mid-1990s.³⁸ Managed care contracts “[c]ause much frustration for [physicians] as they attempt to deliver competent care to their growing number of patients, counteract rising financial costs, preserve personal and family time, and cope with legal constraints and malpractice threats that are common with managed care.”³⁹ Boutique medicine delivers the primary concepts of “quality and personalized care, a reduced patient base that ensures greater access to service, and enhanced continuity of individual care.”⁴⁰

The concept of boutique medicine was developed in Seattle, Washington, in the mid-1990s.

“Impact of Concierge Care on Healthcare and Clinical Practice,” by Anthony J. Linz, Paul F. Haas, L. Fleming Fallon, and Richard J. Metz, *Journal of the American Osteopathic Association*, Vol. 105, No. 11. p. 515.

Boutique medicine practices were formed and entered into due to dissatisfaction with managed care organizations.

“Is Boutique Medicine a New Threat to American Health Care or a Logical Way of Revitalizing the Doctor-Patient Relationship,” By Jennifer Russano, *Journal of Law and Policy*, Vol. 17, p. 324, <http://law.wustl.edu/Journal/17/p313%20Russano%20book%20pages.pdf> (accessed August 4, 2009).

There are three basic reimbursement models used to collect payment for services rendered. In the first model, physicians choose not to contract with a health plan; therefore, collection of payment is due immediately at the time of service or is collected over an extended period of time using an installment plan.⁴¹ Boutique medicine practices that opt out of contracts with health insurance companies generally encounter less risk due to charges being set by the marketplace.⁴² The second model is a blended model in which physicians contract with health plans to decrease retainer fees and provide coverage for expensive treatment, hospitalization, or both.⁴³ The third and newest model is a blended retainer and fee-for-service model by which access can be obtained through a fee-for-service or cash-based model by patients unwilling or unable to pay an annual retainer fee.⁴⁴

Services provided by boutique medicine practices are much like the services provided in traditional physician offices, leading to an equal level of quality care.⁴⁵ However, boutique medicine allows for same-day appointment availability, longer patient visits, and home visits, benefits that are unavailable to patients of traditional medicine practices.⁴⁶ Additionally, boutique medicine provides “health and lifestyle improvement” services, placing emphasis on prevention techniques, cooperative care plans,

and complete physical examinations.⁴⁷ Patients enjoy “unlimited access to your physician anytime day or night, immediate access appointments, research on complex or rare diseases, coordination of care with specialists, guidance through a hospitalization, complex executive physicals and other amenities designed to appeal to a wealthy clientele.”⁴⁸ Additionally, physicians enjoy a decreased patient load, an increased amount of time spent with individual patients, and decreased administrative paperwork.⁴⁹ For more information about boutique practices, see chapter 2, *Concierge Care Model* and chapters 1 and 4 of *An Era of Reform*.

Boutique medicine allows physicians to drastically cut their patient load in an attempt to provide more individualized quality care to patients. In fact, “instead of a typical panel of 2,000 to 3,000 patients, such physicians may care for perhaps 400 patients per physician.”

“The Elephant in the Room: Why does nobody talk about the real problems with healthcare today,” by Nancy Wilson Ashbach, Family Practice Management, Vol. 9, No. 9, p. 12.

HEALTHCARE PROFESSIONAL PRACTICE SITES OF SERVICE

As mentioned in **Classification of Healthcare Organizations**, the sites of healthcare services historically have been classified as either hospital-based or office-based (figure 1-2).⁵⁰ Though these sites of service have remained, healthcare services have begun to transcend traditional boundaries. Services customarily part of hospital-based care now may be provided in a specialty or outpatient office setting.⁵¹ Additionally, practitioners have become increasingly versatile in certain areas while increasingly exclusive and limited in others. More versatile services and practitioners have weakened the partition distinguishing the office-based market from the hospital-based market.

HOSPITAL-BASED SITES OF SERVICE

Industry outcomes suggest that hospitals serve as an influential force, not only as providers of care, but also as contributors to overall economic growth.⁵³ Despite the growth of outpatient and other office-based services, hospitals are a key source of employment for the market service area in which they are located.⁵⁴ Hospitals comprise the second-largest category of private employers in the country.⁵⁵ As of 2006, there were more than 5 million people in the hospital workforce, costing hospitals \$284 billion in employee compensation costs.⁵⁶ In March 2008 alone, there were 13,700 newly hired hospital employees, representing a 0.3 percent increase from the prior month.⁵⁷ Practitioners classified as hospital-based providers must be under contract as either an independent contractor or an employee with a hospital.⁵⁸

In 2006 alone, 118 million patients were admitted into hospital emergency departments, 600 million were admitted for outpatient services, 27 million surgeries were performed, and 4 million babies were delivered.

“AHA Hospital Statistics,” by the American Hospital Association, 2008; “Beyond Health Care: The Economic Contribution of Hospitals,” by the American Hospital Association, Trendwatch, April 2008, www.aha.org/aha/trendwatch/2008/twapr2008econcontrib.pdf (accessed August 26, 2009); “AHA touts industry’s economic importance,” by Melanie Evans, Modern Healthcare, 04/07/2008, <http://modernhealthcare.com/apps/pbcs.dll/article?Date=20080407&Category=REG&ArtNo=168521945&SectionCat=&Template=printpicart> (accessed June 18, 2008).

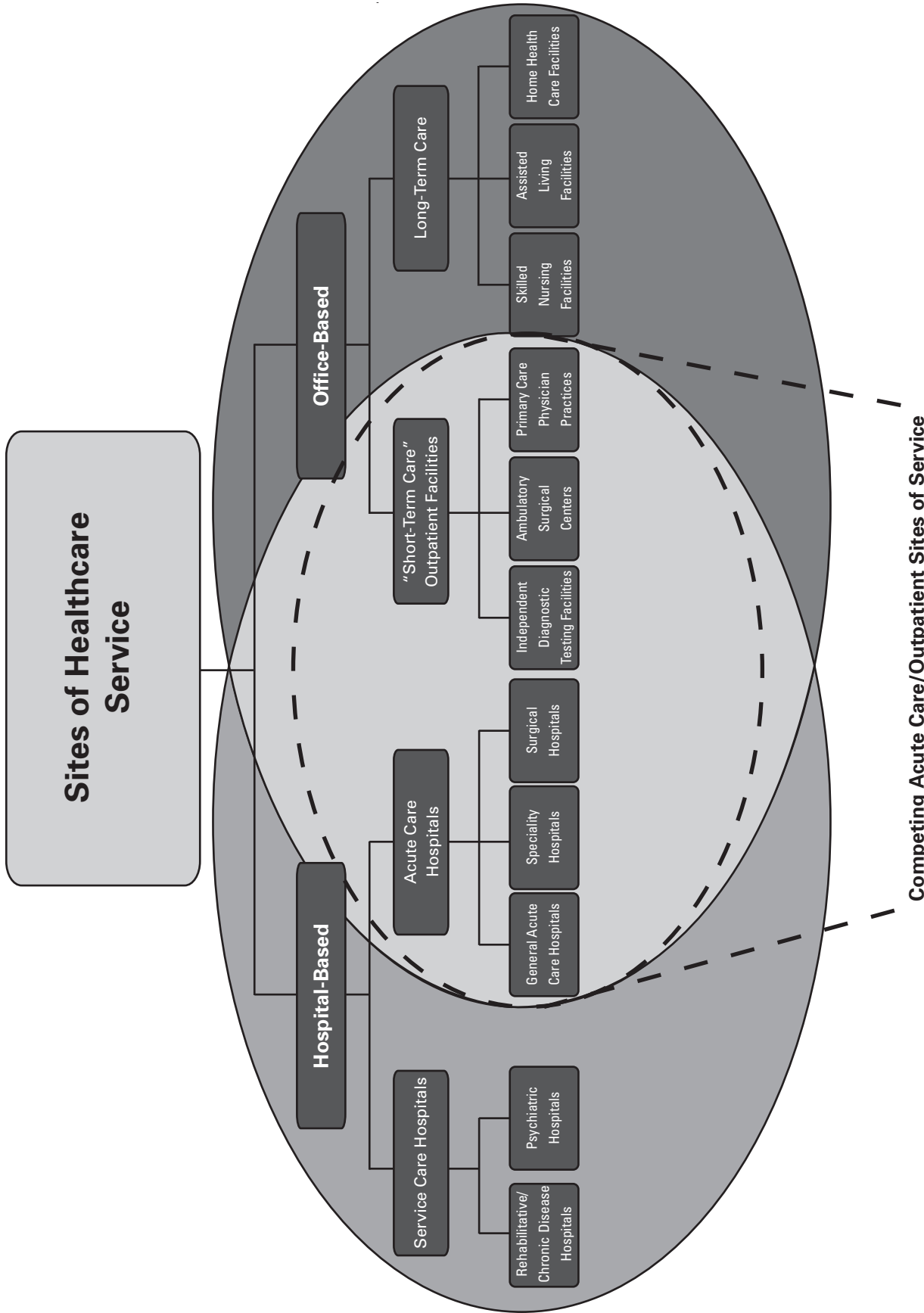


Figure 1-2: Sites of Healthcare Service

Source: "AHA Guide Hospital Listing Requirements," by the American Hospital Association, 2006, p. A2-A3; "Physician Characteristics and Distribution in the US 2010 Edition" American Medical Association, 2010, p. xvii-xix.

In order for a facility to be classified as a hospital, it must

1. include at least six inpatient beds that are continuously available to nonrelated patients who stay, on average, more than twenty-four hours;
2. be built to ensure patient safety and health by maintaining a comfortable and sanitary environment despite potentially busy and overcrowded facilities;
3. be governed by an authoritative body that assumes legal and moral responsibility for the hospital;
4. appoint a chief executive to whom the governing body delegates on matters of hospital operation and compliance with policy;
5. employ an organized medical staff of licensed physicians;
6. assign patients to members of the medical staff who are permitted to provide inpatient services in compliance with state laws and criteria;
7. ensure that continuous nurse supervision and nursing services are afforded to patients;
8. ensure the maintenance for continuous and complete medical records for all patients;
9. provide pharmacy services managed by a registered pharmacist; and
10. provide amenable food services to patients.⁵⁹

Hospitals can provide acute care or chronic care services.⁶⁰ Although some hospitals provide both acute and chronic care, hospitals that focus exclusively on one service area have dominated the market in recent years.

CHRONIC CARE HOSPITALS

As seen in figure 1-2, two main types of chronic care hospitals exist: rehabilitation and chronic disease hospitals and psychiatric hospitals.⁶¹

Rehabilitation and Chronic Disease Hospitals

By providing services that promote restoring health, maximizing quality of life, and recovery, **rehabilitation and chronic disease hospitals** can effectively service disabled patients.⁶² Although outpatient services have become increasingly popular (for example, dialysis centers), rehabilitation and chronic disease hospitals typically provide long-term care.⁶³ Rehabilitation and chronic disease hospitals must provide diagnostic, laboratory, and operating services. They must also ensure patient access to rehabilitation therapists (including physical therapists, occupational therapists, audiologists, and speech pathologists as discussed in chapter 4, *Rehabilitation Therapists*); psychological and counseling services, and educational and vocational guidance.⁶⁴ Finally, the facilities must provide accommodations that promote ease-of-transfer to acute care facilities in medical or surgical areas.⁶⁵

Psychiatric Hospitals

Psychiatric hospitals administer specialized services to patients with psychiatric illnesses.⁶⁶ According to the American Hospital Association, similar to rehabilitation and chronic disease hospitals, diagnostic and laboratorial accommodations must be available at psychiatric facilities, and patients must have access to psychiatric, psychological, social work, and electroencephalograph services.⁶⁷ Also, written arrangements for patient transfer to acute care facilities must be made.⁶⁸ (For more information about this medical specialty area, see chapter 3, *Psychiatry*.)

ACUTE CARE HOSPITALS

Hospitals are a major driver of the U.S. healthcare industry. In 2006 alone, 118,000,000 patients were admitted into hospital emergency departments; 600 million were admitted for outpatient services, 27 million surgeries were performed, and 4 million babies were delivered.⁶⁹ Although chronic care hospitals will always exist in some capacity, the impact of an increased proportion of the population at high risk for acute illness, combined with the evolution of many chronic diseases into manageable living conditions, has brought acute care hospitals to the forefront of the healthcare industry's competitive market (see figure 1-2).⁷⁰ Acute care hospitals are equipped to diagnose and treat injuries and other acute conditions and may be further classified as either general or specialty hospitals.⁷¹

General Acute Care Hospitals

Although demand for inpatient care still exists, hospital-based practice trends are influenced largely by the shift to outpatient care. An increasing number of procedures are being performed successfully in hospital-based outpatient facilities.⁷² Hospital outpatient gross revenue reached almost 38 percent of total revenue in 2006, up from 34.7 percent in 2001.⁷³ Additionally, many hospitals face emerging competition in outpatient care from free-standing outpatient facilities, which is further exacerbated by the healthcare workforce shortage, increases in healthcare costs, and difficulty acquiring needed capital.⁷⁴ As a result of this trend toward outpatient acute care, general acute care hospitals have been key players in the hospital-based market. The total net revenue of U.S. general acute care hospitals in 2006 was \$587.1 billion, resulting in an average profit margin of 6 percent (the highest since 1997, when the average profit margin was 6.7 percent).⁷⁵

Hospital outpatient gross revenue reached almost 38 percent of total revenue in 2006, up from 34.7 percent in 2001.

"Table 3: Utilization, Personnel, Revenue and Expenses, Community Health Indicators 2002-2006" in "AHA Hospital Statistics," by the American Hospital Association, 2008, Health Forum LLC, p. 11.

The total net revenue of U.S. general acute care hospitals in 2006 was \$587.1 billion, resulting in an average profit margin of 6 percent (the highest since 1997, when the average profit margin was 6.7 percent).

"AHA Hospital Statistics," by the American Hospital Association, 2008, Health Forum LLC; "Revenue gains continue to outpace growth in expenses, allowing U.S. hospitals to enjoy record profit and margin," by Melanie Evans, Modern Healthcare, October 29, 2007, www.modernhealthcare.com/apps/pbcs.dll/article?Date=20071029&Category=REG&ArtNo=71026013&SectionCat=&Template=printpicart (accessed August 26, 2009).

Facilities with a shorter anticipated length of stay are classified as **short-term acute care hospitals (STACHs)**.⁷⁶ During the past century, STACHs have become a key industry driver, with record high profits of \$35.2 billion in 2006, an increase of more than 20 percent from 2005.⁷⁷ However, if the ALOS for inpatients exceeds twenty-five days, the facility is classified as a **long-term acute care hospital (LTACHs)**.⁷⁸ LTACHs target patients who do not require intensive care but who need more medical attention than other long-term post-acute care settings can provide.⁷⁹ Patients who require continuous care due to persistent conditions often are relocated to LTACHs either from short-term acute care hospitals (due to insufficient resources in specialized care) or from intensive care units (due to prolonged stays that do not necessitate intensive care unit services).⁸⁰ LTACHs are cost effective and provide a more appropriate level of specialized care for these types of patients than do general acute care hospitals.⁸¹

During the past century, STACHs have become a key industry driver, with record high profits of \$35.2 billion in 2006, an increase of more than 20 percent from 2005.

“AHA Hospital Statistics,” by the American Hospital Association, 2008, Health Forum LLC; “Beyond Health Care: The Economic Contribution of Hospitals,” by the American Hospital Association, Trendwatch, April 2008, www.aha.org/aha/trendwatch/2008/twapr2008econcontrib.pdf (accessed August 26, 2009); “AHA touts industry’s economic importance,” by Melanie Evans, Modern Healthcare, April 7, 2008, www.modernhealthcare.com/apps/pbcs.dll/article?Date=20080407&category=reg (Accessed August 26, 2009).

Specialty and Surgical Hospitals

Specialty hospitals for children and for diseases of the eye, ear, and throat have a long-established and celebrated history, dating back to the eighteenth century.⁸² However, hospitals focusing on cardiovascular and orthopedic procedures are relatively new.⁸³ The establishment of single-specialty hospitals is attributable to changes in market demand during the past fifty years paired with specialists seeking greater control over the clinical services they provide.⁸⁴ Specialty hospitals frequently are established and owned by physicians and focus on delivery of surgical, orthopedic, spinal, or cardiac services.⁸⁵ The success of specialty hospitals is attributable to favorable reimbursement for select procedures as compared with other, less specialized procedures and greater physician control over management decisions affecting productivity.⁸⁶

Specialty and surgical hospitals are licensed in all states as general acute care hospitals.⁸⁷ As such, they are required to provide a certain range services that may hinder specialization.⁸⁸ Due to controversy surrounding these conflicting characteristics, the definition of a **surgical hospital** was originally unclear.⁸⁹ This ambiguity has led to misconceptions about surgical hospitals and their objectives, benefits, and roles in the continuum of healthcare delivery in the United States.⁹⁰

Specialty and surgical hospitals are licensed in all states as general acute care hospitals. As such, they are required to provide a certain range services that may hinder specialization. Due to controversy surrounding these conflicting characteristics, the definition of a surgical hospital was originally unclear. This ambiguity has led to misconceptions about surgical hospitals and their objectives, benefits, and role in the continuum of healthcare delivery in the United States.

“Surgery Centers and Specialty Hospitals,” Spotlight Report, Triple Tree, 5/03, p. 10.

In its 2003 report on specialty and surgical hospitals, the U.S. Government Accounting Office defined a “surgical hospital” as a short-term acute care hospital at which surgical diagnosis-related groups comprise greater than two thirds of its inpatient claims.⁹¹ This definition excluded government-owned hospitals; hospitals that provide rehabilitation and psychiatric services, treatment for alcohol- and drug-related issues, or care for children or newborns; and hospitals with fewer than ten annual claims per bed.⁹² In its 2008 report, the Office of the Inspector General simplified this definition, stating that a minimum 45 percent of a surgical hospital’s Medicare discharges must involve a surgical procedure.⁹³ It proceeded to define a specialty hospital as “cardiac” or “orthopedic” if a minimum of 45 percent of its Medicare discharges involved corresponding procedures.⁹⁴ Furthermore, cardiac and orthopedic hospitals, respectively, must have at least five major heart and orthopedic surgery discharges each year.⁹⁵

Orthopedic and cardiac hospitals have experienced significant growth during the past two decades.⁹⁶ From 1990 to 2003, the number of specialty hospitals has tripled; in 2008, twenty-three orthopedic hospitals and twenty cardiac hospitals operated in the United States.⁹⁷ As of 2008, 130 specialty hospitals were in operation, 109 of which were physician-owned.⁹⁸

In 2008, twenty-three orthopedic hospitals and twenty cardiac hospitals operated in the United States.

"Physician-Owned Specialty Hospitals' Ability to Manage Medical Emergencies," The Office of Inspector General, Department of Health and Human Services, January 2008, p. 13.

Surgical hospitals commonly are considered a hybrid of general acute care hospitals (because of their increased focus on outpatient surgery) and **ambulatory surgery centers (ASCs)**.⁹⁹ In fact, the first modern surgical hospital in the United States was converted from an ASC in 1988 after the California legislature passed a bill allowing ASCs to add up to twenty beds that were limited to a seventy-two hour stay.¹⁰⁰ Surgical hospitals are characterized as having a limited number of beds and specializing in scheduled, rather than emergency, surgeries.¹⁰¹

General acute care hospitals have responded to the development of niche providers and specialty hospitals by increasing the number of services they provide.¹⁰² In doing so, general acute care hospitals have transformed into integrated specialty centers or specialty hospitals.¹⁰³ In many cases, hospitals seek physician involvement in these developments through joint ventures.¹⁰⁴

OFFICE-BASED SITES OF SERVICE

All practices that are not hospital-based are classified as office-based practices.¹⁰⁵ Office-based practices may be solo practices, group practices, specialty practices, or multispecialty group practices.¹⁰⁶

There are a growing number of diverse outpatient office-based facilities tailored to meet the accelerated growth in demand for healthcare services. The most successfully implemented of these outpatient facilities provide short-term services (specifically diagnostic services and medical or surgical services), long-term care, and home health services.

SHORT-TERM CARE OUTPATIENT FACILITIES

The healthcare marketplace continues to experience dramatic change as the business of healthcare becomes increasingly competitive, particularly in the outpatient arena. Between 1997–98 and 2000–04, visits to outpatient facilities increased among Americans older than sixty-five years of age, and, in 2006, 16 percent of all outpatient visits were made by individuals aged sixty-five or older.¹⁰⁷ If the utilization rate of outpatient facilities among the elderly continues to grow, a surge in demand for outpatient surgery centers and independent diagnostic testing facilities (IDTFs) will occur as the baby boomer population ages.¹⁰⁸

Between 1997–98 and 2000–04, visits to outpatient facilities increased among Americans older than sixty-five years of age, and, in 2006, 16 percent of all outpatient visits were made by individuals aged sixty-five or older.

“Health, United States, 2006,” National Center for Health Statistics, US Department of Health and Human Services, Hyattsville, 2006, p. 56; “National Hospital Ambulatory Medical Care Survey: 2006 Outpatient Department Summary,” of “National Health Statistics Reports,” U.S. Department of Health and Human Services, August 6, 2008, No. 4, p. 15.

Historically, short-term care outpatient facilities that promoted managed care were comprised of primary care physician practices. However, with improvements in technology and treatment, the range of outpatient procedures that can feasibly be performed has expanded.¹⁰⁹ This growing range of services can not only be performed by hospital outpatient departments but also in various freestanding outpatient centers.¹¹⁰ In addition to primary care physician practices, ASCs and IDTFs have proven viable outside the hospital setting as outpatient short-term care facilities.¹¹¹ Industry analysts project increased competition between hospital outpatient departments and these free-standing facilities.¹¹²

Ambulatory Surgical Centers

ASCs are facilities that offer surgical services that do not require inpatient hospital admission.¹¹³ ASCs may be single specialty or multispecialty.¹¹⁴ As of 2007, 65 percent of ASCs were single-specialty, and 35 percent were multispecialty centers.¹¹⁵

Of the eight-five ASCs included in the Medical Group Management Association’s 2007 ambulatory surgery center performance survey, 61 percent were single-specialty, and 39 percent were multispecialty centers.

“7 Million Reasons Why ASCs Are Important to Patients,” Federated Ambulatory Surgery Association.

The dramatic shift from inpatient to outpatient services has been a catalyst for ASC growth and expansion.¹¹⁶ Surgical procedures that were once the exclusive province of hospital-based inpatient surgery departments are now commonly performed by freestanding ASCs.¹¹⁷

ASCs treat some of the diseases credited with generating the most revenue in a predominantly outpatient setting.¹¹⁸ Due to the increased incidence of such diseases, most commonly found among the elderly population, as well as to trends in consumer demand and technological development, the number of freestanding ASCs has increased significantly during the past decade, particularly in the areas of gastroenterology; orthopedics; gynecology; podiatry; pain management; general surgery; ophthalmology; and ear, nose, and throat.¹¹⁹ Comparative data suggests an increase in licensed ASCs from 2002–09 of greater than 25 percent (3,500 licensed ASCs existed in 2002; approximately 5,300 licensed ASCs existed in 2009).¹²⁰ This increase in volume is attributed to the Medicare’s expanded range of approved services, which has led to significant growth in the number and types of procedures performed.¹²¹

There was nearly a 25 percent increase in licensed ASCs from 2002–09.

“AAASC’s State ASC Lookup for the 110th Congress,” American Association of Ambulatory Centers, 2007, www.aaasc.org/state/documents/AAASC110thCongressStateLookupFinal2107.xls, (accessed August 24, 2007).

ASCs outnumber specialty hospitals and tend to be less capital-intensive.¹²² Physicians are able to set and maintain their own schedules, which minimizes turnaround time and maximizes the number of procedures efficiently performed.¹²³ In addition to the economic efficiencies and quality of care benefits, patients also have a favorable opinion of ASCs due to less paperwork, lower costs, and shorter waiting times.¹²⁴ Surgeons often prefer these facilities because they are able to operate on more patients because it takes less time to prepare the operating room between surgeries.¹²⁵

Independent Diagnostic Testing Facilities

As a result of new imaging technologies and the increased demand for diagnostic imaging services, scan volumes have risen, with 66 percent of Medicare beneficiaries receiving imaging services in 2006, as compared with 63 percent in 2000.¹²⁶ Spending on diagnostic imaging doubled from 2000–06 reaching almost \$14 billion, 80 percent of which is attributable to technological advances and rising patient demand.¹²⁷

As a result of new imaging technologies and the increased demand for diagnostic imaging services, scan volumes have risen from 267 million scans in 1998 to an estimated 401 million scans in 2005.

"Medicare Part B Imaging Services: Rapid Spending Growth and Shift to Physician Offices Indicate Need for CMS to Consider Additional Management Practices," Government Accountability Office, June 2008, GAO-08-452.

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"Medicare Part B Imaging Services: Rapid Spending Growth and Shift to Physician Offices Indicate Need for CMS to Consider Additional Management Practices," Government Accountability Office, June 2008, GAO-08-452.

Consistent with the growth in demand for imaging services, the number of noninvasive imaging procedures being conducted in outpatient settings has become among the most dynamic physician services reimbursed by the Centers for Medicare and Medicaid Services (CMS). More than 65 percent of all imaging services paid for under the 2006 Medicare physician fee schedule were attributed to outpatient imaging procedures.¹²⁸ Projections indicate that demand will continue to grow, with procedure volumes for most imaging modalities seeing growth in the double-digits.¹²⁹ Analysts forecast a 140 percent growth in such procedures by 2020, because total imaging procedures are expected to rise with the last of the baby boomers reaching sixty-five years of age.¹³⁰

Analysts forecast a 140 percent growth in such procedures by 2020, because total imaging procedures are expected to rise with the last of the baby boomers reaching the sixty-five years of age.

"Outpatient imaging centers grow by adding new services—Issue 1," by Karen Sandrick, Diagnostic Imaging, Vol. 30, No. 12, December 1, 2008, www.diagnosticimaging.com/practice-management/article/113619/1354173 (accessed June 15, 2009).

As demonstrated by the growing number of imaging provider-types, competition rates are keeping pace with demand.¹³¹ This expansion of the imaging market is prominent not only among hospitals and physician-owned facilities but also among physician providers themselves.¹³² The issue of in-office ancillary imaging pits radiologists against other physicians,¹³³ with radiologists facing increased competition from referring physicians who have started performing their own imaging services.¹³⁴ Some suggest that referring physicians should interpret their own imaging scans in order to provide more continuity of care.¹³⁵ Additionally, practitioners, unlike the diagnostic radiologists who historically performed imaging procedures, are familiar with their patients' backgrounds and, therefore, can more effectively care for their patients.¹³⁶

LONG-TERM CARE FACILITIES

Long-term care is a service provided to individuals who need continuous assistance due to a physical or mental disability.¹³⁷ These services can be provided in an institution, the home, or the community.¹³⁸ Long-term care includes, but is not limited to, nursing homes, assisted living facilities, SNFs, and intermediate care facilities.¹³⁹ The diverse housing options reflect the changing demographics among the elderly.¹⁴⁰ Although a significant percentage of people who need long-term care are elderly, there are children, teenagers, and adults who also may utilize long-term care facilities.¹⁴¹ Of the 10 million Americans in need of hospital care, 37 percent were under the age of sixty-four.¹⁴²

Skilled Nursing Facilities

Skilled nursing facilities (SNF), or **nursing homes**, are institutions that provide skilled nursing care and related services for injured, disabled, or sick residents.¹⁴³ SNFs are distinct from long-term mental care facilities, and they are *not* primarily for the care and treatment of mental diseases.¹⁴⁴ An SNF provides predominantly inpatient skilled nursing care and rehabilitative services, and the facility can be part of a hospital or hospital system.¹⁴⁵ The staff at a SNF includes registered nurses, licensed practical and vocational nurses, physical and occupational therapists, speech pathologists, and audiologists.¹⁴⁶ Nursing homes focus their attention on rehabilitating patients through specialty care and therapies, including physical, occupational, speech, and respiratory therapy.¹⁴⁷

There are approximately 15,899 nursing homes in the United States that care for about 1.42 million residents.¹⁴⁸ These facilities also house patients who recently have been discharged from a hospital and are in a transitional period before returning home.¹⁴⁹ SNF patients comprise only 8 percent of residents in nursing homes, and the ALOS in this type of facility is twenty-five days.¹⁵⁰

There are approximately 15,899 nursing homes in the United States that care for about 1.42 million residents.

"Health, United States, 2008, With Special Feature on the Health of Young Adults," U.S. DHHS, National Center for Disease Statistics, March 2009, [www.cdc.gov/nchs/data/08.pdf#120](http://www.cdc.gov/nchs/data/hus/08.pdf#120) (accessed September 11, 2009), p. 422–23.

Assisted Living Facilities

Assisted living facilities combine permanent housing with personal support services.¹⁵¹ They are designed for seniors who need help with daily activities but do not need skilled nursing care.¹⁵² As of 2007, approximately 38,000 assisted living facilities were occupied by nearly 1 million people.¹⁵³ The growth in the assisted living industry during the past twenty-five years appears to be largely a result of it being a niche industry that previously was unavailable.¹⁵⁴ The assisted living care business had estimated annual gross industry revenue of \$33.1 billion in 2008, up approximately \$14 billion from 1996.¹⁵⁵

The assisted living care business had estimated annual gross industry revenue of \$33.1 billion in 2008, up approximately \$14 billion from 1996.

"Economic Impact of Assisted Living," Josh Allen, Professional Caregiver, March 4th, 2008, www.communityed.com/blog/administrative-concerns/the-economic-impact-of-assisted-living_03-04-2008/ (accessed July 1, 2009); "Senior Living Communities" by Benjamin W. Pearce, Baltimore, MD: The Johns Hopkins University Press, 1998, p. 11.

Home Health Services

Home health care is comprised of all nursing, therapeutic, medical, social, or aide services provided in a patient's home.¹⁵⁶ Technological advances in pharmaceuticals, infusion therapy, as well as **durable medical equipment (DME)** (for example, specialized beds, wheelchairs, and prosthetics), have enhanced the capabilities afforded through home health services.¹⁵⁷

Organized home health care began in the late 1880s, when most seriously ill people were still cared for in their home, but infectious diseases and high death rates were prevalent.¹⁵⁸ Although modern hospitals were available during this period, the shift from home health care to institutional care occurred slowly.¹⁵⁹ A combination of visiting nurses, public health nurses, and private-duty nurses provided early professional home care.¹⁶⁰ By 1900, there were nearly 12,000 trained home health nurses nationwide.¹⁶¹ One of the first home health care surveys, conducted in 1909, found that 565 organizations were providing home health services.¹⁶²

The first modern surgical hospital in the United States was converted from an ASC in 1988 after the California legislature passed a bill allowing ASCs to add up to twenty beds limited to a seventy-two-hour stay.

"Inside the first surgical hospital," Outpatient Surgery, 2003, www.outpatientsurgery.net/builders/2003/first_surgical_hospital.php (accessed October 3, 2003).

The number of home health patients appears to be growing. Patients receiving home health services represented approximately 2.5 percent of the U.S. population as of July 1, 2000.¹⁶³ In 2006, 2.9 million people reportedly used home health services, up from 2.6 and 2.8 million in 2003 and 2004, respectively.¹⁶⁴ Additionally, the growing segment of the aging U.S. population will invariably contribute to the increased use of home infusion therapies.¹⁶⁵ The number of Americans aged sixty-five and older is anticipated to reach 54 million, accounting for 16.5 percent of the total U.S. population, and approximately 69 percent of home health recipients are older than age sixty-five.¹⁶⁶

Although the Bureau of Health Professions predicted that, between 2000 and 2020, the U.S. population would increase by 18 percent, the number of Americans aged sixty-five and older is anticipated to reach 54 million (a 54 percent increase), accounting for 16.5 percent of the total population.

“Projected supply, demand, and shortages of registered nurses: 2000-2020,” by the United States Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, National Center for Health Workforce Analysis, July 2002, www.ahcancal.org/research_data/staffing/Documents/Registered_Nurse_Supply_Demand.pdf (accessed April 10, 2009); “The Complex Dynamics of the Physician Workforce: Projected Supply and Demand through 2025,” by Michael J. Dill and Edward S. Salsberg, Center for Workforce Studies, Association of American Medical Colleges, November 2008, p. 6.

BUSINESS STRUCTURE OF HEALTHCARE PROFESSIONAL PRACTICES

The business structure of a healthcare professional practice may be characterized on the basis of how ownership is structured, which primarily depends on the financial and tax-related characteristics of the practice, and how professional liability is subsequently allocated. In addition to the ownership and tax structure, practice business structures depend on the type of governance overseeing the organization.

OWNERSHIP AND TAX STRUCTURE

Three kinds of liabilities must be considered before deciding upon a business structure for a healthcare practice: **financial liability**, **professional liability**, and **tax liability**.¹⁶⁷ *Financial liability* assigns responsibility for any debt accrued by the practice.¹⁶⁸ *Professional liability* allocates accountability for potential lawsuits.¹⁶⁹ *Tax liability* establishes whether practice finances are filed on personal or corporate tax returns.¹⁷⁰ Unlike the infrastructure of most businesses, healthcare practices are organized and managed under the pretense that physicians are not protected from liability for their professional actions and that practices are never entirely immune from liability for the actions of their employees.¹⁷¹

Healthcare practices may only employ professional partnership structures, because, at the time of publication, all owners must be licensed and active medical professionals.

“Buying, Selling, and Owning the Medical Practice: The Physician’s Handbook to Ownership Options,” by the American Medical Association, Coker Publishing LLC, 1996, p. 34.

Practices can minimize risk by weighing the three dimensions of liability and the risk associated with physician liability when deciding on a business structure.¹⁷² Professional liability, discussed further in chapter 3 of *An Era of Reform*, may be viewed as indirectly related to the ownership structures of healthcare enterprises, while tax and financial liability are inherent contributors to practice infrastructure. Generally speaking, unincorporated practices forego the liability protection afforded to corporations (incorporated practices) in exchange for easier setup at a lower cost.¹⁷³ Incorporated practices typically are significantly more expensive and formal, involving copious amounts of paperwork.¹⁷⁴ In exchange, incorporated practices offer protection from personal liability for the professional misdemeanors of other practitioners in the corporation.¹⁷⁵ Though a practitioner may be personally liable for claims arising from

his or her own negligence, a practitioner will not be personally responsible for claims against other practice members, standing only to lose his or her investment in the corporation.¹⁷⁶

Three ownership structures may be used to represent, generally, the different means of weighing legal ownership and tax repercussions and the corresponding privileges and responsibilities: (1) sole proprietorships, (2) partnerships, and (3) corporations.¹⁷⁷ Additionally, emerging hybrid structures are being employed by a growing number of healthcare professional practices, such as (1) joint ventures, (2) limited liability companies (LLCs), (3) professional limited liability companies (PLLCs), and (4) limited liability partnerships (LLPs).¹⁷⁸ The growing number of refined, modified, and crossbred business structures may be causally linked to the increasing complexity and diversity that characterizes the U.S. healthcare delivery system.

SOLE PROPRIETORSHIPS

Sole proprietorships are considered the easiest, cheapest, and most dangerous business structure for healthcare practices.¹⁷⁹ Proprietors who utilize this business structure fill out minimal paperwork and pay all debts from their personal bank accounts.¹⁸⁰ Furthermore, proprietors and their practices are treated as a single entity for tax purposes.¹⁸¹ However, sole practitioners enjoy no liability protection and may have to satisfy judgments against them using personal assets.¹⁸² Experts advise solo practitioners to pursue LLP or LLC structures for their practices.¹⁸³

PARTNERSHIPS

Partnerships have the structural simplicity of sole proprietorships; however, as a single legal and taxable entity with multiple partners, the process of establishing and maintaining a compliant partnership requires more paperwork and can result in more complicated liability implications.¹⁸⁴ Physicians within partnerships agree to share profits and losses just like any other unincorporated business. They are also subject to “joint and several liability,” which means that each practitioner is personally liable for all claims against the partnership or any individual partner—regardless of who is at fault.¹⁸⁵

Generally speaking, a **professional partnership** is an agreement between licensed professionals for the purposes of establishing a business within their profession.¹⁸⁶ **Limited partnerships** typically involve “general” partners, who are responsible for the general proceedings and are held entirely liable and responsible for the business, and one (or more) “limited,” or investor, partner who has a limited, if any, role in the actual activities performed within the business.¹⁸⁷ Healthcare practices may only utilize professional partnership structures, because, at the time of publication, all healthcare professional practice owners must be licensed and active medical professionals.¹⁸⁸

Practices structured as partnerships are dwindling, due to the greater protection afforded by corporations.¹⁸⁹ Also, the number of LLCs is growing, because most states have begun allowing practices to operate under these business structures.¹⁹⁰

PROFESSIONAL CORPORATIONS

A **professional corporation**, also known as a “professional association” or a “service corporation,” is “a separate legal entity, totally independent of its employees, stockholders, and member owners.”¹⁹¹ For the purposes of complying with state and federal tax laws, professional corporations may be Subchapter C corporations or Subchapter S corporations.¹⁹²

C Corporations

A **C corporation** is a type of professional corporation comprised of three tiers of authority: owners (shareholders), a board of directors, and officers.¹⁹³ Through issuance of stocks, physicians can become shareholders or sell their shares without disrupting the corporate infrastructure.¹⁹⁴ Although C corporations can issue common stock or preferred stock, preferred stock takes precedence and is paid out immediately when the practice is liquidated.¹⁹⁵ Also, to designate practice seniority, C corporations can issue voting and nonvoting shares.¹⁹⁶ The financial pitfall of C corporations is that their profits are taxed twice: first at the corporate level and again when physician shareholders are given their portion.¹⁹⁷

S Corporations

Like C corporations, **S corporations** can issue stock. However, S corporations are limited to a certain number of shareholders and can only issue one class of stock, either common or preferred.¹⁹⁸ The greatest advantage of an S corporation is that stock profits are distributed directly to the owners' personal tax returns in proportion to their ownership interests; C corporation profits are first given to the corporation and then distributed to shareholders.¹⁹⁹ Therefore, S corporations only are taxed once for their profits, whereas C corporations are taxed twice.²⁰⁰

Although S corporations do have disadvantages (for example, S corporations do not allow employee benefits to be written off as a tax deduction), any negative aspects are outweighed by the fact that "losses that routinely occur at the startup of any practice are passed through to the shareholders and can offset their taxable income from other sources."²⁰¹ C corporations, on the other hand, see startup losses "trapped within the business" resulting in "no immediate benefit to the doctors."²⁰²

HYBRID BUSINESS STRUCTURES

Joint Ventures

Joint ventures resemble partnerships, but they differ in that they typically are limited-term agreements that practitioners often join into for the purpose of engaging in one or several other transactions.²⁰³

Limited Liability Partnerships

LLPs are the only unincorporated businesses that offer protection from personal liability for the actions of other partners or physicians.²⁰⁴ Although claims against any constituent of an LLP can cause partners to lose their investments in the business, partners' personal assets and investments are protected.²⁰⁵

Limited Liability Companies

LLCs offer the liability protection of a corporation but the taxation simplicity of a sole proprietorship or general partnership.²⁰⁶ Typically, LLCs are structured like S corporations, but they are allowed an unlimited number of shareholders.²⁰⁷ This may be ideal for practices growing in size or expanding into multi-specialty practices.²⁰⁸ Additionally, LLCs have fewer restrictions on ownership than do S corporations, and they may be owned by another LLC, a corporation, or a trust.²⁰⁹ However, because S corporations have a longer legal history than LLCs, case law has established more concrete rules for S corporation liabilities.²¹⁰ As such, the Internal Revenue Service is less wary of S corporations, as are shareholders who fear that LLC liability protection has not been tested adequately.²¹¹

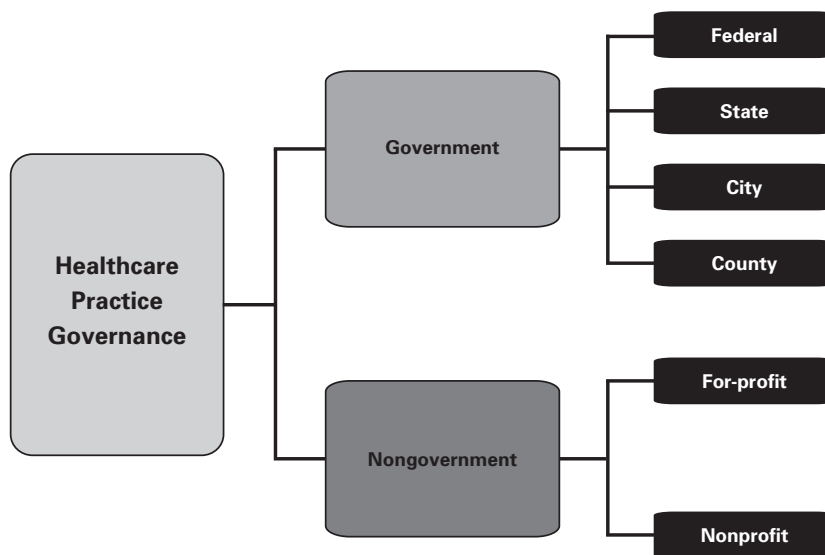
Professional Limited Liability Companies

PLLCs appear to be increasing in popularity, because these business structures offer practitioners protection from liability for the malpractice and negligence of others in the practice.²¹² However, this corporate structure does not shield healthcare practitioners from liability for their own professional actions.²¹³

GOVERNANCE

The governance of a healthcare organization can either be government-based or nongovernment-based (see figure 1-3). The policies for a government-based healthcare practice are established by government agencies at the federal, state, city, or county level.²¹⁴ Municipal and county governments commonly collaborate to establish policy.²¹⁵ Additionally, hospital district control or authority control can be implemented under which entities within state, county, or city governments are tasked with establishing the medical policies for facilities.²¹⁶

Figure 1-3: Healthcare Practice Governance



Source: "AHA Hospital Statistics," by the American Hospital Association, 2008, p. 213-224, 225-233.

Nongovernmental organizations can also control the policy development of a healthcare organization. Nongovernment hospitals can be either for-profit or nonprofit. Nonprofit hospitals may be controlled by religious organizations, community hospitals, cooperative hospitals, hospitals operated by fraternal societies, and other entities.²¹⁷

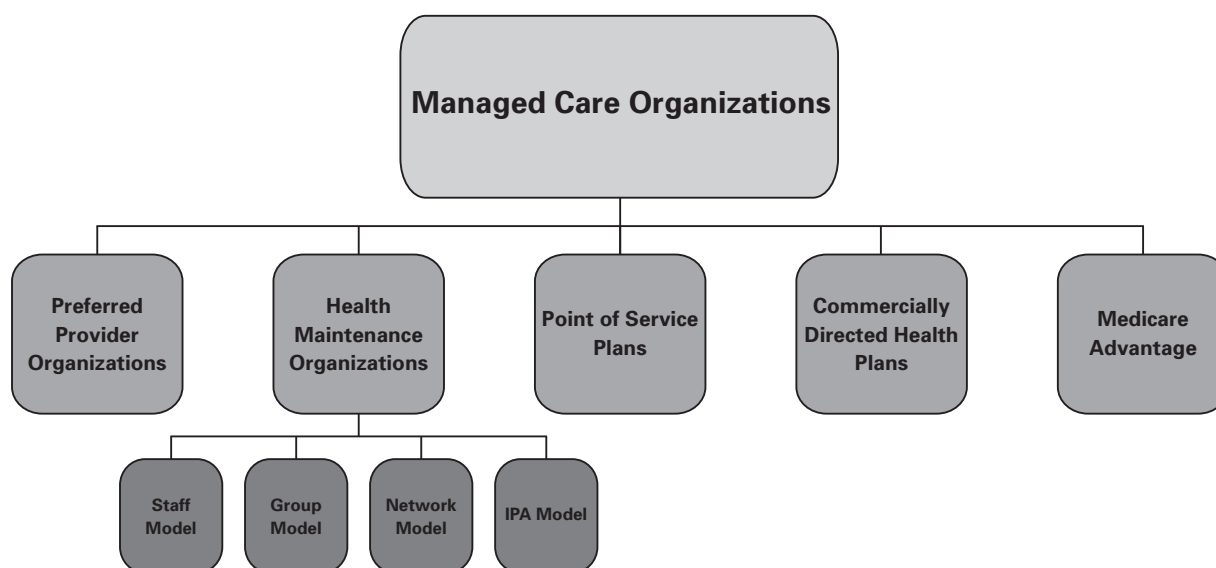
CONSOLIDATED AND INTEGRATED HEALTHCARE PROFESSIONAL PRACTICE INFRASTRUCTURES

When determining the organizational structures of modern healthcare professional practices, it may be worth considering the different consolidation dynamics utilized by modern healthcare organization, such as **Managed Care Organizations (MCOs)** and other emerging models of integration.

MANAGED CARE ORGANIZATIONS

The structure of the medical practice has changed significantly under the influence of managed care. Historically, the healthcare delivery system was primarily hospital-based, and “procedures were performed without much regard for cost, consultations with specialists were frequent, and offering preventive advice was not a common practice.”²¹⁸ Over time, advances in medical knowledge and technology, an aging demographic, a growing population, and, consequentially, an increased incidence of certain chronic and infectious diseases have had a significant effect on recent market trends.²¹⁹ With the introduction of managed care plans, increases in healthcare costs due to advances in technology and market demand—and a higher standard for prevention and the continuum of care—the healthcare delivery system has shifted, resulting in a distribution of organizations with diverse infrastructures that evolve to maximize use of not only inpatient and hospital-based resources but also outpatient and office-based capabilities.²²⁰ The shift to managed care prompted an industry evaluation of the way that healthcare practices are organized.²²¹ A historically hospital-centric system has transformed, placing the insurance industry’s “covered lives” at the center of the delivery system.²²² Figure 1-4 represents five kinds MCOs, highlighted in the following sections and discussed extensively in chapter 2 of *An Era of Reform*: preferred provider organizations (PPOs), health maintenance organizations (HMOs), point-of-service (POS) plans, consumer-directed health plans (CDHPs), and Medicare Advantage (MA).

Figure 1-4: Managed Care Organizations



Source: “A Guide to Consulting Services for Emerging Healthcare Organizations,” by Robert J. Cimasi, John Wiley & Sons, Inc., 1999.

CDHPs are most common among jumbo employers.

"Mercer survey finds \$1,000 health plan deductible was the norm in 2008: So what happens in next year's tough business environment?" by Marsh Mercer Kroll, November 19, 2008, www.mercer.com/summary.htm?idContent=1328445 (accessed September 23, 2009).

EMERGING MODELS OF INTEGRATION

Managed care has placed pressure on hospitals and physician networks to reduce costs, maintain quality, and protect market share. Consequently, there has been a growing trend in consolidation, merger, integration, and affiliation of services that these organizations provide.

Healthcare organizations have started incorporating business objectives that encourage hospitals, physicians, and health plans to consolidate, merge, integrate, or affiliate in response to managed care, as well as to meet the demand for vertical and horizontal integration.²²³ The gradual transition into managed care has promulgated consolidation among enterprises and practitioners into an assortment of emerging healthcare organizations (EHOs).²²⁴ Although the application of these integrative methods will be addressed in chapter 2, *Emerging Models*, the following sections will briefly discuss vertical and horizontal integration, physician integration, and EHOs.

VERTICAL VERSUS HORIZONTAL INTEGRATION

Reevaluated healthcare business objectives encourage vertical and horizontal integration. **Horizontal integration** is "the acquisition and consolidation of like organizations or business ventures under a single corporate management, in order to produce synergy, reduce redundancies and duplication of efforts or products, and achieve economies of scale while increasing market share."²²⁵ Horizontally integrated organizations include collaborative hospital systems or physician organizations offering primarily physician services.²²⁶ **Vertical Integration** is "the aggregation of dissimilar but related business units, companies, or organizations under a single ownership or management in order to provide a full range of related products and services."²²⁷

PHYSICIAN INTEGRATION

Physician integration and physician affiliation are key considerations for the implementation of EHO models and have been used repeatedly by hospitals, MCOs, and emerging enterprises. The primary catalyst for physician integration has been to provide negotiating power for contracting with hospitals and MCOs.²²⁸

Provider integration is a potential threat to the reimbursement negotiating power of MCOs. Antitrust laws limit this threat within local markets, and, because healthcare is provided locally, these laws have been an effective safeguard for MCOs.²²⁹ However, national horizontal integrators, including hospital management companies, may exert the ability to negotiate favorable reimbursement rates for their providers and facilities across markets and on a national level.²³⁰

EMERGING HEALTHCARE ORGANIZATIONS

In addition to the various kinds of potential MCOs, business structures, and liabilities, the direction of integration influences the role of each **Emerging Healthcare Organization (EHO)** in the United States’s changing healthcare system.²³¹

A variety of EHO models have been implemented in order to fulfill an increasingly diverse market demand.²³² As figure 1-5 shows, EHOs can be classified in two different ways. These models can be fundamentally classified as horizontal or vertical integrators. Additionally, they can be classified, based on their level of integration, as resistors, cost containers, or true integrators. Six major EHOs have been identified and categorized according to their level of integration: **independent practice associations (IPAs), physician-hospital organizations (PHOs), management services organizations (MSOs), physician practice management companies (PPMCs), fully integrated medical groups (FIMGs), and integrated delivery systems (IDSs)**. Figure 1-6 depicts the cross classification, based on type and level of integration that occurs at these EHO models. The various types of EHO models will be defined and discussed in chapter 2, *Emerging Models*. The following are cursory definitions of the three levels of integration and of the EHO models that are classified under each of them:²³³

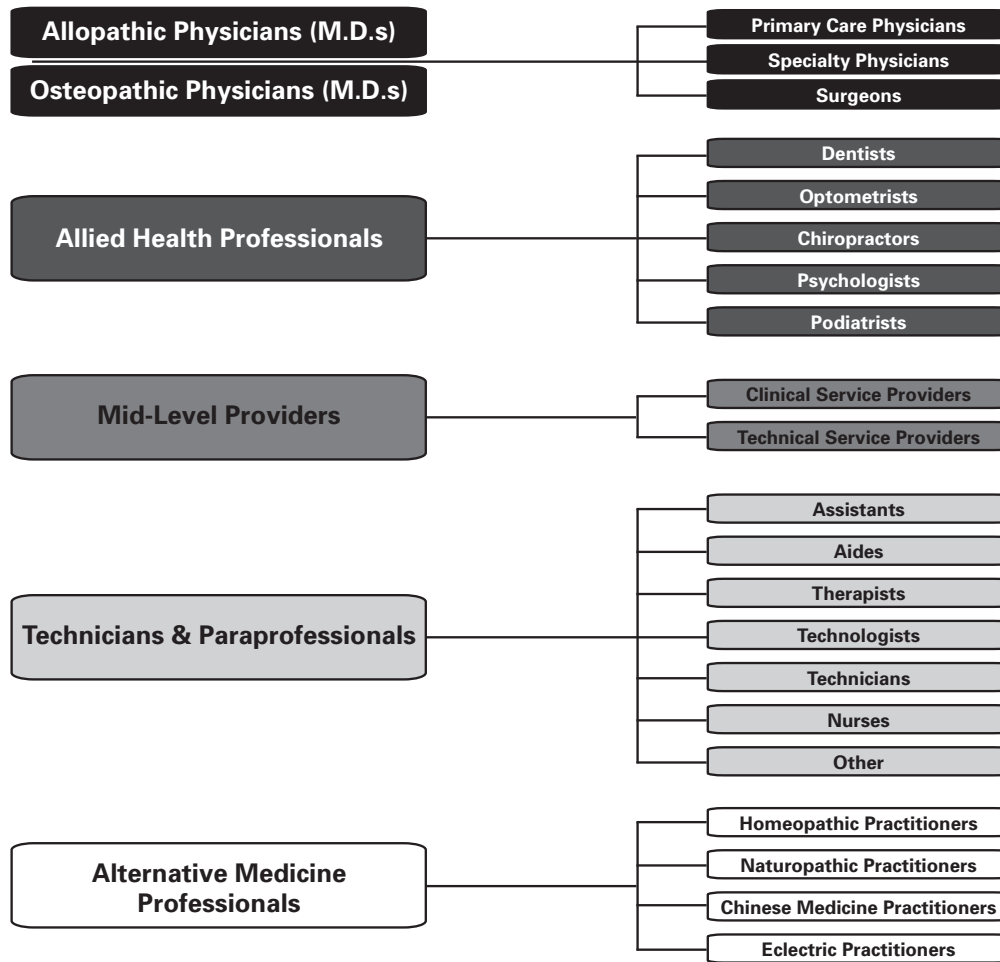
1. **Resistors.** Resistors are organizations designed to maintain the status quo, repel managed care, or gradually develop the knowledge necessary for successful operation within a managed care environment. IPAs and PHOs remain at this level of integration.²³⁴
2. **Cost containers.** Cost containers are organizations that are capable of controlling healthcare costs through economies of scale. However, the ability of cost containers to contract effectively with MCOs and systematically reduce utilization of services is limited. PPMC and MSOs are classified as cost-container EHOs.²³⁵
3. **True integrators.** True integrators are organizations that are so financially integrated through risk contracting or ownership that true integration of care processes is feasible. While very few systems in the United States operate as true integrators, many EHOs aspire to this level of assimilation.²³⁶ FIMGs and IDSs are classified as true integrators.²³⁷

Figure 1-5: Classification of Emerging Healthcare Organizations

	Resistors	Cost Containers	True Integrators
Horizontal Integrators	Independent Practice Associations	Physician Practice Management Companies	Fully-Integrated Medical Groups
Vertical Integrators	Physician Hospital Organizations	Managed Service Organizations	Integrated Delivery Systems

Source: "A Guide to Consulting Services for Emerging Healthcare Organizations," by Robert J. Cimasi, John Wiley & Sons, Inc. 1999.

Figure 1-6: Types of Healthcare Professionals



HEALTHCARE PROFESSIONALS

WORKFORCE TRENDS

GROWING PROVIDER VERSATILITY

Hospital-Based Versus Office-Based Professionals: Then and Now

Historically, healthcare professionals were classified according to the services they provided and, therefore, the sites of service that employed them. However, with perpetual demand for increasingly specialized medical services and, therefore, the constant increase of services feasibly provided in both inpatient and outpatient settings, practitioners can no longer be compartmentalized as exclusively office- or hospital-based.

There has been a transformation in the characteristics attributed to the type of professionals who continue to practice solely or largely in a hospital setting. **Hospitalists**, for example, are physicians who

work exclusively in the hospital setting.²³⁸ They also are referred to as “inpatient physicians” because they do not see patients in an office like traditional physicians do.²³⁹ Hospitalists care for patients upon admittance to the hospital until they are discharged to alleviate time pressures faced by the patient’s primary care doctor.²⁴⁰ The primary care physician can stop by to check on the patient, but he or she does not have to oversee treatment given in the hospital, allowing for more office visits with other patients.²⁴¹ The market shift away from primary care and towards specialty services has resulted in an increased number of specialists employed as hospitalists.²⁴² Not only does this specialization help hospital profits, because the most money is made in outpatient services, but it also ensures emergency department coverage, as well as malpractice protection for physicians.²⁴³

Additionally, hospitals have been forced to return to the practice of directly employing physicians, a trend that was observed in the 1990s.²⁴⁴ As more physician-owned specialty hospitals open, hospitals increasingly are competing for physicians’ time and loyalty, which allows more physicians to refuse on-call emergency room duties and other traditional medical staff responsibilities.²⁴⁵ Although this type of employment relationship has not increased hospitals’ profits, it has allowed them to stay in business.²⁴⁶ At the time of publication, though the majority of hospitalists are employed directly by a hospital, they can be contractors to more than one hospital.²⁴⁷ Other employment arrangements include belonging to a medical group practice of hospitalists or working for a hospital-based management company that hires hospitalists and provides them on a contractual basis to hospitals.²⁴⁸ According to the Society of Hospital Medicine, one third of hospitalists were employed directly by hospitals in 2003; 25 percent were in hospitalist-only groups, 25 percent were employed by academic hospital programs, and 16 percent were employed by multispecialty groups.²⁴⁹

One-third of hospitalists were employed directly by hospitals in 2003; 25 percent were in hospitalist-only groups, 25 percent were employed by academic hospital programs, and 16 percent were employed by multispecialty groups.

“Hospitalists: Communication is Key,” Ken Terry, Medical Economics, Sept. 2, 2005, www.memag.com/memag/content/printContentPopup.jsp?is=177202 (accessed December 21, 2007).

These trends are a clear consequence of the increased availability of certain traditionally hospital-based services in an office-based setting. Naturally, traditionally hospital-based professionals are moving into practice settings that are more profitable to them. In addition to surgical professionals, practitioners in the fields of radiology, nephrology, oncology, pain management, pulmonology, and other forms of critical care and emergency medicine are finding that their services are viable outside the hospital setting.²⁵⁰ This redistribution of practitioners across sites of service is discussed further in chapter 3, *Physician Practices*; chapter 4, *Mid-Level Provider Professional Practices*; chapter 5, *Technicians and Paraprofessionals*; chapter 6, *Allied Health Professionals*; and chapter 7, *Alternative Medicine Practices*, respectively.

In addition to surgical professionals, practitioners in the fields of radiology, nephrology, oncology, pain management, pulmonology, and other forms of critical care or emergency medicine are finding that their services are viable outside the hospital setting.

“Specialization, Specialty Organizations, and the Quality of Health Care,” from “Policy Challenges in Modern Health Care, Chapter 14, by Rosemary A. Stevens, Rutgers University Press, 2005, p. 212.

Locum Tenens

Locum tenens, a Latin phrase meaning “to hold the place of, to substitute for,” is used to describe healthcare professionals who travel from practice to practice and serve as temporary practitioners.²⁵¹ Professionals choose *locum tenens* staffing primarily in an effort to experience various practice settings and geographic locations before committing to a full-time contract position.²⁵² Various kinds of healthcare organizations, including hospitals, clinics, rural solo practices, and large healthcare systems, seek out *locum tenens* practitioners.²⁵³ Their reasons vary based on facility demographics, because facilities may be burdened by regional shortages, face increases in staff retirement, or find it more cost effective to supplement their staff with *locum tenens* professionals rather than to use permanent staffing.²⁵⁴

GROWING PROVIDER DIVERSITY

The competitive market for healthcare practitioners is increasingly diverse as demonstrated by the growing number of factors driving industry and demographic trends. Numerous types of practitioners have emerged from different schools of medicine, further challenging the dwindling traditional physician workforce.

Increased Utility Among Healthcare Practices

With growth in technology and specialization comes growth in potential provider types. Provider diversity can be attributed to a highly technical diagnostic and therapeutic industry in which much of the technology is outside the scope of physicians' capabilities and requires the skills of highly trained nonphysician professionals.²⁵⁵ This also serves as a competitive factor *within* the physician community, because physicians with greater technological proficiency are being viewed as more marketable and, therefore, more successful.²⁵⁶

Technology also has broadened the capabilities of many providers by promoting efficacy, efficiency, and ease-of-use. This results in less-specialized providers entering practice areas previously limited to a more technically specialized type of healthcare professional.²⁵⁷ It can be expected that competition will continue to fluctuate as the demand for healthcare increases due to the aging population.²⁵⁸

Increased Patient Demand within the Healthcare Industry

In the midst of a recession, with unemployment rates hovering just under 10 percent, the healthcare workforce is experiencing a shortage of its own.²⁵⁹ Other concerns aside, the aging U.S. population will invariably contribute to the scarcity of healthcare providers.²⁶⁰ As a result of this phenomenon, paired with the record number of American births from the late 1940s through the early 1960s, demographic trends have shown a detrimental increase aging that is only expected to further escalate.²⁶¹ Additionally, as people live longer with chronic conditions, they require more frequent routine and emergency medical care.²⁶² Although the U.S. population as a whole is projected to increase by 18 percent between 2000 and 2020, the number of Americans aged sixty-five and older is anticipated to grow by 54 percent during that same period of time, accounting for 16.5 percent of the total population.²⁶³ That 16.5 percent of the total population will average 80 percent more physician visits and will account for approximately three times as many hospitalizations as those under the age of sixty-five.²⁶⁴

This demographic shift will contribute significantly to the existing shortage of physicians, nurses, allied health professionals, and other healthcare professionals.²⁶⁵ The existing shortages that burden healthcare professions are a product of financial, educational, industrial, and technological factors that must be addressed to manage demand.²⁶⁶

WORKFORCE CHARACTERISTICS

SCHOOLS OF MEDICINE: ALLOPATHIC VERSUS OSTEOPATHIC PROFESSIONALS

Differences and Similarities

Osteopathic (holistic) medicine is **allopathic** (traditional) medicine's biggest competitor.²⁶⁷ Although Doctors of Medicine (M.D.s) and Doctors of Osteopathy (D.O.s) possess many inherent and structural similarities, the schools differ in their fundamental philosophies.²⁶⁸ Though osteopathic and allopathic colleges are accredited by two independent associations and their graduates pursue certification through two distinct specialty boards, the required education and training for both schools stem from the same stringent regulatory guidelines.²⁶⁹ As such, similar processes are incorporated by the American Medical Association and American Osteopathic Association to meet criteria for the completion of medical school, state licensure, and board certification, as well as continued education.²⁷⁰ Physician education and training requirements are discussed further in chapter 3, *Education/Training*.

Both allopathic and osteopathic physicians are licensed to prescribe medication and to practice in any area of general or specialty medicine.²⁷¹ The specialties that are certified by each board differ slightly.²⁷² Both allopathic and osteopathic physicians practice in accredited and licensed facilities that uphold the enforced standard of care.²⁷³

Both M.D.s and D.O.s are licensed to prescribe medication and to practice in any area of general or specialty medicine.

"What is a Doctor of Osteopathic Medicine (D.O.)," by the American Osteopathic Association, 2009, www.osteopathic.org/index.cfm?PageID=ado_what is (accessed July 21, 2009).

The philosophy behind osteopathy distinguishes it from mainstream medicine and keeps allopathic and osteopathic schools of medicine segregated. First, osteopathic medical schools emphasize "a 'whole person' approach to medicine."²⁷⁴ In other words, rather than treat specific symptoms or illnesses, osteopathic physicians "regard [the] body as an integrated whole."²⁷⁵ Accordingly, osteopathic medical education is focused primarily on training in primary care and preventative medicine.²⁷⁶ Osteopathic physicians acquire a comprehensive and working knowledge of the musculoskeletal system, which bolsters a universal understanding of its inherent interrelatedness, namely, how localized illnesses or injuries can affect other parts of the body.²⁷⁷ Finally, osteopathic physicians receive training in **osteopathic manipulative treatment (OMT)**, which involves use of the hands to diagnose illness and injury and to encourage the body's natural tendency toward good health.²⁷⁸ More specifically, the manual manipulation of joints, muscles, and fasciae is used to correct mechanical disorders.²⁷⁹ Additionally, OMT may be used in therapies related to circulation, lymphatic draining, and the nervous system.²⁸⁰

Physician Demographics

Although traditional medicine dominates the market with 954,224 allopathic practitioners, the number of osteopathic practitioners is growing, with osteopathic practitioners representing 6.59 percent (62,918) of all physicians in 2008.²⁸¹ According to the American Association of Colleges of Osteopathic Medicine, "[c]olleges of osteopathic medicine are graduating more and more students each year. By 2010, approximately 4,000 new osteopathic physicians will enter the workforce each year."²⁸²

The osteopathic population is largely condensed in the younger demographic.²⁸³ In 2008, physicians under the age of forty-five accounted for 46.7 percent of all osteopathic physicians and only 37.4 percent of all allopathic physicians.²⁸⁴ Furthermore, 62.9 percent of all female osteopathic physicians were under the age of forty-five, as compared with the 54.7 percent of all female allopathic physicians.²⁸⁵

In 2008, physicians under forty-five years of age accounted for 46.7 percent of all D.O.s and only 37.4 percent of all M.D.s.

"Physician Characteristics and Distribution in the US," by the American Medical Association, 2010, p. 8, 327.

Female practitioners in both fields have increased in number over the years, though osteopathic medicine has seen a much more dramatic shift in gender distribution.²⁸⁶ Female physicians represent 28.5 percent of the osteopathic physician population, which is fairly consistent with the number of women in the allopathic physician population (29.0 percent).²⁸⁷ Women have outpaced men in osteopathic practice, with 29.5 percent of all female osteopathic physicians under the age of thirty-five, as compared with 13.9 percent of male osteopathic physicians.²⁸⁸

Approximately 53.6 percent of practicing osteopathic physicians specialize in primary care (discussed in chapter 3, *Primary Care*), with family medicine (23.8 percent) and internal medicine (11.22 percent) representing the two largest specialty fields. General practice (4.7 percent) and pediatrics (4.5 percent) represent the third and fourth largest fields; obstetrics and gynecology (3.63 percent) represents the seventh largest field.²⁸⁹

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"Physician Characteristics and Distribution in the US," by the American Medical Association, 2010, p. 328.

COMPETING HEALTHCARE PROFESSIONALS

In addition to the strain they endure as a consequence of the manpower shortage, physicians (especially primary care physicians) face heightened competition from allied health professionals, mid-level providers, and technicians and paraprofessionals. New technologies and procedures have introduced a plethora of new allied health professionals, mid-level providers, and technicians and paraprofessionals to the medical workforce.²⁹⁰ The U.S. Department of Labor reports that allied health professionals represent 60 percent of the U.S. healthcare workforce, providing diagnostic, technical, and therapeutic services both incident to (supporting) or *in lieu* of (replacing) physicians.²⁹¹

Allied health professionals represent 60 percent of the U.S. healthcare workforce, providing diagnostic, technical, and therapeutic direct patient care and support services.

"Workforce Shortage Crisis," by George Lauer, Allied Health Professionals Week Highlights, January 27, 2007, www.californiahealthline.org/Features/2009/Shortage-of-Allied-Health-Workers (accessed April 10, 2009).

CONCLUSION

In the following chapters, the various players that contribute to the competitive healthcare marketplace will be defined, described, and compared in light of industry projections. See figure 1-6 for a chart of the various players in the healthcare marketplace. Specifically, understanding the relationships between physicians, allied health professionals, mid-level providers, technicians and paraprofessionals, and alternative medicine providers will be of significant utility when providing consulting services to businesses within the healthcare industry.

Key Sources

Key Source	Description	Citation	Hyperlink
Office of the Inspector General (OIG)	"The mission of the OIG, as mandated by Public Law 95-452 (as amended), is to protect the integrity of Department of Health and Human Services (HHS) programs, as well as the health and welfare of the beneficiaries of those programs."	"Mission," Office of Inspector General, U.S. Department of Health and Human Services, 2009, http://oig.hhs.gov (accessed September 24, 2009).	http://oig.hhs.gov
Department of Health and Human Services (HHS)	"The United States government's principal agency for protecting the health of all Americans and providing essential human services, especially for those who are least able to help themselves."	"About HHS," the Department of Health and Human Services, 2009, www.hhs.gov/about/ (accessed September 24, 2009).	www.hhs.gov
Outpatient Surgery	"Serves as a meeting place and a marketplace for decisionmakers in facilities where ambulatory surgery is done."	"Mission Statement," Outpatient Surgery, 2009, www.outpatientsurgery.net/about/mission (accessed September 24, 2009).	www.outpatientsurgery.net
U.S. Government Accountability Office (GAO)	"Known as 'the investigative arm of Congress' and 'the congressional watchdog,' GAO supports Congress in meeting its constitutional responsibilities and helps improve the performance and accountability of the federal government for the benefit of the American people."	"Welcome to the GAO," by the U.S. Government Accountability Office, 2009, www.gao.gov , (accessed September 24, 2009).	www.gao.gov
Medicare Payment Advisory Commission (MEDPAC)	"An independent Congressional agency established by the Balanced Budget Act of 1997 (P.L. 105-33) to advise the U.S. Congress on issues affecting the Medicare program."	"About MEDPAC," the Medical Payment Advisory Commission, 2009, www.medpac.gov/about.cfm (accessed September 24, 2009).	www.medpac.gov
Securities Exchange Commission (SEC)	"The mission of the U.S. Securities and Exchange Commission is to protect investors, maintain fair, orderly, and efficient markets, and facilitate capital formation."	"The investor's Advocate: How the SEC Protects Investors, Maintains Market Integrity, and Facilitates Capital Formation," by the Securities Exchange Commission, 2009, www.sec.gov/about/whatwedo.shtml (accessed September 24, 2009).	www.sec.gov
Henry J. Kaiser Family Foundation	"A non-profit, private operating foundation focusing on the major health care issues facing the U.S., as well as the U.S. role in global health policy."	"About the Kaiser Family Foundation," by The Henry J. Kaiser Family Foundation, 2009, www.kff.org/about/index2.cfm (accessed September 24, 2009).	www.kff.org

Key Source	Description	Citation	Hyperlink
<i>Journal of the American Medical Association (JAMA)</i>	An international peer-reviewed general medical publication, JAMA is the "most widely circulated medical journal in the world."	"About JAMA." Journal of the American Medical Association, 2010, http://jama.ama-assn.org/misc/aboutjama.dtl (accessed February 2, 2010).	http://jama.ama-assn.org
Mercer	"Mercer is the global leader for trusted HR and related financial advice, products and services. In our work with clients, we make a positive impact on the world every day"	"About Mercer," Mercer LLC, 2009, www.mercer.com/aboutmercer.htm?siteLanguage=100 (accessed September 9, 2009).	www.mercer.com
Physician Hospitals of America (PHA)	"Offers support, advocacy and educational services to the physician owned hospital industry, reflecting at all times the best interests of the patients, physicians, and other providers who play an inextricable and essential role in the provision of healthcare services"	"At a Glance," Physician Hospitals of America, www.physicianhospitals.org/ (accessed January 29, 2010).	www.physicianhospitals.org
Department of Labor (DOL)	Fosters and promotes the welfare of the job seekers, wage earners, and retirees of the United States by improving their working conditions, advancing their opportunities for profitable employment, and protecting their retirement and healthcare benefits. It also helps employers to find workers, strengthens free collective bargaining, and tracks changes in employment, prices, and other national economic measurements.	"Our Mission," the Department of Labor, 2009, www.dol.gov/opa/aboutdol/mission.htm (accessed September 24, 2009).	www.dol.gov

Associations

Type of Association	Professional Association	Description	Citation	Hyperlink	Contact Information
National	American Hospital Association (AHA)	"The national organization that represents and serves all types of hospitals, health care networks, and their patients and communities."	"About the American Hospital Association," American Hospital Association, www.aha.org/aha/about/index.html (accessed January 29, 2010).	www.aha.org	American Hospital Association One North Franklin Chicago, IL 60606 Phone: 312-422-3000 Fax: n/a E-mail: n/a
National	American Society for Aesthetic Plastic Surgery (ASAPS)	"Leading professional organization of plastic surgeons certified by the American Board of Plastic Surgery who specialize in cosmetic plastic surgery."	"About ASAPS," American Society for Aesthetic Plastic Surgery, 2009, www.surgery.org/ (accessed January 29, 2010).	www.surgery.org	American Society for Aesthetic Plastic Surgery Address: n/a Phone: 888-ASAPS-11 Fax: n/a E-mail: findasurgeon@surgery.org
National	American Medical Association (AMA)	An association that "helps doctors help patients by uniting physicians nationwide to work on the most important professional and public health issues."	"Our Mission," American Medical Association, www.ama-assn.org/ama/pub/about-ama/our-mission.shtml (accessed on January 29, 2010).	www.ama-assn.org	American Medical Association 515 N. State Street Chicago, IL 60654 Phone: 800-621-8335 Fax: n/a E-mail: n/a

Type of Association	Professional Association	Description	Citation	Hyperlink	Contact Information
National	American Osteopathic Association (AOA)	"A member association representing more than 67,000 osteopathic physicians (D.O.s). The AOA serves as the primary certifying body for D.O.s, and is the accrediting agency for all osteopathic medical colleges and health care facilities."	"About the AOA," American Osteopathic Association, www.osteopathic.org/index.cfm?PageID=aoa_main (accessed on January 29, 2010).	www.osteopathic.org	American Osteopathic Association 142 East Ontario Street Chicago, IL 60611 Phone: 800-621-1773 or 312-202-8000 Fax: 312-202-8200 E-mail: info@osteotech.org
National	Ambulatory Surgery Center Association (ASC Association)	The ASC Association "assists state ASC associations and enhances ASC representation at the state and federal level."	"ASC Association," Ambulatory Surgery Center Association, http://ascassociation.org/about/association/ (accessed on January 29, 2010).	http://ascassociation.org	Ambulatory Surgery Center Association 1012 Cameron St Alexandria, VA 22314 Phone: 703-836-8808 Fax: 703-549-0976 E-mail: ASC@ascassociation.org
National	Society of Hospital Medicine (SHM)	"The largest organization in the nation representing hospitalists and the practice of hospital medicine."	"About SHM," Society of Hospital Medicine, 2009, www.hospitalmedicine.org/AM/Template.cfm?Section=About_SHM (accessed January 29, 2010).	www.hospitalmedicine.org	Society of Hospital Medicine 1500 Spring Garden Suite 501 Philadelphia, PA 19130 Phone: 800-843-3360 Fax: n/a E-mail: webmaster@hospitalmedicine.org
National	American Health Insurance Plans (AHIP)	"The national association representing nearly 1,300 member companies providing health insurance coverage to more than 200 million Americans."	"About AHIP," American Health Insurance Plans, www.ahip.org/content/default.aspx?bc=31 (accessed January 29, 2010).	www.ahip.org	America's Health Insurance Plans 601 Pennsylvania Avenue, NW South Building Suite 500 Washington, DC 20004 Switchboard: 202-778-3200 Fax: 202-331-7487 E-mail: ahip@ahip.org
National	Health Assistance Partnerships (HAP)	Educates key audiences about the value State Health Insurance Assistant Programs (SHIPs) provide, the issues Medicare beneficiaries face, and the funding SHIPs need to serve their clients.	"About the Health Assistance Partnership," Health Assistance Partnership, 2009, www.hapnetwork.org/about/ (accessed January 29, 2010).	www.hapnetwork.org	Health Assistance Partnerships 1201 New York Avenue, NW, Suite 1100 Washington, DC 20005 Phone: 202-737-6340 Fax: 202-737-8583 E-mail: shiphelp@hapnetwork.org
National	Association of American Medical Colleges (AAMC)	"Represents all 131 accredited U.S. and 17 accredited Canadian medical schools; approximately 400 major teaching hospitals and health systems, including 68 Department of Veterans Affairs medical centers; and nearly 90 academic and scientific societies. Through these institutions and organizations, the AAMC represents 125,000 faculty members, 75,000 medical students, and 106,000 resident physicians."	"About the AAMC," Association of American Medical Colleges, www.aamc.org/about/start.htm (accessed January 29, 2010).	www.aamc.org	Association of American Medical Colleges 2450 N Street, NW Washington, DC 20037 Phone: 202-828-0400 Fax: 202-828-1125 E-mail: n/a

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2

Emerging Models

Every physician will make, and ought to make, observations from his own experience; but he will be able to make a better judgment and juster observations by comparing what he reads and what he sees together. It is neither an affront to any man's understanding, nor a cramp to his genius, to say that both the one and the other may be usefully employed, and happily improved in searching and examining into the opinions and methods of those who lived before him, especially considering that no one is tied up from judging for himself, or obliged to give into the notions of any author, and further than he finds them agreeable to reason, and reducible to practice. (History of Physic)

John Friend, 1732

KEY TERMS

- Accountable Care Organization
- Comprehensive or "Turnkey" Model
- Cost Containers
- Emerging Healthcare Organization
- Fully Integrated Medical Group
- Horizontal Integration
- Independent Practice Associations (IPAs)
- Integrated Delivery Systems
- Integration
- Joint-Venture, Hospital, or Physician-Owned MSOs
- Management Services Bureau or "Low-Tech" Model
- Management Services Organization (MSO)
- Physician Hospital Organizations
- Physician Investor-Owned MSOs
- Physician Practice Management Companies
- Resistors
- System-Owned MSOs
- True Integrators
- Vertical Integration



Key Concept	Definition	Citation
Drivers of Emerging Trends in Healthcare	(1) population trends, (2) transitions in the nature of healthcare professional practices, and (3) healthcare reform	n/a
Effect of Aging Population on Healthcare	Increased life expectancy suggests increased prevalence of chronic conditions common among the elderly. The supply of assisted living facilities is increasing in contrast to the decreasing number of nursing homes; 63 percent of Americans requiring long- or short-term hospital care were aged sixty-five or older. The scope of outpatient procedures continues to broaden, however, which has contributed to a shortened average length of inpatient hospital stays among those over the age of sixty-five.	"Health, United States, 2008, With Special Feature on the Health of Young Adults," U.S. Department of Health and Human Services, National Center for Disease Statistics, March 2009, www.cdc.gov/nchs/data/abus/abus08.pdf#120 (accessed September 11, 2009), p. 3–4; "Selected Long-Term Care Statistics," The Family Caregiving Alliance, 2005, www.caregiver.org/caregiver/jsp/content_node.jsp?nodeid=440 (accessed September 25, 2009).
Impact of Growing Number of Female Physicians and Demand for Better Lifestyle on Healthcare	Practitioner demand now includes, among other things a resistance to call coverage, an interest in less strenuous and more flexible specialty areas, and a growing number of part-time physicians.	n/a
Types of Integration	(1) vertical and (2) horizontal	"The Dynamics and Limits of Corporate Growth in Health Care," by James C. Robinson, <i>Health Affairs</i> , Vol. 15, No. 2, 1996, p. 156–61; "Integration of Health Care Organizations: Using the Power Strategies of Horizontal and Vertical Integration in Public and Private Health Systems," by Carey Thaldorf and Aaron Liberman, <i>The Health Care Manager</i> , Vol. 26, No. 2 (2007), 118–19.
Types of Horizontal Integration	(1) within-market integration and (2) across-market integration	"The Dynamics and Limits of Corporate Growth in Health Care," by James C. Robinson, <i>Health Affairs</i> , Vol. 15, No. 2, 1996, p. 156.
Integration strategies in:	(1) funding, (2) administration, (3) organization, (4) the delivery of services, and (5) clinical dynamic	"Integrated care: meaning, logic, applications, and implications—a discussion paper," by Dennis L. Kodner, PhD and Cor Spreeuwenberg, MD, PhD, <i>International Journal of Integrated Care</i> , Vol. 2, November 14, 2002, p. 4.
Levels of integration	(1) resisters, (2) cost containers, (3) true integrators	"A Guide to Consulting Services for Emerging Healthcare Organizations," by Robert J. Cimas, John Wiley & Sons, Inc., 1999, p. 34.
Types of Resisters	(1) independent practice associations and (2) physician hospital organizations	"Health Care Administration: Planning, Implementing and Managing Organized Delivery Systems," by Lawrence F. Wolper, Jones and Bartlett Publishers, Inc., 2004, p. 558.
Types of Cost Containers	(1) physician practice management companies and (2) management services organizations (MSOs)	"Essentials of Managed Health Care," by Peter R. Kongstvedt, Jones and Bartless Publishers, 2003, p. 36–38; "Physician Equity Groups and Other Emerging Entities: Competitive Organizational Choices for Physicians," by Fred McCall-Perez, PhD, <i>The Healthcare Financial Management Association</i> , 1997, p. 45.
Factors Used to Differentiate Between MSOs	(1) purpose, (2) function, and (3) organizational structure	"Healthcare Integration: A Legal Manual for Constructing Integrated Organizations," by Gerald R. Peters, Esq., National Health Lawyers Association, 1995, p. 297.
MSO Purposes	(1) growth and integration, (2) asset separation, (3) practice management quality, (4) lay investor equity, (5) precluding potential competition, (6) economies of scale, (7) clinical information sharing, and (8) generating revenue	"Healthcare Integration: A Legal Manual for Constructing Integrated Organizations," by Gerald R. Peters, Esq., National Health Lawyers Association, 1995, p. 298–300; "A National Initiative: The Survey of Hospital-Sponsored Management Services Organizations," <i>Medimatrix</i> , 1997, p. 4–9.
Functional Models	(1) management services bureau or "low-tech" model and (2) comprehensive or "turnkey" model	"Essentials of Managed Health Care," by Peter R. Kongstvedt, Jones and Bartless Publishers, 2003, p. 45–46; "Healthcare Integration: A Legal Manual for Constructing Integrated Organizations," by Gerald R. Peters, Esq., National Health Lawyers Association, 1995, p. 297–98, 300, 333.

Key Concept	Definition	Citation
Types of MSO Organizational Structures	(1) system-owned MSOs, (2) joint venture, hospital, or physician-owned MSOs, and (3) physician investor-owned MSOs	"Would an MSO Make Your Life Easier?" by Kristie Perry, <i>Medical Economics</i> , April 10, 1995; "Healthcare Integration: A Legal Manual for Constructing Integrated Organizations," by Gerald R. Peters, Esq., National Health Lawyers Association, 1995, p. 306–7.
System-Owned MSO Business Structures	(1) for-profit or nonprofit subsidiaries, (2) S corporations, and (3) limited liability corporations	"Healthcare Integration: A Legal Manual for Constructing Integrated Organizations," by Gerald R. Peters, Esq., National Health Lawyers Association, 1995, p. 305-6.
Types of True Integrators	(1) fully integrated medical groups and (2) integrated delivery systems	"Healthcare Integration: A Legal Manual for Constructing Integrated Organizations," by Gerald R. Peters, Esq., National Health Lawyers Association, 1995, p. 10, 27, 235; "The Holographic Organization," by Stephen M. Shortell, et al., <i>Healthcare Forum Journal</i> , Vol. 36, No. 2, (1993), p. 20–26.
Emerging Models in an Era of Reform	(1) concierge care model, (2) retail clinic model, (3) medical home model, (4) bundled payment model, and (5) accountable care organization model	n/a
Acute Care Episode Demonstration (ACE) project	CMS's pilot program to aid in the assessment of bundled payments received for both physician and hospital services for select episodes of cardiovascular or orthopedic care.	"Acute Care Episode Demonstration Fact Sheet," Centers for Medicare and Medicaid Services, March 20, 2009, www.cms.hhs.gov/DemoProjectsEvalRpts/downloads/ACEFactSheet.pdf (accessed June 1, 2009).

OVERVIEW

Marcus Welby, M.D., is dead—not just the popular television series of the 1960s and '70's but the entirety of the “cottage industry” of independent practice of medicine (see chapters 1 and 3 in *An Era of Reform*). Although this may be attributed to many industry drivers, market changes in recent years have been instrumental to the demise of solo or small group practices. In addition to adopting new business structures, practices have responded to healthcare industry changes by abandoning traditional systems of management in pursuit of strategies that better meet market demand. In order to remain efficient and viable in a changing and volatile healthcare environment, practices are making significant transitions, by way of expansion, acquisition, sale, divestiture, merger, and other changes in ownership structure.

Marcus Welby, M.D. is a show from 1969 about “Marcus Welby, a general practitioner and Steven Kiley, Welby’s young assistant . . . who try to treat people as individuals in an age of specialized medicine and uncaring doctors.”

“Marcus Welby M.D.” Internet Movie Database, www.imdb.com/title/tt0063927/plotsummary (accessed March 4, 2010).

While these practice transitions are not without risk, they may cultivate potential opportunities for owners of healthcare professional practice enterprises.¹ Mergers, acquisitions, and sales or divestitures are not simply the transfer of a business interest for a transaction fee; they are essential to the ongoing success (or failure) of a healthcare enterprise.² As practices transition to emerging organizational models, they will provide opportunities for consultants to assist healthcare professional practices in making these critical changes.

This chapter defines the drivers of market trends and transitions in healthcare and describes the **emerging healthcare organizations (EHOs)** that healthcare providers continue to build in response to market changes. This chapter also discusses the EHOs that have surfaced as a result of recent healthcare challenges in an era of healthcare reform.

DRIVERS OF EMERGING TRENDS IN HEALTHCARE

As of 2010, the healthcare environment is a largely a product of (1) trends in the demographics and health outcomes of the U.S. population, (2) transitions in the healthcare workforce and professional practice dynamic, and (3) the impact of healthcare reform. These factors may, in turn, be influenced by each other, because recent and anticipated workforce and population trends have left the U.S. healthcare system in need of significant reform, particularly in the areas of quality, access, cost, and regulation. It is by proxy of these driving trends and the 2010 reform efforts that new models for the structuring of healthcare professional practice enterprises have taken shape.

POPULATION TRENDS

DEMOGRAPHIC CLIMATE

The healthcare implications of a graying U.S. population are significant across all sectors of the healthcare professional workforce. Based on data reported in 2005, the population of older Americans is expected to grow 138 percent by 2050, when one in every five Americans will be aged sixty-five or older.³ Further, trends in quality of care, paired with trends in nutrition and safety, have led to increased longevity and, accordingly, an increase in life expectancy.⁴ Projections suggest an estimated 377 percent increase in Americans aged eighty-five or older from 2005 to 2050.⁵ The volume and types of services demanded by this growing subset of the population will have a significant effect on the future viability and success of healthcare professional practice enterprises.

EPIDEMIOLOGICAL DEMAND

As discussed in chapter 1, *Overview: Trends Toward a “Continuum of Care” in a Growing and Graying Population* and in chapter 1 of *An Era of Reform*, health outcomes that are prevalent among the elderly population differ significantly from the health concerns of the younger demographic. Accordingly, the growing number of aging Americans will drastically influence trends in healthcare demand.⁶ Increased life expectancy suggests increased prevalence of chronic conditions common among the elderly.⁷ While cancer, heart disease, diabetes, and other chronic illnesses are of significant concern for Americans across all age groups, such conditions plague 84 percent of those aged sixty-five or older, as compared with 38 percent of adults between the ages of twenty and forty-four.⁸ Though unintentional injuries are among the leading causes of death for all age groups, elderly individuals are more likely to suffer and endure complications from acute injuries (for example, falls) and illnesses (for example, pneumonia as a complication from influenza). In fact, 63 percent of Americans requiring long- or short-term hospital care, or a combination of the two, were over the age of sixty-five.⁹ The increasing supply of assisted living facilities in contrast to the decreasing number of nursing homes further emphasizes the fact that while the number of elderly Americans is increasing, quality of preventive care has improved, patient awareness has increased, and social emphasis on prevention of acute incidents has solidified. In

addition, the scope of outpatient procedures continues to broaden, which has contributed to a shortened average length of inpatient hospital stays among those aged of sixty-five or older.¹⁰

The value of the worldwide pharmaceutical market projected to reach \$1.3 trillion by 2020.

"Biomarket Trends: Pharmaceutical Industry Undergoing a Transformation," by Steve Arlington and Anthony Farino, Genetic Engineering and Biotechnology News, Vol. 27, No. 15, September 1, 2007, p. 1.

TRANSITIONS IN THE NATURE OF HEALTHCARE PROFESSIONAL PRACTICES

WORKFORCE TRANSITIONS

As illustrated in chapter 1 of *An Era of Reform*, trends in healthcare professional manpower are largely influenced by demographic and epidemiologic trends. Consequently, these demographic and epidemiological trends may shape the foundational elements that healthcare organizations may want to integrate into their infrastructure in order to enhance their ability to thrive in the projected healthcare marketplace.¹¹

PATIENT DEMOGRAPHIC TRANSITIONS

The impact of the demographic shift on workforce numbers is an ubiquitous concern for all healthcare professionals that looms most heavily over the physician population (see chapter 1, *Increased Patient Demand within the Healthcare Industry*, chapter 3, *Supply of Physician Manpower*, and chapter 1 of *An Era of Reform*).¹² The ongoing physician manpower shortage is attributed to not only the graying workforce but also to the anticipated growth in demand due to shifting patient demographics and trends in health outcomes.¹³ In addition to the debilitating physician shortage, the allocation of existing manpower is inconsistent with the distribution of demand.¹⁴

Demographic changes within the physician population also have contributed to changing practice trends. Specifically, the growing number of female physicians, paired with the demand for better lifestyles and improved workplace conditions, has reset the practice dynamic and redefined practitioner demand to include, among other things resistance to call coverage, an interest in less strenuous and more flexible specialty areas, and a growing number of part-time physicians (see chapter 1, *Physician Demographics* and chapter 3, *Supply of Physician Manpower*). Although, physicians traditionally have worked long hours as a result of professional obligations, medical professionals increasingly are seeking a more balanced lifestyle.¹⁵ Most doctors under the age of fifty seek an opportune work-home balance that facilitates increased flexibility in professional schedules.¹⁶ Female physicians, many of whom may be younger women with children, may be particularly inclined to pursue flexible work schedules.¹⁷

The growing proportion of women in the physician workforce (from 11.6 percent in 1980 to 30.0 percent in 2008) may suggest an increase in the number of part-time physicians, however, researchers only project a 3 percent decrease in full-time physicians during the next several years.

"Physician Characteristics and Distribution in the US 2010 Edition," American Medical Association, 2010, p. 8, 438, 450; "Part-Time Medical Practice: Where is it Headed?" By Julia E. McMurray, et. al., Association of Professors of Medicine, Vol. 118, No. 1, p. 87 (Jan. 2009).

TRANSITIONS IN THE INTRA-PROFESSIONAL WORKFORCE DYNAMIC

In a delivery system historically driven by physician professionals, these supply trends may be cause for a continued and reallocation of the healthcare workforce. Improved integration of physician *and* non-physician professionals may be necessary to efficiently and effectively address the healthcare needs that the physician population is no longer equipped to satisfy.¹⁸ While all healthcare professional populations are projected to endure the burden of an aging workforce, the supply of various mid-level providers and technicians and paraprofessionals showed annual growth rates of at least 5 percent every year from 1999 to 2006.¹⁹

PRACTICE TRANSITIONS

Changes in market supply and demand also have fueled the diversification of healthcare professional practices. As explained in chapter 1, *Growing Provider Versatility*, the competitive market has changed significantly in response to the favorable expansion of services reasonably within the scope of office-based practices, that is, free-standing facilities providing diagnostic, therapeutic, or surgical services.²⁰ The ongoing impact of this market transition and the following industry trends on hospital-based practices will be of continued significance for all market players.²¹

ATTACK ON NICHE PROVIDERS

Technological advances have made it possible for more procedures to be provided on an outpatient basis.²² The advent of managed care and drastic changes to Medicare reimbursement for professional services have forced providers to look for more remunerative ways to generate ancillary services and technical component (ASTC) revenue streams, which typically yield a greater profit margin than revenue generated exclusively through the provision of professional services.²³ As a natural reaction to these dramatic changes, an increasing number of practitioners are investing in ownership of specialized inpatient and outpatient facilities wherein they may be compensated for medical services that contribute to both professional and ASTC revenue streams.²⁴

As a natural reaction to drastic changes in Medicare reimbursement for professional services, an increasing number of practitioners are investing in ownership of specialized inpatient and outpatient facilities wherein they may be compensated for medical services that contribute to both professional and ASTC revenue streams.

"Unhealthy Trends: The Future of Physician Services," by Hoangmai H. Pham and Paul B. Ginsburg, *Health Affairs*, Vol. 26, No. 6 (November/December 2007), p. 1586, 1589–92. *"Enhancing the Bottom Line—Considerations in Developing Ancillary Services,"* by Darrell L. Schryver, DPA, and Bruce A. Johnson, JD, MPA, the Medical Group Management Association, www.mgma.com/article.aspx?id=1142 (accessed February 3, 2010); *"A Guide to Consulting Services for Emerging Healthcare Organizations"* by Robert James Cimasi, CBI, CBC, John Wiley and Sons, Inc., p. 4.

Ownership increases physician autonomy and control over professional work environment, work schedule, and clinical practice.²⁵ However, physicians are motivated to invest in specialty and niche facility ownership²⁶ not only to obtain better lifestyles but also to offset downshifting trends in physician reimbursement. Though the 1990s were marked by increased compensation across most professions, trends in physician compensation were abeyant.²⁷ By investing in ownership of facilities providing specialty and niche services, physicians were able to counter reductions in reimbursement due to managed

care and the changes in Medicare professional services payment levels that may have inhibited increases in physician compensation.²⁸

Although some stakeholders maintain that specialty and niche providers pose a threat to the traditional healthcare delivery system, others believe that these emerging enterprises embrace innovative methods of healthcare delivery that may prove to be cost-effective and simultaneously promote enhanced quality and outcomes.²⁹ Despite the potential benefits associated with competition in healthcare, general acute care hospitals have expressed concern that by “cherry picking” and “cream skimming” the most profitable patients and procedures, specialty and niche providers would become an insurmountable market threat. In response to these fears, hospitals have conducted lobbying efforts to limit specialty and niche providers at the local, state, and federal levels.³⁰ The hospital industry also appears to be using its negotiating strength to influence insurance companies to exclude these providers³¹ and to inform the public regarding their concerns related to failure among local hospitals,³² which portrays physicians from privately held professional practices in a negative light.³³

Both the American Hospital Association, representing nonprofit hospitals, and the Federation of American Hospitals, representing investor-owned for-profit hospitals, have conducted lobbying campaigns against healthcare entities they refer to as “limited service providers,”³⁴ which is manifested by limiting the exceptions to the Stark laws and antikickback statute.³⁵ In order to protect arrangements that have positive effects and pose little or no risk of abuse, the United States Congress has elicited certain exceptions to fraud and abuse regulations.³⁶ Opponents of specialty and niche providers urge the federal government to eliminate some of these exceptions that protect specialty providers (for example, the “whole hospital” exception).³⁷ For more information, see *Regulatory* in chapter 3, *Four Pillars* and chapter 4 of *An Era of Reform*.

TRANSITION FROM SOLO TO GROUP PRACTICE

The shift toward managed care also has encouraged office-based physicians to move away from solo or small group practices and show greater affinity for larger and more diverse practice types.³⁸ A 2007 report from the Center for Studying Health System Change reported that, while solo and two-physician practices were the most prevalent physician practice settings in 2004 to 2005, the percentage of physicians in solo or two-physician practices had steadily declined from 1996 to 1997 (40.7 percent) to 2004 to 2005 (32.5 percent).³⁹ The tradition of solo physician medical practices that accept fee-for-service reimbursement is giving way to group practices and networks that negotiate managed care contracts and accept bundled payment arrangements.

TRANSITION FROM SMALL GROUP TO LARGE GROUP PRACTICE

Increasing numbers of small group practices are expanding to include more physicians. Studies show that heightened economic pressures have prompted solo and small group physicians to move into mid-sized practice settings in an effort to spread fixed costs over more practitioners.⁴⁰ The number of small group practices (that is, three to five physicians) declined 2.4 percent from 1996 to 1997 to 2004 to 2005, while group practices with six to fifty physicians increased by 4.5 percent during the same time period.⁴¹

TRANSITION FROM SINGLE-SPECIALTY PRACTICE TO MULTISPECIALTY PRACTICE AND BACK TO SINGLE-SPECIALTY PRACTICE

Triggered by managed care, the continued emphasis on the comprehensive provision of care has resulted in heightened competition within the healthcare industry. Multispecialty organizations that strive to broaden their scope of practice while maintaining managerial and administrative control may be more favorable (and, for a time, were unanimously preferred) than single-specialty enterprises that offer a limited range of services.⁴² By offering an increasingly comprehensive continuum of care, without compromising efficiency and structure, these practices are maximizing their market control; as such, projections suggest that large, multispecialty practices will continue to flourish.⁴³

However, fluctuations in reimbursement during the past two decades have led physicians to transition from multispecialty practices to larger, single-specialty practices.⁴⁴ “Payment for [the latter] services is typically higher than for office visits, and the growing trend of physician-owned outpatient facilities provided for opportunities for additional physician revenue.”⁴⁵ Although the rise of managed care led to the emergence of large, multispecialty groups to share risk and negotiate with health plans, in a fee-for-service reimbursement environment, procedure- and service-intensive specialties saw heightened opportunities to increase revenue by moving to single-specialty practices.⁴⁶ Large, single-specialty practices that provide a comprehensive spectrum of services within their areas of expertise tend to maintain a geographic *and* procedural competitive advantage over their less inclusive counterparts.⁴⁷ Additionally, single-specialty practices have strengthened their leverage in health plan negotiations while multispecialty groups have seen their bargaining positions weaken.⁴⁸

TRANSITION THROUGH JOINT VENTURES AND AFFILIATIONS

There has been a dramatic acceleration in divestitures, dissolutions, and financial collapse of prominent healthcare provider organizations in almost every segment of the industry in recent years. The inability of these organizations to manage the components of their business outside of their horizontal management sphere has been cited as the cause of failure in many cases. Many organizations that originally employed vertical integration strategies to enhance their market advantage are now divesting acquired organizations because of financial losses, increased bureaucracy, and difficulty in aligning incentives, among other reasons. However, this move toward “dis-integration” also must be considered carefully to avoid further costly organizational changes caused by market trends. Though organizations are still engaging in practice acquisition, they are being regulated, monitored, and evaluated much more stringently. Hospitals, health systems, and other integrators are also employing alternate integration strategies, for example, affiliation, collaboration, and joint marketing arrangements.⁴⁹

TRANSITION FROM INDEPENDENTLY OWNED PRACTICES TO PRACTICES OWNED OR CONTROLLED BY HOSPITALS

Independently owned physician practices were characteristic of the traditional U.S. “cottage” healthcare industry. However, the U.S. healthcare delivery system, as of 2010, has a greater prevalence of corporatized medicine, and the role of independently owned physician practices has declined steadily (see the *Preface* to this book). The *New England Journal of Medicine* reports that, “the percentage of U.S. physicians who own their practice has been declining at an annual rate of approximately 2 [percent] for at least the past 25 years.”⁵⁰ However, the precise proportion of medical enterprises that represents physician-owned practices remains undetermined. A number of published studies report inconsistent

estimates, ranging from 29.3 percent to 61.5 percent.⁵¹ Notably, medical specialists in independent practice have undergone a more significant decline than either surgeons or primary care physicians, decreasing 18.6 percent from 1996 to 1997 to 2004 to 2005.⁵²

The decline in the number of independent practices appears to be driven primarily by increasing regulatory efforts to control rising healthcare costs.⁵³ However, research also attributes the decline, in part, to the fact that hospitals are purchasing profitable independent specialty practices to “enhance their bottom line.”⁵⁴ Large corporate- and hospital-owned systems are attractive employment opportunities for independent physicians, offering higher salaries, loan forgiveness programs, and little administrative responsibility.⁵⁵ Additionally, increasingly complex treatments, the high costs associated with implementing technological advancements (for example, electronic health records systems, see chapter 5 in *An Era of Reform*), and physician desire for more flexible working hours have all contributed to the decline of independent practice.⁵⁶ As the demand for physical manpower (as well as technical and technological expertise) increases, workforce and workplace diversification, sophistication, and expansion is likely to continue, and the dynamic of the successful healthcare organization may change as a result.

HEALTHCARE REFORM

As a result of these ongoing patient, practice, and professional trends, the U.S. healthcare delivery system has struggled with the inefficient provision of services (excess capacity in some cases and excess patient volumes in others), an increase in healthcare costs (and, therefore, spending), and a reduction in quality of care.⁵⁷ Additionally, the uninsured segment of the U.S. population, which accounted for approximately 43 million people in 2008, continues to grow.⁵⁸ As a result, access to care has become a growing issue.⁵⁹ Since the dawn of managed care, emphasis has been placed on increasing the integration and diversification of healthcare organizations in order to improve the delivery of quality, cost effective healthcare services while minimizing inefficiencies (for example, the financial inefficiencies associated with excess capacity).⁶⁰

However, the turbulent healthcare market has left managed care providers struggling to contain costs, while critics are reaffirmed of their skepticisms. Proponents of managed care believe that it places pressure on hospitals and physician networks to reduce costs, maintain quality, and protect market share; others believe that the formation of large Managed Care Organizations (MCOs) strips physicians of their autonomy, which may ultimately heighten the level of risk attributed to patient care.⁶¹ In either light, it appears as though ongoing trends in healthcare delivery and spending, paired with anticipated demographic and epidemiologic trends, merit the consideration of reform initiatives targeted at improving quality, cost, and efficiency of care.

EMERGING TRENDS IN INTEGRATED BUSINESS STRATEGIES AND ARRANGEMENTS

Triggered by initiatives in managed care and again stimulated by ongoing healthcare reform initiatives, healthcare professional practices have started incorporating business objectives that encourage hospitals, physicians, and health plans to integrate, and, more specifically, consolidate, merge, and affiliate.⁶² Under such arrangements, no single healthcare entity is wholly accountable, but rather, responsibility, authority, resources, and services are allocated across several partner organizations, administrative authorities, individuals, or a combination of these.⁶³

The **integration** of practitioners, hospitals, and practices into increasingly complex delivery systems is among the most commonly seen arrangements adopted to improve business practices in the evolving market.⁶⁴ From a patient-centric perspective,

*[i]ntegration is a coherent set of methods and models on the funding, administrative, organizational, service delivery, and clinical levels designed to create connectivity, alignment, and collaboration within and between the cure and care sectors.*⁶⁵

Organizations may choose to utilize any number of integration strategies tailored to improve quality of care, patient satisfaction, and process efficiency.⁶⁶

TYPES OF INTEGRATION

Integration strategies tend to derive from two fundamental forms: horizontal integration and vertical integration (see also chapter 1, *Vertical Versus Horizontal Integration*).⁶⁷ In light of continued growth in healthcare spending, paired with inadequate advances in quality improvement, proponents of healthcare reform are advocating for expansion and realignment of the archaic, disease-centric healthcare industry focus to encompass a more comprehensive outlook, rooted in primary and preventative care at the individual and community level.⁶⁸ These advocates maintain that, in order to establish a “generalist” frame of reference while preserving the effective provision of highly specialized services, healthcare delivery systems may need to integrate both vertically and horizontally.⁶⁹

VERTICAL INTEGRATION

Vertical integration is “the aggregation of dissimilar but related business units, companies, or organizations under a single ownership or management in order to provide a full range of related products and services.”⁷⁰ These supply-side arrangements are believed to improve efficiency and quality of disease-specific care across all associated practice areas.⁷¹ For example, healthcare executives have associated many of the existing inefficiencies in outpatient cancer care with miscommunication between the potpourri of specialists invested in the provision of oncology services (that is, radiologists, medical oncologists, radiation oncologists, and surgical oncologists).⁷² They believe the root cause of this disconnect is system-based, and vertical integration across these specialty areas may improve the fluidity with which cancer-specific services are delivered across a more comprehensive continuum of care.⁷³ Expected outcomes include reduced redundancy, waste generation, and spending together with improved quality of care.⁷⁴

Generally, vertical integration has gained mainstream acceptance and support; however, integration methods must be planned strategically.⁷⁵ In response to the managed care outcry against excess capacity, biased incentives, service redundancy, inaccurate scale economies, and other system-based defectives, hospitals entered into vertical arrangements with ambulatory surgery centers, subacute care facilities, nursing homes, and home health suppliers.⁷⁶ However, many healthcare organizations lost sight of their target objectives and began broadening their scope of service to an opposite extreme.⁷⁷ Critics of vertical integration claim that organizations that have over-consolidated are burdened with the same problems as those organizations with too narrow of a practice scope.⁷⁸ In organizations in which the continuum of care is too broad to monitor, manage, and control, financial and medical errors occur at substantially higher rates.⁷⁹ Additionally, without ample oversight and control, resources may be misallocated, resulting in significant operational (and medical) inefficiencies, for example, excess capacity and inadequate scale.⁸⁰

HORIZONTAL INTEGRATION

Horizontal integration is “the acquisition and consolidation of the organizations or business ventures under a single corporate management, in order to produce synergy, reduce redundancies, and duplication of efforts or products, and achieve economies of scale while increasing market share.”⁸¹ Horizontally integrated organizations may include collaborative hospital systems or physician organizations and generally hold an emphasis on the individual, communities, and populations, as compared with vertical systems that are targeted toward specific conditions or disease trends.⁸²

Two basic forms of horizontal integration exist: within-market integration and across-market integration.⁸³ *Within-market integration* is a form of organizational expansion in which merger occurs between entities that provide comparable services in the same market.⁸⁴ Such arrangements are considered among the most convenient and are believed to improve efficiency and capacity while minimizing redundancy.⁸⁵ Intra-market horizontal integration continues to face skepticism and scrutiny by proxy of antitrust implications; consequently, horizontal integration is accepted and utilized far less than vertical integration.⁸⁶ *Across-market integration* is less politically debated, because it involves arrangements through subsidiaries of large regional or national companies.⁸⁷ Provided that penetration into local markets remains unobtrusive, antitrust policy is of minimal concern.⁸⁸

Regarding the healthcare climate in 2010, experts argue that, pursuant to a more generalist healthcare focus, a traditional vertical arrangement no longer can stand alone.⁸⁹ Experts also claim that horizontal arrangements, in which social, emotional, and biomedical needs become accounted for, are necessary alongside the vertical integration of condition-specific healthcare organizations and entities.⁹⁰

INTEGRATION STRATEGIES

Integration may be employed to enhance efficiency across five areas of healthcare business practices: (1) funding, (2) administration, (3) organization, (4) the delivery of services, and (5) clinical dynamic.⁹¹ Although table 2-1 lists many of the most commonly used integration strategies, the most prevalent are (1) administrative and organizational consolidation, (2) provider or service integration (namely in the form of affiliation or contracting), (3) joint management, (4) strategic alliances, and (5) consolidation (namely in the form of mergers).⁹²

Provider integration and affiliation is a key consideration for the implementation of EHO models. Traditionally, integration strategies were focused solely on arrangements with physician providers, and although the role of nonphysician professionals continues to increase in importance, physicians

Table 2-1: Integration Strategies

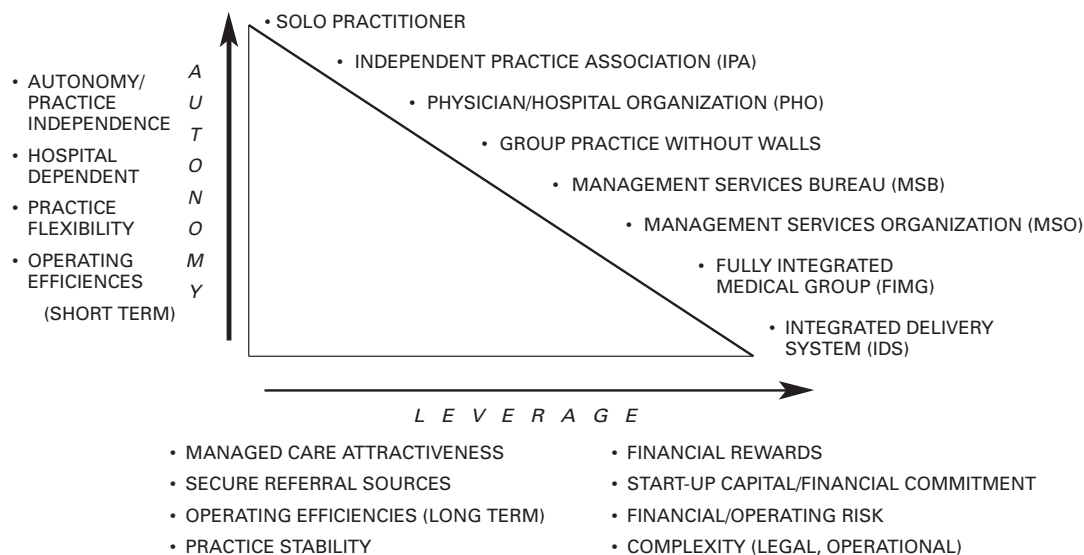
Funding:
Pooling of funds (at various levels)
Prepaid capitation (at various levels)
Administrative:
Consolidation or decentralization of responsibilities and functions
Intersectoral planning
Needs assessment or allocation chain
Joint purchasing or commissioning
Organizational:
Co-location of services
Discharge and transfer agreements
Interagency planning or budgeting
Service affiliation or contracting
Jointly managed programs or services
Strategic alliances or care networks
Consolidation, common ownership, or merger
Service Delivery:
Joint training
Centralized information, referral, and intake
Case or care management
Multidisciplinary or interdisciplinary teamwork
Around-the-clock (on-call) coverage
Integrated information systems
Clinical:
Standard diagnostic criteria
Uniform, comprehensive assessment procedures
Joint care planning
Shared clinical records
Continuous patient monitoring
Common decision support tools
Regular patient or family contact and ongoing support

remain at the apex of integration as a vehicle for practices in transition. The primary catalyst for physician integration has been the ability to negotiate higher payments when contracting with predominantly larger healthcare organizations.⁹³ Although antitrust laws may serve as barriers to negotiation within local markets, national horizontal integrators—including hospital management companies—have become widely accepted and may exert the ability to negotiate favorable reimbursement rates for their providers and facilities across markets and on a national level.⁹⁴ Several physician or provider integration and affiliation models have been used repeatedly by hospitals, health systems, and EHOs.

EMERGING MODELS OF THE 1990S

During the 1990s, in response to cost containment pressures and other market forces, providers consolidated and integrated into EHOs, a new organizational form at the time, in an attempt to compete more effectively. “An emerging healthcare organization is an organizational form consisting of hospital(s), physician(s), and/or health plan(s) that have consolidated, merged, integrated or affiliated in response to managed care and integration forces in their market.”⁹⁵ At their inception, the ultimate objective of physician integration models was to successfully aggregate groups of providers to become the ultimate market competitor: the “highest quality, lowest-cost provider” of healthcare services. Along with the growth and penetration of managed care, the evolution of these systems, organizations, and networks challenged the traditional system healthcare delivery, which was grounded in a “cottage industry” mentality and centered on physician autonomy and the independent practice of medicine (see figure 2-1 for an illustration of the relationship between practice autonomy and market leverage).

Figure 2-1: Autonomy and Leverage Diagram



EHOs are business enterprises comprised of provider(s) (for example, physicians), facilities (for example, hospitals), healthcare plans, or a combination of these that have entered into consolidation, merger, integration, or affiliation by proxy of market forces.⁹⁶ As introduced in chapter 1,

Organizational Structure, emerging enterprises in the business of healthcare can be classified not only based on integration type but also according to their level of integration, namely as resisters, cost containers, or true integrators.

RESISTORS

Resistors are organizations designed to (1) maintain the status quo, (2) repel managed care, and (3) gradually develop the knowledge necessary for successful operation within a managed care environment. Two classic models that are commonly found in the healthcare market are (1) **independent practice associations (IPAs)** and (2) **physician-hospital organizations (PHOs)**.

INDEPENDENT PRACTICE ASSOCIATIONS

Description and Scope

IPAs, which are generally nonprofits, are legal entities comprised of independent physician affiliates that contract with MCOs to provide medical services.⁹⁷ In the past, IPAs almost exclusively demonstrated horizontal integration (that is, excluding hospitals and other businesses governed by nonphysician professionals). However, a gradually growing number of hospitals are pursuing alternatives to the traditional PHO structure by entering into investment arrangements with IPAs.⁹⁸ Within this infrastructure, individual physicians generally do not share administrative overhead or centralized systems for billing and claims processing.⁹⁹ Traditionally, IPAs met managed care expectations by functioning as umbrella organizations that facilitated collaboration between physicians of all specialties. However, IPAs have evolved, in tandem with the market, to encompass not only multispecialty organizations but also enterprises that provide primary care and single specialty services.¹⁰⁰

It is important to distinguish an IPA from an IPA-model health maintenance organization (HMO).¹⁰¹ An IPA-model HMO contracts with an association of physicians (that is, the IPA) in order to provide beneficiaries a managed care product with an open panel, from which they may choose from a provider panel, comprised of multiple physicians.¹⁰² A true IPA is organized by physicians in an effort to protect the interests of its member physicians; it may have contracts with multiple MCOs that offer various types of products, including (but not limited to) IPA-model HMOs.¹⁰³

Objective

Physicians often form IPAs as a first step toward integration; this is often instigated by trends, initiatives, or policies (for example, managed care and ongoing efforts in healthcare reform) that catalyze industry changes that affect reimbursement, regulation, market competition, or a combination of these. Physicians form IPAs in hopes of (1) preserving clinical autonomy, (2) avoiding the trend toward group practice, (3) negotiating leverage with payers, and (4) retaining market share. However, IPAs compete with other EHOs that may be better suited to (1) achieving economies of scale; (2) maintaining control of resources; and (3) promoting, encouraging, and instilling behavior change.¹⁰⁴

The advantages and disadvantages associated with IPAs, as compared to other EHO models, directly relate to existing market demands. Namely, IPAs tend to rely upon (1) hospital market leverage, (2) MCO market control, and (3) the financial incentives offered for improving efficiency and quality of care.¹⁰⁵ Traditionally, IPAs were employed as vehicles by which independent practitioners could resist the push toward managed care and simultaneously maintain relationships with any number of payors,

often contracting with many MCOs in order to reduce the likelihood that patients will leave the practice due to a change in insurance carrier.¹⁰⁶ However, the amount of risk and management responsibility IPAs will assume continues to increase in order to maximize both reimbursement and autonomy.¹⁰⁷ This growth was at one time bolstered by several drivers, including downward pressures on premiums paired with reduced hospital utilization rates.¹⁰⁸ The threat of elevated premiums and escalating healthcare expenditures has challenged all healthcare organizations, including IPAs, to adapt accordingly.¹⁰⁹

In response to the inefficiencies and inadequacies of the healthcare delivery system, in light of rapidly growing demand, initiatives are being proposed (1) to elevate provider accountability; (2) realign incentives; and (3) emphasize improvements in healthcare spending, quality, and efficiency.¹¹⁰ Accountable care organizations (ACOs) (discussed at a greater length in **Accountable Care Organization Model**) were proposed to align clinicians within a community by assigning them collective accountability and encouraging them to save money and enhance quality of care.¹¹¹ Proponents of ACOs claim they may be used appropriately by numerous existing delivery systems and organizational models, including IPAs.¹¹²

PHYSICIAN-HOSPITAL ORGANIZATIONS

Description and Scope

A **physician-hospital organization (PHO)** unites a hospital or group of hospitals with a physician organization through a contractual relationship; those contract terms are then used to negotiate with MCOs.¹¹³ Just as IPAs are considered the first step in horizontal integration, the PHOs are the first step in vertical integration.¹¹⁴

A PHO is usually a separate business entity (for example, a for-profit corporation). There exist several possible capitalization and ownership arrangements between the hospital(s) and physician(s) in a PHO, including:

1. *Individual physician-ownership of shares* in a physician organization that enters a joint venture with a hospital called a PHO;
2. *Direct physician-ownership of shares* in the PHO, rather than through an intermediary physician organization; and
3. *No physician-ownership* in the PHO, rather full hospital-ownership with physicians following participation agreements.¹¹⁵

Because the PHO is an independent entity, the individual physicians' existing practice organizations generally choose to remain physically separate.¹¹⁶ Therefore, aside from the medical management, utilization review, quality improvement, and related standards that the PHO may need to impose for contracting purposes, practice autonomy of the constituent providers can be largely maintained.¹¹⁷

PHOs may have an open or closed provider panel.¹¹⁸ An *open PHO* may include any member of a hospital's medical staff (sometimes pending a minimum credentialing requirement) as part of its provider panel.¹¹⁹ Because specialists have more to lose than primary care physicians by not consolidating contracting efforts, open PHOs are often specialty-dominated.¹²⁰ Many open PHOs are established with the vision of one day becoming a closed panel, in which inefficient and wasteful providers are removed from the organization.¹²¹ However, MCOs are often skeptical of this lofty goal, because it can be difficult for PHOs to make this transition.¹²² *Closed PHOs* limit membership to a defined group of physicians.¹²³ PHOs that begin as closed panels have a higher percentage of primary care physicians in their membership and governance.¹²⁴ Although this heightens the appeal of PHOs to stakeholders pursuing

managed care contracts, closed panel HMOs are often difficult to implement due to political conflicts between the hospital and medical staff.¹²⁵

Objective

The objective of forming or joining a PHO is different for hospitals and physicians. Hospitals may seek to expand and solidify market control of a specific range of health services while improving relations with physicians.¹²⁶ Physicians may be looking for a measure of security under the safeguard of capital-rich hospitals. However, one common objective exists for all parties: improved leverage in negotiating managed care contracts.¹²⁷

Recent economic and demographic trends have further enforced the significance of integration, namely in the form of hospital-physician relationships.¹²⁸ From a hospital perspective, physicians are key drivers of revenue and, therefore, market share. Strong relationships with physicians may positively affect a hospital's market share, just as severed physician-hospital relationships may be detrimental to the hospital's competitive edge.¹²⁹ In light of economic trends in the healthcare market, as well as the physician and nonphysician manpower deficiencies, hospital recruitment and employment may be particularly critical for institutional success but also for arriving at solutions to ongoing health disparities and unmet demand.¹³⁰ As a consequence of economic changes and downward pressure on reimbursement rates, independent practitioners and small group practices are struggling to survive, much less recruit from the diminishing physician population.¹³¹ Alternately, from 2003 to 2007, the number of physicians employed by community hospitals increased by 24 percent, and, in continuing with this trend, physician recruitment is expected to remain in the hands of hospitals.¹³² As such, it is imperative that collaborative relationships with aligned objectives are established between hospitals and physicians.¹³³

COST CONTAINERS

Cost containers are organizations that are capable of controlling healthcare costs through economies of scale. However, cost containers are limited in their ability of to contract effectively with MCOs while systematically improving the efficiency with which care is administered. The most common cost container models found in practice are (1) physician practice management companies (PPMCs) and (2) management services organizations (MSOs).

PHYSICIAN PRACTICE MANAGEMENT COMPANIES

Description and Scope

Physician practice management companies (PPMCs) specialize in the management of large physician group practices or IPAs. They emerged as a means of integration in the mid-1990s, only to endure marketwide failure near the turn of the century.¹³⁴ The PPMC model emphasizes management through ownership, management agreement, or both with the purpose of improving management and economies of scale for their physician groups.¹³⁵ PPMC generally own the physician practices with which they affiliate.¹³⁶ To be classified as a PPMC, an organization must be physician-dominated and does not need to be publicly traded.¹³⁷

Further, PPMCs are categorized according to their affiliation design and physician specialty mix.¹³⁸ PPMCs may engage in (1) equity affiliations, (2) management affiliations, or (3) physician contractor affiliations.¹³⁹ Each of these three affiliation designs may involve different combinations of specialties.¹⁴⁰

Equity affiliation requires that a PPMC purchases a facility's tangible assets, and that a long-term management services agreement is signed between the PPMC and acquired facility.¹⁴¹ *Management affiliation* requires that a PPMC own or provide contractual management services to an IPA; this allows physicians to maintain their independent practices, because the PPMC does not acquire any assets of the medical practices or enter into any long-term agreements.¹⁴² Through *physician contractor affiliation*, PPMCs provide services to hospitals and develop contracts with independent physicians.¹⁴³

Objective

PPMCs emerged as a result of consolidation in the healthcare industry.¹⁴⁴ As institutional forces and insurance players (that is, hospitals and HMOs, respectively) became larger, the need for physician access to capital increased.¹⁴⁵ Prior to the proliferation of PPMCs, capital had become as influential, if not more, as the authority of a medical degree in directing patient care. PPMCs offered physicians access to untried capital markets.¹⁴⁶ As a result, physicians in PPMCs were able to build surgery centers, expand service lines, and bolster contracting leverage with MCOs, hospitals, and health systems.

Physicians saw PPMCs as an opportune means of regaining practice control, capitalizing on their businesses, or both.¹⁴⁷ By offering cash and stock for affiliation agreements, PPMCs attracted entrepreneurial physicians and had a significant effect on local markets.¹⁴⁸

The late-1990s marketplace saw a demise of PPMCs (particularly public PPMCs) which may be attributed to several of the disadvantages characteristic of this model.¹⁴⁹ PPMCs often lack the ability to invoke physician practice reform, physician dedication, or physician leadership. As such, all efforts at leadership and development come from nonphysician shareholders that possess a strictly investment-driven perspective.¹⁵⁰ Also, misaligned incentives of nonphysician investors, focused entirely on maximizing return and profit, may result in internal conflict between clinicians and investors.¹⁵¹ Although the PPMC model would, in theory promote a sense of ownership and realigned incentives among the involved physicians, PPMCs struggle to negotiate favorable terms.¹⁵² The repercussions of a PPMC implemented to lower costs and improve quality may, in fact, be less severe than those faced by a PPMC focused on facilitating negotiations, but their pervasive decline was cause for an industrywide reluctance and distrust toward the adoption of a redeveloped or restructured PPMC model.¹⁵³

MANAGEMENT SERVICES ORGANIZATIONS

Description and Scope

A **management services organization (MSO)** is a legal entity, owned by physicians, hospitals, or lay investors, that provides an array of practice management services.¹⁵⁴ Typically, an MSO is not licensed to practice medicine but simply serves as a “services/asset leasing company that supports the back office of a medical practice [I]n effect, the MSO is simply the expense side of the medical practice.”¹⁵⁵ MSOs that engage in more comprehensive physician practice management are considered “aggressive mechanisms to encourage group practice development.”¹⁵⁶ In addition to providing managerial governance and support, these entities may purchase tangible assets and employ physicians.

MSOs have been around in some form since 1987 and were first developed in California as a response to managed care. The MSO as an integration vehicle is relatively new, with 82 percent of MSOs surveyed in 2000 being less than four years old.¹⁵⁷ As early as 1993, 8 percent of all community hospitals had developed an MSO, and 33 percent of hospitals that had entered into arrangements with

physicians had formed an MSO.¹⁵⁸ The proportion of hospitals with MSOs peaked in 1996 and has declined ever since. By 2000, less than 13 percent of hospitals had an MSO (down from 22 percent). Of the 4,936 acute care hospitals in the United States in 2005, 438 of them (8.8 percent) had developed MSOs. The following table 2-2 compares the number of hospital-affiliated MSOs to the number of hospitals in existence from 1994 to 2005.

PHOs endured a similar fate, with numbers peaking at 900 practices in 2000. In 2002, their number declined to 880 practices and 670 practices remained in 2006.¹⁵⁹

MSOs are owned most commonly by hospitals or a joint venture between a hospital and physician (see the following figures 2-2 and 2-3). However, physician- and investor-owned MSOs exist (figure 2-4).

Table 2-2: Number of Hospitals and Hospital-Affiliated Management Services Organizations (MSOs)^{*}

Year	Hospitals	MSOs
1994	5,229	803
1995	5,194	981
1996	5,134	1,139
1997	5,057	964
1998	5,015	866
1999	4,956	770
2000	4,915	655
2001	4,908	545
2002	4,927	519
2003	4,895	480
2004	4,919	443
2005	4,936	438
2006	4,927	445

^{*} "Hospital statistics" American Hospital Association, 2000, p. 8. [Years 1994-1998]; "Hospital statistics" American Hospital Association, 2005, p. 10. [Years 1999-2003]; "Hospital statistics" American Hospital Association, 2008, p. 10. [Years 2002-2006].

Figure 2-2: Hospital- or System-Owned Management Services Organizations (MSOs)

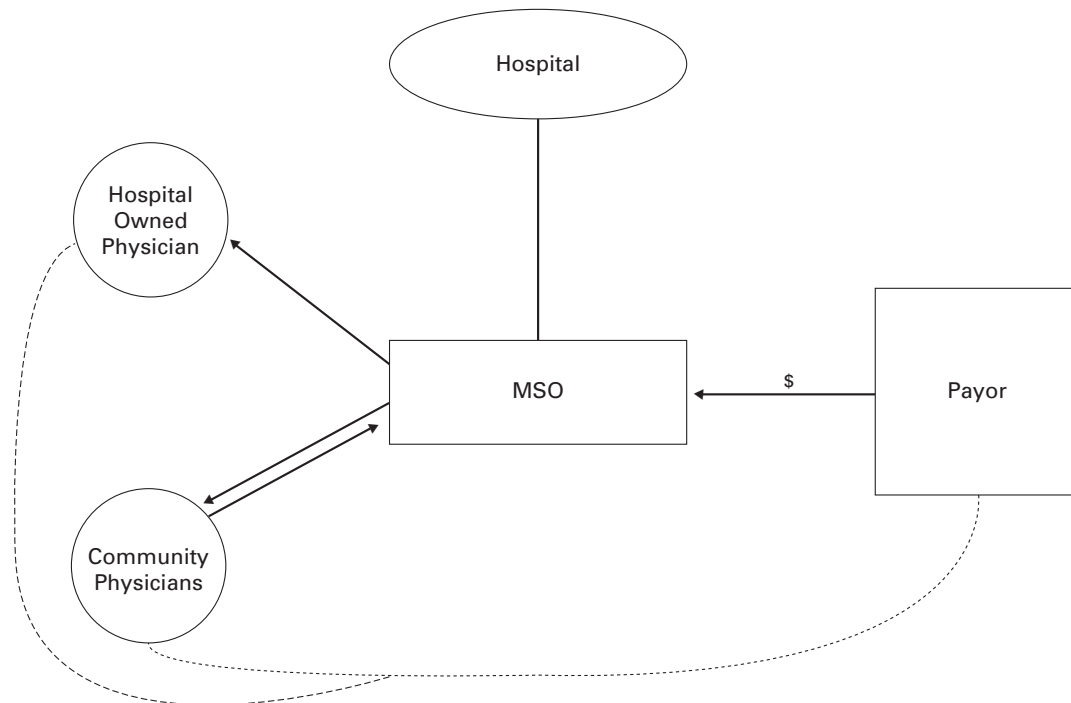


Figure 2-3: Joint Venture Hospital or Physician-Owned Management Services Organization (MSO)

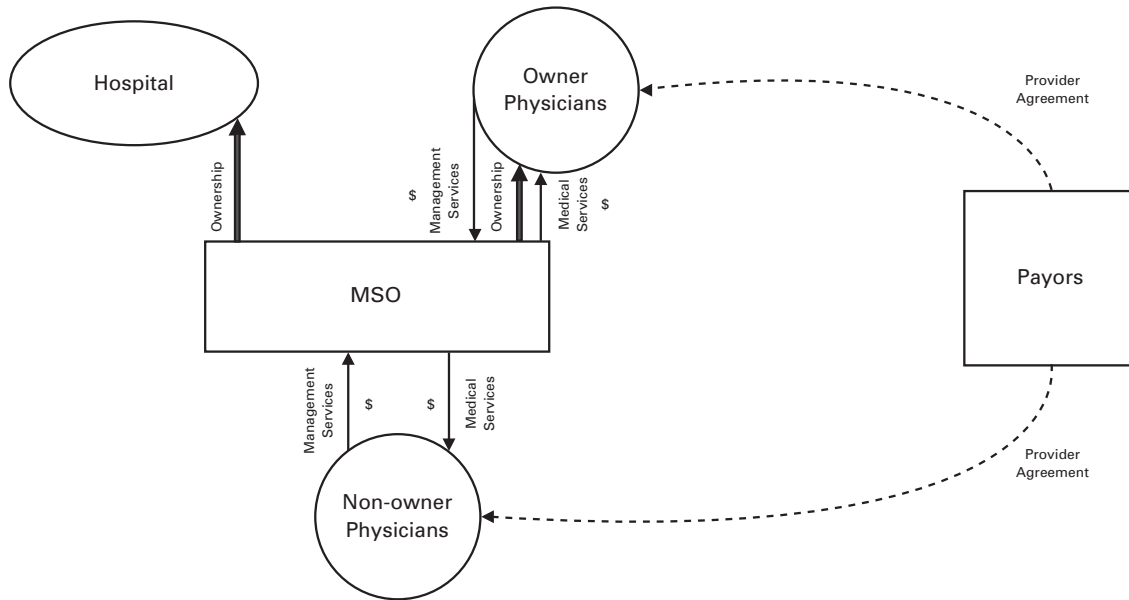
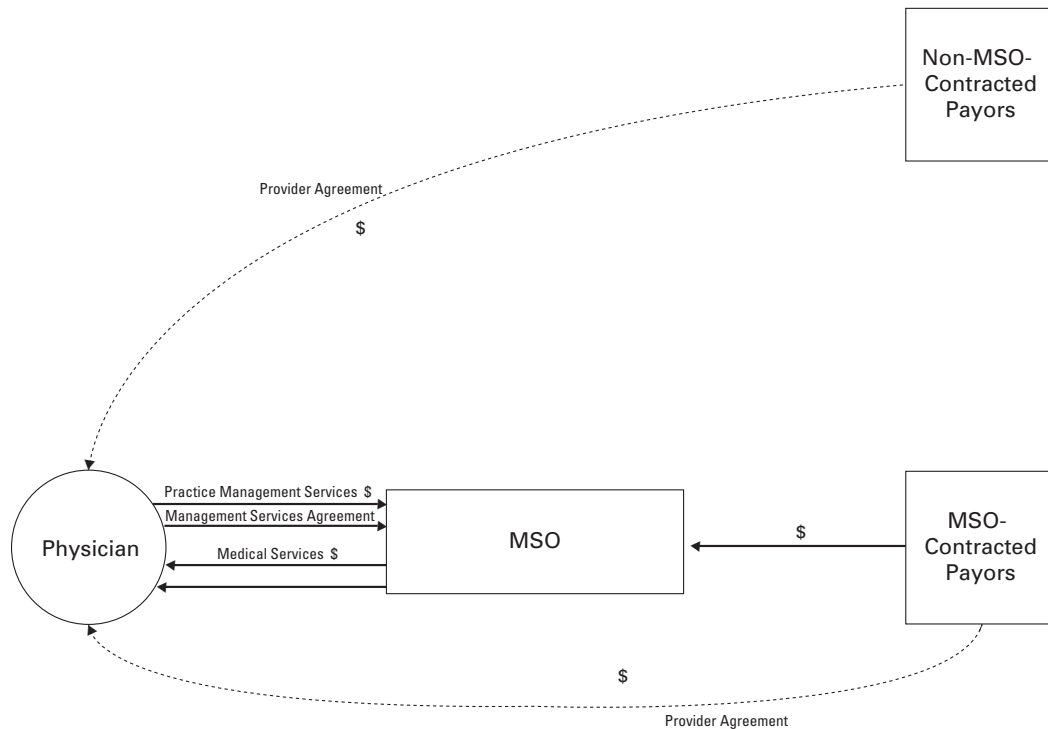


Figure 2-4: Physician- or Investor-Owned Management Services Organization (MSO)



“In their [most] basic form, MSOs sell practice management services for a monthly fee,” with these services including, but not limited to operations management, marketing, contract negotiation, new assets acquisition, personnel management, leasing, providing support services to other organizations (that is, hospitals), physician recruitment, management information systems (MIS) development, purchasing, and facilities development.¹⁶⁰ The broad scope of potential services illustrates the necessity of defining

the specific functions an MSO can perform, because these functions distinguish the varying types of MSOs.¹⁶¹ “MSO” is used generically to describe a number of possible business combinations. In sum, “once you’ve seen one MSO, you’ve seen one MSO.”¹⁶²

Objective

Numerous types of MSOs exist, and the distinction between each type is based on a combination of factors: (1) the purpose of the MSO, (2) the functional models of the MSO, and (3) the organizational structure of the MSO.¹⁶³

The Purposes of MSOs

When developing an MSO, the first and most fundamental consideration is the purpose that the MSO will serve.¹⁶⁴ The structure of each MSO model is characterized by the objective(s) it looks to achieve, with these potential purposes including (1) growth and integration, (2) asset separation, (3) practice management quality, (4) lay investor equity, (5) precluding potential competition, (6) economies of scale, (7) clinical information sharing, and (8) generating revenue.¹⁶⁵ Though this is not an exhaustive list, it provides a broad look at the range of purposes an MSO can serve within a hospital network.

Functional Models of an MSO

As discussed previously, the functions that an MSO chooses to undertake vary, with most consultants attesting to the improbability of finding two MSOs organized to perform the same exact functions.¹⁶⁶ To clearly illustrate the varied functions of MSOs, two functional models will be presented that represent the extremes of the paradigm with most MSO’s falling in between these two models.¹⁶⁷

Management Services Bureau (MSB) or “Low-Tech” Model

In this model, physicians maintain separation as independent legal entities that contract for services from the bureau at fair market value.¹⁶⁸ This model is representative of the least comprehensive of MSOs.¹⁶⁹ Physicians pick and choose “cafeteria style” the benefits they would like to receive from the MSO and contract through the **management services bureau (MSB)**, for example, the practice may elect to receive only billing and collection services from the MSO.

Comprehensive or “Turnkey” Model

The **comprehensive** or “**turnkey**” model MSO offers a comprehensive array of services including all of the nonclinical aspects of a practice’s operations.¹⁷⁰ Examples of services that would be provided may include, for example, (1) facilities planning and management, (2) equipment and furnishings, (3) financial services, (4) marketing, (5) utilization review, (6) medical records, (7) personnel management, and (8) negotiation of payor contracts.¹⁷¹

Organizational Structure of an MSO

This decisional element emulates the diversity of the existing organizational structures (addressed in chapter 1, *Organizational Structure*) that characterize a multitude of unique professional practices.

System-Owned (Hospital-Based) MSOs

System-owned (hospital-based) MSOs, are the most common type of MSO and usually are created, funded, and essentially governed by hospitals.¹⁷² Hospital-owned MSOs may be considered less attractive to physicians because affiliating with them often involves becoming a salaried employee of the

hospital, an action that usually decreases practice autonomy.¹⁷³ Other physicians may find this model more attractive because a hospital can provide both increased capital for equipment and the increased security of a salaried staff position.¹⁷⁴

In “turnkey” arrangements, compensation for employed physicians is usually a straight salary with no bonus.¹⁷⁵ Alternatively, typical nonemployed physicians pay the MSO approximately 55 percent of their gross collections, with the MSO sometimes also charging these physicians a monthly fee as a guard against doctors decreasing their productivity.¹⁷⁶

Several key elements should be considered when establishing a hospital-owned MSO: (1) charges must be at fair market value in order to avoid violating Medicare fraud and abuse, antikickback, and Stark laws; (2) the hospital and affiliated physicians will most likely enter into separate managed care contracts, but any joint contracting must be coordinated to avoid violating federal and state antitrust laws; and (3) it must be ensured that there is no violation of the Internal Revenue Service’s (IRS’s) prohibition related to inurement of benefit.¹⁷⁷

A hospital-based MSO is likely to embody one of several governance and business structures, depending on what it is trying to achieve.¹⁷⁸ It may be structured as a subsidiary corporation (for-profit or nonprofit) in an effort to protect the hospital’s tax-exempt status.¹⁷⁹ It is important to note that this strategy is at risk if the IRS follows the money from the MSO to the source (that is, the hospital) and finds that the funds benefited private individuals “more than incidentally.”¹⁸⁰ Even if established as a nonprofit corporation, the MSO is not likely to gain a tax-exempt status (unless it can be demonstrated that growth of the physician practice is beneficial to the community).¹⁸¹ The MSO may be structured as an S corporation if ownership will be shared at a later date.¹⁸² For follow-through tax advantage, an MSO may be structured as a limited liability corporation, or LLC.¹⁸³

Joint Venture Hospital or Physician-Owned MSOs

A **joint venture** corporate structure may be chosen to shield participants from individual liability; acceptable structures include (1) general partnership, (2) nonprofit corporation, (3) for-profit business corporation, and (4) the physician or hospital equity model.¹⁸⁴

Physician- or Investor-Owned MSOs

In some cases, physicians may come together to form an MSO. No material difference exists between a **physician- or investor-owned MSO** and a PPMC.¹⁸⁵ An LLC business structure may be best suited to this type of MSO, depending on investor objectives and state legislation.¹⁸⁶

TRUE INTEGRATORS

True integrators, namely (1) fully integrated medical groups (FIMGs) and (2) integrated delivery systems (IDSs), are so financially integrated through risk contracting or ownership that true integration of care processes is feasible. Although very few systems in the United States operate as true integrators, many EHOs aspire toward this level of assimilation.

FULLY INTEGRATED MEDICAL GROUPS

Description and Scope

A **fully integrated medical group (FIMG)** is a medical group practice organized as a single legal entity.¹⁸⁷ Management is centralized and has sufficient authority to effectively manage both the medical and business operations of the group.¹⁸⁸ This allows FIMGs to integrate clinical, financial, and operational aspects of the practice.¹⁸⁹ An income distribution plan for physicians aligns the incentives of the physician and the group.¹⁹⁰ FIMGs represent the most horizontally integrated of the EHO models. Some FIMGs are part of physician equity groups in which physicians own their medical practices while a separate organization (that is, an MSO) provides the practice with nonclinical support.¹⁹¹ Physician equity group arrangements can vary in their level of integration from that of traditional practices to that of FIMGs.¹⁹²

A FIMG's central organization is often a corporation governed by a board of directors authorized to control (1) clinical utilization, (2) medical management, (3) compensation, (4) operating budgets, and (5) other management of the group.¹⁹³ Physicians own shares in the organization but no practice assets, tangible or intangible.¹⁹⁴

Two elements must be accounted for in order to achieve the level of operational management and control on which an FIMG depends: (1) authority and (2) information.¹⁹⁵ The former is assured through the organizational structure of FIMGs; the latter depends on sophisticated MISs.¹⁹⁶ These systems allow multiple locations to operate consistently as a single entity.¹⁹⁷ They also provide management, with the information required to control utilization, manage medical quality, and efficiently oversee the financial operations of the group.¹⁹⁸

Objective

FIMGs result from the continuous quest for management of group practice operations. Most FIMGs have in-house medical management and sophisticated information systems to support operations and contracting activities.¹⁹⁹ Although the strong medical management of FIMGs should be attractive to managed care plans, if the practice is not large enough, it may not realize full leverage from its quality management in negotiating contracts.²⁰⁰ FIMGs that dominate a specialty niche within their market may be an exception.²⁰¹ Once a management system is in place, FIMGs can expand through mergers or internal growth to improve leverage.²⁰²

INTEGRATED DELIVERY SYSTEMS

Description and Scope

As reform initiatives continue to take effect, hospitals and physicians, as traditional providers of care, are destined to become increasingly integrated into single organizations, aspiring to unprecedented efficiency and a truly comprehensive continuum of care.²⁰³ **Integrated delivery systems (IDSs)** are vertically integrated organizations that are frequently comprised of insurers alongside physician practices, hospitals, and other entities that provide medical care to a specific population.²⁰⁴ Most existing IDSs began when hospitals acquired or affiliated with physicians through PHOs or MSOs for the purpose of managed care contracting.²⁰⁵

IDSs are considered the most ambitious of the vertically integrated healthcare organizations. They incorporate (1) acute hospital care, (2) physician services, (3) other nonacute services (for example,

home health care, skilled nursing care, rehabilitation, and hospice), and (4) payor capabilities (for example, health plans) that can at least manage the financial risk of capitation, if not marketed directly to employers and other purchasers.²⁰⁶ The organizational structure of an IDS typically accommodates four players: (1) hospital(s), (2) physician practice(s), subacute service provider(s), and (4) insurer(s) (or entities that are able to accept capitation).²⁰⁷ IDS governances often are structured by a central corporation that owns or controls the individual entities, which enables global contracting.²⁰⁸

Although, in practice, few systems are truly structured to emulate this model, an IDS infrastructure is the ultimate integration goal of many hospitals and health systems.²⁰⁹ Integration is not truly achieved until patient care communication becomes seamless, fluid, and effective across the provider continuum.²¹⁰ The IDS structure is intended to accomplish not only managed care contracting and economies of scale but also the management of the health of populations.²¹¹ To accomplish this health management goal, IDSs assemble health providers across the continuum of care, from physician practices to hospitals and nursing homes.²¹² The inclusion of an insurance entity enables an organization to accept global capitation where it is responsible, on a prepaid basis, for all of the healthcare needs of a population. Ideally, efficiency would be maximized by utilizing sophisticated information systems that can track patients interactively, across all delivery sites.²¹³

For an IDS, one of the largest challenges to success is bringing together various players with their different cultures and attitudes to collaboratively strive for the same goals. Hospital executives may struggle to embrace the fact that getting patients into the hospital is no longer the goal.²¹⁴ Rather, proactive primary care services, including patient education and primary and secondary prevention of disease (for example, immunization and early detection) are used to keep patients healthy.²¹⁵

Objective

The objective of the IDS model is to provide a whole universe of medical care for a large number of patients enrolled in managed care plans the IDS has contracts with.²¹⁶ This does not mean that local competition is eliminated; other IDSs and a multitude of other providers may exist in a market area.²¹⁷ Because most people obtain access to healthcare through their membership in a group (for example, employment, Medicare, or Medicaid), an IDS can take responsibility for a group by attracting the healthcare purchaser, including managed care companies representing many purchasers.²¹⁸

Information systems are especially pertinent when IDSs want to measure the quality of their services and systems.²¹⁹ “Outcomes” is the term used to describe the results that a health delivery system produces in terms of immunization rates, disease screening rates, and general health or functional status of the population the system serves.²²⁰ An information system that can track patients and their diagnoses, treatments, and results is necessary to quantify outcomes for purchasers and to initially manage costs and processes.²²¹

EMERGING MODELS IN AN ERA OF REFORM

Certain organizational models have emerged independent of the traditionally recognized EHOs; some resist healthcare demand and implications, while others try to remediate the continuing healthcare “crisis” by serving as a vehicle for reform.

CONCIERGE CARE MODEL

Concierge care, also known as “luxury health care,” “retainer medicine,” “personalized health care,” and “boutique medical practices,” has, in essence, taken a defensive stance against managed care, population demands, and the resulting incentives that comprise healthcare reform (for more information, see chapter 1, *Boutique Medicine Versus Traditional Medicine* and chapters 2 and 4 of *An Era of Reform*).²²² For an annual retainer fee—either bolstered by or independent of the cost of insurance—“patients can expect more personalized services, including twenty-four hour doctor access, coordinated referrals to specialists, online access to their medical records, same day appointments, and longer appointment times.”²²³ Even if retainer fees must be paid without the assistance of insurance, some beneficiaries will keep traditional insurance coverage to help pay for tests or scans that their physicians order. Some may argue that the market will always call for solutions of a different kind and that boutique practices only fuel physician greed and resistance to the kind of reform that healthcare really needs.²²⁴ However, according to many boutique practitioners, this genre of healthcare organization emerged as a consequence of the frustrating restrictions placed on physicians by managed care.²²⁵ “The decrease in physician autonomy, combined with low reimbursement rates, rising overheads, and rising malpractice premiums, makes it easier to understand why some doctors were looking for change.”²²⁶ By utilizing retainer fees as supplemental income, physicians in boutique practices are afforded the option of seeing fewer patients and, as a result, offering what may be regarded as better quality patient care while increasing their salaries.²²⁷

Concierge care is also known as “luxury health care,” “retainer medicine,” “personalized health care,” and “boutique medical practices.”

“Boutique Medicine: A New Threat to American Health Care or a Logical Way of Revitalizing the Doctor-Patient Relationship?” by Jennifer Russano, Journal of Law and Policy, Vol. 17 (2005), p. 321.

Additionally, in a different subgenre of concierge healthcare services, rather than being used to increase physician salaries, retainer fees are used by hospitals and primary care facilities to subsidize primary care practice and support the continued care of poorer patients.²²⁸

RETAIL CLINIC MODEL

As emergency and urgent care departments become increasingly saturated and demand for primary care services escalates, retail clinics likely will continue to serve as remediation by providing accessible and affordable quality care to patients.²²⁹ “Retail clinics provide a new model for urgent care.”²³⁰ These “convenient care clinics” are located in pharmacy, discount, or grocery retail chains and often are staffed by nurse practitioners or physician assistants.²³¹ While scope of practice varies by state and location, mainly due to the competitive, regulatory, and technological implications that influence the demand and community need, the general range of permitted services will remain fairly narrow in many cases.²³² This is largely due to the fact that the clinic model is contingent upon quick patient throughput, self-sufficient and minimal staffing, low prices, and simple software that can still manage a limited range of medical diagnoses and process information efficiently.²³³ As a result, retail clinics “require no appointments, are open on weekends and evenings, report little waiting time, and offer services limited to immunizations and treatment of minor acute conditions.”²³⁴ Although concerns have surfaced about cost, quality, and delivery of retail care services, recent findings have shed a positive light on this new facet of primary and preventive care.²³⁵ In one study, Dr. Ateev Mehrotra et al. found ten leading reasons for retail clinic

visits: (1) upper respiratory infection, (2) sinusitis or bronchitis, (3) pharyngitis, (4) immunization, (5) otitis media or externa, (6) conjunctivitis, (7) urinary tract infection, (8) screening lab tests or blood pressure checks, (9) other preventive care, and (10) other care services not listed. These visits accounted for 13 percent of adult and 30 percent of pediatric primary care physician visits, as well as 12 percent of emergency department visits.²³⁶ Further, the study showed that these retail clinics were providing primary care services to an otherwise underserved population.²³⁷

Retail clinics, also known as “convenient care clinics,” are located in pharmacy, discount, or grocery retail chains.

“Retail Clinics, Primary Care Physicians, and Emergency Departments: A Comparison of Patients’ Visits,” by Ateev Mehrotra, Margaret C. Wang, Judith R. Lave, John L. Adams, and Elizabeth A. McGlynn, Health Affairs Vol. 27, No. 5, (September/October 2008), p. 1272; “Retail Clinics: An Emerging Source of Health Care for Children,” by C.S. Mott Children’s Hospital, the University of Michigan Department of Pediatrics and Communicable Diseases, and the University of Michigan Child Health Evaluation and Research Unit, C.S. Mott Children’s Hospital National Poll on Children’s Health, Vol. 4, Issue 3, August 11, 2008, p. 1.

Retail clinics provide less costly treatment than physician offices or urgent care centers for three conditions commonly treated in retail settings: otitis media, pharyngitis, and urinary tract infection.

“Comparing Costs and Quality of Care at Retail Clinics with that of Other Medical Settings for 3 Common Illnesses,” by Ateev Mehrotra, M.D.; Hangsheng Liu, Ph.D.; John L. Adams, Ph.D.; Margaret C. Wang, Ph.D.; Judith R. Lave, Ph.D.; N. Marcus Thygeson, M.D.; Leif I. Solberg, M.D.; and Elizabeth A. McGlynn, Ph.D., Annals of Internal Medicine, Vol. 151, No. 5, (September 2009), p. 321, 326.

In another study, Mehrotra et al. found that retail clinics provide less costly treatment than physician offices or urgent care centers for three conditions commonly treated in retail settings: (1) otitis media, (2) pharyngitis, and (3) urinary tract infection.²³⁸ Additionally, these services were of similar or better quality than services provided in the alternative settings.²³⁹ Retail care patients were equally as likely to receive preventive care services as patients seen in physician offices or urgent care centers.²⁴⁰

According to a National Poll on Children’s Health conducted by C.S. Mott Children’s Hospital, 29 percent of parents nationwide reported the presence of a retail clinic in their community, with one in every six parents having taken their children to a clinic prior to April 2008.²⁴¹ Further, one in four parents stated it was likely or very likely they would utilize this resource in the future, which seems to be supported by the fact that the number of retail clinics is expected to grow from an estimated 1,500 in 2008 to 6,000 in 2012.²⁴²

Suggested by their growing role in the healthcare market, retail clinics may assist in lowering healthcare costs while remediating an oversaturated demand. Remediation may cross demographic boundaries, affording even the underserved quality healthcare that otherwise would be inaccessible, unaffordable, and hard to come by. Lastly, retail clinics will serve as an additional avenue through which healthcare professionals may promote preventative medicine. In the modern healthcare environment, which emphasizes the pressing demand for reform, retail clinics will not only address the unmet patient demand, but they also will meet the pressure to contain cost, meet quality expectations, and cater to demographic needs.

MEDICAL HOME MODEL

Conceptualized by the American Academy of Pediatrics in the late 1960s, the medical home has since transformed into a healthcare delivery model that is patient-centric, primary care driven, and targeted at payment reform.²⁴³ As discussed in chapter 2 of *An Era of Reform* as well as various sections in chapter 3, *Physician Practices*, seven principles established by the American Academy of Family Physicians, the American Academy of Pediatrics, the American College of Physicians, and the American Osteopathic Association constitute the medical home model in light of ongoing healthcare reform initiatives: personal physician, physician directed medical practice, whole person orientation, coordinated or integrated care, quality and safety, enhanced access, and appropriate payment.²⁴⁴ In a study of four pioneering practices that have piloted this model, three features were observed: “(1) an exceptional form of individualized caring tailored to preventing ED use and unplanned hospitalization for chronic illnesses; (2) efficient service provision; and (3) careful selection of, and coordination with medical specialists.”²⁴⁵ The medical home model empowers practices to promote primary and preventive care services (which seems to be the growing need in the modern healthcare market), maximize efficiency by utilizing manpower resources, particularly independent nonphysician practitioners, and reevaluate the role of specialty medicine and combat overuse of specialty services.²⁴⁶ Unfortunately, widespread and successful implementation of medical home programs targeting improved effectiveness, safety, timeliness, and quality *as well as* reduced cost has yet to be seen.²⁴⁷ However, it is expected that Medicare will begin encouraging the implementation of the medical home model by funding state pilot programs that employ primary care physicians and coordinators to facilitate and execute the management of patient care and healthcare expenditures.²⁴⁸

Conceptualized by the American Academy of Pediatrics in the late 1960s, the “medical home” has since transformed into a healthcare delivery model that is patient-centric, primary care driven, and targeted at payment reform.

“Measuring The Medical Home Infrastructure In Large Medical Groups” By Diane R. Rittenhouse et al., *Health Affairs*, Vol. 27, No. 5, (September/October 2008), p. 1246–47; *“Joint Principles of the Patient-Centered Medical Home,”* by the American Academy of Family Physicians, the American Academy of Pediatrics, the American College of Physicians, and the American Osteopathic Association, March 2007, p. 3.

BUNDLED PAYMENT MODEL

As discussed in chapters 2 and 4 of *An Era of Reform*, legislators have turned to bundling institutional and professional payment charges as a means of reducing Medicare costs.²⁴⁹ The Centers of Medicare and Medicaid Services (CMS) has launched a pilot program utilizing the bundled payment model, called the Acute Care Episode (ACE) Demonstration project, to assess the bundling of payments received for both physician and hospital services in the circumstance of certain episodes of cardiovascular or orthopedic care.²⁵⁰ The ACE demonstration project models the effective integration of bundled reimbursement methods into a healthcare practice in order to increase cost savings and continuity of care among Part A and Part B providers.²⁵¹ By realigning physician and hospital incentives, CMS hopes to improve both quality and efficiency of care.²⁵² This three-year pilot program will abolish the Medicare physician fee schedule for the designated episodes of care, assigning a global payment to cover all Part A and Part B services.²⁵³ Participating sites, known as value-based care centers, are given the opportunity to “develop efficiencies in the care they provide to beneficiaries through increasing market share, quality

improvement in clinical pathways, improved coordination of care among specialists, and ‘gainsharing’ . . . or provider incentive programs, (which) allow physicians and hospitals to share remuneration for implementing and coordinating improvements in efficiency and quality.”²⁵⁴

ACCOUNTABLE CARE ORGANIZATION MODEL

In the same spirit of realigned incentives and professional accountability, healthcare reform is bolstering the adoption and integration of **accountable care organizations (ACO)** (discussed further in chapter 2 of *An Era of Reform*). Many advocates of a reinvented healthcare system believe that ACOs could drive healthcare reform in three ways: (1) by encouraging providers to assume accountability for quality and efficiency, (2) by bolstering efforts toward payment reform, and (3) by contributing to the remediation of the sustainable growth rate (SGR) formula.²⁵⁵ The American Medical Group Association (AMGA) defines an ACO as “an entity that has physician leadership and internal structures, methods and systems for measuring, assessing and advancing the effectiveness and efficiency of patient care; providing a longitudinal, coordinated continuum of health care services, crossing provider settings and that is willing to be held accountable for the clinical results to the communities served.”²⁵⁶ ACOs may range in size, scope, infrastructure, or governance, exhibiting any array of attributes, ownership, or integration.²⁵⁷ Five types of organizations have been identified as entities that could function independently as ACOs or as part of ACOs: (1) IPAs or primary care physician groups, (2) multispecialty groups, (3) hospital medical staff organizations, (4) PHOs, or (5) IDSs.²⁵⁸

Although a certain measure of structural flexibility is afforded to healthcare organizations under the ACO model, certain characteristics are deemed essential.²⁵⁹ ACOs must be able to provide patients with a continuum of care across a variety of settings.²⁶⁰ ACOs must be supported and sustained by dynamic, collaborative teams in order to preserve a fluid continuum of care.²⁶¹ These teams may include primary care physicians, nurse practitioners, specialists, and other independent nonphysician providers, as well as hospitals, nursing homes, ambulatory surgery centers, or any other healthcare enterprise, provider, or entity.²⁶² This model maintains that collaboration is imperative to developing effective initiatives tailored to meet the quality and efficiency goals, measure progress, and reassess objectives.²⁶³ Collaboration is not the only advantage ACOs have that is attributable to continuity of care; unlike the medical home model, wherein the personal physician assumes responsibility for managing patient healthcare providers and efficiency of continued care, the ACO model places patient care management in the hands of coordinators specifically tasked with managing patient care as well as provider collaboration and communication.²⁶⁴ In addition to preserving and managing the continuum of care, ACOs also must exhibit prospective budget planning and resource allocation.²⁶⁵ Lastly, the organization must be large enough to support thorough, accurate, and meaningful performance measurements.²⁶⁶

Several incentives may be offered to healthcare providers who join ACOs, as well as private pay patients seeking care from ACOs.²⁶⁷ Healthcare providers may benefit from (1) supplementary physician payment updates, (2) capitation, (3) pay-for-performance, and (4) gainsharing opportunities.²⁶⁸ ACO patients may enjoy reduced co-insurance or even lower deductibles.²⁶⁹

CONCLUSION

The organizational structure of the healthcare industry is rapidly changing to include a growing number of EHOs and provider relationships. Although managed care served to spark the development of EHOs, initiatives in healthcare reform continue to fuel the proliferation and diversification of these innovatively organized enterprises. It is expected that the impending demand and changes in healthcare will further accelerate the implementation of successful EHO models by healthcare professional practice providers.

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Health Resources and Services Administration	“The primary Federal agency for improving access to health care services for people who are uninsured, isolated or medically vulnerable.”	“Tens of millions of Americans get affordable health care and other help through 80 different programs run by the Health Resources and Services Administration,” by the Health Resources and Services Administration, 2009, www.hrsa.gov/about/default.htm (accessed December 16, 2009).	www.hrsa.gov
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Associations

Type of Organization	Professional Association	Description	Citation	Hyperlink	Contact Information
National	American Hospital Association (AHA)	Founded in 1898, the AHA represents and serves close to 5,000 “hospitals, health care networks, and their patients and communities.”	“About the American Hospital Association.” American Hospital Association, www.aha.org/aha/about/index.html (accessed March 4, 2010).	www.aha.org	American Hospital Association One North Franklin Chicago, IL 60606 Phone: 312-422-3000
National	Federation of American Hospitals (FAH)	FAH “acts as the spokesperson and representative to Congress, the Administration, media, and academia for investor-owned community hospitals and health systems.” They support the efforts of “investor-owned hospitals and other organizations involved in the delivery of health care services that share a common philosophy of providing high quality, affordable health care.”	“Mission Statement,” Federation of American Hospitals, www.fah.org/fahCMS/WhoWeAre/MissionStatement.aspx (accessed March 4, 2010).	www.fah.org	Federation of American Hospitals 801 Pennsylvania Avenue, NW Suite 245 Washington, DC 20004 Phone: 202-624-1500 Fax: 202-737-6462 E-mail: info@fah.org

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National	American Health Lawyers Association	"The nation's largest, nonpartisan, 501(c)(3) educational organization devoted to legal issues in the healthcare field with more than 10,000 members."	"Welcome to AHLA," American Health Lawyers Association, www.healthlawyers.org (accessed February 12, 2010).	www.healthlawyers.org	American Health Lawyers Association Suite 600, 1025 Connecticut Avenue NW Washington, DC 20036-5405 Phone: 202-833-1100

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- 260 *Ibid.*
- 261 "Accountable Care Organizations: Lynchpin for Reform" American Medical Group Association, 2009, <http://www.amga.org/advocacy/briefs/2009/aco.pdf> (Accessed 12/15/09); "Health Care Reform Requires Accountable Care Systems" By Stephen Shortell and Lawrence Casalino, *Journal of the American Medical Association*, Vol. 300, No. 1, (July 2, 2008), Accessed at <http://jama.ama-assn.org/cgi/content/full/300/1/95> (Accessed 5/20/10), p. 95.
- 262 *Ibid.*
- 263 "MedPAC Probes Effectiveness of Accountable Care Organizations" By Jane Norman, *Washington Health Policy Week in Review*, April 20, 2009, <http://www.commonwealthfund.org/Content/Newsletters/Washington-Health-Policy-in-Review/2009/Apr/April-20-2009/MEDPAC-Probes-Effectiveness-of-Accountable-Care-Organizations.aspx> (Accessed 11/13/09).
- 264 "Creating Accountable Care Organizations: The Extended Hospital Medical Staff" By Elliot Fisher et al, *Health Affairs* Vol. 26, No. 1 (December 5, 2006) <http://content.healthaffairs.org/cgi/reprint/26/1/w44> (Accessed 05/20/10), p. w45, w53.
- 265 "Can Accountable Care Organizations Improve the Value of Health Care By Solving the Cost and Quality Quandries?" By Kelly Devers and Robert Berenson, *Timely Analysis of Immediate Health Policy Issues*, October 2009, p. 2.
- 266 *Ibid.*
- 267 "Health Care Reform Requires Accountable Care Systems" By Stephen Shortell and Lawrence Casalino, *Journal of the American Medical Association*, Vol. 300, No. 1, (July 2, 2008), Accessed at <http://jama.ama-assn.org/cgi/content/full/300/1/95> (Accessed 5/20/10), p. 97.
- 268 *Ibid.*
- 269 *Ibid.*

3

Physician Practices

A physician in a great city seems to be the mere plaything of fortune; his degree of reputation is for the most part totally casual; they that employ him know not his excellence; they that reject him know not his deficiency.

Samuel Johnson, 1779

KEY TERMS

- Age-Related Macular Degeneration (AMD)
- Continuing Medical Education or Maintenance of Certification
- Coronary Artery Bypass Grafting
- Diabetic Retinopathy
- "Dry" AMD
- Emergency Care Physicians
- Endoscopic Sinus Surgery
- Glaucoma
- Hospitalists
- Intensivists
- Medical College Admissions Test
- Physiatrists
- Primary Care Practitioners
- Residents
- Self-Designated Practice Specialty
- United States Medical Licensing Examination
- "Wet" AMD



Key Concept	Definition	Source Location
Physician Training Requirements	(1) completion of medical school, (2) residency training, (3) licensure, (4) specialization and certification, and (5) continuing medical education.	"Becoming a Physician," the American Medical Association, 2009, www.ama-assn.org/ama/pub/education-careers/becoming-physician.shtml (accessed July 20, 2009).
Liaison Committee on Medical Education (LCME) Accreditation	Accreditation procedures are decided based on a survey report, supplemented as necessary by information contained in the medical education database and the institutional self-study. As of 2010, LCME accredited 129 programs.	Accreditation Procedures, LCME, 2009, www.lcme.org/procedur.htm (accessed October 2, 2009); "Frequently Asked Questions," the Liaison Committee on Medical Education, 2009, www.lcme.org/facme.htm (accessed October 2, 2009).
Commission on Osteopathic College Accreditation (COCA) Accreditation	Requirements for COCA accreditation include (1) missions, goals, and objectives; (2) governance, administration, and finance; (3) facilities, equipment, and resources; (4) faculty; (5) students; (6) curriculum; (7) research and scholarly activities; and (8) prerequisite fulfillment. As of 2010, COCA accredited twenty-five programs.	"Commission on Osteopathic Accreditation: COM Accreditation Standards and Procedures," by the American Osteopathic Association, July 1, 2009, www.osteopathic.org/pdf/SB03-Standards%20of%20Accreditation%20July%202009.pdf (accessed October 2, 2009).
Accreditation Council for Graduate Medical Education (ACGME) Review Committees	Twenty-eight total: twenty-six specialty committees, one committee for the one-year transitional program, and one committee for institutional review. These committees approve medical school and residency programs.	"ACGME At A Glance," the Accreditation Council for Graduate Medical Education, 2009, www.acgme.org/acWebsite/newsRoom/newsRm_acGlance.asp (accessed October 2, 2009).
United States Medical Licensing Examination (USMLE) Sponsors	(1) Federation of State Medical Boards (FSMB) and (2) National Board of Medical Examiners (NBME). These sponsors are responsible for managing the review, revision, release, and evaluation of the USMLE.	"About the USMLE," by the United States Medical Licensing Examination, 2009, www.usmle.org/General_Information/general_information_about.html (accessed July 20, 2009).
Requirements for American Board of Medical Specialties (ABMS) Certification of Doctors of Osteopathic Medicine	1. certification by the ABMS and completion of residency training prior to submitting the application, 2. good standing as an American Osteopathic Association member, and 3. maintain continuing medical education (CME) hours to fulfill AOA requirements.	"Resolution 56: Certification Eligibility for ABMS-Certified D.O.s.," by the Division of Certification, Department of Education, American Osteopathic Association, 2009, www.do-online.org/index.cfm?au=D&PagelD=edu_main&SubPagelD=crt_main (accessed October 2, 2009).
Self-Designated Practice Specialty (SDPS) Certification Categories	Certification by (1) corresponding board only, (2) corresponding board and noncorresponding board(s), and (3) noncorresponding board(s) only.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xix.
Corresponding Board	Certification board that has the authority to grant certification for a particular SDPS.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xix.
Noncorresponding Board	Certification board(s) that do not have the authority to grant certification for a particular SDPS.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xix.
Physicians' Practice Arrangement (PPA) Questionnaire Question Categories	The American Medical Association's (AMA's) PPA questionnaire describes physician practices according to three categories (1) major professional activity, (2) SDPS, and (3) present employment.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xvi-xvii.
Major Professional Activity Classification	Classification based on whether a physician is primarily engaged in patient care or nonpatient care.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xvii.
Patient Care Classification	Divided between office-based practices and hospital-based practices.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xvii.
Office-Based Practices	Any physician who practices in affiliation with a nonhospital healthcare enterprise.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xvii.
Hospital-Based Practices	All physicians under contract with hospitals providing patient care, including physicians in residency training and full-time members of hospital staffs.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xvii.
Nonpatient Care (Other Professional Activity) Classification	Physicians who engage in medical teaching, medical research, administration, other activities, and inactivities.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xvii.
Medical Teaching	This category includes physicians that instruct in medical schools, hospitals, nursing schools, or other institutions of higher learning.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xvii.
Medical Research	Physicians employed to conduct funded or nonfunded research (including fellowship programs) for the purposes of developing new medical knowledge.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xvii.
Other activity	This residual categorization includes all physicians employed by other subsectors of the healthcare industry, including, among other entities, insurance carriers, pharmaceutical companies, corporations, voluntary organizations, medical societies, associations, grants, international entities, and foreign countries.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xviii.

Key Concept	Definition	Source Location
Inactivities	All physicians who are retired, semi-retired, working twenty or fewer hours a week for any indicated reason, or temporarily not practicing are classified as inactive.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xviii.
Criteria for Adding New SPDSs	(1) A specialty defined by an existing certificate of added qualifications issued by an AMA-recognized medical specialty board, (2) contingent with an existing ACGME-accredited residency or subspecialty training program, or (3) under exceptional circumstances, not in line with criterion one or two but which will be considered if AMA needs to maintain records on the number of physicians in that particular field.	"American Medical Association Self Designated Practice Specialty Definitions," by the American Medical Association, January 2003, www.mmslists.com/definitionspdf/AMA%20Specialty%20Definitions.pdf (accessed July 20, 2009).
Present Employment	The various classification options under the category "present employment" are self-employed; solo practice; two-physician practice; group practice; health maintenance organization; medical school; nongovernment hospital; city, county, or state government; federal government; <i>locum tenens</i> ; other patient care; and other nonpatient care.	"Physician Characteristics and Distribution in the US 2009 Edition," American Medical Association, 2009, p. xvi.
Association of American Medical Colleges Physician Specialty Categories	(1) primary care, (2) medical specialties, (3) surgical specialties, and (4) other patient care.	"The Complex Dynamics of the Physician Workforce: Projected Supply and Demand through 2025," by Michael J. Dill and Edward S. Salsberg, Center for Workforce Studies, Association of American Medical Colleges, November 2008, p. 16.
Primary Care Categories	1) practitioners in general primary care specialties and 2) practitioners in primary care subspecialties.	"Medical Specialties," by Janet M. Torpy, <i>JAMA</i> , Vol. 290, No. 9, (2003), p. 1.
Key Principles of the Medical Home	(1) family-centered partnership, (2) community-based system, (3) transitions, and (4) value.	"What is a medical home?" by the American Academy of Pediatrics, September 21, 2009, www.medicalhomeinfo.org/ (accessed October 2, 2009); "The Medical Home: An Idea Whose Time Has Come...Again," by Leigh Ann Backer, <i>Family Practice Management</i> , September 2007, www.aafp.org/fpm (accessed October 2, 2009), p. 38.
Body Mass Index (BMI) Classes for Bariatric Surgery	Class I: BMI 30–34.9 Class II: BMI 35–39.9 Class III: BMI >40; when BMI greater than 25 is considered "overweight," and BMI greater than 30 is considered "obese."	"Extreme Obesity: A New Medical Crisis in the United States," Hensrud, Donald and Samuel Klein, <i>Mayo Clinic Proceedings</i> , October 2006, p. S5.
Otologic Disorders	Hearing loss and balance disorders.	"Chapter 8: Geriatric Care: Otolaryngology," the American Academy of Otolaryngology-Head and Neck Surgery Foundation, 2006, www.entnet.org/EducationAndResearch/upload/Chapter_8.pdf (accessed October 6, 2009).
Rhinologic Disorders	Rhinitis, epistaxis, nasal obstruction, olfactory dysfunction, and sinusitis.	"Chapter 8: Geriatric Care: Otolaryngology," the American Academy of Otolaryngology-Head and Neck Surgery Foundation, 2006, www.entnet.org/EducationAndResearch/upload/Chapter_8.pdf (accessed October 6, 2009).
Oropharyngeal Disorders	Dysphagia, aspiration, xerostomia, burning mouth syndrome, and laryngopharyngeal reflux.	"Chapter 8: Geriatric Care: Otolaryngology," the American Academy of Otolaryngology-Head and Neck Surgery Foundation, 2006, www.entnet.org/EducationAndResearch/upload/Chapter_8.pdf (accessed October 6, 2009).
Laryngeal Disorders	Voice disturbance, thyroid problems, and head and neck cancer.	"Chapter 8: Geriatric Care: Otolaryngology," the American Academy of Otolaryngology-Head and Neck Surgery Foundation, 2006, www.entnet.org/EducationAndResearch/upload/Chapter_8.pdf (accessed October 6, 2009).
Common Cosmetic Plastic Surgery Procedures	Breast augmentation, liposuction, eyelid surgery, rhinoplasty, and abdominoplasty.	"2009 Report of 2008 Statistics: National Clearinghouse of Plastic Surgery Statistics," American Society of Plastic Surgeons, 2009.
Common Reconstructive Plastic Surgery Procedures	Breast reconstruction surgery, birth defect reconstruction procedures, hand surgery reconstruction, scar revision procedures, and burn care procedures.	"2009 Report of 2008 Statistics: National Clearinghouse of Plastic Surgery Statistics," American Society of Plastic Surgeons, 2009.
The Distinction Between Primary and Principal Care	For many Americans, primary care encompasses the larger portion of their medical care, however, patients suffering from chronic diseases rely more heavily upon the care of their specialist, who is their principal care provider.	"The US health care system: Part 1: Our current system," by M.R. Nuwer, G. J. Esper, P. D. Donofrio, J.P. Szafarski, G.L. Barkley, and T. R. Swift, <i>Neurology</i> , Vol. 71, (2008), p. 1911.

OVERVIEW

For nearly three decades, the healthcare industry has become increasingly consolidated, and a growing number of integration methods have emerged.¹ Simultaneously, competition between various provider sectors (for example, hospital- and office-based practices and practitioners of all kinds) has intensified.² Identifying the various roles assumed by physicians within this integration, or competition, continuum is imperative to understanding the dynamics of the U.S. healthcare industry. Beyond the unique requirements, scope, complexities, and trends of physician specialization and subspecialization, certain characteristics exist that are common to all physician professional practices.

The requirements and practice scope of the two prominent schools of medicine (that is, allopathic and osteopathic), discussed in chapter 1, *Organizational Structure*, also share common characteristics, and their respective associations and certifying boards parallel each other (see table 3-1 for a side-by-side of allopathic and osteopathic medical training, which is discussed in **Education and Training**). The manner by which these two schools, as well as specialties, subspecialties, and practice dynamics, diverge is among the most significant criteria that generally characterize how physician professional practices historically have influenced and have been affected by the dynamic of integration and competition.

Table 3-1: Allopathic Versus Osteopathic Medical Education and Training

Criteria	Allopathic	Osteopathic
Admission into Medical School	Premedical undergraduate coursework, satisfactory grade point averages, and Medical College Admissions Test scores	
Degree	Medical Doctorate (M.D.)	Doctorate of Osteopathy (D.O.)
Accrediting Body for Medical Schools	Accreditation Council for Graduate Medical Education (ACGME)	Commission on Osteopathic College Accreditation
Number of Medical Schools	125	25
Accrediting Body for Residency Programs	ACGME	American Osteopathic Association (AOA)
General Residency Characteristics	Sometimes the program's first year is a general clinical base or "transitional" year; overall three to seven years of residency training	A one-year internship, plus two to six years of residency training
Licensing Examination	United States Medical Licensing Examination (USMLE)	USMLE in fourteen states, a similar examination in the remaining thirty-six
Organization of Certifying Boards	American Board of Medical Specialties	AOA
Number of Certifying Boards	24	18
Certification Requirements	Completion of medical school, plus completion of a residency or fellowship program and a valid licensure	
Continuing Medical Education	Annual requirements, vary by state	Requirements per every three years, sanctioned by the AOA

DESCRIPTION AND SCOPE

SCOPE OF PRACTICE

AMERICAN MEDICAL ASSOCIATION SYSTEM OF PHYSICIAN CLASSIFICATION

The methods utilized by the American Medical Association (AMA) in its Physicians' Practice Arrangements (PPA) questionnaire, discussed in following sections, mirror the specialty and practice activity system that best characterizes the diverse scope of physician practices.³

PROFESSIONAL ACTIVITY

The AMA preliminarily categorizes a physician by his or her major professional activity (MPA).⁴ MPA classification is based on whether the physician is primarily engaged in patient care or nonpatient care.⁵

Patient Care

Physicians in patient care then are divided according to the type of enterprise under which they are employed: office-based practices or hospital-based practices.⁶

Office-Based Practice

As discussed previously, the MPA classification of patient care in office-based practices includes any physician who practices in affiliation with a nonhospital healthcare enterprise.⁷ These physicians may work alone, together with other physicians in their specialties, or in collaboration with a team of practitioners with different specializations.⁸

Hospital-Based Practice

The MPA classification of physicians in hospital-based practices includes all physicians under contract with hospitals providing patient care.⁹ This includes physicians in residency training and full-time members of hospital staffs. **Residents** are “any physicians in supervised practice of medicine among patients in a hospital or in its outpatient department, with continued instruction in the science and art of medicine by the staff of the facility.”¹⁰ Clinical fellows receiving advanced training in surgical and specialty fields also are classified as residents.¹¹

The majority of general and specialty practitioners are found in both hospital- and office-based settings; however, there exists a genre of medical services traditionally provided in the hospital setting, including critical care and emergency services.¹² These areas of medicine focus on emergency and intensive care in both long- and short-term settings for both acute and chronic diseases.¹³ Physician professionals who commonly practice critical care, emergency care, or both along with other types of providers (for example, chapter 4, *Mid-Level Provider Practices*, and chapter 5, *Technicians and Paraprofessionals*) include hospitalists, psychiatrists, intensivists, and emergency care physicians.¹⁴ The traditional boundaries that confine these specialists to the hospital-based setting seem to be deteriorating due to a changing demand. The graying demographic leaves urgent care centers overcrowded with unbearable wait times.¹⁵ According to a 2006 survey conducted by the *Journal of the American Medical Association*, 75 percent of emergency departments reported inadequate on-call coverage, as compared to 64 percent in 2004. The survey also found that, on average, emergency departments were “boarding” five patients per day due to the unavailability of physicians.¹⁶ Similarly, the demand for increased intensivist hours in the intensive care unit represents 35 percent of the total anticipated demand for 2020.¹⁷

Traditional patient care boundaries seem to be deteriorating, because the changing demographic has resulted in urgent care centers being overcrowded with unbearable wait times and ICUs with the demand for intensivist hours comprising 35 percent of the total anticipated demand in 2020.

“The Doctor is in: Marketing a Freestanding Emergency Care Center,” Adam Nisenson, Active Imagination, Inc.: Healthcare Marketing, 2007, www.marketingforhealthcare.com/content551.html (accessed October 2, 2009); “Critical Care Statistics in the United States,” the Society of Critical Care medicine, 2006, <http://sccmwww.sccm.org/Documents/WebStatisticsPamphletFinalJune06.pdf> (accessed October 2, 2009).

Hospitalists

Hospitalists (also known as **inpatient physicians**) are physicians who, traditionally, worked solely within the hospital setting.¹⁸ However, as discussed in chapter 1, *Hospital-Based Versus Office-Based Professionals: Then and Now*, the hospital staff dynamic has changed dramatically. With the shift toward specialty medicine, these traditionally primary care physicians are becoming increasingly specialized.¹⁹ Also, hospitalist employment has become increasingly complex, with many hospitalists belonging to group practices or hospital-based management companies.²⁰

Physiatrists

Physiatrists, also referred to as **rehabilitation physicians**, are experts at diagnosing and treating pain.²¹ These pain management professionals are relied upon to restore functionality that may have been lost as a consequence of injury, illness, or disability.²² They typically work as part of or as leaders of a medical team of experts in the field.²³ Physiatrists complete training in physical medicine and rehabilitation.²⁴ See *Physical Medicine and Rehabilitation* for a detailed discussion of physiatrists.

Intensivists

Intensivists are physicians trained in the practice of critical care medicine.²⁵ Because intensive or critical care systems typically are structured in the image of a “multiprofessional team model,” intensivists are physicians who are board certified in any variety of specialties, including surgery, internal medicine, pediatrics, and anesthesiology.²⁶ After receiving their specialty certification, they pursue subcertification in critical care.²⁷ Specialists who contribute to this multiprofessional team will be mentioned at various points in *Medical Specialty Practices*.

Emergency Care Physicians

Emergency physicians are involved in the practice of emergency medicine, which involves the unscheduled treatment of patients with episodic or acute conditions.²⁸ These physicians are licensed in emergency medicine, requiring a very wide scope of general education and clinical training.²⁹ Emergency physicians are found in hospitals, as well as in freestanding urgent care centers, tertiary medical centers, and academic institutions.³⁰ See *Emergency Medicine* for an in-depth discussion of emergency medicine as a medical specialty.

Other Professional Activity (Nonpatient Care)

Several areas within medicine do not involve patient care: medical teaching, medical research, administration, and other activities.³¹

Medical Teaching

This category includes physicians who engage in medical teaching in schools, hospitals, nursing schools, or other institutions of higher learning.³² The primary care physician shortage, discussed in the following section, *Primary Care*, may be attributed, in part, to the fact that many academic medical centers do not receive adequate educational funding, and they must rely on funds from more lucrative specialties to help train medical students.³³ Consequently, students graduate with a preference for specialty medicine.³⁴

Medical Research

Physicians employed to conduct funded or nonfunded research for the purposes of pursuing new medical knowledge are classified under this category.³⁵ Also included are physicians in research fellowship

programs, which are not to be confused with accredited residency programs. These physicians mainly focus on nonpatient care activities.³⁶

Administration

This subset of nonpatient care includes all physicians who hold administrative positions, namely at hospitals, healthcare facilities, healthcare clinics or agencies, healthcare groups, or other similar organizations.³⁷

Other Activities

This residual category includes all physicians employed by other subsectors of the healthcare industry, including, among other entities, insurance carriers, pharmaceutical companies, corporations, voluntary organizations, medical societies, associations, grants, international entities, and foreign countries.³⁸

Inactivities

All physicians who are retired, semiretired, working at most twenty hours a week for any indicated reason, or temporarily not practicing are classified as inactive.³⁹

SELF-DESIGNATED PRACTICE SPECIALTIES (SPDS)

A physician's area of expertise is described by the AMA as "the specialty which he/she has chosen to designate for himself/herself."⁴⁰ These specialty areas are assessed by the AMA in the *Physician's Credentials Update* and are represented by a system of **self-designated practice specialty (SDPS)** codes.⁴¹ Criteria for adding new SDPS codes were established by the AMA Board of Trustees in 1984.⁴² A new specialty should be accounted for if it is

1. a specialty defined by an existing certificate of added qualifications issued by an AMA-recognized medical specialty board,
2. contingent with an existing Accreditation Council for Graduate Medical Education (ACGME) accredited residency or subspecialty training program, or
3. under exceptional circumstances, not in line with criterion (1) or (2) but which will be considered if AMA needs to maintain records on the number of physicians in that particular field. This is determined when
 - a. demand for services exists such that a substantial number of physicians choose to limit their practice accordingly,
 - b. the specialty derives from new concepts in medicine that have strong professional support, and
 - c. the specialty is a distinct and well-defined new area of medicine.⁴³

Specialties are recognized most frequently after training programs and certifications already exist.

The SDPS codes established at the time of publication stem from forty specialties recognized by the AMA.⁴⁴ These specialty areas are addressed later in this chapter, with particular attention paid to the interrelationships among groupings and the options physicians possess for diversifying their practice focus.

PRESENT EMPLOYMENT

In addition to clarifying their general genres for professional activity and specialty areas, physicians are prompted for information about their present employment. As previously discussed, practitioners can provide services in countless kinds of practice types that can vary in business structure and organizational dynamic.⁴⁵ These characteristic variables are chosen according to what kind of practice the entity wishes to be.⁴⁶ In addition to assessing the distribution of physician professional activities and specialties, the PPA questionnaire prompts physicians to include descriptive information related to the type of practice under which they are employed (that is, self-employed; solo practice; two-physician practice; group practice; health maintenance organization (HMO); medical school; nongovernment hospital; city, county, or state government; federal government; *locum tenens*; other patient care; and other nonpatient care).⁴⁷

EDUCATION AND TRAINING

Medical education in the United States is comprised of (1) medical school, (2) graduate medical education (GME), and (3) continuing medical education.⁴⁸

Students entering U.S. medical schools that are accredited by the Liaison Committee on Medical Education (LCME) are expected to have ample undergraduate coursework in the basic sciences (for example, biology, chemistry, and physics); however, traditional premedical majors are not required.⁴⁹ Student acceptance into medical school is contingent upon overall and science-weighted grade point averages, as well as successful completion of the **Medical College Admissions Test**.⁵⁰

Individuals wishing to pursue an osteopathic medical education must meet these requirements, as well.⁵¹ Osteopathic schools of medicine are accredited by the Commission on Osteopathic College Accreditation (COCA).⁵² As of 2010, twenty-five COCA-accredited institutions were in operation in the United States.⁵³

MEDICAL SCHOOL

Students who complete four years of education at an LCME-accredited medical school receive a Doctor of Medicine (M.D.) degree.⁵⁴ At this time, graduates are eligible to complete any number of residency programs approved by the ACGME.⁵⁵

Students who complete four years at a COCA-accredited osteopathic medical school⁵⁶ receive a Doctor of Osteopathy (D.O.) degree.⁵⁷ Similar to their allopathic counterparts, osteopathic physicians continue their medical training by pursuing a residency program. Review table 3-1 for a side-by-side comparison of the educational requirements for allopathic and osteopathic physicians.

RESIDENCY TRAINING

After graduating from an accredited medical school, physicians continue on to the second level of U.S. medical education—GME. In other words, medical school graduates apply to specialty residency programs (GME programs), that prepare them, as physicians, for independent practice in the specialty of their choice.⁵⁸ These medical residency programs are evaluated continuously by the ACGME to ensure that they meet the publicly recognized educational standards that have been established for the medical specialties they target.⁵⁹ Programs usually have a duration of three to five years, and residents are categorized according to year, for example, post-graduate year one, post-graduate year two, and so forth.⁶⁰

Students are placed into residency programs through the National Resident Matching Program.⁶¹ The duration of a residency program depends on the area of medicine in which it specializes (for example, pediatrics requires three years of training, but general surgery requires five).⁶² Although most programs tend to last between three and seven years, more strenuous specialties may require even longer residency periods.⁶³ Some students pursue a fellowship, which may last one to three years, in addition to their residency. This supplementary subspecialty training is for physicians who wish to become highly specialized in their field.⁶⁴ After completing their GME, students are eligible to take the **United States Medical Licensing Examination (USMLE)**.⁶⁵

The NRMP made more matches in 2009 than ever before, offering 25,185 positions altogether.

"About NRMP," by the National Residency Matching Program, 2009.

Doctors of Osteopathy must complete a twelve-month internship followed by a residency program approved by the American Osteopathic Association (AOA) in the specialty area of their choice.⁶⁶ Depending on the specialty, programs may last two to six years.⁶⁷

Accreditation Council for Graduate Medical Education

The ACGME is the accrediting organization for graduate medical education programs in the United States. The ACGME is comprised of twenty-eight review committees: twenty-six for each of the twenty-six medical specialties, one committee assigned to the "transitional" one-year general program, and one committee responsible for institutional review.⁶⁸

Residency Program Accreditation

The ACGME accreditation process is detailed in three documents: (1) *ACGME Policies and Procedures*, (2) *ACGME Institutional Requirements*, and (3) *ACGME Common Program Requirements*.⁶⁹ In addition, the ACGME issues its specialty-specific program requirements in the *ACGME Program Requirements for Graduate Medical Education in Family Medicine*.⁷⁰

According to *ACGME Policies and Procedures*, a residency review committee (RRC) makes accreditation decisions regarding the program. The RRC develops program information forms (PIFs) and institutional review documents (IRDs), which are completed by a program director and a designated institutional official before the ACGME site visit. After the PIFs and IRDs are completed and signed by the appropriate program staff, they are sent to the RRC for review. Submission of the PIFs and IRDs is the beginning of the review and accreditation process.⁷¹

After the required forms have been mailed, an ACGME representative travels to a program's location for a site visit. During the visit, the ACGME representative conducts interviews of faculty, staff, and residents and collects information about the program, which he or she uses to create a report for the RRC.⁷² The RRC then meets to decide what the program's accreditation status should be. As a result of this process, the RRC may issue citations regarding program defects and may shorten the institution's review cycle length. Depending on the accreditation decision, the RRC assigns the program an accreditation cycle length of no more than five years.⁷³ When this process is complete, the RRC prepares a letter of notification for the program and sponsoring institution detailing the accreditation status, cycle length,

number of residents approved, approximate date of next site visit, and approximate date of next mid-cycle internal review.⁷⁴

ACGME Institutional Requirements lists the requirements for sponsoring institutions. This document details the ACGME required procedures that must be followed by each sponsoring institution, including requirements relating to eligibility and selection of residents, resident educational activities, resident supervision, and program oversight. It also requires each sponsoring institution to form a GME committee, which must meet quarterly to create policies and procedures relating to the sponsoring institution's education of residents.⁷⁵

ACGME Common Program Requirements details the program guidelines that are common to each ACGME-accredited program. Specialty-specific program guidelines issued by ACGME may require: (1) appointment of a program director to administer the program; (2) compliance with *ACGME Policies and Procedures*; (3) appointment of faculty and staff who meet ACGME qualifications; (4) development of a curriculum that addresses the ACGME competencies; and (5) evaluation of residents, faculty, and the program at regular intervals, as specified by the ACGME.

Residency Program Funding

Funding for residency programs is provided by the federal government, state governments, and other sources, such as grants or endowments.

Federal Funding

The federal government is the largest supporter of GME in the United States. Federal funding of GME is mandated by the Medicare Act of 1965, which requires Medicare to reimburse teaching partly based on the direct graduate medical education (DGME) costs incurred during a base-year.⁷⁶ DGME costs include resident and physician compensation and benefits, program administration costs, stipends, and educational activities.⁷⁷ Reimbursement for DGME costs was capped by the Balanced Budget Act of 1997, which requires reimbursement to be based on the number of full-time equivalent (FTE) residents reported on or before December 31, 1996.⁷⁸ In 2004, DGME funding was estimated to be \$2.7 billion.

Because teaching hospitals usually have higher costs of care, the federal government also provides reimbursement for indirect costs by compensating hospitals based on the ratio of FTEs to hospital beds. These indirect medical education payments comprise approximately two thirds of the federal government's funding of GME and include payment for costs such as patient treatment, diagnostic tests, longer patient stays, and teaching responsibilities.⁷⁹ Federal GME payments are only provided to accredited residency programs.⁸⁰

In addition, the federal government also supports GME through disproportionate share payments (DSH) based the number of uninsured patients the hospital treats. The federal government spends more than \$3 billion per year on DSH payments.⁸¹

State Funding

States provide the second-largest source of funding for GME.⁸² Even though the federal government does not mandate it, almost all states support GME with Medicaid funds.⁸³ State Medicaid support averages 9 percent of inpatient hospital expenditures per year, which is equal to approximately \$2.5 billion each year.⁸⁴

Other Funding Sources

GME funding will vary for each institution, because organizations are all unique in structure. However, several sources of GME funding exist in addition to Medicare and Medicaid funds, including (1) private donors, (2) endowments and trust funds, (3) training and research funds, (4) funds from academic affiliates, (5) grants, (6) money earned from patient care services, and (7) funds mandated by other federal legislation.⁸⁵

THE UNITED STATES MEDICAL LICENSING EXAMINATION

In the United States and its territories, rules and regulations for medical licensure vary from state to state; however, all physicians must sit for the USMLE, and results are reported to the state medical boards for initial medical licensure.⁸⁶ “The USMLE assesses a physician’s ability to apply knowledge, concepts, and principles, and to demonstrate fundamental patient-centered skills, that are important in health and disease and that constitute the basis of safe and effective patient care.”⁸⁷ This common means of evaluation is sponsored by the Federation of State Medical Boards of the United States (FSMB) and the National Board of Medical Examiners (NBME).⁸⁸ The FSMB is comprised of all U.S. allopathic medical boards, as well as fourteen osteopathic medical boards, and, as such, the osteopathic physicians practicing in those fourteen states are subject to the same licensure requirements as their allopathic counterparts.⁸⁹ The NBME provides subject examinations to the 125 allopathic medical schools in the United States, as well as to a number of osteopathic and Canadian medical schools.⁹⁰ Osteopathic physicians who are not subject to FSMB or NBME examination by way of the USMLE are still required by all fifty states to pass some form of licensing examination.⁹¹

PHYSICIAN SPECIALIZATION AND CERTIFICATION

Certification is considered essential for the practice of medicine, because it “demonstrates proficiency within a chosen discipline.”⁹² Certification follows the processes of receiving a medical degree, completing a residency, and receiving licensure to practice.⁹³

If a physician is certified, three classifications are associated with his or her certification status as it relates to his or her SDPS classification [defined in *Self-Designated Practice Specialties (SPDS)*].

- Certification by a corresponding board only (board having the authority to grant certification for that particular SDPS)
- Certification by corresponding board and noncorresponding board(s) (board(s) that do not have the authority to grant certification for that particular SDPS)
- Certification by noncorresponding board(s) only⁹⁴

Physicians can acquire multiple certifications for the purposes of furthering the credibility and specialization of their practice. The American Board of Medical Specialties (ABMS) is an organization of twenty-four approved medical specialty boards.⁹⁵ The ABMS coordinates the activities of its member boards and functions as a portal for information related to the specialization and certification of medical practitioners.⁹⁶ The ABMS certifies physicians in more than 145 subspecialties, ensuring that they have completed the training programs necessary for their areas of expertise and can demonstrate competence in their specialties or subspecialties through a board executed evaluation.⁹⁷ Table 3-2 shows the certification programs offered through each of the twenty-four specialty boards.⁹⁸

Table 3-2: American Board of Medical Specialties (ABMS) Member Board Specialty and Subspecialty Certification

Certifying Boards	Specialty	Subspecialties
American Board of Allergy and Immunology	Allergy and Immunology	n/a
American Board of Anesthesiology	Anesthesiology	Critical Care Medicine Hospice and Palliative Medicine Pain Medicine
American Board of Colon and Rectal Surgery	Colon and Rectal Surgery	n/a
American Board of Dermatology	Dermatology	Dermatopathology Pediatric Dermatology
American Board of Emergency Medicine	Emergency Medicine	Hospice and Palliative Medicine Medical Toxicology Pediatric Emergency Medicine Sports Medicine Undersea and Hyperbaric Medicine
American Board of Family Medicine	Family Medicine	Adolescent Medicine Geriatric Medicine Hospice and Palliative Medicine Sleep Medicine Sports Medicine
American Board of Internal Medicine	Internal Medicine	Adolescent Medicine Advanced Heart Failure and Transplant Cardiology Cardiovascular Disease Clinical Cardiac Electrophysiology Critical Care Medicine Endocrinology, Diabetes, and Metabolism Gastroenterology Geriatric Medicine Hematology Hospice and Palliative Medicine Infectious Disease Interventional Cardiology Medical Oncology Nephrology Pulmonary Disease Rheumatology Sleep Medicine Sports Medicine Transplant Hepatology
American Board of Medical Genetics	Clinical Biochemical Genetics	Medical Biochemical Genetics
	Clinical Cytogenetics	Molecular Genetic Pathology
	Clinical Genetics (M.D.)	
	Clinical Molecular Genetics	
American Board of Neurological Surgery	Neurological Surgery	n/a
American Board of Nuclear Medicine	Nuclear Medicine	n/a

CHAPTER 3: PHYSICIAN PRACTICES

Certifying Boards	Specialty	Subspecialties
American Board of Obstetrics and Gynecology	Obstetrics and Gynecology	Critical Care Medicine
		Gynecologic Oncology
		Hospice and Palliative Medicine
		Maternal and Fetal Medicine
		Reproductive Endocrinology/Infertility
American Board of Ophthalmology	Ophthalmology	n/a
American Board of Orthopedic Surgery	Orthopedic Surgery	Orthopedic Sports Medicine
		Surgery of the Hand
American Board of Otolaryngology	Otolaryngology	Neurotology
		Pediatric Otolaryngology
		Plastic Surgery Within the Head and Neck
		Sleep Medicine
American Board of Pathology	Anatomic Pathology and Clinical Pathology	Blood Banking/Transfusion Medicine
	Pathology—Anatomic	Cytopathology
	Pathology—Clinical	Dermatopathology
		Pathology—Chemical
		Pathology—Forensic
		Pathology—Hematology
		Pathology—Medical Microbiology
		Pathology—Molecular Genetic
		Pathology—Pediatric
		Neuropathology
American Board of Pediatrics	Pediatrics	Adolescent Medicine
		Child Abuse Pediatrics
		Developmental-Behavioral Pediatrics
		Hospice and Palliative Medicine
		Medical Toxicology
		Neonatal-Perinatal Medicine
		Neurodevelopmental Disabilities
		Pediatric Cardiology
		Pediatric Critical Care Medicine
		Pediatric Emergency Medicine
		Pediatric Endocrinology
		Pediatric Gastroenterology
		Pediatric Hematology-Oncology
		Pediatric Infectious Diseases
		Pediatric Nephrology
		Pediatric Pulmonology
		Pediatric Rheumatology
		Pediatric Transplant Hepatology
		Sleep Medicine
		Sports Medicine

(continued)

Table 3-2: American Board of Medical Specialties (ABMS) Member Board Specialty and Subspecialty Certification
(continued)

Certifying Boards	Specialty	Subspecialties	
American Board of Physical Medicine and Rehabilitation	Physical Medicine and Rehabilitation	Hospice and Palliative Medicine	
		Neuromuscular Medicine	
		Pain Medicine	
		Pediatric Rehabilitation Medicine	
		Spinal Cord Injury Medicine	
American Board of Plastic Surgery	Plastic Surgery	Plastic Surgery Within the Head and Neck	
		Surgery of the Hand	
American Board of Preventive Medicine	Aerospace Medicine	Medical Toxicology	
	Occupational Medicine	Undersea and Hyperbaric Medicine	
	Public Health and General Preventive Medicine		
American Board of Psychiatry and Neurology	Psychiatry	Addiction Psychiatry	
		Child and Adolescent Psychiatry	
		Clinical Neurophysiology	
		Forensic Psychiatry	
		Geriatric Psychiatry	
		Hospice and Palliative Medicine	
		Pain Medicine	
		Psychosomatic Medicine	
		Sleep Medicine	
		Neurology	Clinical Neurophysiology
	Neurology with Special Qualification in Child Neurology	Neurology with Special Qualification in Child Neurology	Hospice and Palliative Medicine
			Neurodevelopmental Disabilities
			Neuromuscular Medicine
American Board of Radiology	Diagnostic Radiology	Hospice and Palliative Medicine	
	Radiation Oncology	Neuroradiology	
	Radiology Physics	Nuclear Radiology	
		Pediatric Radiology	
American Board of Surgery	Surgery	Vascular and Interventional Radiology	
		Vascular Surgery	Hospice and Palliative Medicine
American Board of Thoracic Surgery	Thoracic Surgery	Pediatric Surgery	
		Surgery of the Hand	
		Surgical Critical Care	
		Congenital Cardiac Surgery	
American Board of Urology	Urology	Pediatric Urology	

Board certification as a Doctor of Osteopathy involves recognition by one of eighteen AOA-approved specialty boards.⁹⁹ Once an osteopathic physician has acquired primary certification, he or she may seek subspecialty certification as well.¹⁰⁰ Under Resolution 56, Certification Eligibility for ABMS-Certified D.O.s, osteopathic physicians who meet eligibility criteria and wish to become certified through one of the ABMS member boards may do so.¹⁰¹ These eligibility criteria include:

1. certification by the ABMS and completion of residency training prior to submitting the application,
2. good standing as an AOA member, and
3. maintenance of continuing medical education (CME) hours to fulfill AOA requirements.¹⁰²

Osteopathic physician applicants are not expected to be members of state or specialty colleges, may be subject to additional requirements that are set by specialty boards and colleges, and will be subject to fees set by the certifying boards.¹⁰³

CONTINUING MEDICAL EDUCATION

Both allopathic and osteopathic physicians are expected to maintain their certification by way of **continuing medical education (CME)**, also known as **maintenance of certification, MOC**.¹⁰⁴ The CME credit requirement per year varies by state, as well as by professional or medical staff organizations.¹⁰⁵ The AOA sets CME requirements that osteopathic physicians must meet every three years.¹⁰⁶

SPECIALTIES

The American Association of Medical Colleges (AAMC) recognizes three defined physician specialty categories: (1) primary care, (2) medical specialties, and (3) surgical specialties (see table 3-3).¹⁰⁷ These categories and their constituent specialty areas are addressed in the following sections: *Primary Care Practices*, *Surgical Specialty Practices*, and *Medical Specialty Practices*.

Table 3-3: Physician Specialties and Representative Current Procedural Terminology (CPT) Codes

	Physician Specialties	Representative CPT Codes
Primary Care Practices	General Practice	99201-99205; 99211-99215; 99241-99245; 90476-90749; 99381-99397
	Family Practice	99201-99205; 99211-99215; 99241-99245; 90476-90749; 99381-99397
	Internal Medicine	99201-99205; 99211-99215; 99241-99245; 90476-90749; 99381-99397
	Pediatrics	99201-99205; 99381-99384; 99391-99394
	Gynecology and Obstetrics	88141-88155; 88160-88162; 88164-88167; 88172-88173; 88174-88175; 57420-57425; 57452-57461; 57500-57556; 57558-57800; 58300-58323
Surgical Specialties	General	23075-23222
	Bariatric	43886-43999
	Colon and Rectal	44139-44160; 44388-44397
	Neurosurgery	61000-62269
	Ophthalmic	92002-92014; 92015-92287
	Orthopedic	20974-20979; 22830; 22840-22855; 22856-22899; 23330-23332; 23500-23680
	Otolaryngology	92502-92548
	Plastic	19316-19499
	Thoracic	36315-36218; 35905; 32601-32606; 38381; 63085-63101; 62310; 62318
	Urology	55200-55680; 55700-55725; 55801-55845; 55860-55865; 55866; 55810-55899

(continued)

Table 3-3: Physician Specialties and Representative Current Procedural Terminology (CPT) Codes (*continued*)

Physician Specialties	Representative CPT Codes
Medical Specialties	
Allergy/Immunology	86000-86063; 86140-86344; 86353; 86355-86593; 95004-95075; 95115-95199
Anesthesiology	00100-01996; 99100-99140; 991433-99150
Dermatology	10040-10180; 1100-11012; 11040-11044; 11055-11057; 11100-11101; 11200-11201; 11300-11313; 11400-11446; 11450-11471; 11600-11646; 11719-11765; 11770-11772; 11900-11901; 11920-11971; 96900-96999; 97597-97606
Emergency Medicine	99281-99288
Medical Genetics	96040
Neurology	95812-95830
Nuclear Medicine	78805-79999
Pathology	23065-23066; 80500-80502; 86602-86698; 86701-86703; 86704-86804; 88300; 88302-88309; 88311-88399; 88720-88741; 89049-89240
Physical Medicine and Rehabilitation	97001-97006
Preventive Medicine	99381-99397; 99401-99404; 99411-99412; 99420-99429
Psychiatry	90865-90870; 90875-90880
Radiology	70010-79999

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

According to a 2010 AMA report based on 2008 data from *Physician Characteristics and Distribution in the U.S.*, 77.6 percent of 954,224 physician-respondents reported their MPA to be patient care.¹⁰⁸ Of these, 556,818 (75.2 percent) were office based, representing 58.4 percent of the physician population.¹⁰⁹ The remaining 24.8 percent of patient care physicians were hospital based, representing 19.3 percent of the physician population.¹¹⁰

Physicians aged 45 and younger collectively accounted for 37.4 percent of the total population.¹¹¹ The number of physicians aged 65 and older increased from 187,069 in 2007 to 194,014 in 2008, representing 20.3 percent of all physicians reported.¹¹² Of this age group, 52.7 percent were reported as inactive.¹¹³ The number of inactive physicians has increased by 455.9 percent since 1975.¹¹⁴ Women represent 29 percent of the physician population, with 276,417 female physicians.¹¹⁵

SUPPLY AND DEMAND

From 1980 to 2008, the physician-to-patient ratio across all specialties grew from 207.3 to 316.4 per 100,000 people.¹¹⁶ While many surgery areas (for example, general surgery, neurological surgery, ophthalmology, and urological surgery) and some specialty areas (for example, radiology and psychiatry) saw a slight decrease in per capita ratios, these changes were negligible when compared to the drop in the number of general practitioners per capita from 14.4 per 100,000 in 1980 to 3.2 per 100,000 in 2008.¹¹⁷

Specifically, the per capita ratio of office-based physicians to patients grew from 120.6 to 184.6 per 100,000 people.¹¹⁸ The number of office-based physicians has grown 158.5 percent from 1975 to 2008, while the number of hospital-based physicians only grew 90.7 percent.¹¹⁹ Of the 184,049 physicians who were hospital based in 2008, 108,073 were residents and 75,976 were full-time staff.¹²⁰ The number of residents increased by 8 percent from 2007 (98,688) to 2008 (108,073).¹²¹

The 8.2 percent decline in the portion of physicians who contribute to medical teaching from 1975 to present is also of significant concern.¹²² Despite the fact that the total physician population grew 139.1 percent from 1975 to 2008 (393,742 total physicians; 560,482 net change), the medical teaching subset went from representing 1.6 percent of all physicians to representing 1.1 percent.¹²³

Of all specialty and subspecialty areas, internal medicine, including its subspecialties, has remained the largest area since 1975, when it accounted for 13.8 percent of the total physician population, to 2008, when it accounted for 17.1 percent of the total physician population.¹²⁴ Areas that showed the largest percent growth from 1975 to 2008 include diagnostic radiology (617.9 percent), family medicine (600.9 percent), and gastroenterology (434.3 percent).¹²⁵ The areas that endured the greatest percent decline include general practice (-77.4 percent) and public health (-48.9 percent).¹²⁶

There has been a 675.9 percent growth in the number of female physicians, from 35,626 in 1975 to 276,417 in 2008.¹²⁷ The distribution of female physicians remains largely weighted in primary care, with the most popular specialty areas being internal medicine (19 percent), pediatrics (15 percent), family medicine (11.1 percent), and obstetrics and gynecology (7.1 percent).¹²⁸

Since 1975, the areas experiencing the greatest increase in the number of female physicians include family medicine (5,080.2 percent), thoracic surgery (4,950 percent), colon and rectal surgery (4,180 percent), and urological surgery (3,975 percent).¹²⁹ Consistent with the rest of the physician population, areas experiencing a decline in the number of female physicians were general practice (-13.5 percent) and public health (-22.3).¹³⁰ Women represent 39.4 percent of the total physician population, with 228,025 (82.5 percent) female physicians in patient care, more than half of whom reported office-based employment.¹³¹

The problems associated with the increasing demands of an aging population are compounded by an aging population of physicians, a decreased emphasis on physician education, and a decreased interest in primary and preventative care. By 2030, it is predicted that greater than 70 million people in the United States will be aged seventy-five or older; this will cause an unprecedented increase in demand, because healthcare beneficiaries aged sixty-five or older require twice as much medical care as those under the age of sixty-five.¹³²

HIGHLIGHTS IN THE FOUR PILLARS

The operation and performance of physician practices may be best understood within the context of the four pillars of the healthcare industry. As discussed in the *Introduction*, these four pillars—regulatory, reimbursement, competition, and technology—serve as a framework from which to identify the evolving market conditions of a healthcare enterprise. As this chapter will show, the implications of reimbursement and regulatory environments, an ever-changing competitive climate, and constant improvement and growth in technology continuously influence provider practices, especially in the modern healthcare delivery system. Additionally, differences in reimbursement, regulation, competition, and technology

have the capacity to distinguish one specialty or practice entity from another. However, before examining each specialty practice within its own framework, the fundamental components of an overarching framework should be established. In this regard, the construct of the four pillars of the healthcare industry provide an analytical context which translates across all physician specialties and practices.

REGULATORY

The healthcare industry possesses a strict body of regulations that sets it apart from all other industry sectors. However, policymakers have been unable to maintain pace with the rapid, significant, and perpetual changes in healthcare delivery, resulting in an inconsistent regulatory scheme. Not only are physicians subject to different regulations based on the state in which they are located [for example, Certificates of Need (CONs)], they are also subject to differing regulations based on the type of services they provide, resulting in an inconsistent and conditional regulatory framework.

Of particular and recurring interest are legislative and regulatory actions at state and federal levels to restrict physician ownership in ancillary services technical component (ASTC) revenue stream enterprises [for example, ambulatory surgery centers (ASCs), independent diagnostic testing facilities (IDTFs), surgical and specialty hospitals, and so forth]. Consequently, independent physicians in private practice are feeling pressured to surrender their professional autonomy and resume employee status under substantial control of hospital systems or face the relegation of receiving only professional fee component revenues. Other regulatory measures affecting physicians include licensure, quality inspections, facility requirements, facilities taxes, state CONs, and antikickback and Stark self-referral regulations. For more information about the complexities of healthcare regulation, refer to chapter 3 of *An Era of Reform*.

REIMBURSEMENT

A major driver of healthcare competition, technological advancement, national expenditures, and, therefore, regulation is the healthcare reimbursement environment. Specifically, the healthcare industry is driven by the agreed upon rates at which physicians are compensated for their technical and professional services. A notable trend affecting the reimbursement of healthcare services has been the transformation of the method of the payment for those services, with an accelerating movement from the traditional U.S. health coverage system of defined benefits (in which employers provide a package of defined benefits to their employees) to a system of defined contributions (in which employers contribute a set amount and then require employees to decide how much of their health benefit dollars to spend by selecting from a range of benefit plans).¹³³ This shift is being driven by employers seeking to limit their exposure to the double-digit increases in health insurance premium rates.¹³⁴ By proxy, employers are diverting the financial burden and risk associated with health coverage onto their employees. Under this arrangement, employers can limit their contributions at the expense of their employees, who must contribute increasing amounts of their own money to pay for health insurance cost increases in attempting to maintain the same level and quality of healthcare. Chapter 2 in *An Era of Reform* expands on the concept of healthcare professional reimbursement, especially in light of physician practices.

COMPETITION

Recent changes to the regulatory and reimbursement environment have transformed the competitive market for healthcare professionals. More specifically, the introduction of prospective payment systems, physician reimbursement cuts for professional services, and intensified focus on patient quality and transparency initiatives have forced healthcare professionals to look for more efficient ways to provide services, as well as additional sources of revenue and margin-producing business. Also, the rise of corporate healthcare provider networks and health systems, together with rising healthcare costs and competition among providers, has become prevalent in the healthcare industry. Strict payor control of reimbursement rates, consistent decreases in physician professional component fee reimbursement yield, reduced hospital inpatient use, and higher costs of capital have all contributed to the trend of physician investment in outpatient (and inpatient) specialty provider enterprises, which often compete with general acute care community hospital providers.

JOINT VENTURES BETWEEN HOSPITALS AND PHYSICIANS

The move toward specialized inpatient and outpatient facilities, often those owned by physicians, was a consequence of significant reimbursement, regulatory, and technological changes. This represents competitive and innovative potential, allowing more cost-effective provision of healthcare services while maintaining and improving quality and target outcomes. In an attempt to strengthen relationships and align economic incentives to enhance market position and financial success between physicians and hospitals, many specialty providers, such as orthopedic surgeons, are entering into joint ventures with one another.¹³⁵ As competition for ASTC revenue streams between physicians and hospitals remains intense, new forms of joint ventures and revenue sharing options are developing in an attempt to repair this recently contemptuous relationship and to offer patients increased quality of services and access.¹³⁶ The economic benefits of a physician and hospital joint venture relationship are significant. Collaboration between physicians and hospitals creates an economy of scale that could not be achieved if each continued to operate independently, thereby increasing hospital and health system income.¹³⁷ Some hospital executives believe joint ventures with physicians increase quality of service, leading to increased profit for the hospital.¹³⁸

HOSPITAL ACQUISITION OF PHYSICIAN PRACTICES

Hospitals recently have returned to directly employing physicians and are increasingly competing for physician time and loyalty. As more physician-owned specialty hospitals open, a growing number of physicians to refuse on-call emergency room duties and other traditional medical staff responsibilities.¹³⁹ Hospitals focused on recruiting primary care physicians during the 1990s, but recently their attention has turned to specialty practitioners, resulting in a growing number of specialists being employed by hospitals.¹⁴⁰

SUPPLY OF PHYSICIAN MANPOWER

In an effort to reduce the effects of the ongoing workforce shortage, the number of first-year medical student seats that were filled nearly reached 18,400, increasing 2 percent in 2009.¹⁴¹ Approximately half of this increase is attributed to the inception of four medical schools.¹⁴² Additionally, twelve older institutions expanded their entering class size by at least 7 percent.¹⁴³ However, the shortage is still expected to reach between 124,000 and 159,000 physicians during the next fifteen years.¹⁴⁴ According to Darrell

G. Kirch, M.D., AAMC president and CEO, increased enrollment will not suffice; in order to meet the growing demand and “prevent a bottleneck in the pipeline of new physicians,” the number of residency training slots must increase as well.¹⁴⁵ As such, Kirch and the AAMC support the United States Senate’s proposed Resident Physician Shortage Reduction Act of 2009 (as well as similar legislation introduced by the United States House of Representatives), which, if passed, may result in an increase in residency slots by 15,000 positions, or 15 percent.¹⁴⁶

Although reports in the 1980s predicted a surplus of general surgeons, a potential shortage is predicted to occur by 2010.¹⁴⁷ An aging population, changing lifestyle demands, technological changes, and increased subspecialization are responsible in part for the predicted shortage.¹⁴⁸ A recent statement in the August 2007 *Bulletin of the American College of Surgeons* addressed patient access issues related to surgical care and the declining physician-to-population ratio in the United States. Since 1985, the general surgeon-to-population ratio has steadily declined, and subspecialists are struggling to meet growing patient demand.¹⁴⁹ Additionally, many surgeons have specialized so much that they do not feel qualified to provide emergency services, with some surgeons only providing outpatient care.¹⁵⁰

It has become increasingly evident that primary care is crucial to the survival of the U.S. healthcare system. The traditional fee-for-service system triggered a surge in specialty medicine, which contributed, in turn, to the notion that specialists are more reputable physicians than general practitioners.¹⁵¹ As the fee-for-service model has been slowly phased out by managed care, with enrollment of 74.11 percent of all Americans in 2008, primary care physicians have needed to act as “gatekeepers” of specialist services.¹⁵² Despite increased emphasis on the primary care physician’s role as the “gatekeeper” of managed care, American physicians continue to prefer specialty residency programs.¹⁵³ Substantial gaps in pay between primary care and specialty practitioners suggest to students that specialized medicine is the ideal route to take.¹⁵⁴ Further, students associate specialty medicine with a certain dimension of prestige and lifestyle flexibility.¹⁵⁵

TECHNOLOGY

Technology has fueled the entry of new competitors in many industries, and healthcare is no exception. Patients are accessing medical advice and information through the Internet and becoming more informed about care and treatment options. Advances in medical imaging communication have made it possible for radiologists in remote locations to outsource x-ray film readings for hospitals at lower prices.¹⁵⁶ As available technology has broadened the scope of over-the-counter pharmaceuticals, the scope of pharmacy services has broadened, as well. Healthcare professionals in retail settings have started competing with physicians and other healthcare professionals for patients seeking service, advice, or monitoring that relates to the increasing variety of pharmaceuticals available without prescription.¹⁵⁷ Healthcare’s primary difference from other industries relative to technology, however, may be the strict regulation of medical professionals, treatments, and drugs, which has the capacity to delay or prohibit the development of substitutes, therefore, discouraging innovation—the “fundamental driver” of quality improvement and the “underlying dynamic” of a company’s ability to compete.¹⁵⁸

Part I—Primary Care Practices

PRIMARY CARE

Primary care physicians are central to a managed care system that will effectively result in cost containment.¹⁵⁹ As indicated in *Supply of Physician Manpower*, primary care physicians continue to be the physician population most influenced by the physician shortage.¹⁶⁰ As demonstrated by table 3-4, five areas of primary care exist, including (1) general practice and the specialty areas of (2) family practice, (3) internal medicine, (4) pediatrics, and (5) obstetrics and gynecology.¹⁶¹

Table 3-4: Primary Care

Area of Patient Care	Specialties
Primary Care	General Practice
	Family Medicine
	Internal Medicine
	Pediatrics
	Obstetrics and Gynecology

GENERAL PRACTICE

DESCRIPTION AND SCOPE

SCOPE

The practice of primary care includes such activities health promotion, disease prevention, health maintenance, counseling, patient education, diagnosis and treatment of acute and chronic illnesses in a variety of health care settings (for example, office, inpatient, critical care, long-term care, home care, day care, etc.). Primary care services are typically performed and managed by a personal physician often collaborating with other health professionals, and utilizing consultation or referral as appropriate.¹⁶²

General practitioners often serve as an initial source of care, which resembles the role of traditional caregivers.¹⁶³ They provide a wide range of services to a fairly consistent patient base.¹⁶⁴ General practice physicians may make specialty referrals if their patients develop conditions outside their scope of practice.¹⁶⁵

EDUCATION AND TRAINING

No formal general practice residency programs exist; however, a physician must meet all requirements of the state in which he or she is practicing.¹⁶⁶ Likewise, no general practice certification boards are recognized by ABMS, the Council of Medical Specialty Societies, or AOA.¹⁶⁷

SPECIALTIES

Physicians in primary care fall into two categories: (1) practitioners in general primary care specialties and (2) practitioners in primary care subspecialties. In addition to the general practice of primary care, there are four primary care specialties: family practice, internal medicine, obstetrics and gynecology,

and pediatrics (see table 3-4).¹⁶⁸ Subspecialties, as they relate to a physician's options, are discussed in *Family Medicine*, *Internal Medicine*, *Pediatrics*, and *Obstetrics and Gynecology*, respectively. Each of the primary care specialties, with the exception of general practice, is represented by an ABMS-approved medical specialty board.

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

In 2008, there were 377,058 primary care physicians (including those with subspecialty certification), 305,264 of whom were not subspecialized, and 9,564 of whom were general practitioners.¹⁶⁹ Of the 9,564 general practitioners, 9,181 were in patient care (96 percent), 8,005 were office based (83.7 percent), 40 were *locum tenens* physicians, and 1,136 were hospital based (11.9 percent).¹⁷⁰ Of those who were hospital based, none were residents.¹⁷¹

General practitioners possessed the second-highest mean physician age (64.6 years) as compared with other specialties.¹⁷² There were 4,586 general practitioners aged 65 and older (48 percent of all general practitioners); 3,115 were between the ages of 55 and 64 (32.6 percent); 1,469 were between the ages of 45 and 54 (15.4 percent); 315 were between the ages of 35 and 44 (3.3 percent); and 79 were under the age of 35 (0.8 percent).¹⁷³

Women comprised 20.6 percent of all general practice physicians, with a total of 1,969 female general practitioners in 2008.¹⁷⁴ Of these, 68.6 percent were aged 55 or older (1,350 physicians), and 7.9 percent were under the age of 44 (155 physicians).¹⁷⁵

SUPPLY AND DEMAND

A significant trend affecting general practitioners is the lack of time to adequately care for their patients. As Dr. Michael Balint stated in *The Doctor, His Patient and The Illness*:

*However favorable the . . . economic and medical system might be, the commodity which is always and everywhere in short supply is general practitioners' time, especially during the winter months.*¹⁷⁶

The steady decline of general practice in the United States further exacerbates the existing challenges to quality care delivery. In 2008, general practitioners comprised 1 percent of all physicians in the United States, down from 10.8 percent in 1975.¹⁷⁷ Additionally, general practitioners comprised 2.5 percent of all primary care specialists and subspecialists and 3.1 percent of all primary care physicians who did not subspecialize.¹⁷⁸ The general practice of primary care has diminished tremendously due to continued advances in specialized medicine, demonstrated by a 75.7 percent decrease in the number of general practitioners between 1975 and 2008.¹⁷⁹ Additionally, while primary care specialty areas grew 109.7 percent since 1975, primary care subspecialty areas grew by 723 percent.¹⁸⁰

The per capita ratio of general practitioners dropped from 14.4 physicians per 100,000 people in 1980 to 2.9 physicians per 100,000 people in 2007.¹⁸¹ Without taking into consideration imminent changes in the healthcare climate, the supply of primary care physicians, as of 2010, is inadequate. Further, tremendous concern has been raised regarding how much this shortage will intensify as the primary care demand of the aging baby boomer population grows faster than demand in any other specialty area—and faster than the supply of physicians.¹⁸² Despite the need for primary care practitioners,

physicians have shown preference to specialty medicine. If this trend continues, foreign physicians, osteopaths, and nonphysician clinicians (see chapter 4, *Mid-Level Provider Practices*) may become the majority in primary care.¹⁸³

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

As previously mentioned, the specialized emphasis of many educational programs also may contribute to the movement away from primary care, and students often graduate from these programs with a preference for specialty medicine.¹⁸⁴ Title VII Section 747 of the Public Health Service Act¹⁸⁵ also made cuts to primary care training grants that provide medical students with exposure to primary care settings outside the academic center, often in rural and underserved areas.¹⁸⁶

Potential solutions to the shortage of primary care physicians include providing more financial incentives to attract new graduates to the primary care practice, as well as expanding exposure to primary care during medical school.¹⁸⁷

COMPETITION

As previously indicated, the most apparent reason for the shortage in primary care physicians is the gap in pay between primary care physicians and specialists.¹⁸⁸ Specialists often are compensated twice as much as primary care physicians, and they usually work more predictable work hours.¹⁸⁹ Given the fact that medical students graduate with a significant amount of debt (often more than \$100,000), it seems reasonable that more new doctors are choosing to specialize.¹⁹⁰

FAMILY MEDICINE

DESCRIPTION AND SCOPE

SCOPE

A family practitioner possesses medical knowledge that allows them to provide a broad range of services to male and female patients of all ages. The role of family practitioner is steeped in tradition and involves focusing on the community-based family unit.¹⁹¹

Family practice may involve a variety of procedures, including but not limited to providing assistance during major surgeries and performing cesarean sections, vasectomies, flexible sigmoidoscopy, colonoscopy, skin biopsy and lesion removal, cryotherapy of skin lesions and the cervix, cervical biopsy, endometrial biopsy, spirometry, exercise treadmill testing, splinting and casting, obstetric ultrasound and endoscopy of the nasopharynx, larynx and gastrointestinal tract. More than 65 percent of family practitioners provide some form of emergency medical care.¹⁹²

Table 3-5: Family Medicine Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Family Medicine (ABFM)	Family Medicine	Adolescent Medicine	Specialization in the physical, psychological, and social variants in adolescents and their medical needs; involves working within an interdisciplinary team
		Geriatric Medicine	Specialization preventing, diagnosing, managing, and treating elderly patients; works as part of a multidisciplinary team
		Hospice and Palliative Medicine*	Specialization in the prevention and relief of suffering for patients in hospice or palliative care; involves working within an interdisciplinary team
		Sleep Medicine**	Specialized knowledge of conditions that occur during sleep, disrupt sleep, or are associated with disruptions in the sleep cycle
		Sports Medicine	Expertise in continuous enhancement of health and fitness alongside prevention and management of sports related injuries and illnesses; focused on improving healthcare of active individuals

* Reflective of statistics for hospice and palliative medicine with no specialty emphasis.

** Reflective of statistics for sleep medicine with no specialty emphasis.

EDUCATION AND TRAINING

Residency programs in family medicine are three years in length and focus on “continuous and comprehensive health care for the individual and family” in inpatient and outpatient settings.¹⁹³ Training emphasizes ambulatory, preventative, community, and behavioral medicine.¹⁹⁴ Advanced training fellowship programs for subspecialties in family medicine are available.¹⁹⁵ For more information on fellowship programs visit the American Board of Family Medicine’s (ABFM’s) website.¹⁹⁶ The ABFP certifies family practitioners who have completed the family practice residency requirements from a residency accredited by the ACGME.¹⁹⁷

SPECIALTIES

Certified subspecialties of family medicine include adolescent medicine, geriatric medicine, hospice and palliative medicine, sleep medicine, and family sports medicine.¹⁹⁸ See table 3-5 for more information about each of these specialty areas.

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

Of the 85,392 family medicine practitioners in the United States in 2008, 96.2 percent were involved with patient care, 78.9 percent were office based, and only 17.3 percent were hospital based.¹⁹⁹ Additionally, 84,197 (98.6 percent) were general family medicine physicians, with the remaining 1,193 family practitioners providing subspecialty family care services.²⁰⁰ Of all the family practitioners without subspecialty certification, 5,704 physicians were aged 65 or older; 17,661 were between the ages of 55 and 64; 24,363 were between the ages of 35 and 44; and 11,896 were under the age of 35.²⁰¹ Additionally,

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABFM primary certification, plus licensure, plus 2 years fellowship in adolescent medicine	2	2	0	36	99384
ABFM primary certification, plus licensure, plus fellowship in geriatric medicine	369	395	125	46.6	99387
ABFM primary certification, plus licensure, plus either 800 hours in subspecialty level practice, certification by the American Board of Hospice and Palliative Medicine or a one-year fellowship in hospice and palliative medicine	6	3	2	56.3	99366-99368; 99374-99380
ABFM primary certification, plus licensure, plus either twelve months in a subspecialty level practice, certification by the American Board of Sleep Medicine, or a one-year fellowship in sleep medicine	302	164	121	44.8	95803-95811; 95819-95822; 95827
ABFM primary certification, plus licensure, plus a one-year fellowship in sports medicine	624	465	156	37.9	97005, 97006, 97750, 97755

women comprised 35.8 percent of all practitioners in family medicine and its subspecialty areas; of these women, only 348 (1.1 percent) subspecialized.²⁰²

In 2008, family practice physicians saw patients in a variety of settings with an average of 84.9 office visits, 8.4 hospital visits, and 2.3 nursing home visits per week.²⁰³ On a less frequent basis, family physicians also saw patients on house calls, in home health care, or on hospice care. Family physicians managed most common chronic and acute diseases, and they worked an average of fifty-one to fifty-four hours per week and an average of forty-seven weeks per year, which is in the middle range for all physician specialties.²⁰⁴

SUPPLY AND DEMAND

In 2004, Carlos A. Moreno, M.D., MSPH, president of the Society of Teachers of Family Medicine, predicted that, despite downward trends in previous years, as healthcare spending becomes more expensive, employers and the government will impose a larger portion of the financial responsibility on consumers. As a consequence, patients will turn to family medicine in order to maximize utility of their healthcare dollars.²⁰⁵

The transition to managed care has shifted student interest toward family medicine specialties, as demonstrated by an exceptional 91 percent fill rate for all offered family medicine residency positions.²⁰⁶ According to the 2010 edition of the American Medical Association's *Physician Characteristics and Distribution in the U.S.*, family medicine was the specialty with the second-highest physician volumes nationally (85,392) and the highest primary care physician volumes (8.9 percent of all physicians, compared with 3.1 percent in 1975) in twenty-three states.²⁰⁷ As the U.S. population grows and the need for medical care increases, the demand for family practitioners is likely to continue to remain strong for the foreseeable future.²⁰⁸ The per capita ratio of family practitioners to physicians was 28.3 (22.3 for office based) physicians for every 100,000 people in 2008.²⁰⁹ This represents a significant

Table 3-6: Internal Medicine Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Internal Medicine (ABIM)	Internal Medicine	Adolescent Medicine	Specialization in the physical, psychological, and social variants of adolescents and their medical needs; involves working within an interdisciplinary team
		Cardiovascular Disease	Concerned with the diagnosis, surgical treatment, care, and management of patients with diseases or disorders of the heart and associated blood vessels
		Clinical Cardiac Electrophysiology	Specific field of interest within the subspecialty of cardiovascular disease; involves evaluation of heart rhythms
		Critical Care Medicine (CCM)	The treatment and support of patients with multiple organ dysfunction; may play a role within the intensive care unit as well as serve as a liaison between primary care practitioners and the rest of the CCM team
		Endocrinology, Diabetes, and Metabolism	Focused on endocrine gland disorders (for example, diabetes, metabolic and nutritional disorders, obesity, menstrual, and sexual disorders)
		Gastroenterology	Specialization in diagnosing and treating stomach, bowel, liver, and gallbladder conditions (for example, abdominal pain, ulcers, diarrhea, cancer, and jaundice)
		Geriatric Medicine	Specialization preventing, diagnosing, managing, and treating elderly patients; works as part of a multidisciplinary team
		Hematology	Expertise in blood, spleen, and lymph conditions (for example, anemia, clotting disorders, sickle cell disease, hemophilia, leukemia, and lymphoma)
		Hospice and Palliative Medicine	Specialization in the prevention and relief of suffering for patients in hospice or palliative care; involves working within an interdisciplinary team
		Infectious Disease	Specialization in infectious diseases of all kinds and related to all organ systems (for example, conditions that limit use of antibiotics, AIDS, and unexplained fevers); often trained in preventive medicine as well as travel medicine

CHAPTER 3: PHYSICIAN PRACTICES

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABIM certification, plus licensure, plus a twenty-four-month fellowship training program or twelve clinical months	21	15	2	55.5	99384; 99394
ABIM certification, plus licensure, plus thirty-six months of fellowship training or twenty-four clinical months	22,723	17,352	2,430	51.3	92950-92953; 92960-92961; 92970-92971; 92973-92979; 93000-93014; 93015-93018; 93024-93025; 93040-93042; 93224-93272; 93278; 93303-93352; 93571-93572; 93600-93603; 93650-93652; 93701; 93720-93722; 93724-93736; 93741-93744; 93745; 93770; 93784-93790; 93797-93799; 93875-93893; 93922-93990; 97750-97799
ABIM certification, plus licensure, plus cardiovascular disease subspecialty residency requirements, plus twelve months of clinical cardiac electrophysiology training or twelve clinical months	1,085	831	236	43.2	93609-93613; 93615-93616; 93618; 93619-93623; 93619-93623; 93624-93631; 93640-93642; 93650-93652; 93571-93572; 93701
ABIM certification, plus licensure, plus twelve or twenty-four months of fellowship training or twelve clinical months	1,376	886	384	47.2	99291-99292; 99289-99296; 99366-99368; 99466-99467; 99468-99469; 99471-99476; 99477-99480
ABIM certification, plus licensure, plus twelve months of fellowship training or twelve clinical months	5,306	3,530	976	49.8	59898-60505
ABIM certification, plus licensure plus thirty-six months of fellowship training or eighteen clinical months	12,722	10,119	1,986	49.8	91052; 91055; 91065; 91100; 91105; 91110-91299
ABIM certification, plus licensure, plus twelve months of fellowship training or twelve clinical months	3,137	2,082	731	46.7	99387
ABIM certification, plus licensure, plus twenty-four months of fellowship training or twelve clinical months	2,111	1,270	333	56.3	96360-96361; 96365-96379; 96401-96411; 96413-96417; 96420-96425; 96440-96450; 96521-96523; 96542-96549
ABIM certification, plus licensure, plus twelve months of fellowship training or twelve clinical months	4	2	1	55.8	99366-99368; 99374-99380
ABIM certification, plus licensure, plus twenty-four months of fellowship training or twelve clinical months	6,694	3,834	1,562	48.1	99201-99205; 99211-99215; 99241-99245; 90476-90749; 99381-99397

(continued)

Table 3-6: Internal Medicine Subspecialty Certification (*continued*)

Certifying Board	Specialty	Subspecialties	Description
American Board of Internal Medicine (ABIM) (<i>continued</i>)		Interventional Cardiology	Utilization of imaging techniques to evaluate blood flow and potential arterial abnormalities, which are treated using medication and highly technical procedures
		Medical Oncology	Specialization in the diagnosis, management, and treatment of cancer and other kinds of benign or malignant tumors
		Nephrology	Expertise in kidney diseases and conditions (for example, high blood pressure, fluid and mineral imbalance, and kidney failure)
		Pulmonary Disease	Specialization in conditions of the lungs and airways (for example, cancer, pneumonia, pleurisy, asthma, occupational and environmental conditions, bronchitis, sleep disorders, emphysema, and so forth)
		Rheumatology	Expertise in joint, muscle, bone, and tendon conditions (for example, arthritis, back pain, muscle strains, athletic injuries, and collagen diseases)
		Sleep Medicine	Specialized knowledge of conditions that occur during sleep, disrupt sleep, or are associated with disruptions in the sleep cycle
		Sports Medicine	Expertise in continuous enhancement of health and fitness alongside prevention and management of sports related injuries and illnesses; focused on improving healthcare of active individuals
		Transplant Hepatology	Specialization in gastroenterological care of patients prior to, during, and after liver transplantation

growth in physicians to patients, because the per capita ratio in 1980 was 12.2 physicians for every 100,000 people (8.1 for office based).²¹⁰ Additionally, the United States experienced an estimated 600 percent growth from 1975 to 2008, most of which occurred within the general specialty of family practice, as opposed to subspecialty areas.²¹¹ The population of female family practitioners grew 5,080.2 percent, representing 11.1 percent of the physician population in 2008, as compared with 1.7 percent in 1975.²¹²

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

The medical home was conceptualized in 1967 by the American Academy of Pediatrics (AAP) and reinvented in 2004 by the American Association of Family Medicine as the personal medical home.²¹³ In March 2007, the AAFP, AAP, the American College of Physicians (ACP), and AOA collaborated

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABIM certification, plus ABIM cardiovascular certification, plus licensure, plus twelve months of fellowship training or twelve clinical months	1,457	1,124	325	40.9	92980-92980; 92986-92993; 92995-92998; 93501-93562; 93580-93581
ABIM certification, plus licensure, plus twenty-four months of fellowship training or twelve clinical months	5,246	3,857	666	54.9	96360-96361; 96365-96379; 96401-96411; 96413-96417; 96420-96425; 96440-96450; 96521-96523; 96542-96549; 96567-96571
ABIM certification, plus licensure, plus twenty-four months of fellowship training or twelve clinical months	7,782	5,806	1,342	48.2	90901-90911; 90918-90921; 90922-90925; 90935-90940; 90945-90947; 90951-90962; 90963-90970; 90989-90993; 90997-90999
ABIM certification, plus licensure, plus twenty-four months of fellowship training or twelve clinical months	6,120	4,622	761	55.8	94010-94799; 96957-96571; 1005F
ABIM certification, plus licensure, plus twenty-four months of fellowship training or twelve clinical months	4,642	3,402	752	50.7	86430-86431
ABIM certification or subspecialty certification, plus licensure, plus twelve months of fellowship training or twelve clinical months	6	6	0	54.3	95803-95811; 95819-95822; 95827
ABIM certification or subspecialty certification, plus licensure, plus twelve months of fellowship training or twelve clinical months	47	41	4	43.8	97005, 97006, 97750, 97755
ABIM certification, plus ABIM gastroenterology certification, plus licensure, plus twelve months of fellowship training or twelve clinical months	13	13	3	36.9	47000-47001, 47010-47130, 7133-47147, 47300-47362

and consolidated aspects of their independent models to create joint principles of the patient-centered medical home.²¹⁴ At the apex of primary care, the medical home is “a concept or model of care delivery that includes an ongoing relationship between a provider and patient, around the clock access to medical consultation, respect for the patient/family’s cultural and religious beliefs, and a comprehensive approach to care and coordination of care through providers and community services.”²¹⁵ This proposed model has been the highlight of many reform discussions and deliberations, and it is considered essential for the survival of family medicine.²¹⁶ The resurgence of primary care, especially the central role of the family practitioner to the provision of medical care to the family unit, is dependent upon this model, especially as competition becomes increasingly steep between primary care physicians and specialists.²¹⁷ This topic is discussed in greater detail in chapter 2, *Medical Home Model*.

INTERNAL MEDICINE

DESCRIPTION AND SCOPE

SCOPE

Internists represent a diverse range of physicians, with some serving as primary caregivers, much like general or family practitioners, and others providing highly specialized services to referred patients. Most internists function as a combination of the two.²¹⁸ In general, internists employ “a variety of diagnostic techniques to treat patients through medication or hospitalization.”²¹⁹

Practitioners in internal medicine must be trained in a broad range of medical specialty areas (for example, dermatology, ophthalmology, allergy, clinical pharmacology, critical care medicine, geriatrics, nutrition, psychiatry, pediatrics, emergency care, and so forth). Additionally, they must master a variety of skills in diagnostic testing, critical review of medical literature, epidemiology, and cost-efficiency.²²⁰

EDUCATION AND TRAINING

The education requirements prerequisite to residency training, discussed at the beginning of this chapter in *Education and Training*, apply to practitioners seeking certification as internists.²²¹ All accredited internal medicine residencies programs are a minimum of three years in length.²²² Training emphasizes general inpatient and outpatient medical care with exposure to a wide array of conditions.²²³ Although these residency programs are focused significantly on inpatient care, the recent emphasis on primary care has led to revised training requirements wherein one third of residency time must be spent in ambulatory and continuity care.²²⁴ For satisfactory completion of the residency program, an individual must have been trained by a director of an approved internal medicine residency and must have spent at least 25 percent of his or her residency in ambulatory and continuity care.²²⁵

To become certified in internal medicine, physicians must complete three years in a general internal medicine residency program, demonstrate clinical competence, and pass certifying examinations issued by the American Board of Internal Medicine (ABIM).²²⁶ ABIM also awards subspecialty certification, for which two to three years of additional training is required.²²⁷

SPECIALTIES

Subspecialties in internal medicine include adolescent medicine; cardiovascular disease; clinical cardiac electrophysiology; critical care medicine; endocrinology, diabetes, and metabolism; gastroenterology; geriatric medicine; hematology; hospice and palliative medicine; infectious disease; interventional cardiology; medical oncology; nephrology; pulmonary disease; rheumatology; sleep medicine; sports medicine; and transplant hepatology.²²⁸ See table 3-6 for more information related to these subspecialty areas.

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

Internists were distributed in a slightly different manner from other primary care specialists, with 93.4 percent working in patient care but only 67.1 percent working in office-based practices; 26.1 percent were employed as hospital staff.²²⁹ Additionally, 6.6 percent were involved in other forms of

professional activity (for example, research).²³⁰ There were 115,314 general internists (representing 70.7 percent of all internists) and 42,399 subspecialists.²³¹ Of all general internists, 39,432 (34.2 percent) were female, 11,228 of whom were under the age of 35, while 1,084 were over the age of 65.²³² Across both genders, 25,063 general internists were under the age of 35 (21.7 percent); 31,259 were over the age of 55 (26.2 percent); and 9,380 were over the age of 65 (11.7 percent).²³³

SUPPLY AND DEMAND

The supply of internists has risen at a proportionately faster rate than the overall U.S. population during the past three decades as illustrated in table 3-7.

In 2008, internal medicine was the medical specialty with the highest physician count (160,107); 43.3 percent of all primary care specialty and subspecialty physicians were internists, which accounted for 17.1 percent of all physicians and constituted the largest group of primary care physicians in twenty-two states.²³⁴ However, the trend in internal medicine practice continues to move toward specialization and away from primary care. Internal medicine subspecialties, the largest proportion of primary care subspecialties (66.6 percent), experienced a 606.3 percent increase in the number of physicians from 1975 through 2008, with the practice of internal medicine specialties only growing 139.6 percent.²³⁵

Table 3-7: Internal Medicine Specialist to Population Ratios for the United States*

Year	Internal Medicine Physicians	U.S. Population	Physicians per 100,000 Citizens
1980	71,531	231,266,000	31.7
1990	98,349	252,164,000	39.9
2000	136,814	282,217,000	48.5
2008	160,107	304,060,000	53.1

* "Physician Characteristics and Distribution in the US 2010 Edition," American Medical Association, 2010, p. 285, 451, 457-458.

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

Despite significant efforts to redirect medical students to primary care, long-term results are still inconclusive.²³⁶ Trends in general internal medicine and its subspecialty constituents serve as physical representation of these exhausted efforts at reform at the time of publication.²³⁷

PEDIATRICS

DESCRIPTION AND SCOPE

SCOPE

Pediatricians provide primary care services to infants, children, teenagers, and young adults, tracking their growth to adulthood. They focus on the care of children from birth to twenty-one years of age, providing prevention-based services to healthy children and medical care to those who are seriously or chronically ill.²³⁸ General pediatricians diagnose and treat infections, injuries, genetic defects, malignancies, and many types of systemic disease and dysfunction. They work to reduce infant and child mortality, control infectious disease, foster healthy lifestyles, and ease the day-to-day difficulties of children

and adolescents with chronic conditions. Additionally, pediatricians have been increasingly involved in the prevention, early detection, and management of behavioral, developmental, and functional social problems that affect children and adolescents.²³⁹

General pediatricians must work with pediatric subspecialists and pediatric surgery specialists, as well as physical therapists, nutritionists, psychologists, social workers, and teachers, to provide for the health and emotional needs of children.²⁴⁰

EDUCATION AND TRAINING

Pediatric medicine residency programs are three years in length and focus on ambulatory care of children in conjunction with traditional hospital care.²⁴¹ Certification requirements are determined by the American Board of Pediatrics (ABP).²⁴² The general certification criteria for pediatrics, in addition to residency training, include written evaluation by the residency director and a passing score on the ABP exams.²⁴³ Subspecialty certification is available in a number of areas; see table 3-8 for advanced training requirements.²⁴⁴

SPECIALTIES

The ABMS recognizes the following pediatric subspecialties: adolescent medicine, child abuse pediatrics, developmental-behavioral pediatrics, hospice and palliative medicine, medical toxicology, neonatal-perinatal medicine, neurodevelopmental disabilities, pediatric cardiology, pediatric critical care medicine, pediatric emergency medicine, pediatric endocrinology, pediatric gastroenterology, pediatric hematology-oncology, pediatric infectious disease, pediatric nephrology, pediatric pulmonology, pediatric rheumatology, pediatric transplant hepatology, sleep medicine, and sports medicine.²⁴⁵ Review table 3-8 for details about these pediatric subspecialties.

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

In 2008, there were 76,376 pediatricians in the United States: 57,917 were general practitioners, and 18,459 were subspecialists.²⁴⁶ Of all general pediatricians, 42,111 were office based (72.7 percent), and 12,815 were hospital based (22.1 percent).²⁴⁷ Women comprised 57.7 percent of all general pediatricians (33,409) and 45.3 percent of subspecialists (8,368).²⁴⁸ Additionally, 11,142 general pediatricians were under the age of 35; 16,929 were over the age of 55; and 5,654 (9.8 percent) were over the age of 65.²⁴⁹

Supply and Demand

Pediatrics is the third-largest specialty field, representing 8 percent of all physicians and 20.3 percent of primary care specialists and subspecialists.²⁵⁰ Further, pediatric subspecialists comprise the second-largest group of primary care subspecialties (25.7 percent of all primary care subspecialists), representing 1.9 percent of all physicians.²⁵¹ The number of physicians practicing in these subspecialties increased 1,729.7 percent from 1975 to 2008, from 984 to 18,459 specialists.²⁵² This represents the largest increase of all the primary care subspecialties.²⁵³

The total number of U.S. physicians increased 139.1 percent 1975 and 2008, while the percentage of primary care physicians (excluding subspecialists) increased by 109.7 percent.²⁵⁴ During the same period, proportional increases were seen within the primary care specialties, that is, family practice (582.3

percent) followed by pediatrics (165.3 percent).²⁵⁵ The per capita ratio of pediatricians was 25.6 to every 100,000 people (17.5 office-based pediatricians) in 2008, up from 13.1 to every 100,000 people in 1980 (8.1 office-based pediatricians).²⁵⁶

From 1990 to 2008, the number of general pediatricians grew 58.6 percent, from 36,519 to 57,917.²⁵⁷ The 15.1 percent of all female physicians, as compared to 5.1 percent of all male practitioners, specializing in pediatrics in 2008 emphasizes the gender imbalance characteristic of primary care.²⁵⁸

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

The dynamic created by frequent subspecialization paired with the structure of pediatric practices contribute to the specialty's competitor market; trends show greater competition in solo, group, or medical school practices as compared with staff- or group-model HMOs or community hospitals.²⁵⁹ Also, pediatricians practicing in the Midwest or the southern region of the United States experienced more competition than they do in other regions of the country.²⁶⁰ International medical groups, pediatricians in rural areas, and female pediatricians had less competition than other types of pediatricians.²⁶¹

Pediatric primary care relies heavily on the movement toward the medical home and reengineering of the healthcare industry to focus upon preventative and managed care.²⁶² The AAP pioneered the medical home model in 1967, recognizing the unique needs of children and families and focusing on such key principles as (1) family-centered partnerships, (2) community-based systems, (3) transitions, and (4) value.²⁶³ See chapter 2, *Medical Home Model*, for more information about this proposed model in light of the 2010 healthcare reform trends.

OBSTETRICS AND GYNECOLOGY

DESCRIPTION AND SCOPE

SCOPE

Obstetricians and gynecologists provide medical care specifically to women, often acting as women's general practitioners.²⁶⁴ As such, these physicians will provide general care much like a general or family practitioner, but they are focused particularly on preventing, diagnosing, and treating conditions associated with the female anatomy (for example, breast and cervical cancer, urinary tract and pelvic disorders, and hormonal disorders).²⁶⁵

EDUCATION AND TRAINING

After completing medical school, physicians pursuing certification through the American Board of Obstetrics and Gynecology (ABOG) must complete at least four years of training through an ACGME-accredited residency program, followed by two years in clinical practice.²⁶⁶ Training must include high-risk obstetrics, obstetric anesthesia, immediate care of newborns, gynecological surgery, gynecological oncology, gynecological surgical pathology, nonsurgical management of breast disease, reproductive

Table 3-8: Pediatric Medicine Subspecialty Certifications

Certifying Board	Specialty	Subspecialties	Description
American Board of Pediatrics (ABP)	Pediatrics	Adolescent Medicine	Specialization in the physical, psychological, and social variants in adolescents and their medical needs; involves working within an interdisciplinary team
		Child Abuse Pediatrics	Specialization in diagnosing pediatric abuse, serving as consult for community agencies on child safety, serving as expertise in the court of law, managing the outcomes of abuse, and working to help prevent future incidents
		Developmental-Behavioral Pediatrics	Expertise in the diagnosis and management of developmental problems and behavioral issues in children and identification of family issues that may disrupt child development
		Hospice and Palliative Medicine*	Specialization in the prevention and relief of suffering for patients in hospice or palliative care; involves working within an interdisciplinary team
		Medical Toxicology	Specialization in preventing, recognizing, assessing, treating, and monitoring conditions caused by exposure to drugs, chemicals, and other toxins
		Neonatal-Perinatal Medicine	Specialization in primary care of sick newborns and infants
		Neurodevelopmental Diseases	Expertise in caring for children with developmental problems or learning disabilities associated with a variety of conditions (for example, mental retardation, cerebral palsy, spinal bifida, autism, and so forth)
		Pediatric Cardiology	Concerned with the diagnosis, surgical treatment, care, and management of patients with diseases or disorders of the heart and associated blood vessels
		Pediatric Critical Care Medicine	Expertise in providing advanced life support to children (for example, near-term to term infants all the way through adolescence)
Pediatric Emergency Medicine	Management of specialized emergencies in infants and children		

CHAPTER 3: PHYSICIAN PRACTICES

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABP certification, plus licensure, plus three years of fellowship training	478	241	147	50.4	99170; 99384; 99394
ABP certification, plus licensure, plus three years of fellowship training	–	–	–	–	99170; 99201-99205; 99381-99384; 99391-99394
ABP certification, plus licensure, plus three years of fellowship training	101	26	70	39.5	99201-99205; 99381-99384; 99391-99394
ABP certification, plus licensure, plus three years of fellowship training	6	3	2	56.3	99366-99368; 99374-99380
ABP certification, plus licensure, plus three years of fellowship training	2	2	0	61	99175; 99201-99205; 99381-99384; 99391-99394
ABP certification, plus licensure, plus three years of fellowship training	4,246	2,522	1,319	49	99431-99440; 99466-99467; 99468-99469; 99471-99476; 99477-99480
ABP certification, plus licensure, plus three years of fellowship training	9	7	2	52.6	99201-99205; 99381-99384; 99391-99394; 96110-96111; 99174
ABP certification, plus licensure, plus three years of fellowship training	1,966	1,202	633	48	99201-99205; 99381-99384; 99391-99394; 92950-92953; 92960-92961; 92970-92971; 92973-92980; 92986-92993; 92995-92998; 93000-93014; 93015-93018; 93024-93025; 93040-93042; 93224-93272; 93278; 93303-93352; 93501-93562; 93571-93572; 93580-93581; 93600-93603; 93609-93613; 93615-93616; 93618; 93619-93623; 93619-93623; 93624-93631; 93640-93642; 93650-93652; 93701; 93720-93722; 93724-93736; 93741-93744; 93745; 93770; 93784-93790; 93797-93799; 93875-93893; 93922-93990; 97750-97799
ABP certification, plus licensure, plus three years of fellowship training	1,321	886	384	42.2	99289-99296; 99366-99368; 99466-99467; 99468-99469; 99471-99476; 99477-994809
ABP certification, plus licensure, plus three years of fellowship training	701	259	407	40.4	99281-99296

(continued)

Table 3-8: Pediatric Medicine Subspecialty Certifications (*continued*)

Certifying Board	Specialty	Subspecialties	Description
American Board of Pediatrics (ABP) (<i>continued</i>)		Pediatric Endocrinology	Focus on endocrine gland disorders in children (for example, diabetes mellitus, growth disorders, late pubertal development, birth defects, genital conditions, and conditions of the thyroid, pituitary, and adrenal glands)
		Pediatric Gastroenterology	Specialization in diagnosing and treating children with stomach, bowel, liver, and gallbladder conditions (for example, abdominal pain, ulcers, diarrhea, cancer, and jaundice)
		Pediatric Hematology-Oncology	Specialization in the diagnosis, management, and treatment of pediatric blood disorders and cancerous diseases in children
		Pediatric Infectious Diseases	Specialization in infectious diseases of all kinds and related to all organ systems (often unexplained or misdiagnosed)
		Pediatric Nephrology	Expertise in the development of the kidney and urinary tract; proficient diagnosis and management of a variety of associated conditions (for example, renal diseases, hypertension, and fluid and electrolyte abnormalities)
		Pediatric Pulmonology	Specialization in conditions of the lungs and airways that affect infants and children
		Pediatric Rheumatology	Expertise in joint, muscle, bone, and tendon conditions in children (for example, arthritis, back pain, muscle strains, athletic injuries, and collagen diseases)
		Pediatric Transplant Hepatology	Specialization in gastroenterological care of children prior to, during, and after liver transplantation.
		Sleep Medicine	Specialized knowledge of conditions that occur during sleep, disrupt sleep, or are associated with disruptions in the sleep cycle
	Sports Medicine	Expertise in continuous enhancement of health and fitness alongside prevention and management of sports related injuries and illnesses; focused on improving healthcare of active individuals	

* Reflective of statistics for hospice and palliative medicine with no specialty emphasis.

CHAPTER 3: PHYSICIAN PRACTICES

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABP certification, plus licensure, plus three years of fellowship training	962	481	355	46	93609-93613; 93615-93616; 93618; 93619-93623; 93619-93623; 93624-93631; 93640-93642; 93650-93652; 93571-93572; 93701
ABP certification, plus licensure, plus three years of fellowship training	721	395	288	42.9	91052; 91055; 91065; 91100; 91105; 91110-91299; 99201-99205; 99381-99384; 99391-99394
ABP certification, plus licensure, plus three years of fellowship training	1,846	890	691	46	99201-99205; 99381-99384; 99391-99394; 96360-96361; 96365-96379; 96401-96411; 96413-96417; 96420-96425; 96440-96450; 96521-96523; 96542-96549
ABP certification, plus licensure, plus three years of fellowship training	448	172	199	40.6	99201-99205; 99211-99215; 99241-99245; 90476-90749; 99381-99397
ABP certification, plus licensure, plus three years of fellowship training	524	264	169	47.6	90901-90911; 90918-90921; 90922-90925; 90935-90940; 90945-90947; 90951-90962; 90963-90970; 90989-90993; 90997-90999; 99201-99205; 99381-99384; 99391-99394
ABP certification, plus licensure, plus three years of fellowship training	710	443	208	45.5	94010-94799; 99201-99205; 99381-99384; 99391-99394
ABP certification, plus licensure, plus three years of fellowship training	161	61	79	40.7	99201-99205; 99381-99384; 99391-99394
ABP certification, plus licensure, plus three years of fellowship training	–	–	–	–	99201-99205; 99381-99384; 99391-99394
ABP certification, plus licensure, plus three years of fellowship training	1	0	0	58	99201-99205; 99381-99384; 99391-99394; 94774; 95803-95811; 95819-95822; 95827
ABP certification, plus licensure, plus three years of fellowship training	44	27	16	38.6	99201-99205; 99381-99384; 99391-99394

(continued)

Table 3-9: Obstetrics and Gynecology Medicine Subspecialty Certification (*continued*)

Certifying Board	Specialty	Subspecialties	Description
American Board of Obstetrics and Gynecology (ABOG)	Obstetrics and Gynecology	Critical Care Medicine (CCM)	The treatment and support of patients with multiple organ dysfunction; may play a role within the intensive care unit as well as serve as a liaison between primary care practitioners and the rest of the CCM team
		Gynecologic Oncology	Specialization in the diagnosis, prognosis, treatment, and management of gynecologic cancer
		Hospice and Palliative Medicine	Specialization in the prevention and relief of suffering for patients in hospice or palliative care; involves working within an interdisciplinary team
		Maternal and Fetal Medicine	Specialization in the provision of care to those with pregnancy complications; expertise in the technologies and techniques used to diagnose and manage such conditions
		Reproductive Endocrinology and Infertility	Management of reproductive endocrinology conditions and infertility

endocrinology, infertility, family planning, emergency medicine, genetics, psychosexual and psychosomatic counseling, diagnostic procedures, and jurisprudence.²⁶⁷ Advance training is available in several subspecialty areas (see table 3-9).²⁶⁸

SPECIALTIES

ABOG awards subspecialty certification in the areas of critical care medicine, gynecologic oncology, hospice and palliative medicine, maternal and fetal medicine, and reproductive endocrinology (see table 3-9 for additional information).²⁶⁹

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABOG primary certification, plus licensure, plus three years of fellowship training in CCM as it relates to obstetrics and gynecology	5	2	0	63.8	11975-11977; 11980; 59840; 59841; 59850-59852; 59855-59857; 59866; 99366-99368
ABOG primary certification, plus licensure, plus three years of fellowship training in gynecologic oncology	473	357	75	54	57500-57556; 58140-58146; 58510-58294; 58940-58960; 19100-19103; 19105; 19110-19126; 19260-19272; 19290-19298; 19300-19307; 77031 11975-11977; 11980; 59840; 59841; 59850-59852; 59855-59857; 59866
ABOG primary certification, plus licensure, plus three years of fellowship training in hospice and palliative care as it relates to obstetrics and gynecology	1	1	1	59	99366-99368; 99374-99380
ABOG primary certification, plus licensure, plus three years of fellowship training in maternal and fetal medicine	618	382	146	53.9	0500F-0575F; 99460-99463; 99464-99465; 99477-99499; 99366-99368; 58970-58976; 58999; 59000-59001; 59012-59076; 59400-59410; 59412-59414; 59425-59430; 59510-59525; 59610-59614; 59618-59622; 59812-59830; 59840-59866; 59870-59899; 76801-76802; 76805-76810; 76811-76812; 76813-76828
ABOG primary certification, plus licensure, plus three years of fellowship training in reproductive endocrinology and infertility	654	534	53	54.1	89250-89356; 11975-11977; 11980; 59840; 59841; 59850-59852; 59855-59857; 59866

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

In 2008, obstetrics and gynecology was the fourth-largest specialty choice, comprising 4.5 percent of all physicians.²⁷⁰ There were 38,272 physicians in the general practice of obstetrics and gynecology, representing 89.8 percent of all physicians in this specialty area.²⁷¹ General obstetricians and gynecologists represented the sixth-largest population of physicians for any specialty or compilation of subspecialties.²⁷² There were 4,363 physicians practicing in obstetrics and gynecology subspecialties, which represented 10.2 percent of all obstetricians and gynecologists, as well as 6.1 percent of all primary care subspecialists.²⁷³

The gender distribution of obstetricians and gynecologists has transformed significantly during the past decade and, in 2008, was approaching equilibrium—53.8 percent male and 46.2 percent female—compared with 65 percent male and 35 percent female in 2000.²⁷⁴

Of all obstetricians and gynecologists in 2007, 96.9 percent were involved in patient care, and approximately 80.8 percent were office based; 16.1 percent were hospital based as either residents or fellows (9.8 percent) or hospital staff (6.3 percent).²⁷⁵

SUPPLY AND DEMAND

The supply of obstetricians and gynecologists has risen proportionately faster than the overall U.S. population during the past two decades as illustrated in table 3-10.

Though the number of obstetricians and gynecologists has been increasing since 1975, the rate of growth has varied in recent years, slowing from a 17.3 percent increase in the first half of the 1980s to a 9.2 percent increase in the second half of the 1980s. The number of obstetricians and gynecologists then recovered in the past two decades, with an average growth rate of 26.5 percent.²⁷⁶ These varying trends in growth can be attributed to the combined effect of numerous factors, including demographic, technological, and healthcare trends.²⁷⁷

Although the impact of the graying physician population is demonstrated by the fact that 31.3 percent of obstetricians and gynecologists are aged 55 or older, there was a ratio of 1.6 residents in obstetrics and gynecology to one practitioner in 2007.²⁷⁸ Female physicians have shown an interest in obstetrics and gynecology, with a growing number (1,008.5 percent change from 1975 to 2008, 160.9 percent of which is attributed to change from 1990 to 2008) of female graduates each year.²⁷⁹

Alternately, the percentage of male physicians who practiced as obstetricians and gynecologists decreased from 7.2 percent in 2000 to 3.4 percent in 2008.²⁸⁰ Despite the fact that a slightly larger population of male physicians exists in this specialty area (22,937 male practitioners compared with 19,698 female practitioners), the growing number of female obstetricians and gynecologists is slowly bringing the ratio to equilibrium.²⁸¹ Be that as it may, the number of women in obstetrics and gynecology (7.13 percent) is still lower than the number of women in the fields of internal medicine (19.4 percent), pediatrics (15.1 percent), and family medicine (11.1 percent). These findings are consistent with data from 1998.²⁸²

Obstetricians and gynecologists and other physicians handle most births in the United States, performing approximately 90 percent of all deliveries, with family practitioners and certified nurse-midwives performing the remainder.²⁸³ However, the number of nonphysician deliveries is increasing as the role of mid-wives and physician assistants becomes more prominent.²⁸⁴

Table 3-10: Obstetrics and Gynecology (OB/GYN) Specialist to Population Ratios for the United States*

Year	Number of U.S. OB/GYNs	U.S. Population	U.S. OB/GYNs per 100,000 Citizens
1980	26,305	231,266,000	11.7
1990	33,697	252,164,000	13.7
2007	42,635	304,060,000	14.1

* "Physician Characteristics and Distribution in the US 2010 Edition," American Medical Association, 2010, p. 451, 457-458.

HIGHLIGHTS OF THE FOUR PILLARS

REGULATORY

In addition to the physician deficit, specifically, the primary care physician deficit, obstetricians and gynecologists are reducing the scope of services, the volume of services, or both due to the significant risk of medical liability and litigation associated with certain procedures that they perform.²⁸⁵ Recent survey data suggests that 59.2 percent of obstetricians and gynecologists have adjusted their practices due to extremely expensive or unavailable liability insurance.²⁸⁶ In fact, an average 18 percent of gross income reportedly was spent on liability in insurance premiums, and 1.8 percent of the survey population did not have any liability insurance.²⁸⁷

Of the physicians who adjusted their obstetric practices, 21.4 percent limited their number of patients who represented high obstetric risks, and 10.4 limited the number of babies they delivered.²⁸⁸ In addition to this, 19.5 percent increased the volumes of cesarean deliveries they performed, and 19.5 percent refused to perform any vaginal births after cesareans.²⁸⁹ Lastly, 6.5 percent of the population surveyed stopped practicing obstetrics and gynecology entirely.²⁹⁰

Of those who made adjustments to their gynecologic practices, 11 percent reduced the number of gynecologic surgery procedures they performed, and 4.5 percent stopped performing major gynecologic surgery procedures; 1.8 percent stopped offering surgical procedures entirely.²⁹¹

COMPETITION

The rise of managed care also has had a great effect on the scope of obstetrics and gynecology practices, with obstetricians and gynecologists assuming a variety of roles, including the role of a primary care physician in gatekeeper HMOs, as well as the role of a specialist requiring a referral to be seen by patients.

Another issue is the continued shift to ambulatory care. An increasing number obstetrics and gynecology services are being delivered on an outpatient basis, with most routine procedures predominantly offered in this setting.²⁹² Of all outpatient visits, 9.1 percent were made to clinics that specialize in obstetrics and gynecology, and 25.1 percent of all related visits were conducted by primary care physicians rather than by specialized obstetricians and gynecologists.²⁹³ Therefore, an increase in the number of private practice physicians who open comprehensive care outpatient facilities, independent from hospital control, can be expected.²⁹⁴

Data reported by the Center for Healthcare Industry Performance Studies analyzed 615 transactions of physician practices. In this study, the majority (approximately 55.1 percent) of acquisitions of obstetrics and gynecology practices were solo practices.²⁹⁵

Overall, these trends indicate that demand for obstetricians and gynecologists is increasing and that the range and quality of treatments and technologies are improving. These factors suggest that the specialty will experience growth and that further integration of care has the potential to improve outcomes, reduce overall costs, and continue to produce economic benefit for obstetricians and gynecologists.

Recent emphasis on prevention as a means of reducing morbidity and mortality, and, consequently, alleviating healthcare costs, has resulted in integration of screening programs into many healthcare enterprises.²⁹⁶ Much of the integration seen in obstetrics and gynecology involves the incorporation of preemptive initiatives specific to women's health into both obstetric and gynecologic practices and other enterprises.²⁹⁷ For example, breast cancer screening programs have been adopted by many hospitals, women's centers, radiology groups, gynecology practices, and freestanding surgery centers.²⁹⁸

Table 3-11: General Surgery Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description	
American Board of Surgery (ABS)	General Surgery	Hospice and Palliative Medicine*	Specialization in the prevention and relief of suffering for patients in hospice or palliative care; involves working within an interdisciplinary team	
		Pediatric Surgery	Expertise in the management of surgical conditions in premature and newborn infants, children, and adolescents	
		Vascular Surgery	Surgery of the Hand	Expertise in the investigation, preservation, and restoration by medical, surgical, and rehabilitative means of the hindered form and function of the hand and wrist
		Surgical Critical Care	Expertise in the care of critically ill, injured, or post-operative patients	

* Reflective of statistics for hospice and palliative medicine with no specialty emphasis.

Part II—Surgical Specialty Practices

From 1981 through 2006, the number of surgeons in the United States grew 53 percent, representing a per capita growth in surgeons from 38.1 to 44.7 per 100,000 people.²⁹⁹ This growth is largely attributable to surgical subspecialization, with 70 percent of residents completing fellowships in 2004.³⁰⁰ An analysis of general and subspecialty surgical trends may be helpful in understanding and forecasting market conditions.

GENERAL SURGERY

DESCRIPTION AND SCOPE

SCOPE

The practice of general surgery encompasses a wide scope of surgical services. As reported by ABMS, general surgeons diagnose and manage surgical and medical conditions of the alimentary tract, abdomen, breast, skin and soft tissue, endocrine system, and head and neck.³⁰¹ General surgeons must have a strong knowledge of the skills common to all surgical specialties: “anatomy, physiology, metabolism,

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABS primary certification, plus licensure, plus training in hospice and palliative medicine	6	3	2	56.3	12001-12021; 12031-12057; 13100-13160; 14000-14350; 15040; 15050; 15150-15151; 15155-15156; 15200-15261; 15340-15341; 15570-15750; 15760-15770; 16000-16036; 99281-99288; 99366-99368; 99374-99380
ABS primary certification, plus licensure, plus two years of pediatric surgery training	817	556	213	51.5	15002-15005; 15100-15136; 15152; 15152; 15157; 15170-15176; 15300-15336; 15360-15366; 99143-99150
ABS primary certification, plus licensure, plus two years of clinical experience, plus a one-year fellowship in surgery of the hand	13	5	8	34.5	26100-26320; 26340-26548; 26550-26556; 26560-26596
ABS primary certification, plus licensure, plus a surgical critical care fellowship	663	378	268	42.3	91105; 99289-99296; 99366-99368; 99466-99467; 99468-99469; 99471-99476; 99477-994809; 99291-99292

pathology, wound healing shock and resuscitation, neoplasia, and nutrition.³⁰² They care for children, cancer patients, and patients who are critically ill or injured.³⁰³ General surgeons diagnose and provide pre-operative, operative, and post-operative care in the emergency room, as well as in the intensive care unit.³⁰⁴ The incorporation of the total care model embodied by the specialty is an “essential component of general surgery.”³⁰⁵ Additionally, general surgeons are providing a growing number of invasive and minimally invasive endoscopic services as technology progresses.³⁰⁶

EDUCATION AND TRAINING

For entry into a general surgery residency program, a physician must have graduated from an accredited school of medicine.³⁰⁷ General surgery residencies are normally five years in length, with some residencies requiring one year of research.³⁰⁸

To become certified by the American Board of Surgery (ABS) as a general surgeon, a physician must have a full license to practice medicine.³⁰⁹ Further requirements include acting as chief resident for a period of twelve months and participating in a minimum of 750 operative procedures.³¹⁰

SPECIALTIES

The ABS offers a general certificate in vascular surgery, which focuses on blood vessel disorders (excluding those disorders related to the brain and heart).³¹¹ The ABS also recognizes hospice and palliative care, pediatric, hand, and critical care surgery as general surgery subspecialty areas, shown in table 3-11.³¹²

The remaining surgical specialties, discussed in more detail in the following sections, may require one to five years of general surgery training.³¹³ The completion of five years of general surgery residency training is a prerequisite for certification in colon and rectal, pediatric, thoracic, and vascular surgery.³¹⁴

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

In 2008, there were 37,797 general surgeons practicing in the United States, 24,640 of whom were office based (65.2 percent) and 10,871 of whom were hospital based (31.7 percent).³¹⁵ Women represented 16.5 percent of the general surgeon population.³¹⁶ Additionally, the general surgeon population has endured a decrease in resident interest and an aging of the existing population, as demonstrated by the 32.9 percent of general surgeons who were over the age of 55, and only 21.9 percent of general surgeons who were under the age of 35.³¹⁷

SUPPLY AND DEMAND

Reports in the 1980s predicted a surplus of general surgeons, however, the workforce may be facing a shortage, as suggested by the aging population, changing lifestyle demands, technological changes, and increased subspecialization.³¹⁸ Despite a significant increase in the surgical workforce during the past three decades, the net growth in general surgeons only represented a small fraction of that increase.³¹⁹ General surgeons comprise a decreasing proportion of the physician workforce, dropping from 7.3 percent in 1980 to 6.2 percent in 1990 to 4 percent in 2008.³²⁰ As a consequence, subspecialists struggle to meet patient demand.³²¹

The number of general surgeons dropped 1 percent from 1990 to 2008.³²² The per capita decrease in general surgeons from 14.4 per 100,000 in 1980 to 3.2 per 100,000 in 2008 may reflect a significant manpower concern.³²³ This may be exacerbated by the aging demographic, because 60 percent of general surgery procedures in 1996 were conducted on patients older than sixty-five years of age.³²⁴ Between 2001 and 2020, the demand for general surgery procedures is estimated to increase by greater than 30 percent, and, as such, the workforce shortage will be intensified by a sudden increase in urgent need.³²⁵

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

Approximately 70 percent of general surgery residents pursue subspecialty certification; this serves as a dimension of competition in and of itself.³²⁶ With a 7.2 percent growth in surgeons who specialized in areas that require the completion of a general surgery residency, competencies across specialty areas may cause general surgery to diminish as an area of medicine.³²⁷ Alternately, many surgeons have specialized so much that they do not feel qualified to provide emergency services, with some surgeons only providing outpatient care.³²⁸ This may further contribute to an already increasing demand for general surgery.

However, as fewer general surgeons enter a workforce that faces heightened demand, competition *within* the general surgery market may decrease. This competitive lull, caused by the surplus of existing job openings, may affect various geographic regions differently. This is demonstrated by the fact that

only 34 percent of rural counties saw declining ratios of general physicians from 1981 to 2006, while 60 percent of urban counties endured similar declines.³²⁹

With 80 percent of surgical procedures feasibly performed in an outpatient setting,³³⁰ and general surgeries comprising 63.1 percent of all surgeries performed at community hospitals in 2006, a new dimension of competition has entered the general surgery market.³³¹ More physicians are competing directly with hospitals and other physicians for patients as more ASCs and specialty hospitals are being opened by physician-owners. These outpatient sites of service have evolved into an attractive option to the aging baby boomer population, but they have positioned surgeons and hospitals against one another in some competitive environments.

TECHNOLOGY

Many new technologies exist that allow surgeons to be more precise while being minimally invasive. One such technology is robotic surgery that is used widely for endoscopic procedures. Adjustable arms on a machine can hold cameras or instruments or even perform programmed motions. These machines offer precision when surgeons cannot, thereby offering better dexterity and overcoming two-dimensional optic challenges.³³²

BARIATRIC SURGERY

DESCRIPTION AND SCOPE

SCOPE

Bariatric surgery provides treatment options to patients who are severely obese and cannot lose weight through conventional means, as well as to patients with conditions that cause or are caused by obesity.³³³ By using one of several surgical methods, bariatric surgeons can reduce digestive absorption, intake of nutrients and calories, or both.³³⁴ Through bariatric surgery care, patients can achieve not only weight loss but also treatment for metabolic conditions such as type 2 diabetes, hypertension, high cholesterol, nonalcoholic fatty liver disease, and obstructive sleep apnea.³³⁵

The introduction of minimally invasive procedures has contributed to the acceptability of bariatric procedures. Minimally invasive procedures tend to have a lower incidence of wound complications and reduced blood loss, narcotic requirements, and hospital stays than do open procedures.³³⁶ In its credentialing guidelines, the American Society for Bariatric and Metabolic Surgery (ASBMS) differentiates between surgeons who perform minimally invasive bariatric procedures and surgeons who perform open procedures, and the criteria differ accordingly (for example, procedures involving stapling or compartmentalization of the gastrointestinal tract versus procedures that do not).³³⁷

Bariatric surgeries generally are categorized based on the methods by which they restrict food intake or induce maldigestion or malabsorption.³³⁸ Four bariatric surgery procedures are approved for use in the United States: laparoscopic adjustable gastric band (LAGB), Roux-en-Y Gastric Bypass (RYGB), bilio-pancreatic diversion with a duodenal switch, and vertical banded gastrectomy (VBG).³³⁹ Each procedure and mechanism produces different effects and alterations to the natural feelings of hunger and satiety, and each has different advantages and disadvantages (see table 3-12 below).³⁴⁰

Table 3-12: Operations Commonly Performed for Treatment of Obesity*

Procedure	Mechanism	Description**	Advantages	Disadvantages
Laparoscopic Adjustable Gastric Band	Restrictive	Small band placed around the top of the stomach, creating a compartment the size of a thumb. Outlet size is controlled to meet the needs of the patient	Low perioperative risks, reversible, adjustable	Inferior weight loss, inappropriate requests for adjustment, long-term band complications
Vertical Banded Gastroplasty (Vertical Sleeve Gastrectomy)	Restrictive	Performed as the first stage of the biliopancreatic diversion-duodenal switch procedure to prevent complications in especially high-risk patients. Involves removal of most of the stomach. This reduces production of the ghrelin, a hormone that triggers hunger	Low perioperative risks	Stomal complications, frequent gastroesophageal reflux, frequent revision necessary, inferior weight loss
Roux-en-Y Gastric Bypass (RYGB)	Restrictive, maldigestive	Limitations placed on food intake by way of a pouch similar to the adjustable gastric banding procedure, however, digestion of food is reduced by bypassing a large portion of the stomach, duodenum, and upper intestine and routing food straight from the pouch to the small intestine	Sustained weight loss, antireflux anatomy, dumping symptoms	Dumping symptoms, obstruction, stomal complications
Duodenal Switch	Restrictive, malabsorptive	Involves removing a large portion of the stomach to reduce food intake, rerouting food much like RYGB, and redirecting the bile and other digestive juices that hinder digestion	Avoids dumping physiology, improved weight loss, improved reduction in comorbidities	Metabolic or nutritional sequelae, increased technical difficulty
Biliopancreatic Diversion	Malabsorptive		Improved weight loss	Metabolic or nutritional sequelae, stomal ulceration, dumping symptoms, diarrhea

* "Surgical Approaches to Obesity," Kendrick, Michael L. and Gregory F. Dakin, Mayo Clinic Proceedings, October 2006, p. S19.

** "Bariatric Surgery for Severe Obesity," by the National Institute of Diabetes and Digestive Kidney Diseases of the National Institute of Health, U.S. Department of Health and Human Services, March 2009, <http://win.niddk.nih.gov/publications/gastric.htm> (accessed 10/06/2009).

EDUCATION AND TRAINING

Bariatric surgery is not an independent specialty area certified by its own board; however, it is beginning to emerge as a mainstay in general surgery residency programs.³⁴¹ Also, continuous developments in technology are bridging the gap between general and minimally invasive surgeries.³⁴² Residents soon will learn laparoscopic bariatric surgery during their five years of clinical surgery training.³⁴³

Due to the increased number of surgeries in recent years, the field of bariatric surgery felt the need to develop clear quality care guidelines. Consequently, the American Society for Metabolic and Bariatric Surgery (ASMBS, formerly known as the American Society for Bariatric Surgery, ASBS)³⁴⁴ published educational guidelines for bariatric surgery credentialing in 2003 and again in 2005.³⁴⁵ In order to meet credentialing requirements, surgeons pursuing bariatric specialization must have graduated from an accredited medical school, completed a five-year residency training program in general surgery, and have documented experience in the care of morbidly obese patients, follow-up of all patients, and prevention, monitoring, and management of short-term and long-term complications.³⁴⁶ In order to be able to train future bariatric applicants, credentialed surgeons must have experience performing at least 200 bariatric procedures in their "subspecialty" or, rather, procedural category.³⁴⁷

SPECIALTIES

Other than distinguishing between bariatric surgeons who perform laparoscopic and those who perform open procedures, specialty areas have not been identified.

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

Most new bariatric surgery programs are contained within existing general surgery centers or surgery departments of hospitals.³⁴⁸ Despite the fact that bariatric surgery patients require recovery rooms with a specialized bed and bathroom, administrators often find it more cost-effective to begin a bariatric program in this manner.³⁴⁹ Consequently, in 2004, the ASBS developed criteria for a surgery center to be denoted a “Center of Excellence.”³⁵⁰ The criteria designation includes a minimum annual volume of 100 to 200 procedures in addition to the previously discussed educational criteria for general surgeons.³⁵¹

Of all hospitals documented in 2006, 20 percent, or 967 hospitals, provided bariatric or weight control services.³⁵² Other than the slightly higher percentages along the east coast, these facilities seem fairly evenly distributed across the country. Of these facilities, 906 were community hospitals.³⁵³

SUPPLY AND DEMAND

Since 1980, the prevalence of morbid obesity in the United States has doubled.³⁵⁴ Of all adults aged twenty and older, 67 percent are either overweight or obese, with 34 percent qualifying as obese.³⁵⁵ The number of bariatric surgery procedures performed rose from 16,000 in the early 1990s to 103,000 in 2003 and an estimated 205,000 in 2007.³⁵⁶ With increasing volumes of bariatric procedures performed in recent years, spending related to these procedures has climbed as well.³⁵⁷ Average cost per procedure is approximately \$25,000, with total spending approaching \$3 billion a year.³⁵⁸

Also, the number of people eligible for the procedure has increased by an estimated 10 to 12 percent per year.³⁵⁹ Patients who are eligible for bariatric surgery typically fall into one of three body mass index (BMI) classes: class I (BMI 30–34.9), class II (BMI 35–39.9), or class III (BMI > 40).³⁶⁰ As BMI increases above what is considered normal (between 18.5 and 24.5), health risks also increase, with risk implications escalating at higher levels of obesity.³⁶¹ From 1996 to 2002, patients over the age of sixty-five endured the fastest rate of growth in bariatric procedures, with 84 percent of procedures performed on women.³⁶² Additionally, findings from the Nationwide Inpatient Sample of the Healthcare Costs and Utilization Project suggest that the use of bariatric surgery is greater for female patients, those patients who privately pay, and patients with comparatively high income levels.³⁶³

Patients eligible for bariatric surgery also tend to have medically related co-morbidities that further diminish their quality of life, thereby causing them to account for a disproportionate share of healthcare illness and services.³⁶⁴ These co-morbidities include increased risk of diabetes, hypertension, arthritis, and asthma.³⁶⁵ As of 2010, some industry experts believe that surgery is the only effective sustained weight loss treatment for morbidly obese patients because their chances of keeping weight off through diet and exercise are considered rather remote.³⁶⁶ Lifestyle interventions, as a method of sustained weight loss for obese individuals, have only proven to help patients lose approximately 10 percent of their body weight.³⁶⁷ Pharmacologic treatments have shown similar results.³⁶⁸

HIGHLIGHTS IN THE FOUR PILLARS

REIMBURSEMENT

Although the rise in procedures has been profitable for hospitals and surgeons, it has aroused concern from insurers.³⁶⁹ Some of this concern has to do with the fact that bariatric surgery is still debated as a means of cost savings in healthcare, partially due to the fact that patients tend to need significant amounts of follow-up care in order to adjust to their new lifestyles and maintain weight loss.³⁷⁰ However, hospital payments associated with bariatric surgery dropped 13 percent from 2002 to 2006, a decline that was attributed to fewer complications and readmissions.³⁷¹ In 2006, Medicare expanded coverage of bariatric surgery for all beneficiaries.³⁷² In the circumstance of elderly individuals who are at a high-risk for complications, Medicare will cover the procedure only if it is performed in a location with high volumes and low mortality rates.³⁷³

TECHNOLOGY

The rise in bariatric surgery is thought to be attributed to two factors: (1) a rise in publicity for the obesity treatment and (2) the development of less invasive, laparoscopic techniques. Initial growth in the number of procedures performed was accompanied by medical reports of patients suffering from life-threatening complications, such as bleeding and infections, as well as unpleasant side effects, including nausea and vomiting.³⁷⁴ Recent studies have shown that complications associated with bariatric surgery are declining, however.³⁷⁵ This decline is attributed to increased use of laparoscopy, increased use of banding through procedures that do not rely on gastric bypass (for example, VBG and LAGB), and increased surgeon experience.³⁷⁶ The average rate of complications from bariatric surgery declined 21 percent from 2002 to 2006.³⁷⁷ The risk of death or complications from RYGB or LAGB procedures was recently found to be 0.3 percent and 4.3 percent, respectively.³⁷⁸

With a steep learning curve (often 75 to 100 cases) for even the most experienced surgeons to achieve sufficient proficiency, laparoscopic gastric bypass surgery (LRYGB) (a type of Roux-en-Y procedure) is considered among the most challenging minimally invasive procedures in general surgery.³⁷⁹ LRYGB surgeries involve the design of a gastro-enteric anastomosis. This can be done by a linear stapling device, a circular stapling device, or may be hand sewn.³⁸⁰ New technology in this area includes robotic assistance that allows the surgeon to have a three-dimensional (3D) view with magnification to aid with hand-sewn gastrojejunostomy, which is especially helpful for surgeons on a learning curve.³⁸¹ This robotic-assisted gastric bypass has been shown to be feasible and potentially beneficial compared to standard LRYGB.³⁸² Another new device has been developed to supplement the circular stapler, which has difficulty entering the thick abdominal wall of morbidly obese patients. This invention is a mountable trocar tip for the circular stapling device that facilitates introduction into the abdomen. Another benefit of the trocar tip is a significant reduction in wound infections at the site of stapler introduction compared to the circular stapler alone.³⁸³

LAP-BAND bariatric surgery is the latest technology available for bariatric candidates. LAP-BAND surgery is the most frequently performed bariatric surgery outside of the United States, and it is most often performed using a laparoscopic approach. The LAP-BAND system is the only FDA-approved laparoscopic adjustable gastric band in the United States, gaining approval in June 2001.³⁸⁴ The LAP-BAND system is adjustable without additional surgery, which is a great advantage of this type of bariatric surgery.³⁸⁵ This feature allows for individualized restriction to allow for an ideal rate of weight loss.³⁸⁶ The LAP-BAND system is reversible, with the stomach and other anatomy usually restored to their original form and functions after removal.³⁸⁷ The LAP-BAND system has been used for more than 500,000 procedures with effective long-term weight loss results.³⁸⁸

COLON AND RECTAL SURGERY

DESCRIPTION AND SCOPE

SCOPE

Colon and rectal surgeons have advanced knowledge and skills in the diagnosis, treatment, and management of diseases of the colon, rectum, and secondary organs and tissues involved in primary colon and rectal diseases.³⁸⁹ They are trained in both surgical and endoscopic techniques.³⁹⁰ Colon and rectal surgeons also may manage anorectal conditions in an office setting.³⁹¹ The scope of conditions that colon and rectal surgeons are trained to treat include: anorectal conditions, hemorrhoids, fissures, abscesses, fistulas, inflammatory bowel disease, chronic ulcerative colitis, Crohn's disease, diverticulitis, colonic neoplasms, cancer, polyps, familial polyposis, endoscopy of the colon and rectum, rigid and flexible sigmoidoscopy, colonoscopy, endoscopic polypectomy, anal incontinence, constipation, diarrhea, and rectal prolapse.³⁹²

EDUCATION AND TRAINING

Entrance into a colon and rectal surgery residency program requires graduation from an accredited medical school and the completion of a general surgery residency.³⁹³ Colon and rectal surgery residencies are one year in length.³⁹⁴ These residency programs are designed to provide physicians with advanced expertise and skills in the treatment of colon and rectal diseases.³⁹⁵ Due to the brief nature of the program, no other rotations are required.³⁹⁶ However, during the course of the residency, physicians learn a great deal about radiology, pathology, and gastroenterology as they relate to colon and rectal surgery.³⁹⁷

The American Board of Colon and Rectal Surgery (ABCRS) certifies physicians who have completed approved colon and rectal programs, passed the ABS Qualifying Examination, provided their colorectal operative experience record and recommendations, and passed ABCRS's qualifying exam which tests their knowledge of colon and rectal surgery, including their knowledge of radiology and pathology.³⁹⁸

SPECIALTIES

There are no ABMS-recognized subspecialties in colon and rectal surgery.³⁹⁹

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

Of the 1,412 colon and rectal surgeons reported in the United States in 2008, 1,202 were office based (85.1 percent), and 180 were hospital based (12.7 percent).⁴⁰⁰ The colon and rectal surgeon population is graying, as demonstrated by the 7.4 percent of the surgeons who were younger than 35, compared with 25.1 percent who were older than 55.⁴⁰¹ There were 214 female colon and rectal surgeons in 2008, up from 52 in 1995 and 91 in 2000.⁴⁰²

SUPPLY AND DEMAND

The 1,412 colon and rectal surgeons in the United States represented 0.1 percent of all physicians in 2008.⁴⁰³ The per capita ratio of colon and rectal surgeons in 2008 was 46.4 surgeons per 10,000,000 people.⁴⁰⁴ Growth in this specialty area has fluctuated, increasing from 8.8 percent in the latter half of the 1970s, to 13.6 percent in the earlier half of the 1980s, but then declining to 8 percent in the latter half of the decade, and then increasing again, with growth rates of 25.3 percent from 2000 to 2008.⁴⁰⁵ In 2008, there were 180 hospital-based colon and rectal surgeons, 79 of whom were residents and fellows, as compared with 101 physician staff members.⁴⁰⁶

Despite potential inconsistencies in colon and rectal surgeon supply, demand has remained fairly constant and critical.⁴⁰⁷ Carcinomas of the colon and rectum are the United States' second-leading cause of cancer death and follow lung, breast, and prostate cancer as the fourth-leading cause of cancer.⁴⁰⁸ Emphasis on screening and early detection has reduced incidence and mortality rates, because early detection allows for early diagnoses and polypectomies.⁴⁰⁹ From 1984 to 2004, incidence rates fell by nearly 26 percent.⁴¹⁰ However, lifetime risk still remains at nearly 6 percent.⁴¹¹

Age remains a significant factor of this form of cancer.⁴¹² As such, the aging demographic will only further contribute to the pressing demand for these specialists.

HIGHLIGHTS IN THE FOUR PILLARS

TECHNOLOGY

Technology plays a significant role in the colon and rectal surgical industry. Advances in laparoscopic and robotic minimally invasive surgery procedures have improved the surgical capabilities and detection or management strategies used to treat colon and rectal cancer.⁴¹³ Early detection of colon cancer usually warrants a laparoscopy.⁴¹⁴ When performing a laparoscopy, surgeons make three or four incisions in the abdomen and navigate through the abdominal region using a laparoscope, remove the tumor and portion of the healthy part of the colon, and check to ensure that the cancer has not spread.⁴¹⁵ Robotic laparoscopy is slightly more advanced, providing surgeons with more acuity, precision, and maneuverability than traditional laparoscopy methods.⁴¹⁶

Surgery remains the most common treatment for colorectal cancer, however, techniques have improved tremendously during the past fifteen years, leading to improved survival rates.⁴¹⁷ If detected early, surgery can cure an estimated 90 percent of colorectal cancers.⁴¹⁸ Laparoscopy has proven to be less invasive and less painful than conventional methods, therefore requiring shorter recovery time with improved patient outcomes.⁴¹⁹ These successes were initially characteristic of colon cancer, but recent studies have shown reduced hospital stays and quicker recoveries to be characteristic of successful minimally invasive rectal cancer procedures.⁴²⁰ As such, these surgical technologies make treatment less strenuous on the surgeon and less traumatic on the patient.⁴²¹ For more information on minimally invasive surgical technology, see chapter 5 of *An Era of Reform*.

NEUROLOGICAL SURGERY

DESCRIPTION AND SCOPE

SCOPE

Neurosurgeons practice the prevention, diagnosis, examinations, treatment, and care for patients with neurological conditions through the utilization of invasive and noninvasive procedures.⁴²² They care for patients with disorders of the central, peripheral, and autonomic nervous systems, as well as associated support structures and vasculature (including the spine and carotid arteries).⁴²³ Neurological surgeons are trained in the care of children and adults, as well as injured and critically ill patients.⁴²⁴

Neurosurgery treatments include a multitude of invasive and noninvasive therapies. Treatments may include the prescription of medication, surgical treatment, stereotactic radiological treatment, or rehabilitation.⁴²⁵ Neurosurgeons assess patients through case histories, physical examination and evaluation, and diagnostic procedures.⁴²⁶

EDUCATION AND TRAINING

Requirements for entry into a neurological surgery residency program include graduation from an accredited medical school and a one-year post-graduate internship that teaches basic clinical skills, preferably in surgery.⁴²⁷ Following the internship, neurological surgeons must spend five years in a neurological surgery residency program.⁴²⁸ Residency training includes three months of clinical neurology and three years of neurosurgery; the remainder of the residency can be spent on electives.⁴²⁹ In addition to specific clinical rotations, residents must serve as chief or senior resident for one year during their neurosurgery rotation.⁴³⁰

To gain board certification, granted by the American Board of Neurosurgery (ABN), a physician must have completed a neurosurgical residency program, have passed primary written examination, and had two years of practice experience.⁴³¹ After completion of the written examination, a review and approval of one year of practice data is required before oral exams can be taken.⁴³² Upon passing of oral examinations a physician may be granted board certification in neurosurgery.⁴³³

SPECIALTIES

The ABN does not award certification for subspecialties; however, neurosurgeons may focus on cerebrovascular and skull base surgery, endovascular surgery, functional neurosurgery, radiosurgery, movement disorders, neurointensive care, neuro-oncology, neurotrauma; pediatric neurosurgery, spine services, stereotactic functional surgery, or a combination of these subspecialties.⁴³⁴

The American Board of Neurosurgery does not award certification for subspecialties; however, neurosurgeons may focus on cerebrovascular and skull base surgery, endovascular surgery, functional neurosurgery, radiosurgery, movement disorders, neurointensive care, neurooncology, neurotrauma, pediatric neurosurgery, spine services, stereotactic functional surgery, or a combination of these.

"About The American Board of Neurological Surgery," by The American Board of Neurological Surgery, The American Board of Neurological Surgery, 2009, www.abns.org/content/about_abns.asp (accessed August 28, 2009).

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

Of all 5,508 neurological surgeons reported in 2008, 15.2 percent were under the age of 35, and 33.8 percent were over the age of 55. This suggests that an already small population will dwindle due to the aging physician population.⁴³⁵ Although only 34 female neurological surgeons over the age of 55 existed, there were 225 under the age of 45.⁴³⁶ Regardless of the growing number of female neurological surgeons, women only comprised 6 percent of all neurological surgeons.⁴³⁷

SUPPLY AND DEMAND

For every 100,000 people in the United States, there are an estimated 1.8 neurosurgeons.⁴³⁸ Although this number appears low, as of 2010, many analysts consider there to be a surplus of suppliers in this very specialized area.⁴³⁹ The number of neurosurgeons increased by only 26.4 percent in the eighteen years between 1990 and 2008, a significantly slower rate than when that number increased 20.3 percent between 1980 and 1985.⁴⁴⁰ As a result of this diminished growth rate, the proportion of neurological surgeons to total physicians dropped from 0.7 percent, where it had remained from 1975 to 1995, to 0.6 percent in 2000 and again in 2008.⁴⁴¹

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

Technological and competitive changes in the healthcare market affect practicing neurosurgeons in many ways. These market drivers include available imaging [for example, computed tomography (CT) and magnetic resonance imaging (MRI)] and surgical (for example, robotics and other minimally invasive innovations) specialists who offer competing services (for example, interventional neuroradiologists and orthopedic surgeons who perform spine surgery), primary care physicians who act as gatekeepers and control access to neurological services, and, to some extent, chiropractors.

Due to a changing population, technological and procedural advances, and improved organizational planning by neurosurgical departments and practices, the scope of surgical procedures within neurosurgery has broadened tremendously during the past fifteen years.⁴⁴² U.S. neurosurgeons now perform a greater number of spinal surgeries, including almost all cervical and lumbar fusions, than do orthopedic surgeons.⁴⁴³ This milestone and others can be attributed to technological developments in implantation, biologics, biomechanics, minimally invasive and percutaneous techniques, image guidance, radiosurgery, and motion preservation surgery.⁴⁴⁴ Neurosurgeons were instrumental in the development of each of these areas; their contributions will continue to influence the evolution of spinal neurosurgery.⁴⁴⁵

TECHNOLOGY

Stereotactic neurosurgery, functional neurosurgery, and vascular neurosurgery also have flourished in recent years.⁴⁴⁶ With developments in MRI and CT, image guided biopsies have become commonplace.⁴⁴⁷ The scope of neurosurgical procedures has broadened to include stereotactic neurosurgery, functional neuroimaging, surgical navigation, intraoperative MRI, surgery for intractable epilepsy, and deep brain stimulation.⁴⁴⁸ Also, treatment of difficult or inoperable aneurysms by way of neuroendovascular therapy has become more feasible.⁴⁴⁹ Such treatment methods become increasingly successful when paired with anticipated technological developments.⁴⁵⁰

OPHTHALMIC SURGERY

DESCRIPTION AND SCOPE

SCOPE

Ophthalmic surgeons, also known as ophthalmologists, utilize medical and surgical knowledge to provide comprehensive care of the eyes and vision.⁴⁵¹ These specialists are the only physicians trained in the diagnosis and treatment of eyes.⁴⁵² Ophthalmologists use the full spectrum of diagnostic procedures, as well as invasive and noninvasive surgical techniques to provide care for patients of all ages.⁴⁵³ Ophthalmic surgeons commonly prescribe medication, as well as glasses and contact lenses, and provide consultation services to patients with systemic diseases such as diabetes and hypertension.⁴⁵⁴ Common ophthalmic surgical interventions carried out in this specialty include cataract surgery, oculoplastic surgery, and laser eye surgery.⁴⁵⁵

EDUCATION AND TRAINING

Graduation from an accredited medical or osteopathic school is a prerequisite for admission to an ophthalmic surgical residency program.⁴⁵⁶ Residency programs, which are at least three years long, additionally require one year of post-graduate clinical work with a required six months of direct patient care.⁴⁵⁷ During the course of the residency program, a physician is exposed to a wide variety of ophthalmic diseases and disorders in an effort to help the practitioners develop the skill and techniques needed to provide appropriate and comprehensive eyecare.⁴⁵⁸ Physicians may choose to pursue fellowship training in a multitude of subspecialties.⁴⁵⁹

The American Board of Ophthalmology (ABO) grants board certification in ophthalmic surgery.⁴⁶⁰ To obtain certification, a physician must have fulfilled entrance requirements for an accredited ophthalmic residency program, have completed an accredited residency training program in ophthalmology, and possess an unrestricted license to practice medicine in the United States.⁴⁶¹

SPECIALTIES

The ABO does not offer subspecialty certification, however, ophthalmologists often focus their expertise in a variety of areas, including pediatric ophthalmology, oculoplastic surgery, and neuro-ophthalmology.⁴⁶²

There are no subspecialty certificates offered by the American Board of Ophthalmology. However, ophthalmologists often focus their expertise in a variety of areas, including pediatric ophthalmology, oculoplastic surgery, and neuroophthalmology.

"Recognized Physician Specialty and Subspecialty Certificates," 2009, www.abms.org/Who_We_Help/Physicians/specialties.aspx, 2009, (accessed October 8, 2009); "About Ophthalmology and Eye MD's," American Ophthalmology Association, aoa.org, www.aoa.org/about/eyemds.cfm, 2009 (accessed December 9, 2009).

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

There were 18,217 ophthalmologists in the United States in 2008, representing 1.9 percent of the physician population.⁴⁶³ This proportion has declined steadily from 2.8 percent in 1975 to 2.6 percent in 1990 and to 2.2 percent in 2000.⁴⁶⁴ The 6,942 ophthalmologists older than the age of 55 comprised 38.1 percent of the total number of specialists; this figure severely outweighed the 1,938 ophthalmologists under the age of 35, who barely represented 10 percent.⁴⁶⁵

Women continue to enter the field of ophthalmology, which has a significant number of older female physicians as well.⁴⁶⁶ In 2008, there were 3,645 women in the profession, which accounted for 20 percent of all ophthalmologists.⁴⁶⁷ Of these female surgeons, 803 were under the age of 35; 1,151 were between the ages of 35 and 44; 1,092 were between the ages of 44 and 54; and 599 were over the age of 55.⁴⁶⁸ The percentage of all female physicians who specialized in ophthalmology dropped from 1.5 percent in 1995 to 1.3 percent in 2000, where it remained in 2008.⁴⁶⁹

SUPPLY AND DEMAND

Growth rates within this specialty area decreased from 16.6 percent in the second half of the 1970s to 8 percent in the second half of the 1980s.⁴⁷⁰ The number of ophthalmologists per capita increased slightly from 1980 (5.8 physicians per 100,000 people) to 1990 (6.5 physicians per 100,000), but it decreased from 1990 to 2008 (6 physicians per 100,000 people).⁴⁷¹ Also, the number of office-based ophthalmologists per 100,000 people remained at 5.3 in 1990 to 5.2 in 2008.⁴⁷²

These figures suggest that patient demand has been driven by market trends, including the emergence and growth of optometrists and opticians, technological developments, and the expansion of outpatient surgical and nonsurgical procedures. On one hand, the estimated size of the ophthalmic market (that is, consumer expenditures for professional examinations and eyecare but *not* ophthalmic surgery and posterior segment conditions) has increased steadily since 1989.⁴⁷³ Deriving from this definition, 44.37 percent of ophthalmic market share is occupied by private optometry, 31.55 percent is occupied by optical chains or mass merchandisers, 11.15 percent is occupied by managed care or clinics, and 7.36 percent is tied up in private ophthalmology; private opticians comprise 5.57 percent of the market.⁴⁷⁴ While sudden market growth and the emergence of new competitive forces certainly contribute to ophthalmologist supply and demand, ophthalmologists continue to monopolize the surgical portion of the eyecare industry, a collection of services that will face increasing demand in the coming years.⁴⁷⁵

Contributing to this demand is the prevalence of conditions like cataracts and age-related macular degeneration, as well as diseases such as glaucoma and diabetes. Almost 22 million Americans aged 40 and older have been diagnosed with cataracts, a condition in which the eye lens becomes clouded.⁴⁷⁶ Nearly half of all Americans are expected to have cataracts by the time they reach the age of 80.⁴⁷⁷ In 2008, an estimated \$6.8 billion was spent on cataract surgical procedures.⁴⁷⁸ Additionally, more than 2 million Americans over the age of 50 have the advanced form of a condition known as **age-related macular degeneration (AMD)**.⁴⁷⁹ AMD impairs retinal function and takes predominantly two forms: “**wet**” AMD and “**dry**” AMD.⁴⁸⁰ Laser procedures are used to alleviate “*wet*” AMD, the less common but more damaging form of the disease in which tiny blood vessels form and then break under the retina.⁴⁸¹ No universally accepted treatment measure exists for “*dry*” AMD, which involves the buildup of fatty deposits under light-sensitive retinal cells.⁴⁸²

Glaucoma is a disease that gradually causes degeneration of the cells that comprise the optic nerve, resulting in cell death and eventual loss of vision.⁴⁸³ Although 2.3 million people older than the age of forty have been diagnosed with the disease in the United States, another 2 million have glaucoma and are unaware of their condition.⁴⁸⁴ Various pharmaceutical treatments, as well as laser and surgical procedures, have been used to alleviate this condition; however, any vision lost cannot be restored.⁴⁸⁵ **Diabetic retinopathy**, a common complication of diabetes, impairs 4.4 million Americans older than forty years of age.⁴⁸⁶ This condition also plagues 19 million Americans aged twenty and older, with approximately one third of these individuals unaware of their condition.⁴⁸⁷

While some conditions are more understood than others, a common cause of all of them is old age.⁴⁸⁸ Additionally, more than 2.5 million eye injuries are reported each year. Finally, the number of corneal transplants rose by 5.7 percent from 39,391 in 2007 to 41,652 in 2008.⁴⁸⁹

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

Demographic changes are contributing to the already increasing demand for nonsurgical and surgical ophthalmic procedures.⁴⁹⁰ Ophthalmologists face competition from nonphysician professionals, such as optometrists, as well as different practice types.⁴⁹¹

For example, in 44 percent of refractive surgeries, preliminary discussions and screenings are performed by optometrists rather than ophthalmic surgeons.⁴⁹² Of these patients, one third received pre-operative care from an optometrist, and 16 percent received optometric post-operative care.⁴⁹³ Nearly half of all patients that were co-managed by optometrists and ophthalmologists saw optometrists the day after their procedure, with 41 percent visiting optometrists again between two and seven days post-operation.⁴⁹⁴

ORTHOPEDIC SURGERY

DESCRIPTION AND SCOPE

SCOPE

Orthopedic surgeons, also known as orthopedists, have ample knowledge and highly developed skills in the prevention, diagnosis, management, and treatment of musculoskeletal conditions of the bones, joints, ligaments, tendons, and muscles.⁴⁹⁵ The specialty focuses on minimally invasive and invasive surgical treatment of congenital deformities, trauma, infection, tumors, and metabolic disorders that affect the spine, hands, feet, knees, hips, shoulders, and elbows.⁴⁹⁶ Orthopedic surgeons also may be concerned with secondary conditions that affect muscular and nervous system.⁴⁹⁷

EDUCATION AND TRAINING

To be accepted into an orthopedic residency program, a physician must have graduated from an accredited medical school.⁴⁹⁸ In addition, some residency programs require a year of general surgery residency, which may be included in the orthopedic residency program.⁴⁹⁹

Table 3-13: Orthopedic Surgery Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Orthopedic Surgery (ABOS)	Orthopedic Surgery	Orthopedic Sports Medicine	Cumulative proficiency in appropriate medical and surgical care of musculoskeletal system as it affects athletic activity; proficiency in the conditioning, training, fitness, and performance aspects; and proficiency in the effects of dietary supplements, pharmaceuticals, and nutrition on health and fitness as it relates to athletics
		Surgery of the Hand	Expertise in the investigation, preservation, and restoration by medical, surgical, and rehabilitative means of the hindered form and function of the hand and wrist

Orthopedic surgery residencies are required by the American Board of Orthopedic Surgery (ABOS) to be at least five years in length with at least three of the five years focused in clinical orthopedics.⁵⁰⁰ Although no board-certified subspecialties exist in orthopedics, advanced training certification is available in surgery of the hand after the completion of a training program in hand surgery.⁵⁰¹

To obtain certification in orthopedic surgery from the ABOS, specialists must complete five years of orthopedic specialty training and twenty-two months of practice experience, obtain medical licensure, and have satisfactorily completed written and oral examinations.⁵⁰²

SPECIALTIES

The ABOS offers subspecialty certification in orthopedic sports medicine and surgery of the hand.⁵⁰³ See table 3-13 for further detail regarding these subspecialty areas.

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

The number of orthopedic surgeons grew an estimated 118.1 percent from 1975 to 2008, with a slow increase from 11,379 orthopedic surgeons in 1975 to 24,822 as of 2008.⁵⁰⁴ In 2008, these specialty practitioners represented 2.6 percent of all physicians.⁵⁰⁵ This ratio represents a decrease, because orthopedic surgeons represented 3.1 percent of all physicians between 1985 and 1995.⁵⁰⁶ A significant portion (26 percent) of orthopedic surgeons fell between the ages of 45 and 54, and 34.8 percent of orthopedic surgeons were over the age of 55. Only 16.9 percent were under the age of 35.⁵⁰⁷

Less than 4.6 percent of all orthopedic surgeons were women.⁵⁰⁸ However, the number of female orthopedic surgeons has grown 2,098.3 percent since 1975, when there were only 60 women among 11,379 orthopedic surgeons.⁵⁰⁹ In 2008, there were 871 female orthopedic surgeons under the age of 44, representing 66 percent of all female orthopedic surgeons.⁵¹⁰ Alternately, there were 15 female surgeons over the age of 65, representing 1.1 percent of the female practitioners in this specialty area and less than 1 percent of orthopedic surgeons over the age of 65, of which there were 3,378.⁵¹¹ Of the 24,362 orthopedic surgeons providing patient care, 19,110 (78.4 percent) were office based and 5,752 (23.6 percent) were hospital based, with a ratio of 2.68 orthopedic interns to one hospital-employed physician staff member.⁵¹²

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABOS primary certification, plus licensure, plus one year in an accredited sports medicine program	1,250	1,041	204	41.5	20985; 21800-21899; 23500-23680
ABOS primary certification, plus licensure, plus currently practicing surgery of the hand	153	51	102	34.2	20985

SUPPLY AND DEMAND

Growth rates in this specialty area dropped from 22.6 percent from 1980 to 1985 to 11.5 percent between 1985 and 1990. From 1990 to 2007, the orthopedic surgeon population only grew by 27.9 percent.⁵¹³ However, despite this minimal growth, the orthopedic surgeon-to-population ratio has increased from 6.2 surgeons per every 100,000 people in 1980 to 7.8 in 1990 and, finally, to 8.1 in 2007.⁵¹⁴

This ratio may be deceiving, however, because orthopedic surgery and gastroenterology are two areas of medicine expected to see shortages comparable to the pending primary care physician shortage that has received so much attention.⁵¹⁵ At the time of publication, an estimated 700,000 total hip and knee replacement procedures are performed each year.⁵¹⁶ Factoring in the changing demographic, this number is expected to grow exponentially—demand is forecasted to double in the next decade.⁵¹⁷ Based on these market expectations, the annual caseload per surgeon is expected to nearly double from 2010 to 2020, growing from 51.9 cases to 90.8.⁵¹⁸ Further, this caseload will increase even more drastically by 2030, reaching 167 cases per surgeon per year.⁵¹⁹ The number of hip and knee replacements is expected to increase from an estimated 1,019,438 in 2010 to 4,418,958 in 2030.⁵²⁰

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

Competition Between Orthopedic Surgeons and Radiologists

In-office imaging has become commonplace in not only neurology and urology practices, but in orthopedic practices as well, allowing for increased efficiency, accessibility, and quality of care. In-office services, such as CT and MRI, are especially convenient for elderly and disabled patients who would otherwise face delays due to scheduling, wait times, and burdensome commutes.⁵²¹ This added dimension of competition among radiologists and other physicians has not been without controversy, however.⁵²² Opponents claim that nonradiologists who provide imaging services lack the educational training needed to properly provide such diagnostic services.⁵²³ Additionally, they believe that opening the imaging market to other specialists will have significant bearing on healthcare costs, because it will magnify the already existing overuse of imaging services.⁵²⁴ To this the American Association of Orthopedic Surgeons (AAOS) objects, stating that radiologists do not have ample training to interpret orthopedic images.⁵²⁵ Rather, orthopedic surgeons bring their knowledge of functional, anatomical, and patient-specific factors to the table.⁵²⁶ The AAOS argues further that, during the certification process, orthopedic surgeons are tested on the extensive training they receive reading advanced images.⁵²⁷

Competition Among Orthopedic Surgeons

With multiple factors driving the constant increase in healthcare costs, the organizational structure of orthopedic practices may play a significant role in success or failure. Practices that are larger in size and scope seem to be most successful; smaller practices in remote and confined geographic areas are the only exception to this observation, because negotiation with payors and providers is easier.⁵²⁸ By increasing services offered, as well as volume capacities, practices have increased their efficiency and revenue.⁵²⁹ With a growing demand for their services, expanding practices by way of mergers, sales, or acquisitions may become even more advantageous.⁵³⁰

TECHNOLOGY

In addition to larger practice sizes and increased ancillary services, practice success may be enhanced by maximizing the efficient use of technology.⁵³¹ Minimally invasive surgery is an invaluable economy of scale as long as the surgeons that invest in it have mastered the techniques it employs.⁵³² Less and minimally invasive surgery (L/MIS), which uses small incisions, has become an option in both hip and knee replacement.⁵³³ Incisions made in L/MIS are three or four inches in length, as opposed to the eight- or ten-inch incisions of traditional joint replacement surgeries.⁵³⁴ As such, L/MIS may result in improved outcomes and increased patient satisfaction.⁵³⁵ If the patient is eligible to receive L/MIS, they face reduced pain, scarring, recovery time, and risk of complication.⁵³⁶

Despite these advantages, very few orthopedic surgeons employ L/MIS and small incision techniques, because they are difficult to master and require the purchase of very expensive equipment.⁵³⁷ L/MIS reduces the surgeon's visual field, which may be crippling, especially during the initial stages of implementation.⁵³⁸ Surgeons who are beginning to use L/MIS technology, especially those who do not possess a great deal of experience repairing and replacing joints, may face increased complication rates as well as longer procedural times.⁵³⁹ In fact, procedure times may not decrease with experience, potentially resulting in increased cost and even increased rates of complication.⁵⁴⁰ Patient eligibility is contingent upon a physician's self-determined proficiency; as a consequence, some physicians will only perform L/MIS on young, fit, and healthy patients, resulting in patient eligibility rates of 17 to 20 percent.⁵⁴¹ Therefore, though new developments in small incision L/MIS may be beneficial to practice efficiency and outcomes, they require a certain level of proficiency that may be a significant investment in and of itself. Application of minimally invasive and other technologies in less challenging ways also has proven successful; implementation of new surgical tools and techniques into the practice of traditional joint replacement has the potential to reduce incision sizes as well.⁵⁴²

OTOLARYNGOLOGY

DESCRIPTION AND SCOPE

SCOPE

Otolaryngologists (head and neck surgeons) provide diagnostic, medical and surgical treatment, and management care to patients suffering from diseases and disorders of the ears, nose, throat, respiratory system, and related structures in the head and neck.⁵⁴³ Otolaryngology is the oldest medical specialty in the United States.⁵⁴⁴ Physicians in this specialty area are expected to demonstrate proficiency in

*the basic medical sciences relevant to the head and neck; the respiratory and upper alimentary systems; the communication sciences, including knowledge of audiology and speech pathology; the chemical senses and allergy, endocrinology and neurology as they relate to the head and neck; the clinical aspects of diagnosis and the medical and/or surgical therapy or prevention for diseases, neoplasms, deformities, disorders and/or injuries of the ears, the respiratory and upper alimentary systems, the face, jaw, and other head and neck systems.*⁵⁴⁵

Otolaryngologists may display particular expertise in a number of areas, the most general of which include head and neck oncology and facial plastic and reconstructive surgery.⁵⁴⁶

EDUCATION AND TRAINING

After graduating from an accredited medical school, physicians pursuing certification in otolaryngology must complete a five-year residency program in otolaryngology. Typical programs include one year of surgery, three years of otolaryngology, and one elective year.⁵⁴⁷

After completing a residency program that has been approved by the program director, candidates may apply for the certification. Certification by the American Board of Otolaryngology (ABOto) involves two examinations: a written examination that is a full day in length, and a half-day oral examination involving sixteen patient scenarios.⁵⁴⁸ Candidates may pursue subcertification by completing additional training requirements by way of a fellowship.⁵⁴⁹ Requirements for MOC involve annual submission of an MOC form and fee.⁵⁵⁰ Otolaryngologists must maintain professional standing, complete a certain number of CME modules during each ten-year MOC cycle, and maintain cognitive expertise in specific area(s) of otolaryngology (depending on their particular area of specialty).⁵⁵¹

SPECIALTIES

In addition to pursuing subcertification in neurotology, sleep medicine, pediatric otolaryngology, or plastic surgery within the face and neck, otolaryngologists may choose to focus their training on one or more of the following noncertified areas: allergy, facial plastic and reconstructive surgery, head and neck surgery (benign and malignant tumors), laryngology (voice and swallowing conditions), otology and audiology, and rhinology (nose and sinus conditions).⁵⁵² See table 3-14 for an outline and detailed description of these certified subspecialties.

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

As of 2008, there were 10,200 otolaryngologists in the United States, with 8,034 working in office-based settings (78.8 percent) and 1,974 working in hospital-based settings (19.35 percent).⁵⁵³ Interestingly, 620 of those who were hospital-based were physician staff, with the remaining being residents or fellows.⁵⁵⁴

Further, 14.6 percent were over the age of 65, and 35 percent were over the age of 55.⁵⁵⁵ The field has grown 75.9 percent since 1975, but the ratio of otolaryngologists to all physicians has been slowly decreasing, representing 1.5 percent in 1975, 1.3 percent in 1990, and 1.1 percent in 2008.⁵⁵⁶

There were 1,393 women in this specialty area, representing 13.7 percent of the otolaryngologist population. Of these women, 390 were under the age of 35 (32.3 percent of all female otolaryngologists), 153 were over the age of 55 (11 percent), and 20 were over the age of 65 (1.4 percent).⁵⁵⁷ From 1975 to 2008, the female population of otolaryngologists has grown 1,918.8 percent.⁵⁵⁸

Table 3-14: Otolaryngology Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Otolaryngology (ABOto)	Otolaryngology	Neurotology	Specialization in ear and temporal bone conditions (for example, disorders of hearing and balance)
		Pediatric Otolaryngology	Management of conditions in infants and children (for example, conditions of the aerodigestive tract; nose, and paranasal sinuses; ears; and other parts of the head and neck)
		Plastic Surgery Within the Head and Neck*	Plastic or reconstructive procedures in head, neck, face, and associated structures (for example, cutaneous head and neck oncology or reconstruction, soft tissue repair or neural surgery, managing maxillofacial trauma)
		Sleep Medicine**	Specialized knowledge of conditions that occur during sleep, disrupt sleep, or are associated with disruptions in the sleep cycle

* Reflective of statistics for plastic surgery within the head and neck as a subspecialty of plastic surgery (not available for otolaryngology).

** Reflective of statistics for sleep medicine with no specialty emphasis.

SUPPLY AND DEMAND

In 2008, the per capita ratio of otolaryngologists was 3.4 per every 100,000 people.⁵⁵⁹ This is slightly higher than was reported in 1990 (3.3 per every 100,000 people).⁵⁶⁰

Several head and neck conditions, which, if left untreated, could have severe, even fatal, consequences.⁵⁶¹ According to 2007 data, 37 million Americans had sinusitis, 26.4 million had asthma, and 8.9 million had bronchitis.⁵⁶² By the age of three, an estimated 70 percent of children have contracted an ear infection.⁵⁶³ Accounting for 6 percent of all cancer, there were 4 million documented cases of head and neck cancer in 2007.⁵⁶⁴

Though otolaryngologic conditions span the demographic spectrum, certain “geriatric otolaryngologic disorders” may be of particular concern in the coming years.⁵⁶⁵ These conditions span otologic (for example, hearing loss and balance disorders), rhinologic (for example, rhinitis, epistaxis, nasal obstruction, olfactory dysfunction, and sinusitis), oropharyngeal (for example, dysphagia, aspiration, xerostomia, burning mouth syndrome, and laryngopharyngeal reflux), and laryngeal (for example, voice disturbance, thyroid problems, and head and neck cancer) spectra.⁵⁶⁶ Of all Americans aged 65 or older, 60 percent experience hearing loss, 30 to 50 percent fall at least once (with the number increasing by 50 percent in patients over the age of 80), 10 to 30 percent experience dysphagia, and 12 percent endure vocal dysfunction.⁵⁶⁷

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABOto primary certification, plus licensure, plus seven years of practice in neurotology <i>or</i> completion of a subspecialty fellowship program	150	120	28	51.3	92502-92548
ABOto primary certification, plus fellowship training in pediatric otolaryngology	166	132	30	46.6	92502-92548
ABOto primary certification, plus licensure, plus fellowship training in plastic surgery within the head and neck	4	4	0	47.5	92502-92548; 21010-21070; 21076; 21089; 21100-21110; 21116; 21120-21299; 21310-21497; 21499; 21501-21510; 21550-21632; 21685-21750
ABOto primary certification, plus licensure, plus twelve months formal training <i>or</i> fellowship training in sleep medicine	302	164	121	44.8	92502-92548; 95803-95811; 95819-95822; 95827

HIGHLIGHTS IN THE FOUR PILLARS

REIMBURSEMENT

Implementation of image-guided navigational systems (IGS) in otolaryngology and other specialty areas has resulted in controversy surrounding the technical and professional fees for associated services.⁵⁶⁸ In light of the Centers for Medicare and Medicaid Services’s (CMS’s) concern regarding “standard of care” as it is viewed by payors, it has been suggested that IGS services will be bundled with codes for endoscopic sinus surgery when it is used with more than 50 percent of procedures.⁵⁶⁹ For more information regarding bundled codes, refer to chapter 2 in *An Era of Reform*.

TECHNOLOGY

Minimally invasive techniques and image guidance technology have become feasible options in otolaryngology.⁵⁷⁰ Unlike functional endoscopic sinus surgery, which has been the traditional procedure used to treat chronic rhinosinusitis, minimally invasive sinus techniques have been standardized for all stages of the disease, regardless of severity.⁵⁷¹ IGS have contributed tremendously to the field of rhinology, enhancing the efficiency of **endoscopic sinus surgery**.⁵⁷² However, the practical application of otolaryngological technology often precedes evidence-based literature by a number of years.⁵⁷³ Such assessments may help control implementation, because certain medical and financial repercussions, specifically reimbursement based ones, have been known to surface as a result of overuse or abuse of technological implementation.⁵⁷⁴

PLASTIC SURGERY

DESCRIPTION AND SCOPE

SCOPE

Plastic surgeons perform multiple invasive and noninvasive surgical procedures and therapies.⁵⁷⁵ They utilize a combination of fundamental medical and surgical knowledge and surgical expertise to excise, repair, replace, and reconstruct deformities and dysfunctions of the skin and underlying musculoskeletal structures.⁵⁷⁶ Plastic surgeons may also apply cosmetic or aesthetic surgical principles and procedures to improve a patient's appearance and self-image.⁵⁷⁷ Physicians in this specialty are concerned with the medical and surgical diagnosis and treatment of craniofacial structures, oral pharynx, upper and lower limbs, trunk, breasts, and external genitalia.⁵⁷⁸

Reconstructive surgeries are performed on physical abnormalities such as congenital defects, developmental deformities, and damage due to trauma, infection, and tumors.⁵⁷⁹ Reconstructive surgery may serve a dual purpose to restore function and aesthetic appearance to damaged or deformed structures of the body.⁵⁸⁰

Alternately, cosmetic surgery is concerned with the enhancement of an individual's appearance and self-esteem through fundamental medical and surgical knowledge and expertise.⁵⁸¹ The specialty combines principles from dermatology, facial plastic, general surgery, plastic surgery, otolaryngology, oculoplastic surgery, gynecological surgery, oromaxillofacial surgery, and other surgeries to obtain a higher level of skill and understanding.⁵⁸² However, unlike other surgical services, cosmetic surgery purely consists of elective procedures performed on functioning areas of the body.⁵⁸³

EDUCATION AND TRAINING

In order to enter into a plastic surgery residency program, physicians must graduate from an accredited medical school and complete a three-year general surgery residency.⁵⁸⁴ However, completion of a residency in otolaryngology or orthopedic surgery may fulfill the general surgery requirement.⁵⁸⁵

Training to become a certified plastic surgeon entails the completion of a progressive responsibility residency that is no less than three years in length.⁵⁸⁶ Rotations may be completed at several institutions and may involve training in multiple concentrations.⁵⁸⁷ Residents also may participate in advanced training in a number of fields of interest such as burn surgery, neck and oncological surgery, or cosmetic surgery.⁵⁸⁸

To be granted certification in plastic surgery by the American Board of Plastic Surgeons (ABPS), a resident must fulfill the previously stated residency requirements. Additional qualifications in plastic surgery of head and neck and surgery of the hand are available.

Interestingly, certification as a cosmetic surgeon differs significantly from ABPS certification.⁵⁸⁹ Though prior certification is a prerequisite of American Board of Cosmetic Surgery (ABCS) certification, it does not have to be through the ABPS.⁵⁹⁰ Certification by the American boards of Dermatology, General Surgery, Obstetrics and Gynecology, Ophthalmology (as long as the program completed was a fellowship approved by the American Society of Ophthalmic Plastic and Reconstructive Surgery), Otolaryngology, Plastic and Reconstructive Surgery, or Oral and Maxillofacial Surgery may all be furnished as proof of prior certification, when combined with 300 CME credits in cosmetic surgery, among other

options.⁵⁹¹ Existing areas of certification include body, breast, and extremity cosmetic surgery; dermatologic cosmetic surgery; facial cosmetic surgery; and general cosmetic surgery.⁵⁹²

Though prior certification is a prerequisite to being certified by the American Board of Cosmetic Surgery, prior certification does not have to be through the ABPS. Certification by the American boards of Dermatology, General Surgery, Obstetrics and Gynecology, Ophthalmology (as long as the program completed was a fellowship approved by the American Society of Ophthalmic Plastic and Reconstructive Surgery), Otolaryngology, Plastic and Reconstructive Surgery, or Oral and Maxillofacial Surgery may all be furnished as proof of prior certification.

"Eligibility Requirements," by the American Board of Cosmetic Surgery, 2009, www.americanboardcosmeticsurgery.org/eligibility.html (accessed October 6, 2009).

SPECIALTIES

The ABMS and the ABPS recognize two subspecialties with additional qualifications: plastic surgery within the head and neck and surgery of the hand (see table 3-15).⁵⁹³ It is important to note that cosmetic and reconstructive plastic surgery are not subspecialty areas but, instead, are types of plastic surgery procedures. Rather, these two groups of procedures are defined by the intended purposes behind the procedures performed, the characteristic market drivers for each group, and the degree to which physicians are reimbursed when performed procedures in each group.⁵⁹⁴

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

In 2008, the plastic surgeon population comprised 0.8 percent of the total physician population, a level which has been maintained since 1995 and has only increased by 0.2 percent since 1975.⁵⁹⁵ Of the 7,216 plastic surgeons documented in 2008, 2,733 were over the age of 55, with 989 over the age of 65.⁵⁹⁶ Considering physician population trends reported at the time of publication, this is fairly comparable to the 683 plastic surgeons who were under the age of 35 and the 2,331 plastic surgeons who were under the age of 44.⁵⁹⁷

Women comprised 345, or 13.1 percent of all plastic surgeons; this represents a 1,424.2 percent increase since 1975 (when there were only 62 female plastic surgeons).⁵⁹⁸ Interestingly, the population of female plastic surgeons increased 205.8 percent from 1990 to 2008.⁵⁹⁹

SUPPLY AND DEMAND

In 2007, 17 million plastic surgeries were performed, with 12.1 million of these procedures being cosmetic and 4.9 million being reconstructive. Office-based procedures in 2008 were up 13 percent from 2007, with the number of repeat patients up 7 percent.⁶⁰⁰

Of the 12.1 million cosmetic procedures performed in 2008, approximately 1.7 million were surgical, down 9 percent from 2007.⁶⁰¹ The five most common cosmetic surgical procedures were breast augmentation (355,671 procedures), liposuction (341,144 procedures), eyelid surgery (195,104 procedures), rhinoplasty (152,434 procedures), and abdominoplasty (147,392 procedures).⁶⁰² Women comprised 91 percent of the total number of patients, receiving more than 9.3 million surgical procedures, and men received 220,000 procedures.⁶⁰³ Between 2007 and 2008, the number of procedures performed

Table 3-15: Plastic Surgery Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Plastic Surgery (ABPS)	Plastic Surgery	Plastic Surgery Within the Head and Neck*	Plastic or reconstructive procedures in head, neck, face, and associated structures (for example, cutaneous head and neck oncology or reconstruction, soft tissue repair or neural surgery, managing maxillofacial trauma)
		Surgery of the Hand	Expertise in the investigation, preservation, and restoration by medical, surgical, and rehabilitative means, of the hindered form and function of the hand and wrist

* Reflective of statistics for plastic surgery within the head and neck as a subspecialty of plastic surgery (not available for otolaryngology).

on women decreased 10 percent and the number of procedures performed on men decreased 5 percent.⁶⁰⁴ This decrease in demand may be collectively attributed to the elective nature of cosmetic procedures paired with the downward economic trends observed during that year.⁶⁰⁵ Individuals aged 35–50 represented the age group that received the most procedures, with 553,000 surgical procedures.⁶⁰⁶ More than half (53 percent) of procedures were performed in an office-based setting, with 26 percent performed in a freestanding surgical center and the remaining 19 percent performed in a hospital.⁶⁰⁷ Total spending in 2008 on cosmetic surgery was estimated to be \$11.8 billion.⁶⁰⁸

More than 4.9 million people underwent reconstructive plastic surgery in 2008, representing a 3 percent increase from 2007.⁶⁰⁹ Despite the economic turmoil of 2008, there was an increase in the number of breast reconstruction procedures (39 percent), birth defect reconstruction procedures (16 percent), hand surgery procedures (13 percent), scar revision procedures (8 percent), and burn care procedures (7 percent).⁶¹⁰ However, there was a decrease in the number of breast reduction procedures performed in 2008 (16 percent).⁶¹¹ The five most common reconstructive procedures were tumor removal (3.8 million procedures), laceration repair (307,000 procedures), scar revision (163,000 procedures), hand surgery (100,000 procedures), and breast reduction (89,000 procedures).⁶¹²

Despite decreased demand for cosmetic surgery, cosmetic and plastic surgery procedure volumes are expected to increase in coming years. First, patients aged forty to fifty-four represented the largest demographic group of patients in 2007 to receive strictly cosmetic surgery, accounting for 5.5 million procedures.⁶¹³ Patients aged fifty-five and older represented the second-largest demographic subset, with 3.1 million procedures.⁶¹⁴ Based *solely* on these figures and the demographic trends that have been predicted for coming years, the global cosmetic surgery market can expect an annual growth rate of 5.2 percent, with market value reaching \$40 billion by 2013.⁶¹⁵

This anticipated recovery in cosmetic and reconstructive procedural growth may be fueled by more than just demographic indicators, however. Recent economic analyses estimate procedural volumes to exceed 55 million by 2015 due to steady increases in household median income during the past thirteen years, increased exposure to plastic surgery by way of television shows, and the inception and growth of nonsurgical cosmetic procedures (for example, Botox).⁶¹⁶

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABPS primary certification, plus licensure, plus fellowship training in plastic surgery within the head and neck	4	4	0	47.5	21010-21070; 21073; 21076-21089; 21100; 21110; 21116; 21120-21299; 21310-21497; 23395-23491
ABPS primary certification, plus licensure, plus a twelve month specialty fellowship, plus two years clinical practice of surgery of the hand	25	7	18	35.1	26100-26320; 26340-26548; 26550-26556; 26560-26596

HIGHLIGHTS IN THE FOUR PILLARS

REIMBURSEMENT

Although reconstructive surgery typically is covered by most policies, the degree of coverage and services included vary.⁶¹⁷ The ASPS has struggled in the past to address matters of Medicare coverage for reconstructive surgery procedures. Coverage of reconstructive procedures in hospital and freestanding outpatient departments declined significantly when, in 2005, CMS removed thirty-five reconstructive procedures from the list of services covered by Medicare when performed in an ASC.⁶¹⁸ Despite issues in receiving coverage, there was an increase in volume of reconstructive procedures in 2008.⁶¹⁹ These cosmetic surgery statistics paired with the steady growth of reconstructive procedural volumes suggest that the anticipated growth in demand may, in fact, be imminent. Regardless, increased popularity of consumer directed health plans (CDHP) may contribute to patients seeking these services and choosing to invest their healthcare dollars accordingly. For additional discussion of CDHP, as well as reimbursement for cosmetic and reconstructive surgery procedures, refer to chapter 2 of *An Era of Reform*.

TECHNOLOGY

One specific factor that may contribute to this projected growth is the increased availability of minimally invasive cosmetic procedures.⁶²⁰ Minimally invasive cosmetic procedures increased by 5 percent in 2008, with 10.4 million procedures performed that year.⁶²¹ Minimally invasive cosmetic procedures are classified as injectables (for example, Botox, hyaluronic acid, collagen, and so forth), facial rejuvenations (for example, chemical peel, dermabrasion, IPL laser treatment, microdermabrasion, and so forth), and other procedures (for example, injection lipolysis, laser hair removal, laser treatment of leg veins, and sclerotherapy).⁶²²

Table 3-16: Thoracic Surgery Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Thoracic Surgery (ABTS)	Thoracic Surgery	Congenital Cardiac Surgery	Surgical treatment of heart and blood vessel abnormalities

THORACIC AND CARDIOVASCULAR SURGERY

DESCRIPTION AND SCOPE

SCOPE

Thoracic surgeons are highly experienced and have developed technical skills in the prevention, diagnosis, management, and treatment of thoracic diseases and conditions of the organs and systems of the chest.⁶²³ As such, thoracic surgeons are not relegated to only the thoracic area.⁶²⁴ These surgeons care for adults and children with “congenital anomalies, malfunctions, disease, and injuries of the heart and great vessels, the tracheobronchial system and lungs, esophagus, and other mediastinal contents, diaphragm and circulatory system.”⁶²⁵

This specialty focuses on minimally invasive and invasive surgical techniques, as well as invasive and noninvasive diagnostic tests.⁶²⁶ Thoracic surgeons must have a significant knowledge of cardiorespiratory physiology, oncology, heart assist devices, respiratory support systems, and heart rhythms.⁶²⁷

EDUCATION AND TRAINING

Enrollment in a thoracic surgery residency program requires successful completion of medical school at an accredited institution, completion of a general surgery residency program, and certification in general surgery.⁶²⁸

Aspiring thoracic surgeons must complete a progressive RRC-approved residency program that is two years in length.⁶²⁹ Such programs consist of two years of clinical training in pre-operative, operative, and post-operative patient care and management.⁶³⁰ For those physicians seeking certification in congenital cardiac surgery an additional one-year residency in an ACGME-accredited congenital cardiac program is required.⁶³¹

To obtain certification in thoracic surgery, a physician also must pass the certifying examinations given by the American Board of Thoracic Surgery (ABTS).⁶³² For certification in congenital cardiac surgery, physicians also must pass certifying examinations that focus on congenital cardiac surgery.⁶³³

SPECIALTIES

The ABTS recognizes only the subspecialty of congenital cardiac surgery with certification (table 3-16).⁶³⁴ However, a physician may choose to concentrate in several areas of interest.⁶³⁵ Thoracic and cardiovascular surgeons have become extremely specialized during the past ten to twenty years.⁶³⁶ Although most practice adult cardiac and thoracic surgery, other major areas of focus include general

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABTS primary certification, plus licensure, plus a one-year congenital cardiac surgery fellowship program	2	0	2	41	75790; 33813-33814; 33675-33688; 93581; 0166T-0167T

thoracic (for example, lung and esophageal surgery), vascular, and congenital (for example, pediatric cardiac) surgery.⁶³⁷

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

There were 4,622 thoracic surgeons in 2008, representing 0.5 percent of the physician population.⁶³⁸ Of all surgeons practicing in this specialty area, 3,709 were office based (80.2 percent), and 739 were hospital based (16 percent).⁶³⁹ Of those providing hospital-based care, only 244 were residents or fellows.⁶⁴⁰

As with other specialties, a significant proportion of thoracic surgeons are facing retirement. In 2008, thoracic surgeons over the age of 55 accounted for more than 45.3 percent of the total thoracic surgeon population, with 2,094 in this age group, 918 of whom were over the age of 65.⁶⁴¹ Only 1,075 thoracic surgeons were under the age of 44, representing 23.3 percent.⁶⁴² Interestingly, the percent change in thoracic surgeons went from 2.3 percent growth in earlier half of the 1980s, to -5.5 percent growth (or 5.5 percent decline) in the latter half of that decade, to 114 percent increase from 1995 to 2000, back down to -6.7 percent growth (or 6.7 percent decline) through to 2008.⁶⁴³

In 2008, there were 202 female thoracic surgeons in the United States, 101 of whom were under the age of 44 and 37 of whom were over the age of 55.⁶⁴⁴ The number of women in this specialty area increased 4,950 percent since 1975, at which time there were only 4 female thoracic surgeons.⁶⁴⁵

SUPPLY AND DEMAND

Because half of the active workforce is over the age of fifty-five and, therefore, is facing retirement, the supply of cardiothoracic surgeons is expected to diminish significantly.⁶⁴⁶ Simultaneously, the pool of well-qualified applicants for residency training seems to be diminishing, with a significant number of unfilled residency positions in 2004, 2005, 2006, and 2007.⁶⁴⁷ In fact, only 84 of the 126 available positions available in the 2007 national match were filled.⁶⁴⁸ As such, an 18 percent decrease in the number of cardiothoracic surgeons is anticipated by 2020.⁶⁴⁹

This anticipated decline in the number of cardiothoracic surgeons is particularly striking in light of the fact that cardiovascular disease accounts for one third of all deaths in the United States. In addition, it also qualifies as the highest cause of morbidity and mortality in those aged sixty-five and older. This population base is likely to double by 2030, at which time the services of a diminishing population of thoracic surgeons will be in high demand.⁶⁵⁰

HIGHLIGHTS IN THE FOUR PILLARS

REIMBURSEMENT

Decreased enrollment in residency programs may be a consequence of several competition- and reimbursement-related factors paired with the difficulties that recent graduates have faced when finding jobs.⁶⁵¹ In addition to a declining incidence rate of coronary artery bypass grafting (CABG) (discussed in the following section), Medicare has reduced reimbursement rates for the procedure by 38 percent.⁶⁵²

COMPETITION

Decreased physician interest in this specialty area may be attributed to developments in cardiac and drug-eluting stents during the past decade.⁶⁵³ These technologies are used in procedures performed by cardiologists, as opposed to cardiac surgeons.⁶⁵⁴ From 2003 and 2004, the number of drug-eluting stent placements grew 145 percent.⁶⁵⁵ This jump, paired with the 121 percent increase in cardiac stent placements from 1997 to 2004 has resulted in a reduced number of the competing **coronary artery bypass grafting (CABG)** procedures that cardiac surgeons perform.⁶⁵⁶ Within this same seven year window, the number of CABG procedures was reduced by 28 percent.⁶⁵⁷ Despite these decreases, however, there has been a significant increase in the number of non-CABG procedures performed, namely, valve procedures (28 percent), other open heart procedures (24 percent), and lobectomies or pneumonectomies (11 percent).⁶⁵⁸ This suggests that, despite the discouraging drop in CABG procedures, reduced interest paired with a diminishing workforce will result in an insufficient supply of cardiac surgeons when per capita rates of non-CABG procedures increase 20 percent as a consequence of a growing and graying demand.⁶⁵⁹

UROLOGY

DESCRIPTION AND SCOPE

SCOPE

Urologists have highly developed skills and use advanced techniques for the prevention, diagnosis, management, and treatment of the genito-urinary system and conditions of related structures, including vasculature.⁶⁶⁰ They are proficient in the use of all diagnostic techniques including imaging, biochemical and immunological modalities, and endoscopic techniques.⁶⁶¹ The specialty also utilizes exenterative, reconstructive, microsurgical, and vascular surgical procedures.⁶⁶² Urologists care for children and adults, including men and women, with diseases including malignancies of the genitor-urinary tract, calculus diseases, neurological disorders, male sexual dysfunction, infertility, infections, congenital abnormalities, obstructive diseases, trauma, and renal transplantation.⁶⁶³

EDUCATION AND TRAINING

To enter into a urology residency program, physicians must have a degree from an accredited allopathic or osteopathic medical school.⁶⁶⁴ Additionally, after completing medical school, physicians must have completed at least two years of residency training, desirably in general surgery,⁶⁶⁵ followed by a

urological residency that lasts three years.⁶⁶⁶ Programs usually are affiliated with several hospitals which may include children's hospitals, veterans' hospitals, university hospitals, community hospitals, or more than one of these. In the first year of residency, residents are taught and trained in basic urological anatomy and concepts pertaining to the diagnosis, as well as in medical and surgical treatment of urological disorders.⁶⁶⁷ During the second year, residents learn more surgical techniques.⁶⁶⁸ In the third year, physicians become chief residents and continue to develop more sophisticated surgical techniques.⁶⁶⁹ Additionally, during the third year, residents are taught the fundamentals of the treatment and care of pediatric patients.⁶⁷⁰

As of 2010, a three-year residency is required to obtain certification in urology, however, the American Board of Urology (ABU) advocates the inclusion of a fourth year due to the increasing complexity of urologic procedures.⁶⁷¹

Advanced training fellowships are available in the areas of pediatric urology, urological oncology, infertility, neurourology, renal transplantation and vascular surgery, diagnosis and management of urinary stone disorders, urological research, and female urology.⁶⁷²

To obtain certification from the ABU, physicians must complete two years of clinical training in a specialty other than urology with one of these years focusing on general surgery.⁶⁷³ Residents also must complete the prescribed three-year residency in urology.⁶⁷⁴ In addition, surgeons must serve as chief residents during the final year of their residency.⁶⁷⁵

Successful completion of Parts I and II of the ABU qualifying boards also is required to obtain urology certification.⁶⁷⁶ Finally, physicians also must have completed and documented at least eighteen months in the practice of urology.⁶⁷⁷

SPECIALTIES

The AMBS and ABU offer subspecialty certification in pediatric urology.⁶⁷⁸ However, fellowships are available in the subspecialty areas mentioned in previous sections.

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

As of 2008, there were 10,493 urologists in the United States, with 8,656 providing services in an office-based setting and 1,598 providing services in a hospital-based setting.⁶⁷⁹ The ratio of urologists to physicians has decreased from 1.7 percent in 1975 to 1.5 percent in 1985, then to 1.4 percent in the late 1990s and reaching 1.1 percent in 2008.⁶⁸⁰ There were nearly twice as many urologists over the age of 65 (1,917, or 18.3 percent) as there were under the age of 35 (1,119, or 10.7 percent).⁶⁸¹ Urologists over the age of 55 comprised 42.2 percent of the total specialty population.⁶⁸²

Women comprised 6.21 percent all urologists, with 231 of the 652 female urologists being under the age of 35 (35.4 percent), 5 being over the age of 65 (less than 1 percent), and 51 being over the age of 55 (7.8 percent).⁶⁸³ As of 2008, there had been a 3,975 percent growth in female urologists since 1975, when only 16 urologists were women.⁶⁸⁴

SUPPLY AND DEMAND

Similar to the percentage of urologists within the physician population, the per capita ratio of urologists per 100,000 Americans has fluctuated, from 3.4 in 1980, to 3.8 in 1990, and back down to 3.5 in 2008.⁶⁸⁵

Urology has been forecasted to face an increase in demand, with 35 percent growth in procedure volumes by 2020.⁶⁸⁶ This may be attributed largely to the fact that 64.8 percent of urologic procedures are performed on individuals over the age of sixty-five.⁶⁸⁷ With 500,000 emergency room visits due to kidney stones, 26 million Americans over the age of twenty with chronic kidney disease, and prostate cancer as the leading cause of death for men aged sixty-five and older, kidney and urologic diseases have been viewed as huge drains to productivity, have consumed a great deal of physician visit time, have required extended hospitalization, and have driven up costs tremendously.⁶⁸⁸

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

Outpatient surgery has been a growing portion of the urology market, because changes in reimbursement led urologists to seek more profitable avenues by which to practice medicine.⁶⁸⁹ Urology, like other areas of outpatient surgery, has faced regulatory scrutiny, specifically raising the question of whether an increase in urinary stone surgical services can be associated with the growth in physician ownership.⁶⁹⁰ Lithotripsy centers, at which most urinary stone surgeries are performed, are exempt from prohibition of physician self-referral.⁶⁹¹ As such, physicians can refer their patients to ASCs or lithotripsy centers in which they have ownership, allowing them to receive payment for both their professional services as well as for the facility services.⁶⁹² During the past ten years, investment by urologists in ASCs has increased from 12 percent to 21 percent, and their investment in lithotripsy centers has increased from 26 percent to 54 percent.⁶⁹³ For more information on the implications of the antikickback statute's safe harbors as well as of the Stark law on ASCs, refer to chapter 3 in *An Era of Reform*.

TECHNOLOGY

Laparoscopic procedures have become the standard in removing gallbladders and kidneys, despite difficulties arising from the restricted motion associated with such procedures.⁶⁹⁴ Additionally, the use of robotic urological surgery has grown tremendously, with 80,000 robotic prostatectomy procedures performed in 2008.⁶⁹⁵ The technology is expected to continue expanding, with a robot being implemented into two new surgical programs every week.⁶⁹⁶ However, these increased volumes of robotic procedures have raised concern regarding the credentialing process required for use of the new technology in robot-assisted radical prostatectomy. To address this concern, the Society of Urologic Robotic Surgeons proposed a suggested protocol in September 2009 that involves guidelines and proctoring recommendations "to protect surgeons, proctors, institutions, and, above all, patients."⁶⁹⁷

Part III—Medical Specialty Practices

DESCRIPTION AND SCOPE

SCOPE

These remaining specialty areas comprise the portion of medicine not related to the provision of surgical care. They are characterized by services that are far more specialized than those provided by primary care physicians.

EDUCATION AND TRAINING

As with primary care and surgical specialties, each indicated medical specialty is regulated by a specialty board that sets standards for specialty and subspecialty certification. The typical prerequisites to specialty certification include completion of medical school through an ACGME-accredited program, clinical base training in general medicine for some predetermined duration, valid medical licensure, and completion of a board-approved residency program. Subspecialty certification requirements vary, but, typically, they include primary certification within the corresponding board, as well as completion of additional training through an approved fellowship.

SPECIALTIES

The specialty areas that fall within this category include allergy and immunology, anesthesiology, dermatology, emergency medicine, medical genetics, neurology, nuclear medicine, pathology, physical medicine and rehabilitation, preventive medicine, psychiatry, and radiology (review table 3-3).

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

In 2008, the total number of primary care subspecialists and physicians practicing in one of these medical specialty areas was approximately 478,935, representing 50 percent of the physician population.⁶⁹⁸ Not including the primary care subspecialties, medical specialties accounted for 42.7 percent of the total physician population in 2007, with 407,141 physicians across all specialty and subspecialty areas.⁶⁹⁹ Of these medical specialists, approximately 94.3 percent (383,951 specialists) reported their major professional activity to be patient care, with 284,450 working in an office-based setting and 98,718 working in a hospital-based setting.⁷⁰⁰

Of all medical specialists, 54,649 (13.4 percent) were over the age of 65, and 146,314 (35.9 percent) were over the age of 55.⁷⁰¹ However, the overall trend seems to suggest that enough interest exists in this subset of medicine to, at least, offset the retiring population with incoming specialty fellows (59,152, or 14.5 percent, of all medical specialists were under the age of 35, and 148,526, or 36.5 percent, were under the age of 45).⁷⁰² Approximately 56.2 percent, or 55,468, of specialists employed by hospitals were residents.⁷⁰³ As such, the 55,468 residents reported in 2008 slightly exceeded the number of physicians employed as hospital staff (43,250).⁷⁰⁴

With 90,596 female medical specialists, absent of primary care subspecialists, women comprised 22.3 percent of this physician sector in 2008.⁷⁰⁵ There were 86,163 women providing medical specialty services in patient care, with 55,859 of them being office based, 223 of them being *locum tenens*, and the remaining 30,081 being hospital based.⁷⁰⁶ More than 66 percent of these hospital-based female specialists were residents or fellows.⁷⁰⁷ Only 5,248 of all women practicing in the medical specialties were over the age of 65, which pales in comparison to the 21,181 female specialists under the age of 35 and the 45,623 female specialists under the age of 45.⁷⁰⁸

SUPPLY AND DEMAND

Of the three defined sectors of physician practice, the rate of growth during the past twenty-five years has been highest for medical specialties, followed by surgical specialties and primary care.⁷⁰⁹ Although primary care remains the largest in volume as a specialty area, it is projected to see a tremendous decline as 2025 approaches.⁷¹⁰ Projections made in consideration of market trends and forecasts suggest that, although all areas of medicine are anticipated to endure a physician shortage, the reduction in the supply of medical specialists will only account for 6.3 percent of the overall shortage while other patient care areas, surgery, and general primary care are expected to account for 23.4, 32.9, and 37.3 percent of the shortage, respectively.⁷¹¹ Despite the fact that demand for highly specialized services, particularly for the elderly, was the highest for medical specialty practitioners, demand for medical specialties does not exceed 25 percent like it does for surgical specialties, as well as for the practice of medicine as a whole.⁷¹² It is estimated that 8,000 primary care physicians would need to enter the workforce in 2010 in order to offset the ongoing deficit of physicians working in rural and poverty-stricken areas.⁷¹³

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

Despite efforts to enhance the appeal of primary care specialization, eighteen fewer primary care residency positions were filled in 2009, and eleven fewer senior residents chose this specialty.⁷¹⁴ Although statistics show that compensation for primary care specialties increased 9.9 percent from 2000 to 2004, specialty medicine saw a 15.8 percent increase in compensation.⁷¹⁵ In addition to a mean family physician income increase of 7.5 percent to \$156,000, invasive cardiologists received a 16.9 percent increase in compensation, raising their median income to \$428,000.⁷¹⁶ Further, the median compensation for hematologists and oncologists increased 35.6 percent to \$350,000, and the median income for diagnostic radiologists increased 36.2 percent to \$407,000.⁷¹⁷

With such devastating shortages in primary care, the fruitful medical specialty industry may be relied upon, along with foreign and nonphysician primary care professionals, to provide primary care services, acting as “gatekeepers” in their own right.⁷¹⁸ However, the Council on Graduate Medical Education has raised concern about entrusting specialty care physicians with these routine services and has worried that doing so would further exacerbate the already high cost of healthcare in the United States.⁷¹⁹

ALLERGY AND IMMUNOLOGY

DESCRIPTION AND SCOPE

SCOPE

Allergists and immunologists receive training in evaluating, diagnosing, and managing immune system disorders.⁷²⁰ They are specialized in caring for patients who suffer from problems with their immune systems, namely, adverse responses to otherwise nontoxic substances (for example, foods, drugs, chemicals, stings, or pollens) or allergic conditions (for example, hay fever, asthma, hives, dermatitis, and eczema).⁷²¹

EDUCATION AND TRAINING

In order to receive certification from the American Board of Allergy and Immunology (ABAI), applicants must have achieved either ABIM or ABP certification (see *Education and Training* under *Internal Medicine and Pediatrics*).⁷²² Additionally, they must complete an accredited residency program in allergy and immunology.⁷²³ After completing their residency, which must be at least twenty-four full-time months in length, candidates must demonstrate basic biological knowledge as it relates to allergy and immunology. The ABAI recognizes a list of programs that it considers highly proficient in allergy and immunology training.⁷²⁴ Candidates must document their acquired competencies according to the ABAI application protocol; this documentation, along with letters of recommendation, must be submitted with the remaining components of the certification application.⁷²⁵ Specialists also are expected to uphold four maintenance of certification (MOC) criteria: (1) professional standing, (2) self-assessment, (3) cognitive expertise, and (4) practice improvement.⁷²⁶

Dual certification programs are available in allergy and immunology and pediatric pulmonology, adult rheumatology, and pediatric rheumatology.⁷²⁷

SPECIALTIES

Subspecialty certification in allergy and immunology is not offered. However, as previously mentioned, three particular certification programs are offered for those who wish to pursue dual enrollment.⁷²⁸

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

In 2008, there were 4,259 allergists and immunologists in the United States, with 3,336 practicing in office-based settings and 483 listed as hospital-based practitioners.⁷²⁹ Of these hospital-based allergists and immunologists, 282 were residents or fellows, and 201 were physician staff.⁷³⁰ There were 1,909 allergists and immunologists over the age of 55, comprising 44.8 percent of the total specialty population.⁷³¹ By contrast, there were only 399 practitioners under the age of 35 (9.37 percent).⁷³² The average age for this specialty area was 49.3, suggesting that a large portion of the population would be facing retirement during the next twenty-five years.⁷³³

In 2008, there were 1,257 female allergists and immunologists, representing 29.5 percent of the specialty population.⁷³⁴ Of these, 597 practitioners were under the age of 45 (with 232 under the age of 35), and 309 were over the age of 55 (with 82 were over the age of 65).⁷³⁵

SUPPLY AND DEMAND

Allergists and immunologists comprised 0.4 percent of the total physician population in 2008.⁷³⁶ Despite accounting for such a small portion of the market, this specialty area saw a 148.2 percent increase from 1975 to 2008.⁷³⁷ The per capita ratio of allergists and immunologists to people went from 0.7 physicians per 100,000 people in 1975 to 1.4 physicians per 100,000 people in 2008.⁷³⁸ Further, the number of office-based allergists and immunologists per capita increased from 0.6 percent per 100,000 in 1975 to 1.1 percent per 100,000 in 2008.⁷³⁹ The number of female allergists and immunologists increased 913.7 percent from 1975 to 2008, representing 0.5 percent of the female physician population in 2007.⁷⁴⁰ Although recent trends have suggested growth in the workforce, the first four years of the new millennium saw a significant drop in the number of allergists and immunologists, from 4,356 physicians in 1999 to 4,245 physicians in 2004.⁷⁴¹ This was believed to be a consequence of lower fellowship enrollment, from 322 fellows in 1990 to 205 fellows in 1999.⁷⁴² However, what could have been a downward spiral in allergist and immunologist manpower was remedied by an immediate resurgence in fellowship enrollment at the turn of the millennia, as illustrated by an increase in the number of fellows, especially during the second half of the decade.⁷⁴³

Asthma and other allergic diseases have proven to be significant sources of morbidity and of severe economic consequence to the healthcare system.⁷⁴⁴ As such, demand for allergists and immunologists is expected to continue as pressure within the healthcare system intensifies.⁷⁴⁵

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

In 2007, more than 65 percent of allergists and immunologists reported increases in their liability insurance premiums.⁷⁴⁶ Be that as it may, changes in practice as a consequence of this issue were only reported by 10 percent of the physicians in this specialty area.⁷⁴⁷ As increases in premium rates may continue to affect the physician population, their effects on allergist and immunologist practices may need to be reevaluated.⁷⁴⁸

COMPETITION

Market competition has been influenced largely by regional factors, because there has been a recent redistribution of this specialty's workforce.⁷⁴⁹ Competition in the East and West North Central census divisions has intensified, due to a supply of allergists and immunologists that has surpassed demand.⁷⁵⁰ The supply in these regions has either remained the same or has grown, while the factors in population and prevalence have remained fairly stagnant.⁷⁵¹ Alternately, competition within the Mountain and Pacific census regions has subsided, because these regions have seen substantial population growth that has increased demand.⁷⁵² However, the supply of allergists and immunologists has not grown in a significant enough manner to meet this growing need. This trend is also seen in New England, which faced a noticeable decline in physicians specializing in this field.⁷⁵³

TECHNOLOGY

Competition within the pharmaceutical industry continues to evolve and grow, because generic drug companies have become increasingly successful.⁷⁵⁴ Additionally, drug regulation has become more stringent, narrowing the bounds of opportunity for research and development.⁷⁵⁵ In light of these recent trends, focus has begun shifting away from “primary care products” and high-risk cardiovascular markets toward developments in “specialty drugs,” prescribed by physicians in immunology, oncology, and neurology.⁷⁵⁶ In fact, drugs of this genre comprised 45 percent of pharmaceutical sales in 2006, as compared with 2001 when they only comprised 39 percent.⁷⁵⁷

In addition to developments in pharmaceuticals, developments in multiphoton microscopy have enabled immunologists to observe infection as it takes form, allowing researchers and physicians to observe pathogenic behavior outside the confinement of a Petri dish.⁷⁵⁸ Multiphoton microscopy allows for viewing of cellular activity deep within living tissue.⁷⁵⁹ This is especially advantageous for immunologists, because the cellular constituents of the immune system are not stagnant; rather, they “roam throughout the body’s landscapes interacting with pathogens and surrounding cells.”⁷⁶⁰ Additionally, this allows physicians and researchers to pursue knowledge about things they may not understand or may be unaware of, because “[t]he beauty of the multiphoton is that you don’t have to know what it is you’re looking for ahead of time. It just shows itself.”⁷⁶¹

ANESTHESIOLOGY

DESCRIPTION AND SCOPE

SCOPE

Anesthesiologists are trained in pain relief and management and must demonstrate the ability to restore the stability of patients who have just undergone surgical, obstetric, or diagnostic procedures.⁷⁶² It is an anesthesiologist’s responsibility to evaluate a patient’s risk prior to surgery and to manage the patient’s condition through to the surgery’s completion. Additionally, anesthesiologists diagnose and treat cancer pain problems, critical illnesses, and severe injuries. Also, they are trained in cardiac and respiratory emergency resuscitation by way of artificial ventilation. Finally, they are responsible for managing post-anesthesia recovery.⁷⁶³

EDUCATION AND TRAINING

In order to qualify for primary certification through the American Board of Anesthesiology (ABA), physicians pursuing specialization in anesthesiology must complete an anesthesiology residency program.⁷⁶⁴ In order to qualify for a program, medical school graduates from allopathic- or osteopathic-accredited programs must complete either an accredited transitional or specialty training program.⁷⁶⁵ These clinical base programs are a year in duration and cover a broad scope of medical and surgical services.⁷⁶⁶ Residents then enroll in a three-year clinical anesthesia program.⁷⁶⁷ Annual reports must be submitted by the training director following the first and second year of the program,⁷⁶⁸ and the last six months of enrollment are subject to continual assessment of resident mastery of clinical anesthesia; resident ratings are documented in the form of a certificate of clinical competence and are required for pursuing

Table 3-17: Anesthesiology Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Anesthesiology (ABA)	Anesthesiology	Critical Care Medicine	Expertise in the care of critically ill or injured patients
		Hospice and Palliative Medicine	Specialization in the prevention and relief of suffering for patients in hospice or palliative care; involves working within an interdisciplinary team
		Pain Medicine	Specialization in treating a broad scope of painful disorders; involves working within an interdisciplinary team

certification.⁷⁶⁹ After submitting the necessary prerequisite documentation, candidates must pass the ABA certifying examinations.⁷⁷⁰

Certain competencies must be achieved through completion of an ABA residency program, including proficiency in obstetric, pediatric, and cardiothoracic anesthesia; neuroanesthesia; and anesthesia for outpatient surgery, recovery room care, regional anesthesia, and pain medicine.⁷⁷¹

SPECIALTIES

Anesthesiologists may subspecialize in critical care medicine, hospice and palliative medicine, or pain medicine; see table 3-17 for more details.⁷⁷²

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

There were 42,230 anesthesiologists in 2008, with 31,389 working as office-based practitioners (74.33 percent) and 9,767 working as hospital-based (23.1 percent) practitioners.⁷⁷³ Of these hospital-based anesthesiologists, 4,954 were residents or fellows, with the remaining 4,813 employed as physician staff.⁷⁷⁴ There were 5,972 anesthesiologists under the age of 35, as compared with 3,667 over the age of 65.⁷⁷⁵ However, with 12,022 anesthesiologists over the age of 55, more than a quarter the specialty population will be facing retirement during the next ten to fifteen years.⁷⁷⁶

Women comprised 23.4 percent of all anesthesiologists (9,881 female anesthesiologists) in 2008, with 2,083 physicians under the age of 35 and 635 aged 65 or older.⁷⁷⁷

SUPPLY AND DEMAND

Anesthesiologists comprised 4.4 percent of the physician population in 2008, a 228.4 percent growth since 1975.⁷⁷⁸ Although a significant increase in anesthesiologists per capita was seen over the entire specialty population (7.1 to 14 anesthesiologists per 100,000 from 1980 to 2008), equally significant is the increase in office-based anesthesiologists per capita, from 5 per 100,000 people in 1980 to 10.4 per 100,000 in 2008.⁷⁷⁹ Despite continued growth during the past thirty-five years, a significant number of

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABA primary certification, plus licensure, plus twelve months of accredited fellowship training in subspecialty area	494	318	162	43.3	00100-01996; 99100-99140; 991433-99150; 99291-99292; 99366-99368
ABA primary certification, plus licensure, plus twelve months of accredited fellowship training in subspecialty area	6	3	2	56.3	00100-01996; 99100-99140; 991433-99150; 99374-99380
ABA primary certification, plus licensure, plus twelve months of accredited fellowship training in subspecialty area	1,413	1,274	134	43.1	00100-01996; 991433-99150; 99366-99368

anesthesiologists are aged 55 or older.⁷⁸⁰ Additionally, the number of female anesthesiologists increased 426.8 percent, with only 1,819 female anesthesiologists in 1975, as compared with 9,881 in 2008.⁷⁸¹

In light of recent trends in demand, a significant shortage in anesthesiologist supply exists.⁷⁸² From 1990 to 2002, there was a 13 percent increase in demand for anesthesia services, and imminent demographic shifts (that is, the result of a graying population) are expected to accelerate this growth in demand.⁷⁸³ Surgical volumes are estimated to increase 14 percent from 2003 to 2010 and 47 percent from 2003 to 2020.⁷⁸⁴ Also, pain management services face a growing demand from cancer patients.⁷⁸⁵ Approximately 30 to 50 percent of patients enduring active treatment experience cancer pain, as do 70 to 90 percent of those with advanced stages of disease.⁷⁸⁶

Be that as it may, 59 percent of U.S. hospitals reported that they were recruiting anesthesiologists in 2002, with 57 percent reporting that they had been doing so for more than six months.⁷⁸⁷ The number of residents pursuing training in anesthesiology appears to be decreasing, with 14.1 percent of practicing anesthesiologists aged 34 or under and 28.5 percent over the age of 55.⁷⁸⁸

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

The demand for nurse anesthetists may be surpassing the demand for anesthesiologists.⁷⁸⁹ These mid-level providers were among the top fifteen most recruited medical professionals in the latter half of 2005, and they can perform many of the tasks performed by anesthesiologists.⁷⁹⁰ Though they are the highest-paid nonphysician practitioners, with a median compensation of \$131,400, they are paid significantly less than anesthesiologists, who have a median annual compensation of \$359,699.⁷⁹¹ Although these financial and performance incentives may be indicators of heightened competition, the “symbiotic relationship” characteristic between these two healthcare professions may be necessary in the face of imminent demand.⁷⁹² A majority of the 20 percent of Certified Registered Nurse Anesthetists (CRNAs) who practice on their own provide care in rural settings in which a scarcity of anesthesiologists exists.⁷⁹³ The remaining 80 percent work alongside anesthesiologists, and they are projected to continue doing so as demand increases.⁷⁹⁴

Despite any measure of need, anesthesiologists have become increasingly protective of their revenue stream and scope of services, specifically due to reduced anesthesiologist compensation rates paired with increased use of CRNAs in hospitals and surgical facilities.⁷⁹⁵ Recent Medicare requirements permitting states to “opt out” of CRNA physician supervision requirements further heated the controversy surrounding this intraprofessional competitive dimension.⁷⁹⁶ In fact, animosity has surpassed intense debate, with trade organizations and associations, for example, the California Society of Anesthesiologists and the California Medical Association, filing suit in state supreme courts against state governors who take advantage of the new Medicare rule.⁷⁹⁷ For more information regarding growth in nonphysician practitioner autonomy and the emerging trend in “opting out” of physician supervision, see chapter 4, *Mid-Level Provider Practices*.

TECHNOLOGY

Pharmacological and therapeutic developments in anesthesiology span services in pain management, endocrinology, hematology, intravenous fluid therapy, and surgery.⁷⁹⁸ Discovery of “the spinal gate control theory for pain” in the 1960s promulgated advances in blocking nociceptor transmission and has shown promise in targeting the spinal cord for managing chronic pain.⁷⁹⁹ Additionally, trends suggest increased use of rapidly biotransforming pharmaceuticals within anesthesiology.⁸⁰⁰ Anesthesiology differs from other specialty areas in that the nature of the work relies upon immediate onset, continued and sensitive control, and extremely quick offset of employed pharmaceuticals.⁸⁰¹ As such, pharmaceuticals, termed “soft drugs,” that are “metabolically fragile and thus rapidly eliminated” allow anesthesiologists to control drug concentrations as necessary.⁸⁰² Additionally, drugs that reverse the effects of neuromuscular blockades, like Sugammadex, are utilized to enhance the capabilities in drug manipulation.⁸⁰³

DERMATOLOGY

DESCRIPTION AND SCOPE

SCOPE

Dermatologists diagnose and treat patients with skin, mouth, external genitalia, hair, and nail disorders and diseases (for example, skin cancer, melanoma, moles, and other tumors of the skin).⁸⁰⁴ They are also proficient in the management of allergic and nonallergic skin conditions (for example, dermatitis) and in the diagnosis of systemic and infectious diseases by way of dermal symptoms.⁸⁰⁵ Dermatologists receive training in dermatopathology, the ability to monitor and diagnose skin diseases, and dermatological surgery procedures.⁸⁰⁶ Finally, they provide services related to dermal cosmetic disorders (for example, hair loss and age-induced scars).⁸⁰⁷

EDUCATION AND TRAINING

Requirements for certification by the American Board of Dermatology (ABD) include graduation from an accredited allopathic or osteopathic medical school or from an approved Canadian or foreign institution.⁸⁰⁸ Additionally, candidates must possess valid licensure and remain in good standing with the ABD.⁸⁰⁹ Finally, they must complete a total of four years of residency training.⁸¹⁰ The first year of residency must involve clinical training through an accredited, yearlong transitional program or specialty

program in emergency medicine, family medicine, general surgery, internal medicine, obstetrics and gynecology, or pediatrics.⁸¹¹

For the subsequent three years, residents must enroll in an accredited dermatology residency program.⁸¹² Within their application for certification, they must document completion of all these prerequisites in the manner mandated by the ABD. Upon review, the board will evaluate applications for completion and approve the candidates for certifying examination.⁸¹³

SPECIALTIES

Dermatologists may seek subspecialty certification in dermatopathology or pediatric dermatology; see table 3-18 for descriptions and more information about these subspecialty areas.⁸¹⁴

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

There were 11,034 dermatologists in the United States in 2008, with 9,066 office-based practitioners and 1,709 hospital-based dermatologists.⁸¹⁵ Of these hospital-based dermatologists, 1,182 were residents and fellows; the other 527 were hospital-staffed physicians.⁸¹⁶ There were 1,388 dermatologists over the age of 65, representing 12.6 percent of the specialty population.⁸¹⁷ Dermatologists over the age of 55 comprised 35.3 percent of the specialty population, those under the age of 35 comprised 15.7 percent, and those under the age of 45 represented 39.7 percent of the specialty population.⁸¹⁸

There were 4,588 female dermatologists in 2008, representing 41.6 percent of the total specialty population.⁸¹⁹ Of these women, 1,123 were under the age of 35, while only 149 were over the age of 65.⁸²⁰

SUPPLY AND DEMAND

The number of dermatologists per capita increased from 2.5 per 100,000 people in 1980 to 3.7 per 100,000 people in 2008 (office-based practitioners increased from 1.9 to 3 per 100,000 people).⁸²¹ Overall, the dermatologist population grew by 136.7 percent between 1975 and 2008, representing the same proportion of the physician population in 2008 (1.2 percent) that it did in 1975.⁸²² Demand for dermatology services has increased due to growing prevalence of skin disease both as a consequence of and in addition to the aging demographic.⁸²³ Although medical students have shown ample interest in pursuing dermatology during their residency training, there has been inadequate expansion of training positions to meet both student and patient demand.⁸²⁴ Patient wait times to see dermatologists can exceed one month.⁸²⁵

HIGHLIGHTS IN THE FOUR PILLARS

REIMBURSEMENT

Many insurance carriers place a cap on the amount of money that they will spend on prescription drugs per enrollee each year. In 2002, 73 percent of Medicare Choice plans had annual caps of \$1,000 or less, and 46 percent of plans had caps of \$750 or less. Many private insurance plans also have similar annual caps on prescription drugs. Such low allotments of money for drugs may limit access to medications patients need. In a 2005 study by Arun P. Venkat et al. in the *Journal of the American Academy*

Table 3-18: Dermatology Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Dermatology (ABD)	Dermatology	Dermatopathology*	Specialization in monitoring infectious, immunologic, degenerative, neoplastic, and other diseases of the skin
		Pediatric Dermatology	Expertise in skin diseases that are predominant in infants, children, and adolescents

* Reflective of statistics for dermatopathology as a subspecialty of pathology (not available for dermatology).

of *Dermatology*, the effect of prescription drug caps on psoriasis treatment by providers like Kaiser-Permanente, Aetna, United Healthcare, CIGNA, and AFLAC was analyzed.⁸²⁶ They discovered that low annual caps (\$1,000–\$15,000) affected the type of drug that could be prescribed and length of use, meaning some individuals were restricted to the cheapest medication or could not finish treatment.⁸²⁷ Additionally, some patients could not be on any other medication because they reached their annual cap with the psoriasis medication alone.⁸²⁸

COMPETITION

Dermatologists are fighting to maintain access to patients and patient loyalty. Several studies from the early 1990s reported lower utilization of dermatologists for the treatment of skin problems due to the emergence of managed care.⁸²⁹ At that time, primary care physicians served as dermatologists' largest competitor; for example, primary care physicians began performing punch biopsies, a procedure, at the time, primarily done by dermatologists.⁸³⁰ Permitted access to specialists has now increased, resulting in growth in patient demand, but the lagging shortage of dermatologists has not seen a consequential turn-around from this change in demand.⁸³¹ The result has been increased volumes of nonphysician practitioners working in dermatology practices.⁸³²

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
Licensure, plus (ABD <i>and</i> American Board of Pathology primary certification) <i>or</i> (ABD primary certification, plus one year of accredited fellowship training in dermatopathology)	545	383	118	45.6	10040-10180; 1100-11012; 11040-11044; 11055-11057; 11100-11101; 11200-11201; 11300-11313; 11400-11446; 11450-11471; 11600-11646; 11719-11765; 11770-11772; 11900-11901; 11920-11971; 96900-96999; 97597-97606
ABD primary certification, plus licensure, plus a one-year accredited fellowship program in pediatric dermatology	7	1	0	29.1	10040-10180; 1100-11012; 11040-11044; 11055-11057; 11100-11101; 11200-11201; 11300-11313; 11400-11446; 11450-11471; 11600-11646; 11719-11765; 11770-11772; 11900-11901; 11920-11971; 96900-96999; 97597-97606

The percent of dermatologists who employ physician assistants or nurse practitioners has increased from 21 percent in 2002 to 30 percent in 2007.⁸³³ Additionally, nonphysicians have begun opening dermatology-like practices and working in retail settings to provide services that cater to fourteen of the twenty-nine skin conditions on which dermatologists focus.⁸³⁴ The number of members reported by the Society for Dermatology Physician Assistants (SDPA) grew from fifteen in 1994 to 1200 in 2006.⁸³⁵ Additionally, at the time of publication, the SDPA estimates that 2,200 dermatology physician assistants are actively practicing.⁸³⁶ As such, utilization of nonphysician clinicians by dermatologists to combat unmet demand may be relieving the pressure that the industry shortage places, but it has opened the competitive floodgates that may keep their patient volumes low.⁸³⁷

TECHNOLOGY

Several technological breakthroughs have affected dermatology practices.⁸³⁸ Discoveries in biologics allow psoriasis patients to visit the office on a less frequent basis and to manage their symptoms with only one or two injections per week.⁸³⁹ The biologic techniques actually treat symptoms better than traditional remedies, and they have freed up physicians to see more patients each week.⁸⁴⁰ Advancements in laser technology now make hair and scar removal very precise, and digital photography minimizes mistakes once made by taking a biopsy or operating on the incorrect spot.⁸⁴¹ Finally, dermatologists now offer cosmetic procedures once found only in plastic surgeons' offices, allowing patients to have all their skin-care needs met in one location.⁸⁴²

Table 3-19: Emergency Medicine Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Emergency Medicine (ABEM)	Emergency Medicine	Hospice and Palliative Medicine	Specialization in the prevention and relief of suffering for patients in hospice or palliative care; involves working within an interdisciplinary team
		Medical Toxicology	Specialization in preventing, recognizing, assessing, treating, and monitoring conditions caused by exposure to drugs, chemicals, and other toxins
		Pediatric Emergency Medicine	Special focus on managing emergencies involving infants and children program
		Sports Medicine	Expertise in continuous enhancement of health and fitness alongside prevention and management of sports related injuries and illnesses; focused on improving healthcare of active individuals
		Undersea and Hyperbaric Medicine	Specialization in managing cases of decompression illness and diving accidents; utilizes hyperbaric oxygen therapy to treat carbon monoxide poisoning, gas gangrene, nonhealing wounds, tissue damage from radiation or burns, and bone infections

EMERGENCY MEDICINE

DESCRIPTION AND SCOPE

SCOPE

Emergency physicians are experienced in immediately and accurately recognizing, evaluating, treating, and stabilizing victims of acute illness or injury.⁸⁴³ They are proficient in quick decision making and action because they are relied upon to prevent and increased disability in both pre-hospital and emergency room settings.⁸⁴⁴

EDUCATION AND TRAINING

Candidates must have graduated from an accredited medical school in order to enroll in an emergency medicine residency or from one of the four combined training programs that have been approved by their associated boards.⁸⁴⁵ Emergency medicine residency programs must be accredited and must last for a minimum duration of thirty-six months.⁸⁴⁶ The approved combined specialty programs and their respective durations and licensing boards are:

1. Emergency Medicine/Internal Medicine Combined Training Program: American Board of Emergency Medicine (ABEM) and ABIM (five years)
2. Emergency Medicine/Internal Medicine/Critical Care Medicine Training Program: ABEM and ABIM (six years)
3. Emergency Medicine/Pediatrics Combined Training Program: ABEM and ABP (five years)

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABEM primary certification, plus licensure, plus 800 hours of practice involvement or certification by the American Board of Hospice and Palliative Medicine (non-American Board of Medical Specialties board)	1	1	0	55	99281-99288; 99366-99368; 99374-99380
ABEM primary certification, plus licensure, plus completion of an accredited fellowship program in medical toxicology	87	30	49	38.6	99281-99288; 80100-80103
ABEM primary certification, plus licensure, plus completion of a pediatric emergency medicine fellowship program	128	53	70	38.6	99281-99288
ABEM primary certification, plus licensure, plus completion of a sports medicine fellowship program	17	12	4	48.5	99281-99288
ABEM primary certification, plus licensure, plus (fellowship training through an accredited undersea and hyperbaric medicine residency program) <i>or</i> (completion of basic undersea and hyperbaric medicine <i>and</i> two years of experience during which 25 percent of work was in undersea and hyperbaric medicine)	4	1	3	39	15002-15005; 15040; 15050-15261; 15300-15366; 15570-15750; 15760-15770; 16000-16036; 99183; 99281-99288

4. Emergency Medicine/Family Medicine Combined Training Program: ABEM and American Board of Family Medicine (five years)

Upon completion, assuming possession of valid licensure, physicians may apply for certification through ABEM.⁸⁴⁷ Candidates whose applications are approved may proceed to take the qualifying examination.⁸⁴⁸ Those who pass proceed to take the oral certification examination; physicians who pass the oral examination become diplomates of ABEM.⁸⁴⁹

SPECIALTIES

Physicians may choose to pursue subspecialty certificates in emergency medicine, which include hospice and palliative medicine, medical toxicology, pediatric emergency medicine, sports medicine, and undersea and hyperbaric medicine. Details about these subspecialty areas are included in table 3-19.

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

There were 31,722 emergency medicine physicians in 2008, with 19,965 of them working as office-based physicians and 10,607 employed as hospital-based physicians (4,405 residents and 6,202 staff members).⁸⁵⁰ Of all emergency physicians, 21.1 percent were under the age of 35, 49.7 percent were under the age of 44, 26.2 percent were over the age of 55, and 4.9 percent were over the age of 65.⁸⁵¹ There were 7,619 female emergency doctors in 2008, representing 24 percent of the specialty population. Of these women, 2,532 were under the age of 35 (33.2 percent of female emergency doctors), 997 were over the age of 55 (13.1 percent), and 160 were over the age of 65 (2.1 percent).⁸⁵²

SUPPLY AND DEMAND

The per capita ratio of emergency physicians increased from 2.5 per 100,000 people in 1980 to 10.5 per 100,000 people in 2008 (with office-based emergency physicians increasing from 1.5 per 100,000 to 6.6 per 100,000).⁸⁵³ This demonstrates that the population of emergency physicians grew significantly, from 5,699 physicians in 1980 to 31,722 physicians in 2008.⁸⁵⁴ The number of women in this specialty area grew as well, from none in 1980 to 1,348 in 1985 and then to 7,619 in 2008.⁸⁵⁵

Emergency department crowding is a serious issue in the changing healthcare system because it suggests a lag in supply and inefficient delivery of medical care.⁸⁵⁶ During the past ten years, emergency departments have endured a 25 percent annual increase in utilization.⁸⁵⁷ This growth in demand may be a consequence of inadequate access to primary care paired with increases in nonurgent cases being taken to the emergency room.⁸⁵⁸ Emergency department overcrowding may be adverse in more ways than simply longer wait times, because waiting and boarding are two times during which “disease can rapidly evolve and go unnoticed, exposing patients to preventable adverse events.”⁸⁵⁹

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

Despite the growth in the number of emergency medicine residency programs, the number of practicing physicians is not effectively meeting the growth in patient demand; in fact, supply is expected to continue to fall short for the next thirty years.⁸⁶⁰ As a consequence, there has been an increase in use of emergency department nurse practitioners and physician assistants.⁸⁶¹ These mid-level providers reportedly are accepted by patients,⁸⁶² and they have been reported to provide quality care, alleviating the volume-induced pressure placed on emergency departments and allowing for improved patient satisfaction and shorter wait times.⁸⁶³ Additionally, these mid-level providers are providing similar primary care services to emergency physicians at far lower costs, allowing emergency physicians to focus on more complex cases.⁸⁶⁴

Despite the quality and financial benefits these practitioners may provide, their qualifications, unlike emergency physicians, are not tightly regulated to ensure proficiency in the services that are being demanded.⁸⁶⁵ Nurse practitioners and physician assistants employed in emergency departments are only trained to supplement physicians, and their training is not specific to emergency care.⁸⁶⁶

MEDICAL GENETICS

DESCRIPTION AND SCOPE

SCOPE

Medical geneticists provide diagnostic and therapeutic care to patients suffering from genetically linked diseases and disorders.⁸⁶⁷ These specialists implement cytogenetic, radiological, and biochemical testing methods to help with genetic counseling, therapies, and prevention by way of prenatal diagnosis.⁸⁶⁸

Specialists in this area often coordinate and execute screening programs to detect metabolic errors, hemoglobinopathies, chromosomal defects, and neural tube defects.⁸⁶⁹

EDUCATION AND TRAINING

Pursuit of general certification as a medical doctor through the American Board of Medical Geneticists (ABMG) requires completion of medical school through an accredited program as well as an accredited residency program that is at least twenty-four months in length and focuses on internal medicine, pediatrics, obstetrics and gynecology, or other medical specialty areas.⁸⁷⁰ As of 2010, medical geneticist candidates may enter one of four residency programs in accordance with the general specialty certification they wish to pursue (clinical genetics, clinical biochemical genetics, clinical cytogenetics, and clinical molecular genetics); however, the duration and content of residency programs in each specialty area is different (see the following section, *Specialties*).⁸⁷¹

In addition to residency training of medical genetics, physicians pursuing primary certification by the ABMG may enroll in four- to five-year residency training programs that combine medical genetics with internal medicine, obstetrics and gynecology, or pediatrics.⁸⁷² Additionally, physicians who have already achieved primary certification through the ABMG may pursue subspecialty certification, which requires one to two years of extra training.⁸⁷³ These subspecialty areas are also addressed in the following section, *Specialties*.

After physicians complete the residency program of their choosing, assuming valid licensure and submission of training verification documents by the program director, they may submit their application for certification.⁸⁷⁴ Should they be granted active candidate status, they proceed to take a two-part certification examination; the first part is general to medical genetics, and the second is specific to the area on which they chose to focus.⁸⁷⁵

SPECIALTIES

Of the four subspecialty areas in medical genetics, only *one* is limited to physicians: clinical genetics.⁸⁷⁶ Physicians and doctoral candidates of genetics or a related field within the biological sciences may participate in the other three areas:⁸⁷⁷ clinical biochemical genetics, clinical cytogenetics, and clinical molecular genetics.⁸⁷⁸ See table 3-20 for more information.

The two subspecialty areas of medical genetics are medical biochemical genetics and molecular genetic pathology.⁸⁷⁹ See table 3-20 for educational requirements.

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

In 2008, there were 570 medical geneticists reported, 244 of whom were office-based specialists (42.8 percent) and 185 of whom were hospital-based specialists (32.5 percent).⁸⁸⁰ Additionally, 70 medical geneticists were under the age of 35 (12.3 percent), 216 were under the age of 45 (37.9 percent), 201 were over the age of 55 (35.3 percent), and 65 were over the age of 65 (11.4 percent).⁸⁸¹

Women comprised 48.2 percent of medical geneticists, representing 275 of the 570 total physicians in this specialty.⁸⁸² The distribution of women in this specialty was skewed slightly toward younger physicians, with 125 younger than the age of 45, as compared with the 79 women who were over 55 years of age and the 17 women who were over the age of 65.⁸⁸³

Table 3-20: Medical Genetics Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Medical Genetics (ACGME)	Clinical Biochemical Genetics		Specialization in biochemical analyses for diagnosis and management of human genetic diseases or inherited disorders
	Clinical Cytogenetics		Specialization in diagnoses requiring laboratory skills and interpretive services in a clinical setting, most specifically dealing with chromosomal maladies (for example, inherited disorders and cancers)
	Clinical Genetics		Expertise in the provision of comprehensive care (for example diagnosis, management, and counseling) to those at risk of genetic disorders
	Clinical Molecular Genetics		Proficiency in the use of molecular analyses in the diagnosis and management of genetic diseases and disorders
		Molecular Genetic Pathology	Superior expertise in theoretical and applied molecular biology and genetics. Manage Mendelian genetic disorders, infectious diseases, and malignancies, simultaneously establishing a knowledge base for these emerging diseases and disorders by way of diagnostic research
		Medical Biochemical Genetics	Specialization in diagnosing and managing metabolic inborn errors; provision of direct care and consultative care

SUPPLY AND DEMAND

Statistical data for this newly emerging medical specialty only dates back to 1985; however, the data that is available sufficiently demonstrates that physician volumes have increased.⁸⁸⁴ In fact, from 1995 to 2008, physician volumes increased from 179 to 570.⁸⁸⁵ Additionally, the number of female medical geneticists increased from 75 in 1995 to 275 in 2008.⁸⁸⁶ Total geneticist and female geneticist populations each represent 0.1 percent of the total physician and female physician populations, respectively.⁸⁸⁷

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

At the time of publication, clinical geneticists have served a dual role: in the scientific and technical development of this medical specialty area and “as experts on Mendelian disorders, dysmorphology, chromosomal disorders, inherited metabolic diseases, and perhaps the genetic aspects of diseases, such as breast and ovarian cancer, that are caused by high-penetrance susceptibility genes.”⁸⁸⁸ However, as technology in medical genetics expands, the capabilities of *genomic medicine* (“the use of industrialized methods of data acquisition and analysis to improve medical care, including prognostics, diagnostics, preventive intervention, therapeutic selection, and individualized treatment based on the complex interaction between inherited and acquired elements of human variation”) expands as well.⁸⁸⁹ As the capabilities afforded by genetic and genomic knowledge expand through the research of medical geneticists, the question of who will provide services becomes apparent.

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
M.D. or Ph.D.	13	5	2	53.5	96040
M.D. or Ph.D.	9	5	2	53.1	96040
Two years at an ACGME-accredited residency program (any specialty), plus licensure, plus a two-year clinical genetics residency accredited by the American Board of Medical Genetics (ABMG)	114	56	33	56.9	96040
M.D. or Ph.D.	10	1	0	49.2	96040
American Board of Pathology <i>or</i> ABMG primary certification, plus one year of accredited training in molecular genetic pathology	30	5	24	38.8	80500-80502; 88230-88299; 87900-87999; 88245; 88261-88283; 96040
ABMG primary certification, plus licensure, plus one year of subspecialty fellowship training, plus a logbook of 150 cases <i>or</i> ABMS primary certification + licensure + 1 year subspecialty fellowship training, plus a logbook of 150 cases, plus additional education requirements	–	–	–	–	96040

Although the potential benefits can be seen across all specialty areas, trends seem to suggest that primary care practitioners will need to assume a greater role in prevention and early detection.⁸⁹⁰ If this expectation materializes, primary care physicians would most benefit from genomic tools and techniques in predicting, preventing, and personalizing medical care.⁸⁹¹

Although medical geneticists traditionally are viewed as providers of care to those with genetic, genetically influenced, or genetically transmitted disorders (for example, sporadic or inherited genetic disorders), it may be argued that their scope of practice needs to be broadened to include genomic medical services.⁸⁹² Specifically, by adjusting the residency training requirements placed on those specializing in medical genetics, they would come to provide, in addition to services for genetic disorders, more comprehensive medical care to a larger population, involving preventive intervention, individualized treatment, prospective medicine, or personalized medicine and medicines (also known as pharmacogenetics).⁸⁹³

TECHNOLOGY

Medical genetics is continually influenced by advances in biochemistry, genetics, genomics, proteomics, metabolomics, and pharmacogenetics, especially in the availability of testing procedures.⁸⁹⁴ For more information about developments in these areas, see chapter 5 of *An Era of Reform*.

NEUROLOGY

DESCRIPTION AND SCOPE

SCOPE

Neurologists receive specialty training in diagnosing and treating conditions of the brain, spinal cord, peripheral nerves, muscles, autonomic nervous system, and blood vessels (as they relate to other neurological structures).⁸⁹⁵ Diagnosis and management, as they relate to this “cerebral specialty,” rely heavily on clinical interaction without abandoning certain inherent biological rules and laboratory skills.⁸⁹⁶ Again, the scope of service remains within the bounds of the central and peripheral nervous systems, which include the autonomic nervous system and skeletal muscle conditions.⁸⁹⁷

Child neurologists also receive primary certification but possess additional skills in diagnosing and managing neurologic conditions in infants, young children, and adolescents.⁸⁹⁸

EDUCATION AND TRAINING

In order to complete the residency training requirements necessary to qualify for certification examination, graduates from accredited medical programs who wish to specialize in neurology must follow one of two residency tracks.⁸⁹⁹ One track involves the completion of a clinical base year in general medicine and enrollment into a three-year, accredited neurology residency program. The alternate track involves a four-year neurology residency program that has been accredited and approved by ACGME.⁹⁰⁰

Those who wish to specialize in child neurology have three options with regard to residency training.⁹⁰¹ Prior to entering their three-year neurology residency program, physicians pursuing child neurology may choose to complete (1) two years of training in general pediatrics through an accredited residency program, (2) one year of training through a general pediatrics residency program followed by a year of research in basic neurosciences, or (3) one year of training in general pediatrics and one year of training in internal medicine.⁹⁰²

Subspecialty training requires an additional year of specialized training. Refer to the following section, *Specialties*, for details about subspecialty options.⁹⁰³

After graduating, acquiring licensure, and completing the required residency training (as documented by the training director), physicians may apply to sit for the certification examination.⁹⁰⁴ If they meet all the prerequisite criteria and pass the examination, they receive certification in their area of focus from the American Board of Psychiatry and Neurology (ABPN).⁹⁰⁵

SPECIALTIES

Two specialty areas exist in which physicians can choose to pursue general certification: neurology and child neurology.⁹⁰⁶ Additionally, physicians may pursue seven subspecialty areas after achieving preliminary certification, each of which require an additional year of training: clinical neurophysiology, hospice and palliative medicine, neurodevelopmental disabilities, neuromuscular medicine, pain medicine, sleep medicine, and vascular neurology.⁹⁰⁷ See table 3-21 for more information.

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

As of 2008, there were 15,212 practicing neurologists in the United States; 10,386 were office-based physicians (68.3 percent), and 3,523 (23.2 percent) were hospital-based physicians.⁹⁰⁸ Of these neurologists, 2,070 were under the age of 35, 5,462 were under 45, 5,393 were over the age of 55, and 1,701 were over the age of 65.⁹⁰⁹ Women comprised 27.2 percent of all neurologists, with a total of 4,144 female neurologists, 954 of whom under the age of 35 (23 percent of all female neurologists), 2,174 under the age of 45 (52.5 percent), and 787 over the age of 55 (19 percent).⁹¹⁰ Only 158 female neurologists were over the age of 65, suggesting, with the rest of the age distribution, that there has been continued growth in the number of women in neurology.⁹¹¹

SUPPLY AND DEMAND

The per capita ratio of neurologists to every 100,000 people increased from 2.5 in 1980 to 5 in 2008; additionally, the per capita ratio of office-based neurologists per 100,000 people increased from 1.4 to 3.4 in the same respective years.⁹¹² From 1975 to 2008, the number of neurologists increased 268.2 percent, and neurologists went from representing 1 percent of the physician population to 1.6 percent.⁹¹³ Additionally, the supply of female neurologists increased 1,115.2 percent during this period of time and went from representing 1 percent of female physicians to 1.5 percent.⁹¹⁴

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

Trends in reimbursement suggest preference toward specialty, surgical, and procedural services; advocates for such services have seemed to dominate the Relative Value Update Committee (RUC), which decides the relative value units (RVUs) for the Medicare physician fee schedule (MPFS).⁹¹⁵ This has contributed to increased procedural volumes and failed attempts control costs.⁹¹⁶ Further, evaluation and management services are reimbursed insufficiently, so these services are promoted sparsely and scarcely sought out.⁹¹⁷

A clear delineation exists between neurological and neurosurgical practices, with the former providing evaluative and management services and the latter heavily focusing on procedural care.⁹¹⁸ In fact, in 2007, the American Academy of Neurosurgery (AAN) led a coalition of specialties in opposition of the MPFS as it stood, encouraging the CMS to increase financial incentive for evaluation and management services by raising RVUs for corresponding codes.⁹¹⁹

Additionally, the AAN is collaborating with the AMA, the RUC, and the ACP to amend the medical home concept to emphasize the role of *principal* care physicians alongside *primary* care physicians.⁹²⁰ Although for many Americans, primary care encompasses the larger portion of their medical care, patients suffering from chronic diseases rely more heavily upon the care of their specialist, who is their principal care provider.⁹²¹ For instance, patients suffering from complex and chronic neurologic conditions, such as multiple sclerosis, amyotrophic lateral sclerosis, and Parkinsonism, may have stronger relationships with their neurologists than their primary care providers, and they may even rely on their neurologists for primary care services.⁹²² As such, the AAN and other advocates believe that implementation of the medical home should emphasize the importance of principal care as well as primary care.⁹²³ See chapter 2, *Medical Home Model*, for in-depth discussion of the medical home concept.

Table 3-21: Neurology Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Psychiatry and Neurology (ABPN)	Neurology or Child Neurology	Clinical Neurophysiology	Expertise in the use of clinical evaluation and electrophysiologic testing in diagnosing and managing neurological disorders
		Hospice and Palliative Medicine*	Specialization in the prevention and relief of suffering for patients in hospice or palliative care; involves working within an interdisciplinary team
		Neurodevelopmental Disabilities	Specialization in the diagnosis and management of chronic conditions of the developing and mature nervous system (for example, cerebral palsy, mental retardation, chronic behavioral syndromes, and neurologic conditions)
		Neuromuscular Medicine	Specialization in the diagnosis and management of nervous, muscular, or neuromuscular conditions (for example, amyotrophic lateral sclerosis; peripheral neuropathies; muscular dystrophy; congenital, acquired, or inflammatory myopathy; and neuromuscular transmission disorders)
		Pain Medicine	Specialization in treating a broad scope of painful disorders; involves working within an interdisciplinary team
		Sleep Medicine	Specialized knowledge of conditions that occur during sleep, disrupt sleep, or are associated with disruptions in the sleep cycle**
		Vascular Neurology	Expertise in vascular diseases of the nervous system (for example treating vascular events as a result of ischemic stroke, intracranial hemorrhage, spinal cord ischemia, and spinal cord hemorrhage)

* Reflective of statistics for hospice and palliative medicine as a subspecialty of psychiatry and neurology.

** Reflective of statistics for sleep medicine as a subspecialty of psychiatry and neurology.

TECHNOLOGY

In recent years, significant and ongoing growth in pharmacotherapies and technological capabilities has expanded the treatment options available to many physicians, surgeons, and specialists, particularly neurologists.⁹²⁴ As discussed in chapter 5 of *An Era of Reform*, developments in advanced imaging technology have had a tremendous affect on diagnostic medicine, especially areas of medicine like neurology, in which evaluation and management are emphasized and diagnostic methodologies to “identify the anatomical focus of dysfunction” are central to practice.⁹²⁵

Therapies and scientific discoveries also have surfaced recently that may aid in the detection, management, treatment, and delayed onset of Parkinson’s disease, multiple sclerosis, and dementia.⁹²⁶ A 2007 clinical trial demonstrated that 334 patients treated for multiple sclerosis with alemtuzumab were 75 percent less likely to relapse and at a 65 percent less risk of progression of clinical disability than patients treated with interferon beta-1a.⁹²⁷ Additionally, new technologies have enhanced neurologists’ capabilities in pain management, treatment of sleep disorders, and migraine treatment.⁹²⁸ For example, recent research has found that low, medium, and high doses of clonidine increased pain tolerance by 16, 24, and 47 percent, respectively.⁹²⁹

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	747	535	195	39.8	95812-95830; 95921-95923; 95925-95937; 95950-95962; 95965-95967; 95970-95982; 95992-95999; 96000-96004; 96020
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	1	0	0	59	95812-95830; 99366-99368; 99374-99380
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	14	3	11	38	95812-95830; 96110-96111
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	24	5	19	35.9	95812-95830; 95831-95857; 95831-95857; 95860-95920; 95925-95937
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	2	1	0	43	62362-62351; 62360-62362; 99601-99602; 62350-62351; 62360-62362; 96360-96361; 96365-96371; 99601-99602; 99366-99368
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	5	5	0	54.8	94774; 95803-95811; 95819-95822; 95827
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	47	12	34	36.1	15750

Concern has been raised in recent years due to the increased involvement of pharmaceutical companies in neurologic education and close-knit relationships between neurologists and pharmaceutical representatives.⁹³⁰ Although neurologists profit by being aware of the options afforded to them as a consequence technological developments, they also must be cognizant of the fact that the pharmaceutical industry has an agenda apart from patient care and will most likely present its products in a way that appeals to its customers.⁹³¹ Regulators have been concerned with the potential overuse and abuse of pharmaceuticals, as well as diagnostic imaging services, and have considered adopting disincentives for direct-to-consumer marketing and capping medication prices.⁹³² As such, the AAN is pursuing more evidence-based research opportunities to inform neurologists and provide them with a guide to choosing the most appropriate therapy options.⁹³³

NUCLEAR MEDICINE

DESCRIPTION AND SCOPE

SCOPE

Nuclear medicine embodies the practice of molecular imaging. This new area of technology allows physicians to evaluate molecular, metabolic, physiologic, and pathologic conditions, diseases, and disorders through utilization of tracers (for example, radiopharmaceuticals).⁹³⁴ Once tracers are targeted, physicians interpret images according to the functional and structural information they provide.⁹³⁵

Most specifically, nuclear medicine allows for early detection, diagnosis, and treatment due to its ability to identify changes in function, usually unnoticeable, that precede the structural changes that typically indicate abnormalities long after they form.⁹³⁶ Further, nuclear medicine typically involves the joint use of anatomical and molecular imaging, as with the use of positron emission technology-computed tomography (PET-CT) (see chapter 5 of *An Era of Reform*).⁹³⁷ Most frequent applications of nuclear medicine include coronary artery disease as well as cancer diagnosis, staging, follow-up after treatment, and pain relief (for example, for cancers that have spread to the bone).⁹³⁸

The complexity of this specialty area requires ample knowledge of physical and clinical sciences, namely physiologic and anatomic imaging techniques (for example, through the use of radioactive tracers), statistical literacy for the proper analysis of data, and a firm grasp of biology, biochemistry, anatomy, and physiology.⁹³⁹

EDUCATION AND TRAINING

In preparation for enrollment in a nuclear medicine training program, accredited-medical school graduates must complete one or more years of clinic-based residency training as approved by ACGME (or the AOA and select Canadian boards).⁹⁴⁰ As of July 2007, nuclear medicine residency programs last three, rather than the previous length of two, years.⁹⁴¹ Upon completion of residency training, applications may be submitted and must include an evaluation of resident training from the program director.⁹⁴² Upon receiving the necessary information, the American Board of Nuclear Medicine (ABNM) makes the final decision regarding the sufficiency of the reported training requirements. At this time, candidates may proceed to sit for the certification examination.⁹⁴³

SPECIALTIES

There are no subspecialty areas in nuclear medicine.

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTIONS

As of 2008, 1,474 physicians were practicing nuclear medicine.⁹⁴⁴ Office-based nuclear medicine physicians represented 60.6 percent of the specialty population, and the remaining 427 physicians practiced in the hospital setting.⁹⁴⁵ There were 109 physicians in this specialty who were under the age of 35 (7.4 percent), 396 under the age of 45, 727 over the age of 55 (49.3 percent), and 308 over the age of

65 (20.9 percent).⁹⁴⁶ Women represented 21.6 percent of physicians practicing nuclear medicine, 10.4 percent of whom were under the age of 35 (33 physicians), 36.8 of whom were under the age of 45 (117 physicians), 37.7 percent of whom were over the age of 55 (120 physicians), and 10.1 percent of whom were over the age of 65 (32 physicians).⁹⁴⁷

SUPPLY AND DEMAND

After a decline in the number of practitioners between 1985 and 1990, an increase in number has been seen, with a net percent change of 10 from 1990 to 2008.⁹⁴⁸ Physicians practicing nuclear medicine comprise 0.2 of the physician population, with women in the field representing 0.1 percent of female physicians.⁹⁴⁹ The number of women in nuclear medicine increased 72.8 percent from 1990 to 2008.⁹⁵⁰

In 2005, approximately 19.7 million nuclear medicine procedures were performed over the course of 17.2 million patient visits, which represents a 15 percent increase from 14.9 million patient visits performed in 2002.⁹⁵¹ These services were provided in more than 7,200 hospital and nonhospital locations.⁹⁵² Other than PET scans, cardiovascular services are major drivers of nuclear medicine utilization.⁹⁵³ The proportion of non-PET nuclear medicine procedures performed for cardiovascular purposes increased from 35 percent in 1992 to 57 percent in 2005.⁹⁵⁴

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

Competition Among Imaging Modalities

Nuclear medicine, CT, and MRI are classified as advanced imaging; the services provided by these complex (and more costly) imaging modalities have endured accelerated growth rates as compared with the other three imaging modalities (ultrasound, standard imaging, and other procedures that use imaging).⁹⁵⁵ Spending on advanced imaging services grew an average 17 percent annually from 2000 to 2006, which is nearly double the increase in spending for less sophisticated imaging techniques.⁹⁵⁶ Consequently, advanced imaging spending comprised 54 percent of total imaging expenditures in 2006, up from 43 percent in 2000.⁹⁵⁷ The most commonly billed nuclear imaging service in 2006, 3D heart imaging, was billed for a fee of \$548, second only to the most commonly billed MRI service, brain scanning (\$1,118).⁹⁵⁸

Competition Between Hospital and Nonhospital Sites

Recent trends suggest a marked difference in utilization of nuclear medical procedures between hospital and nonhospital sites, because hospital sites are more inclined to provide services related to tumor localization, radionuclide therapy, and bone scans.⁹⁵⁹

Nuclear Medicine Technologists

As a consequence of the growing demand for nuclear medicine services, nuclear medicine technologists have broadened the scope of the services they provide.⁹⁶⁰ These paraprofessionals receive highly specialized training in the computerized technology used for diagnosis in nuclear medicine.⁹⁶¹ They are employed by hospitals, universities, clinics, and research institutes to work with doctors, physicists, computer experts, nurses, and patients.⁹⁶² As of 2007, there were more than 21,000 certified nuclear medicine

technologists in the United States, and this number is only expected to continue growing as demand increases.⁹⁶³

TECHNOLOGY

A major driver of the increased use of nuclear medicine may be developments in “fusion imaging” (for example, development and integration of PET-CT and single photon emission computed tomography (SPECT-CT) technology into nuclear medicine practice, see chapter 4 of *An Era of Reform*).⁹⁶⁴ In 2005, more than 90 percent of the imaging units installed were PET-CT scanners; 60 percent of PET and PET-CT scanners were installed in nonhospital locations, and the remaining 40 percent were installed in hospitals.⁹⁶⁵ SPECT-CT technology in nuclear medicine has become increasingly prominent, with an average 1.8 nuclear imaging cameras installed per site in 2005, with two thirds of unit installations being targeted at replacement units rather than first-time installations.⁹⁶⁶ Additionally, the available technology has enabled nuclear medicine practices to expand their scope of service to include cardiology and radiology procedures (for example, imaging typical of catheterization labs, CT and MRI, echocardiographs, and ultrasound).⁹⁶⁷

PATHOLOGY

DESCRIPTION AND SCOPE

SCOPE

Pathologists possess knowledge of disease form and functionality; their biologic, chemical, and physical science training allows them to apply expertise to the diagnosis, management, and treatment of disease.⁹⁶⁸ These specialists can be divided into two categories: anatomic and clinical. Anatomic pathology deals with tissues, cells, and other microscopic specimens to procure diagnostic information. Clinical pathology focuses on laboratory test diagnosis.⁹⁶⁹ Both specialties require independent board certification, but most practicing physicians are licensed by both.⁹⁷⁰ In addition, pathologists are trained in many different subspecialties. As a general rule, any medical specialty has a corresponding pathology subspecialty.

Pathologists, like other traditionally hospital-based physicians, such as anesthesiologists and radiologists, are dependent on other physicians for referrals and in many respects work to support the physician caring for the patient rather than the patient themselves. Because of this relationship, both pathologists and radiologists have been called the “physician’s physician.”⁹⁷¹

Pathologists work in laboratories within hospitals, freestanding laboratories, outpatient clinics, surgery centers, and other locations.⁹⁷²

Laboratory testing generally is categorized as either clinical testing, which is performed on bodily fluids including blood and urine, or anatomical pathology testing, which is performed on tissue. These services may be organized into the following subsections listed in table 3-22.⁹⁷³

Table 3-22: Pathology Services

Term	Brief Definition
Anatomic pathology	Processing of tissue removed during surgery or autopsy for both gross and microscopic examination (for example, a liver biopsy may be performed and sent to a pathologist to determine if abnormalities exist within the tissue). The difference between anatomic pathology and cytology, see subsequent definition, is that anatomic pathology involves assessment of tissue samples and cytology involves assessment of samples at the cellular level. Therefore, cytology specimens can be derived from sources other than tissue, such as pleural fluid, ascites, and so forth.
Cytology	Processing various specimens (body fluids, smears, and so forth) for microscopic examination to check for abnormalities in cell structure such as malignant cells (for example, a PAP smear).
Histology	The science concerned with the minute structure of cells, tissues, and organs in relation to their function. This term typically is used to refer to the process of cutting and staining tissue specimens for microscopic examination by a pathologist and is sometimes used interchangeably with cytology or anatomic pathology (see previous definitions).
Chemistry	Analysis of serum and other body fluids for a variety of biochemical constituents, such as electrolytes, glucose, protein, enzymes, hormones, and drug levels. One of the largest areas of the laboratory.
Serology/immunology	Testing of various body fluids for detection of antigens or antibodies. Common tests look for signs of rubella, hepatitis, and HIV infection.
Hematology	Analysis of the cellular elements of blood, such as the number, type, and morphology of red cells, white cells, and platelets. One of the largest areas of the laboratory.
Blood bank	Stores and distributes blood and blood components. Activities include identification of blood type and Rh factor and cross-matching (for example compatibility testing necessary for transplantation). Responsibilities also may include donor recruitment and procurement of the actual blood supply.
Microbiology	Processing of specimens for the isolation and identification of the microorganisms that cause infection (for example, bacteria, fungi, and parasites).
Microscopy	Analysis of body fluids, especially urine and to a lesser extent joint fluid, semen, and spinal fluid.
Nuclear medicine	Use of radioisotopes to test patient serum for various biochemical constituents. Sometimes combined with the chemistry subsection of the laboratory.

EDUCATION AND TRAINING

After completing medical school at an accredited institution, physicians pursuing certification in pathology may choose to complete three years of residency in *either* anatomical *or* clinical pathology, or they may complete a four-year combined program for both.⁹⁷⁴ Completion of the desired residency program and proof of licensure qualifies individuals for primary certification through the American Board of Pathology.⁹⁷⁵ Those pursuing subspecialty certification must complete additional training depending on their area of interest; combined specialty or subspecialty programs also are available.⁹⁷⁶ Subspecialty educational requirements are denoted in table 3-23.⁹⁷⁷

SPECIALTIES

Subspecialties of pathology include blood banking and transfusion medicine, chemical pathology, cytopathology, dermatopathology, forensic pathology, hematology, medical microbiology, molecular genetic pathology, neuropathology, and pediatric pathology.⁹⁷⁸ Combined certification programs also are available. For more about subspecialty certification options, see table 3-23.

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

As of 2008, there were 19,125 pathologists, with 10,738 practicing in office-based settings and 5,743 practicing in hospital-based settings.⁹⁷⁹ A significant number of pathologists were facing retirement, with

Table 3-23: Pathology Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Pathology (ABP)	Anatomical and Clinical Pathology	Blood Banking or Transfusion Medicine	Specialization in ensuring an ample supply of blood, the safety of both patients and donors, and the appropriate use of blood for transfusion; directs use of red blood cells, white blood cells, platelets or plasma constituents, marrow, and other blood constituents
		Cytopathology	Also called "anatomic pathology," involves disease diagnosis through the study of cells (obtained from body secretions and fluids)
		Dermatopathology*	Expertise in diagnosing and monitoring skin diseases (for example, infectious, immunologic, degenerative, and neoplastic)
		Pathology—Chemical	Expertise in human biochemistry and its application in the cause and course of disease; consults on disease diagnosis
		Pathology—Forensic	Involves the investigation and evaluation of sudden, unexpected, and suspicious death. Typically serve as coroners or medical examiners.
		Pathology—Hematology	Expertise in conditions that affect blood cells, clotting mechanisms, the bone marrow, and lymph nodes. Expertise in the diagnosis of various disorders, including anemia, leukemia, lymphoma, bleeding disorders, and blood clotting disorders.
		Pathology—Medical Microbiology	Training in the isolation and identification of microbial specimens responsible for causing infectious disease

CHAPTER 3: PHYSICIAN PRACTICES

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
[(ABP Primary certification in clinical, (anatomical, or both) pathology, plus subspecialty certificate hematology) or (ABP subspecialty certification), plus licensure, plus a one-year accredited fellowship training program in blood banking or transfusion medicine] or [primary certification through another accredited board, plus licensure, plus a two-year accredited fellowship training program in blood banking or transfusion medicine]	495	240	106	52.7	80500-80502; 85002-86079; 86805-86808; 86850- 86999
ABP primary certification in clinical (alone or with anatomical) pathology, plus licensure, plus a one-year accredited fellowship training program in cytopathology	712	500	184	43.9	80500-80502; 81000-81099; 88104-88155; 88160-88162; 88164-88167; 88172-88175; 88182-88199; 88314; 88319; 88333-88334; 89055; 89190; 88235; 88237; 88240; 88241; 88248-88249; 88285-88291
ABP primary certification, plus American Board of Dermatology primary certification, plus licensure, plus one year of fellowship training in dermatopathology	545	383	118	45.6	10040-10180; 1100-11012; 11040-11044; 11055-11057; 11100-11101; 11200-11201; 11300-11313; 11400-11446; 11450-11471; 11600-11646; 11719-11765; 11770-11772; 11900-11901; 11920-11971; 96900-96999; 97597-97606; 80500-80502
[ABP Primary certification in clinical (alone or with anatomical) pathology, plus licensure, plus a one-year accredited fellowship training program in chemical pathology] or [primary certification through another accredited board, plus licensure, plus a two-year accredited fellowship training program in chemical pathology]	28	10	3	58.7	88318-88319; 88342; 88346; 88360; 88371; 89105
ABP primary certification in clinical (alone or with anatomical) pathology, plus licensure, plus a one-year accredited fellowship training program in forensic pathology	657	378	80	52.6	80500-80502; 88000-88099
[ABP primary certification in clinical (alone or with anatomical) pathology, plus licensure, plus a one-year accredited fellowship training program in hematology] or [primary certification through another accredited board, plus licensure, plus a two-year accredited fellowship training program in hematology]	588	367	189	43.8	86805-86808; 80500-80502; 86812-86849
[(ABP primary certification in clinical (alone or with anatomical) pathology) or (primary certification through another accredited board, plus subspecialty certification in infectious disease), plus licensure, plus a one-year accredited fellowship training program in medical microbiology] or [primary certification through another accredited board, plus licensure, plus a two-year accredited fellowship training program in medical microbiology]	63	24	18	53.4	87001-87118; 87140-87158; 87164-87255; 87260-87300; 87301-877451; 87470-87801; 88312; 86602-86698; 86701-86703; 86704-86804; 87802-87899

(continued)

Table 3-23: Pathology Subspecialty Certification (*continued*)

Certifying Board	Specialty	Subspecialties	Description
American Board of Pathology (ABP) <i>(continued)</i>		Pathology—Molecular Genetic	Provides consult by conveying information about genetic structure and employing laboratory techniques for the diagnosis of genetic disorders
		Pathology—Pediatric	Possess ample knowledge of pathology, as well as growth and development, in order to diagnose diseases in fetal growth, infancy, and development
		Neuropathology	Specialization in the diagnosis of degenerative, infectious, metabolic, immunologic, neoplastic, vascular, or physical conditions that affect the nervous and neuromuscular systems

* Reflective of statistics for dermatopathology as a subspecialty of pathology (not available for dermatology).

7,963 practitioners in this specialty over the age of 55 and 3,395 over the age of 65.⁹⁸⁰ Pathologists under the age of 35 represented 11.4 percent of the specialty population; this implies that the specialty will suffer tremendously with the anticipated retirement of 41.6 percent of its population aged 55 and older.⁹⁸¹

Women comprised 36 percent of all pathologists in 2008, with 664 over the age of 65 as compared with 1,171 under the age of 35.⁹⁸² Although a significant proportion of female pathologists are over the age of 55 (29.2 percent), their retirement will be offset by the increasing number of women in this specialty area, a trend that does not mimic the overall trend seen for this specialty.⁹⁸³

SUPPLY AND DEMAND

The number of pathologists per capita increased from 6 per 100,000 people in 1980 to 6.6 per 100,000 people in 2008.⁹⁸⁴ Simultaneously, the per capita ratio of office-based pathologists increased from 2.7 per 100,000 to 3.7 per 100,000.⁹⁸⁵ The specialty grew by 63.2 percent from 11,720 physicians in 1975 to 19,125 physicians in 2008.⁹⁸⁶ However, pathology went from representing 3 percent of all physicians in 1975 to representing 2.6 percent in 1990 and then decreased again to represent only 2 percent of all physicians in 2008.⁹⁸⁷

Additionally, although the number of female pathologists increased by 310.8 percent from 1975 to 2008, women in this field represented only 2.5 percent of all female physicians, down from 4.7 percent in 1975.⁹⁸⁸

Recent data has shown that the most popular pathology fellowship was surgical pathology, with 26 percent of fellows requesting such programs as their first option.⁹⁸⁹ Surgical pathology was followed by cytopathology (16 percent), hematopathology (15 percent), gastrointestinal pathology (10 percent), dermatopathology (8 percent), and forensic pathology (5 percent).⁹⁹⁰ Fellows most frequently identified greater marketability and greater expertise as reasons for choosing a particular specialty area.⁹⁹¹

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
American Board of Medical Geneticists primary certification or ABP primary certification, plus licensure, plus at least 25 percent full-time experience in the practice of molecular genetic pathology during a two-year period of time	30	5	24	36.8	80500-80502; 88230-88299; 87900-87999; 88245; 88261-88283
ABP primary certification in anatomic or clinical pathology, plus one year of fellowship training in pediatric pathology	126	71	45	48.7	80500-80502
(ABP primary certification in both anatomic and clinical pathology or anatomic pathology, plus licensure, plus two years of fellowship training in neuropathology) or (ABP primary certification in clinical pathology or through another accredited board, plus 1 year fellowship training in anatomic pathology, plus 2 year fellowship training in neuropathology)	357	166	80	54.5	80500-80502

HIGHLIGHTS IN THE FOUR PILLARS

TECHNOLOGY

In an effort to comply with accreditation policies for continuous monitoring and benchmarking of pathology laboratories, the College of American Pathologists developed Q-Tracks, a methodology that evolved into a complex program that employs twelve continuous monitors for the monitoring and performance tracking of defined important indicators and influential variables.⁹⁹² These monitors are standardized to merge seamlessly with previous versions of the program.⁹⁹³ The program package allows those who implement it to track performance and progress during a twelve-month period.⁹⁹⁴ Quarterly performance reports are issued to further assist users in tracking progress, providing them with information about the knowledge and policies that contributed to the improvement of other participants.⁹⁹⁵ For more information regarding quality measurements and benchmarking, see chapter 2 of *Consulting with Professional Practices*.

Developments in toxicogenomics (that is, use of genomic techniques to evaluate pharmaceutical, chemical, or environmental substances and their potential toxicities), most specifically differential gene expression (DGE), may be pivotal to the technological advance of the field of pathology.⁹⁹⁶ In fact, DGE already is used in histology and clinical chemistry to assist with toxicity assessments.⁹⁹⁷ Evaluation of mRNA data is characteristic of molecular pathology and is the essence of many toxicogenomic speculations.⁹⁹⁸ Pathologists possess a broad scope of knowledge in anatomy, physiology, biochemistry, immunity, and other drivers of toxicology.⁹⁹⁹ As the scope of this specialty area's expertise broadens to include genomic application, toxicogenomics may prove to be extremely beneficial in investigative pathology.¹⁰⁰⁰

Table 3-24: Physical Medicine and Rehabilitation Subspecialties Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Physical Medicine and Rehabilitation	Physical Medicine and Rehabilitation (PM&R)	Hospice and Palliative Medicine*	Specialization in the prevention and relief of suffering for patients in hospice or palliative care; involves working within an interdisciplinary team
		Neuromuscular Medicine	Expert knowledge in clinical evaluation and management of neuromuscular disorders through ample understanding of pathology, diagnosis, and treatment of associated disorders (for example, motor neuron disease, myopathy, peripheral neuropathy, inherited neuropathy, polyneuropathy, systemic disease)
		Pain Medicine	Specialization in treating a broad scope of painful disorders; involves working within an interdisciplinary team
		Pediatric Rehabilitation Medicine	Specialization in care of patients with childhood-onset physical conditions (for example, physical, functional, psychosocial, and vocational)
		Spinal Cord Injury Medicine	Provides care to patients suffering from traumatic and non-traumatic spinal cord injuries
		Sports Medicine	Expertise in continuous enhancement of health and fitness alongside prevention and management of sports related injuries and illnesses; focused on improving healthcare of active individuals

* Reflective of statistics for hospice and palliative medicine with no specialty emphasis.

PHYSICAL MEDICINE AND REHABILITATION

DESCRIPTION AND SCOPE

SCOPE

Physiatry, also referred to as rehabilitation medicine, involves the evaluation, diagnosis, and treatment of patients with health conditions of the musculoskeletal system.¹⁰⁰¹ More specifically, physiatrists care for patients suffering from cognitive impairments, painful or limiting disorders, and the co-impairments of diagnostic or therapeutic injection procedures. They also specialize in electrodiagnostics and preventing onset of disabilities due to secondary conditions.¹⁰⁰²

EDUCATION AND TRAINING

Educational requirements for certification by the American Board of Physical Medicine and Rehabilitation (ABPMR) include completion of medical school through an accredited program; completion of a one-year, accredited program that either qualifies as a transitional program or training in family medicine, internal medicine, emergency medicine, surgery, pediatrics, or obstetrics and gynecology; and completion of a three-year accredited program in physical medicine and rehabilitation.¹⁰⁰³

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
Certification in PM&R, plus one year of subspecialty training	6	3	2	56.3	97001-97006; 97032-97039; 97750-97799; 99366-99368; 99374-99380
Certification in PM&R, plus one year of subspecialty training	24	5	19	35.9	95831-95857; 95831-95857; 95860-95920; 95925-95937; 97001-97006; 97032-97039; 97750-97799
Certification in PM&R, plus one year of subspecialty training	6	2	3	42.3	62362-62351; 62360-62362; 99601-99602; 62350-62351; 62360-62362; 99601-99602; 97001-97006; 97032-97039; 97750-97799; 99366-99368
Certification in PM&R, plus one year of subspecialty training	19	1	17	31.8	97001-97006; 97032-97039; 97750-97799
Certification in PM&R, plus one year of subspecialty training	66	43	21	42.2	95971-95973; 97001-97006; 97032-97039; 97750-97799
Certification in PM&R, plus one year of subspecialty training	18	14	4	44.8	97001-97006; 97032-97039; 97750-97799

Subspecialty certification requires an extra year of training focused in the subspecialty area of choice.¹⁰⁰⁴

SPECIALTIES

The ABPMR offers subspecialty certification in hospice and palliative medicine, neuromuscular medicine, pain medicine, pediatric rehabilitation medicine, spinal cord injury medicine, and sports medicine; details about these subspecialty areas may be found in table 3-24.¹⁰⁰⁵

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

There were 8,533 physiatrists reported in 2008, which included 6,080 office-based physiatrists and 2,072 hospital-based patient care providers.¹⁰⁰⁶ Of the reported population, 1,334 practitioners in this specialty (15.6 percent) were under the age of 35, with 3,717 (43.6 percent) under the age of 45.¹⁰⁰⁷ Also, there were 2,055 physiatrists over the age of 55, representing 24.1 percent of the specialty population.¹⁰⁰⁸

Women represented 33.7 percent of the physiatrist population, with a total of 2,876 female physicians practicing in physical medicine and rehabilitation reported.¹⁰⁰⁹ Of these women, 533 were under the age of 35, representing 18.5 percent of all female physiatrists.¹⁰¹⁰ Additionally, the number of women under the age of 45 represented 48.3 percent of all female physiatrists, with only 21.9 percent over the age of 55 and 5.7 percent over the age of 65.¹⁰¹¹ This suggests a growing trend in the number of female physiatrists in recent years, which essentially offsets, and could potentially outpace, the aging female physiatrist population.¹⁰¹²

SUPPLY AND DEMAND

The number of physiatrists per capita increased from 1 per every 100,000 people in 1980 to 2.8 per every 100,000 people in 2008.¹⁰¹³ At the same time, the per capita ratio of office-based physiatrists per 100,000 people went from 0.4 in 1980 to 2 in 2008.¹⁰¹⁴ A 412.8 percent change in the physiatrist population was seen from 1980 to 2008, with 8,533 physiatrists reported in 2008 as compared with 1,664 in 1975.¹⁰¹⁵ Physiatrists went from representing 0.4 percent of all physicians in 1975 to representing 0.7 percent in 1990 and finally to 0.9 percent in 2008.¹⁰¹⁶

In this same time period, the population of female physiatrists grew by 793.2 percent; however, women still represent nearly the same proportion of all female physicians that they did in 1975, only increasing from 0.9 to 1 percent.¹⁰¹⁷ Although this ratio increased to 1.2 percent in the 1990s, it returned to 1 percent after 1995.¹⁰¹⁸

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

Funding for research in physical medicine and rehabilitation has been limited, with National Institutes of Health funding in 2006 totaling \$27,440,096, particularly when compared with internal medicine (\$2,645,504,471), anesthesiology (\$136,094,434), and family medicine (\$54,250,863).¹⁰¹⁹ As such, proponents of growth in rehabilitation research believe that inadequate focus has been placed on disability research and the various societal, environmental, and physiological factors that affect disability.¹⁰²⁰ The Foundation for Physical Medicine and Rehabilitation recently funded a white paper proposing the development of a physical medicine and rehabilitation research program.¹⁰²¹ They believe that, although great strides have been made with the resources afforded to this specialty area, “only a handful of departments or centers have the research personnel, equipment, space, and support staff that constitute a strong infrastructure for medical rehabilitation research.”¹⁰²²

COMPETITION

Rehabilitation treatment programs are often termed “interdisciplinary” for their use of many types of medical providers with levels of education and training ranging from physician specialists to paraprofessional staff. Specific providers commonly employed in rehabilitation include physiatrists, surgeons, rehabilitation nurses, physical therapists, occupational therapists, speech-language pathologists, respiratory therapists, recreation therapists, social workers, psychologists, and rehabilitation counselors.¹⁰²³

PREVENTATIVE MEDICINE

DESCRIPTION AND SCOPE

SCOPE

Specialists in preventive medicine are trained to provide services that “protect, promote, and maintain” the health of individuals and communities.¹⁰²⁴ They are focused especially on preventing adverse health conditions and premature death.¹⁰²⁵

The specific components of preventive medicine include:

1. Biostatistics
2. Epidemiology
3. Management and administration of health services
4. Environmental health and the control of adverse environmental factors
5. Occupational safety and health and the control of adverse occupational factors
6. Clinical preventive measures
7. Social, cultural, and behavioral drivers of health trends¹⁰²⁶

Physicians pursuing primary certification in preventive medicine can specialize in public health, occupational medicine, or aerospace medicine. Additionally, they may choose to pursue several subspecialty areas.¹⁰²⁷

EDUCATION AND TRAINING

Certification by the American Board of Preventive Medicine requires completion of medical school through an accredited program, possession of valid licensure, completion of one year of clinical-base training, completion of a one-year Master of Public Health program or equivalent master’s or doctoral degree, completion of no less than one year in an accredited residency program targeting the specialty certification being pursued, and practice in the field of preventive medicine.¹⁰²⁸ An alternate pathway is available to those who graduated prior to 1984 and another special pathway is available to those who graduated after 1984 and already hold ABMS certification in another practice area.¹⁰²⁹

SPECIALTIES

In addition to specialty certification in public health, occupational medicine, or aerospace medicine, subspecialties of the various primary certification specialties in preventive medicine include medical toxicology and undersea and hyperbaric medicine; all of these subspecialty areas are described further in table 3-25.¹⁰³⁰

Table 3-25: Preventative Medicine Subspecialties Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Preventive Medicine	Aerospace Medicine		Focuses on clinical care and research of aircraft and space vehicle crew and passengers
		Occupational Medicine	Focuses on care of workers including ability to perform work, environment of the work setting, and health outcomes of certain exposures
		Public Health and General Preventive Medicine	Promotes health, prevents disease, and oversees health of communities and allotted populations
		Medical Toxicology	Specialization in preventing, recognizing, assessing, treating, and monitoring conditions caused by exposure to drugs, chemicals, and other toxins
		Undersea and Hyperbaric Medicine	Specialization in managing cases of decompression illness and diving accidents. Utilization of hyperbaric oxygen therapy to treat carbon monoxide poisoning, gas gangrene, nonhealing wounds, tissue damage from radiation or burns, bone infections

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

The number of physicians practicing in preventive medicine totaled 1,361 in 2008, with only 267 (19.6 percent of the specialty area), practicing in patient care (195 of whom were office-based physicians and 72 of whom were hospital-based physicians).¹⁰³¹ There appears to be a downward trend in physicians specializing in preventive medicine, with 3 physicians (0.22 percent of the specialty area) reported under the age of 35 as compared with 1,014 over the age of 55 (74.5 percent) and 537 over the age of 65 (39.5 percent).¹⁰³²

This decrease in supply is seen in the female population of this specialty area as well. Two out of 414 women practicing in preventive medicine were under the age of 35 (0.48 percent) and 20 were under the age of 45 (4.8 percent).¹⁰³³ These figures are significantly below the 257 physicians over the age of 55 (or 62.1 percent) and the 127 physicians over the age of 65 (30.7 percent).¹⁰³⁴

SUPPLY AND DEMAND

The number of physicians in preventive medicine decreased 48.9 percent from volumes of 2,665 in 1975 to 1,361 in 2008.¹⁰³⁵ The percent of total physicians that this specialty represents fluctuated slightly, but, overall, it saw a net decrease from 0.7 in 1975 to 0.1 in 2008.¹⁰³⁶ The number of female practitioners decreased 22.3 percent, with the ratio of women in preventive medicine to total female physicians decreasing from 1.5 in 1975 to 0.1 in 2008.¹⁰³⁷

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
One year of clinical base training, plus Master of Public Health or equivalent master's or doctorate degree, plus licensure, plus Accreditation Council for Graduate Medical Education (ACGME) practicum program in aerospace medicine, plus practice in preventive medicine for one to three years	457	141	130	57	99381-99397; 99401-99404; 99411-99412; 99420-99429
One year of clinical base training, plus Master of Public Health or equivalent master's or doctorate degree, plus licensure, plus ACGME practicum program in occupational medicine, plus practice in preventive medicine for one to three years	2,550	1,498	336	58.4	99381-99397; 99401-99404; 99411-99412; 99420-99429
One year of clinical base training, plus Master of Public Health or equivalent master's or doctorate degree, plus licensure, plus ACGME practicum program in public health and general preventive medicine, plus practice in preventive medicine for one to three years	1,361	195	72	63.1	99381-99397; 99401-99404; 99411-99412; 99420-99429
Primary certification through the American Board of Medical Specialties (ABMS), plus licensure, plus appropriate criteria for medical toxicology must be met	19	6	9	43.5	99381-99397; 99401-99404; 99411-99412; 99420-99429
Primary certification through ABMS board, plus licensure, plus requirements for undersea hyperbaric medicine	47	30	12	54.1	15002-15005; 15040; 15050-15261; 15300-15366; 15570-15750; 15760-15770; 16000-16036; 99381-99397; 99401-99404; 99411-99412; 99420-99429

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

During the twelve months ending July 2009, the United States Preventive Services Task Force (USPSTF) deliberated on the thirty-four new recommendations that were issued in its 2009 practice alert.¹⁰³⁸ Impending demographic trends led the task force to reprioritize and reassess the degree of screening and monitoring implemented at that time, because screening and counseling services were believed to be underused, whereas other preventive services with little to no benefit were overprescribed.¹⁰³⁹ The practice alert places the USPSTF's recommendations into five categories: (1) recommendations for services, due to high certainty that the net benefit is substantial; (2) recommendations for services, due to moderate to high certainty that the net benefit is moderate to substantial; (3) recommendations against routine provision of services, need to be assessed on a case-by-case basis; (4) recommendations against services, due to moderate to high certainty that no net benefit exists or that the harm outweighs the benefit; and (5) recommendations are inconclusive due to insufficient evidence.¹⁰⁴⁰ The USPSTF's decisions will force clinicians to achieve recommended practice policies within a very limited amount of time; clinicians are encouraged to concentrate on provision of recommended services and to avoid services recommended against.¹⁰⁴¹

Table 3-26: Psychiatry Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Psychiatry and Neurology (ABPN)	Psychiatry	Addiction Psychiatry	Provision of care to patients with disorders involving substance-abuse absent of or paired with other psychiatric disorders
		Child and Adolescent Psychiatry	Expertise in diagnosing and treating various childhood psychiatric disorders
		Clinical Neurophysiology	Management of central, autonomic, and peripheral nervous system disorders by way of clinical assessment and electrophysiologic test mechanisms
		Forensic Psychiatry	Expertise in the correlation of psychiatry and civil, criminal, and administrative law
		Geriatric Psychiatry	Management of psychiatric disorders in the elderly
		Hospice and Palliative Medicine*	Specialization in the prevention and relief of suffering for patients in hospice or palliative care; involves working within an interdisciplinary team
		Pain Medicine	Specialization in treating a broad scope of painful disorders; involves working within an interdisciplinary team
		Psychosomatic Medicine	Specialization in the diagnosis, management, and treatment of psychiatric disorders endured by otherwise medically ill patients
		Sleep Medicine**	Specialized knowledge of conditions that occur during sleep, disrupt sleep, or are associated with disruptions in the sleep cycle

* Reflective of statistics for hospice and palliative medicine as a subspecialty of psychiatry and neurology.

** Reflective of statistics for sleep medicine as a subspecialty of psychiatry and neurology.

PSYCHIATRY

DESCRIPTION AND SCOPE

SCOPE

Psychiatrists are trained in preventing, diagnosing, and treating a variety of disorders, including: psychotic disorders, mood disorders, anxiety disorders, substance-related disorders, sexual identity disorders, gender identity disorders, and adjustment disorders.¹⁰⁴² They possess a well-rounded knowledge base that covers the biological, psychological, and social factors that contribute to disease; as such, they are equipped to provide holistic patient care.¹⁰⁴³ Psychiatrists may prescribe medication, order laboratory tests, and evaluate and treat a series of psychological and psychosocial problems.¹⁰⁴⁴

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	312	198	96	46.7	–
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	7,358	5,280	1,581	50.7	90801-90802; 90865-90870; 90875-90880; 90882-90899
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	747	535	195	39.8	95921-95923; 95925-95937; 95950-95962; 95965-95967; 95970-95982; 95992-95999; 96000-96004; 96020
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	365	214	117	43.5	90801-90802; 90865-90870; 90875-90880; 90882-90899
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	757	530	188	46.5	90801-90802; 90865-90870; 90875-90880; 90882-90899
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	1	0	0	59	90801-90802; 90865-90870; 90875-90880; 90882-90899; 99366-99368; 99374-99380
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	4	3	0	55	62362-62351; 62360-62362; 99601-99602; 62350-62351; 62360-62362; 96360-96361; 96365-96371; 99601-99602; 99366-99368
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	54	15	39	36.3	90875, 90876
ABPN primary certification, plus licensure, plus one year of subspecialty fellowship training	5	5	0	54.8	95803-95811; 95819-95822; 95827

EDUCATION AND TRAINING

In addition to completing medical school through an accredited program and obtaining medical licensure, physicians pursuing certification in psychiatry through ABPN must complete one of two residency program tracks.¹⁰⁴⁵ They may either complete a one-year clinical base program and a three-year accredited residency program in psychiatry, or they may complete a four-year accredited residency program in psychiatry during which four months in the first year are focused on internal medicine, family medicine, or pediatrics.¹⁰⁴⁶ Subspecialty certification requires further training, as outlined in table 3-26.

SPECIALTIES

ABPN-certified physicians may pursue subspecialty certification in addiction psychiatry, child and adolescent psychiatry, clinical neurophysiology, forensic psychiatry, geriatric psychiatry, hospice and palliative medicine, pain medicine, psychosomatic medicine, sleep medicine, or a combination of these. Table 3-26 elaborates upon these subspecialty areas.¹⁰⁴⁷

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

There were 40,904 psychiatrists reported in 2008, with 26,521 working in an office-based setting to provide patient care and 11,328 working in a hospital-based setting.¹⁰⁴⁸ Psychiatrists over the age of 65 represented 21.3 percent of all psychiatrists, 19,471 were over 55 years of age, 10,783 were under the age of 45, and 4,154 were under the age of 35.¹⁰⁴⁹

Women represented 35.2 percent of all psychiatrists; there were 2,340 women under the age of 35, 5,308 under the age of 45, 4,795 over the age of 55, and 1,498 aged 65 or older.¹⁰⁵⁰

SUPPLY AND DEMAND

The per capita ratio of psychiatrists increased from 12.2 per 100,000 people in 1980 to 13.6 per 100,000 people in 2008.¹⁰⁵¹ Further, the per capita ratio of office-based psychiatrists increased from 7.1 per 100,000 people to 8.8 per 100,000 people during that same period of time.¹⁰⁵² There was a 71 percent increase in psychiatrists from 1975 to 2008.¹⁰⁵³ The percent of total physicians represented by psychiatrists, decreased steadily from 6.1 in 1975 to 5.7 in 1990 and finally to 4.3 in 2008.¹⁰⁵⁴

Similarly, the population of female psychiatrists increased by 357.4 percent, while the ratio of female psychiatrists to practicing female physicians decreased from 8.8 percent in 1975 to 7.8 percent in 1990 to 5.2 percent in 2008.¹⁰⁵⁵

Demand for psychiatric services also has gone up; the United States has seen a recent increase in mental health patients seeking treatment, from 12.2 percent of nonelderly Americans in the years 1990 to 1992 to 20.1 percent in the years 2001 to 2003.¹⁰⁵⁶ This increase may be attributed to a broader scope of practice within psychiatry, direct-to-consumer advertising campaigns promoting mental health services, and increased social acceptance of mental health as a legitimate medical specialty.¹⁰⁵⁷ Psychotropic medication is increasingly prescribed, and the percentage of Americans medicated with at least one psychotropic drug increased from 5.9 percent in 1996 to 8.1 percent in 2001. Antidepressants are most frequently prescribed in both office- and hospital-based settings as opposed to other treatment settings.¹⁰⁵⁸

HIGHLIGHTS IN THE FOUR PILLARS

REIMBURSEMENT

In recent years, practitioners have made significant advancements in both psychopharmacological and psychosocial treatments for childhood psychiatric disorders (for example, bipolar disorder and Attention-Deficit Hyperactivity Disorder).¹⁰⁵⁹ Psychotropic medications commonly are prescribed by general practitioners (accounting for approximately 70 percent of psychiatric medications prescribed), some nursing professionals (for example psychiatric nurse practitioners, clinical nurse psychiatric specialists, CRNAs, and certified nurse-midwives), and psychiatrists.¹⁰⁶⁰ Practitioners have shifted treatment modalities from therapy-based practice to pharmacological intervention.¹⁰⁶¹ Despite increased medical knowledge, many children continue to receive inappropriate treatment, fueling rising concerns of overdiagnosis and overprescription.¹⁰⁶² In fact, a 2008 comparison of psychotropic medication prevalence in youth in three countries indicated that the prevalence of the use of psychotropic medication in U.S.

children (6.7 percent) was markedly greater than those in the Netherlands (2.9 percent) and Germany (2 percent).¹⁰⁶³

Increased prescription of psychotropic medication may be attributed in part to the change in mental health practices resulting from the shift toward managed care.¹⁰⁶⁴ This shift has warranted lower physician fees and a redistribution of medical services to other mental health professionals (for example, psychologists, see chapter 6, *Psychology*).¹⁰⁶⁵ These financial disadvantages, paired with higher patient volumes that are only expected to continue increasing in the anticipated demographic climate, confine psychiatrists to “managing pharmacologic treatments during brief visits.”¹⁰⁶⁶ The proportion of advertisement spending specifically allotted toward direct-to-consumer services increased from 3.3 percent in 1999 to 12 percent in 2005. Further, individuals medicated with antidepressants were more likely to be prescribed antipsychotic medications and not inclined to receive psychotherapy services.

RADIOLOGY

DESCRIPTION AND SCOPE

SCOPE

Radiologists employ imaging and other radiologic methods in various ways to diagnose and treat disease.¹⁰⁶⁷ Diagnostic radiologists provide diagnostic and therapeutic services that employ x-ray, ionizing radiation, radionuclides, ultrasound, electromagnetic radiation, and image-guided techniques.¹⁰⁶⁸ Radiation oncologists manage the therapeutic application of “radiant energy and its modifiers.”¹⁰⁶⁹ They also are responsible for the study and management of disease, most specifically malignant tumors.¹⁰⁷⁰ Radiologic physicists master provision of care in one of three areas: therapeutic radiological physics, diagnostic radiological physics, or medical nuclear physics, as described in table 3-27.¹⁰⁷¹

EDUCATION AND TRAINING

The American Board of Radiology (ABR) issues primary certificates in diagnostic radiology, radiation oncology, and radiologic physics.¹⁰⁷²

Training required for certification as a diagnostic radiologist includes one year of clinical work followed by four years in an accredited radiology residency. Additional training is required for certification in subspecialties of diagnostic radiology.¹⁰⁷³

Certification as a radiation oncologist also requires completion of one year of clinical work followed by a four-year residency program in radiation oncology.¹⁰⁷⁴ Again, additional training in a subspecialty area is available to those certified in radiation oncology.¹⁰⁷⁵

Finally, in order to be certified as a radiologic physicist, physicians must specialize in at least one of three subspecialty areas, for which training requirements vary (see table 3-27).¹⁰⁷⁶

Table 3-27: Radiology Subspecialty Certification

Certifying Board	Specialty	Subspecialties	Description
American Board of Radiology	Diagnostic Radiology	Neuroradiology	Specialization in the diagnosis and treatment of brain, spine, spinal cord, peripheral nervous, head, and neck disorders
		Nuclear Radiology	The analysis and imaging of radionuclides and radiolabeled substances to diagnose disease; also, the utilization of these radionuclides and radiolabeled compounds in disease treatment
		Pediatric Radiology	Expertise in diagnostic imaging in the detection and treatment of conditions in infants, children, and adolescents. Ample knowledge of organ systems at the developmental stages, as well as diseases specifically found in and detrimental to children
		Vascular and Interventional Radiology	Proficiency in the use of fluoroscopy, digital radiography, computed tomography, sonography, and magnetic resonance imaging in minimally invasive image-guided therapies. Helpful in performing angioplasties, stent placements, thrombolytic procedures, embolizations, biliary and genitourinary drainages, abscess drainages, and so forth
		Hospice and Palliative Medicine*	Specialization in the prevention and relief of suffering for patients in hospice or palliative care; involves working within an interdisciplinary team
	Radiation Oncology	Hospice and Palliative Medicine*	Specialization in the prevention and relief of suffering for patients in hospice or palliative care; involves working within an interdisciplinary team
	Radiology Physics	Therapeutic Radiological Physics	Expertise in (1) the physical components of therapeutic use of x-rays, gamma rays, electrons, and other charged particle beams, and so forth and (2) the associated equipment
		Diagnostic Radiological Physics	Expertise in (1) the diagnostic applications of various radiation source (some of which were listed previously) and (2) the associated equipment
		Medical Nuclear Physics	Expertise in (1) the therapeutic and diagnostic use of radionuclides and (2) the associated equipment

* Reflective of statistics for hospice and palliative medicine with no specialty emphasis.

SPECIALTIES

Radiologists with primary certificates in diagnostic radiation may choose to pursue further training in neuroradiology, nuclear radiology, pediatric radiology, vascular and interventional radiology, or hospice and palliative medicine subspecialties.¹⁰⁷⁷ Those certified in radiation oncology may seek subspecialty certification in hospice and palliative medicine.¹⁰⁷⁸ Lastly, radiologic physicists must choose to focus on therapeutic radiological physics, diagnostic radiological physics, or medical nuclear physics.¹⁰⁷⁹ See table 3-27 for more information about these subspecialty areas.

Educational Requirements	Total Physicians	Patient Care		Mean Age of Physicians	Representative Current Procedural Terminology Codes
		Office-Based	Hospital-Based		
Primary certification in diagnostic radiology, plus licensure, plus one year of neuroradiology fellowship training, plus one year of practice or approved training with at least one third of the time spent practicing this subspecialty	1,912	1,423	451	42.8	22520-22525; 70551-70553; 70554-70555; 76506; 78600-78650
Primary certification in diagnostic radiology, plus licensure, plus one year of nuclear radiology fellowship training, plus one year of practice or approved training with at least one third of the time spent practicing this subspecialty	357	166	80	49.5	78000-78320; 78350-78399; 78414-78499; 78580-78599; 78660-78699; 78700-78725; 78730-78799; 78800-78804; 78805-78807; 78808; 78811-78999; 79005-79999
Primary certification in diagnostic radiology, plus licensure, plus one year of pediatric radiology fellowship training, plus one year practice or approved training with at least one third of the time spent practicing this subspecialty	700	485	183	49.4	99201-99205; 99381-99384; 99391-99394; 70010-79999
Primary certification in diagnostic radiology, plus licensure, plus one year of vascular and interventional radiology fellowship training, plus one year of practice or approved training with at least one third of the time spent practicing this subspecialty	1,688	1,353	318	43	77261-77263; 77280-77299
Primary certification in diagnostic radiology, plus licensure, plus successful completion of the hospice and palliative medicine examination, plus completion of adequate subspecialty training, either through a fellowship or through practice (for example two years of practice or documentation of certification from the American Board of Hospice and Palliative Medicine)	6	3	2	56.3	99366-99368; 99374-99380
Primary certification in radiation oncology, plus licensure, plus successful completion of the hospice and palliative medicine examination, plus completion of adequate subspecialty training, either through a fellowship or through practice (for example two years of practice or documentation of certification from the American Board of Hospice and Palliative Medicine)	6	3	2	56.3	99366-99368; 99374-99380
Master's or doctoral training in therapeutic radiological physics, plus completion of the three-part examination series	1	0	0	49	77300-77370; 77371-77399; 77401-77417; 77418
Master's or doctoral training in diagnostic radiological physics, plus completion of the three-part examination series	–	–	–	–	77300-77370
Master's or doctoral training in medical nuclear physics, plus completion of the three-part examination series	–	–	–	–	77785, 77786, 77787

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

A total of 9,062 radiologists were reported in 2008.¹⁰⁸⁰ Additionally, 6,809 radiologists were office-based practitioners, and 1,777 were hospital-based practitioners, representing 75.1 percent and 19.6 percent of the specialty area, respectively.¹⁰⁸¹ There were 661 radiologists under the age of 35, representing 7.3 percent of this specialty area. In contrast, there were 3,982 radiologists over the age of 55, with 2,236

of whom were over the age of 65.¹⁰⁸² These age groups represented 43.9 percent and 24.7 percent of the specialty area, respectively.¹⁰⁸³

Women comprised 16.1 percent of all radiologists, with 135 under the age of 35, 550 under the age of 45, 497 under the age of 55, and 170 under the age of 65.¹⁰⁸⁴

SUPPLY AND DEMAND

The per capita ratio of radiologists decreased from 5.2 per 100,000 people in 1980 to 3 per 100,000 people in 2008.¹⁰⁸⁵ A similar trend was seen among office-based practices in which the per capita ratio of radiologists decreased from 3.5 per 100,000 in 1980 to 2.3 per 100,000 in 2008.¹⁰⁸⁶ Further, the industry saw a 21.4 percent decrease in physicians, from 11,527 radiologists in 1975 to 9,062 in 2008.¹⁰⁸⁷ The proportion of all physicians that represents this specialty area has also decreased, from 2.9 percent in 1975 to 1.4 percent in 1990 and then to 0.9 percent in 2008.¹⁰⁸⁸ The number of female radiologists has increased by 116.1 percent, however, the proportion of female radiologists to female physicians has decreased similar to the overall specialty trend—from 1.9 percent in 1975 to 0.8 percent in 1990 and then to 0.5 percent in 2008.¹⁰⁸⁹

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

The issue of in-office ancillary imaging pits radiologists against other physicians, including cardiologists.¹⁰⁹⁰ Radiologists face increased competition from referring physicians, such as cardiologists, who provide cardiac related imaging services (for example, coronary CT and coronary PET scans).¹⁰⁹¹ A 2004 study funded by the Radiological Society of North America claimed that self-referral, especially by orthopedists, podiatrists, and rheumatologists, led to increased utilization of diagnostic imaging.¹⁰⁹² The study claims that “this should be of substantial interest to regulatory and reimbursement agencies and to employers that pay for healthcare in the United States.”¹⁰⁹³

In 2005, the American College of Radiology (ACR) made plans to lobby for legislation requiring Medicare to define standards for physicians performing diagnostic imaging.¹⁰⁹⁴ At a December 2004 meeting, MedPAC staff members stated that “it’s important for CMS to set national standards for each imaging modality . . .”¹⁰⁹⁵ MedPAC endorsed relying upon private accreditation agencies to develop the standards.¹⁰⁹⁶ If this was enacted, the private accreditation agencies would most likely be organizations such as the ACR, which, as of 2010, accredits radiology departments.¹⁰⁹⁷ ACR facility accreditation for a specific imaging modality requires that physicians who interpret diagnostic imaging studies meet ACR required qualifications for that modality.¹⁰⁹⁸ This issue may be particularly exacerbated in light of the recently announced Medicare physician fee schedule 2009 proposed rule which contains provisions requiring all physicians and nonphysicians who provide diagnostic imaging services in their offices to enroll and meet the requirements of an IDTF.¹⁰⁹⁹

CONCLUSION

In November 2008, the AAMC released its first projections on the physician workforce in more than two years. At minimum, the AAMC projected a physician shortage of 124,000, with the most plausible scenario resulting in a shortage of 159,000 physicians by 2025.¹¹⁰⁰ Based on the number of physicians that would be required to make up the difference between services demanded and services provided in the market at 2010 rates, the 10 percent physician shortage, measured at the time of publication, is expected to double in the next decade.¹¹⁰¹ Although some studies project a shortage of physicians, some patients already have experienced difficulty in accessing physician services.¹¹⁰²

As this chapter has demonstrated, the competitive boundaries within and across physician specialties are increasing in malleability due to pressure from ongoing workforce strains, perpetual developments in innovation and technology, trends in reimbursement, and regulatory constraints. Although the shortage is expected to affect all three specialty categories, those that have recently fared well in reimbursement, regulatory, technological, and competitive arenas bear less of the immediate toll.¹¹⁰³ In fact, medical specialists may experience a broadening of their scope of practice as a result of the primary care physician shortage.¹¹⁰⁴ The potential role of specialty physicians as principal care providers may alleviate the manpower burden suffered by primary care physicians and, at the same time, further intensify competition between specialty medicine and primary care.¹¹⁰⁵

Unfortunately, there does not appear to be a “quick-fix” solution to counteract the clinician shortage facing the healthcare workforce, mainly due to the time investment required to train healthcare professionals (for example, it can take up to fifteen years to train certain specialized physicians) and the increasing demand for healthcare services by the growing baby boomer population. Despite not having an immediate impact, experts have suggested that the best way to combat the ongoing physician shortage is to (1) increase medical school, nursing school, and allied health program enrollment; (2) expand the number of educational institutions providing healthcare training services; (3) provide financial incentives when needed to encourage acceptance of faculty positions; and (4) increase the number of residency positions available to medical school graduates.

Key Sources

Key Source	Description	Citation	Hyperlink
Physician Characteristics and Distribution in the United States	Report that corresponds to the American Medical Association (AMA) Physician Practice Arrangement Questionnaire; issued annually.	“Physician Characteristics and Distribution in the US 2009 Edition” American Medical Association, 2009.	—
Guidelines for Granting Privileges in Bariatric Surgery	Educational guidelines for bariatric surgery credentialing set forth by the American Society for Metabolic and Bariatric Surgery.	“Guidelines for Granting Privileges in Bariatric Surgery,” by the American Society for Metabolic and Bariatric Surgery, 2005, www.asbs.org/Newsite07/resources/asbs_granting_privileges.htm (accessed October 6, 2009).	www.asbs.org/Newsite07/resources/asbs_granting_privileges.htm
Vision Problems in the United States	Report by the National Eye Institute and Prevent Blindness America.	“Vision Problems in the U.S.,” by the National Eye Institute and Prevent Blindness America, 2008.	—

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Key Source	Description	Citation	Hyperlink
Henry J. Kaiser Family Foundation	"A non-profit, private operating foundation focusing on the major health care issues facing the U.S., as well as the U.S. role in global health policy."	"About the Kaiser Family Foundation," by the Henry J. Kaiser Family Foundation, 2009, www.kff.org/about/index2.cfm (accessed October 16, 2009).	www.kff.org
AMA Board of Trustees	The board that "ensures that the AMA remains focused on its essential reason for being: to promote the art and science of medicine and the betterment of public health."	"Board of Trustees," the American Medical Association, 2009, www.ama-assn.org/ama/pub/about-ama/our-people/board-trustees.shtml (accessed October 21, 2009).	www.ama-assn.org/ama/pub/about-ama/our-people/board-trustees.shtml

Associations

Type of Organization	Association	Description	URL	Contact Information
National	Liaison Committee on Medical Education (LCME)	LCME is "the nationally recognized accrediting authority for medical education programs leading to the M.D. degree in U.S. and Canadian medical schools. The LCME is sponsored by the Association of American Medical Colleges and the American Medical Association."	www.lcme.org	Barbara Barzansky, Ph.D., M.H.P.E. LCME Secretary, 2009-2010 Director, Undergraduate Medical Education
National	Commission on Osteopathic College Accreditation (COCA)	COCA "serves the public by establishing, maintaining and applying accreditation standards and procedures to ensure that academic quality and continuous quality improvement delivered by the colleges of osteopathic medicine (COMs) reflect the evolving practice of osteopathic medicine. COCA is the only accrediting agency for predoctoral osteopathic medical education, and is recognized by the United States Department of Education (USDE)."	www.osteopathic.org/index.cfm?PageID=acc_predoc	Konrad C. Miskowicz-Retz, PhD, CAE Director, Department of Accreditation American Osteopathic Association 142 East Ontario Street Chicago, IL 60611
National	Accreditation Council for Graduate Medical Education (ACGME)	ACGME is "responsible for the Accreditation of post-MD medical training programs within the United States. Accreditation is accomplished through a peer review process and is based upon established standards and guidelines."	www.acgme.org	Suite 2000 515 North State Street Chicago, IL 60654 Phone: 312-755-5000 Fax: 312-755-7498
National	National Resident Matching Program (NRMP)	NRMP is "a private, not-for-profit corporation established in 1952 to provide a uniform date of appointment to positions in graduate medical education (GME)."	www.nrmp.org	Phone: 202-828-0566 or toll-free 1-866-617-5838
National	Federal State Medical Boards (FSMB)	FSMB is "a national non-profit organization representing the 70 medical boards of the United States and its territories. The FSMB's mission is to continuously improve the quality, safety, and integrity of health care through developing and promoting high standards for physician licensure and practice."	www.fsmb.org	PO Box 619850 Dallas, TX 75261-9850 Phone: 817-868-4000
National	National Board of Medical Examiners (NBME)	NBME is "an independent, not-for-profit organization that provides high-quality examinations for the health professions."	www.nbme.org/about/index.html	3750 Market Street Philadelphia, PA 19104-3102 Phone: 215-590-9500 Examinee support services Phone: 215-590-9700 Fax: 215-590-9457

CHAPTER 3: PHYSICIAN PRACTICES

Type of Organization	Association	Description	URL	Contact Information
National	American Osteopathic Association (AOA)	AOA is “a member association representing more than 67,000 osteopathic physicians (D.O.s). The AOA serves as the primary certifying body for D.O.s, and is the accrediting agency for all osteopathic medical colleges and health care facilities.”	www.osteopathic.org	142 East Ontario Street Chicago, IL 60611
National	American Medical Association (AMA)	The AMA “helps doctors help patients by uniting physicians nationwide to work on the most important professional and public health issues.”	www.ama-assn.org	515 N. State Street Chicago, IL 60654
National	The American Academy of Dermatology (AAD)	“After earning a medical degree and completing an internship, a dermatologist receives three more years of specialty training to become an expert who is dedicated to skin, hair, and nails. Many dermatologists have general practices and see patients with all types of skin concerns.”	www.aafp.org/online/en/home/aboutus/theaafp/strategicplan.html	930 E. Woodfield Road Schaumburg, IL 60173
National	American Academy of Family Physician (AAFP)	“The Mission of the American Academy of Family Physician is to improve the health of patients, families and communities by serving the needs of members with professionalism and creativity.”	www.aafp.org/online/en/home.html	11400 Tomahawk Creek Parkway Leawood, KS 66211-2680
National	The American Academy of Neurology (AAN)	“The Foundation exists to further the goals of the American Academy of Neurology by supporting education and research in neurology, and is dedicated to improving patient care, quality of life and public understanding of brain and other neurological disorders.”	www.aan.com/go/foundation/about	1080 Montreal Avenue Saint Paul, MN 55116
National	American Academy of Ophthalmology (AAO)	“The American Academy of Ophthalmology is the largest national membership association of Eye M.D.s. Eye M.D.s are ophthalmologists, medical and osteopathic doctors who provide comprehensive eye care, including medical, surgical and optical care.”	www.aao.org	P.O. Box 7424 San Francisco, CA 94120-7424
National	American Academy of Orthopaedic Surgeons (AAOS)	“Founded in 1933, the Academy is the preeminent provider of musculoskeletal education to orthopaedic surgeons and others in the world”	www.aaos.org/about/about.asp	6300 North River Road Rosemont, IL 60018-4262
National	The American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS)	“AAO-HNS is the world’s largest organization representing specialists who treat the ear, nose, throat, and related structures of the head and neck. The Academy represents more than 12,000 otolaryngologist—head and neck surgeons who diagnose and treat disorders of those areas.”	www.entnet.org/aboutus	1650 Diagonal Road Alexandria, VA 22314-2857
National	American Academy of Pediatrics (AAP)	“The mission of the AAP is to attain optimal physical, mental, and social health and well-being for all infants, children, adolescents, and young adults. To accomplish this mission, the AAP shall support the professional needs of its members.”	www.aap.org/visit/facts.htm	141 Northwest Point Blvd. Elk Grove Village, IL, 6000
National	The American Academy of Physical Medicine and Rehabilitation (AAPMR)	“As the premier medical society for the specialty of physical medicine and rehabilitation, AAPMR is the only organization exclusively serving the needs of practicing PM&R physicians.”	www.aapmr.org/about.htm	330 North Wabash Ave., Suite 2500 Chicago, IL 60611-7617

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Type of Organization	Association	Description	URL	Contact Information
National	American College of Emergency Physicians (ACEP)	The ACEP "supports quality emergency care and promotes the interests of emergency physicians."	www.acep.org/aboutus	1125 Executive Circle Irving, TX 75038-2522
National	The American College of Medical Genetics (ACMG)	"The ACMG provides education, resources and a voice for the medical genetics profession. To make genetic services available to and improve the health of the public, the ACMG promotes the development and implementation of methods to diagnose, treat and prevent genetic diseases."	www.acmg.net/AM/Template.cfm?Section=Mission_Statement&Template=/CM/HTMLDisplay.cfm&ContentID=3712	7220 Wisconsin Avenue, Suite 300 Bethesda, MD 20814
National	American College of Obstetricians and Gynecologists (ACOG)	The ACOG "has over 52,000 members and is the nation's leading group of professionals providing health care for women. It is a private, voluntary, nonprofit membership organization."	www.acog.org/from_home/acoginfo.cfm	PO Box 96920 Washington, DC 20090-6920
National	American College of Occupational and Environmental Medicine (ACOEM)	"Founded in 1916, ACOEM is the nation's largest medical society dedicated to promoting the health of workers through preventive medicine, clinical care, research, and education."	www.acoem.org/aboutACOEM.aspx	25 Northwest Point Blvd., Suite 700 Elk Grove Village, IL, 60007-1030
National	American College of Physicians (ACP)	"The American College of Physicians (ACP) is a national organization of internists—physicians who specialize in the prevention, detection and treatment of illnesses in adults. ACP is the largest medical-specialty organization and second-largest physician group in the United States."	www.acponline.org/about_acp	190 North Independence Mall West Philadelphia, PA 19106-1572
National	American College of Preventive Medicine (ACPM)	"The American College of Preventive Medicine (ACPM) is the national professional society for physicians committed to disease prevention and health promotion."	www.acpm.org/about.htm	1307 New York Avenue, NW, Suite 200 Washington, DC 20005
National	The American College of Radiology (ACR)	"For over three quarters of a century, the ACR has devoted its resources to making imaging safe, effective and accessible to those who need it."	www.acr.org/MainMenuCategories/about_us.aspx	1891 Preston White Dr. Reston, VA 20191
National	American College of Surgeons (ACS)	The ACS is "dedicated to improving the care of the surgical patient and to safeguarding standards of care in an optimal and ethical practice environment."	www.facs.org/	633 N Saint Clair Street Chicago, IL 60611-3211
National	American Medical Informatics Association (AMIA)	The AMIA "is dedicated to promoting the effective organization, analysis, management, and use of information in health care in support of patient care, public health, teaching, research, administration, and related policy."	www.amia.org/inside	4915 St. Elmo Avenue, Suite 401 Bethesda, MD 20814
National	American Psychiatric Association (APA)	APA's "member physicians work together to ensure humane care and effective treatment for all persons with mental disorder, including mental retardation and substance-related disorders."	www.psych.org/FunctionalMenu/AboutAPA.aspx	1000 Wilson Boulevard, Suite 1825 Arlington, VA 22209-3901
National	American Society for Clinical Pathology (ASCP)	"The mission of the American Society for Clinical Pathology is to provide excellence in education, certification, and advocacy on behalf of patients, pathologists, and laboratory professionals."	www.ascp.org/MainMenu/AboutASCP.aspx	33 West Monroe Street, Suite 1600 Chicago, IL 60603
National	American Society for Reproductive Medicine (ASRM)	ASRM "is a voluntary, non-profit organization devoted to advancing knowledge and expertise in reproductive medicine, including infertility, menopause, contraception, and sexuality."	www.asrm.org/	1209 Montgomery Highway Birmingham, Alabama 35216-2809
National	American Society of Anesthesiologists (ASA)	"The American Society of Anesthesiologists is an educational, research and scientific association of physicians organized to raise and maintain the standards of the medical practice of anesthesiology and improve the care of the patient."	www.asahq.org/aboutASA.htm	520 N. Northwest Highway Park Ridge, IL 60068-2573

CHAPTER 3: PHYSICIAN PRACTICES

Type of Organization	Association	Description	URL	Contact Information
National	American Society of Clinical Oncology (ASCO)	"The American Society of Clinical Oncology is a non-profit organization founded in 1964 with the overarching goals of improving cancer care and prevention."	www.asco.org/ASCOv2/About+ASCO	2318 Mill Road, Suite 800 Alexandria, VA 22314
National	American Society of Colon and Rectal Surgeons (ASCRS)	"The American Society of Colon and Rectal Surgeons is the premier society for colon and rectal surgeons and other surgeons dedicated to advancing and promoting the science and practice of the treatment of patients with diseases and disorders affecting the colon, rectum and anus."	www.fascrs.org	85 W. Algonquin Rd., Suite 550 Arlington Heights, IL 60005
National	American Society of Plastic Surgeons (ASPS)	"The American Society of Plastic Surgeons (ASPS), established in 1931, is the largest plastic surgery specialty organization in the world."	www.plasticsurgery.org	444 E. Algonquin Rd. Arlington Heights, IL 60005
National	American Urological Association (AUA)	"The American Urological Association (AUA), founded in 1902, is the premier professional association for the advancement of urologic patient care, and works to ensure that its more than 16,000 members are current on the latest research and practices in urology."	www.auanet.org/content/about-us/about-us.cfm	1000 Corporate Boulevard Linthicum, MD 21090
National	Society of Critical Care Medicine (SCCM)	"The Society of Critical Care Medicine (SCCM) is the largest multiprofessional organization dedicated to ensuring excellence and consistency in the practice of critical care."	www.sccm.org/Pages/default.aspx	500 Midway Drive Mount Prospect, IL 60056
National	Society of Neurological Surgeons (SNS)	The SNS "holds as its principal mission the design of curriculum and implementation of neurosurgical residency and fellowship education in North America."	www.societyns.org	3303 SW Bond Ave. Portland, OR 97239
National	Society of Nuclear Medicine (SNM)	"The SNM is an international scientific and professional organization founded in 1954 to promote the science, technology and practical application of nuclear medicine."	http://interactive.snm.org/index.cfm?PageID=14&RPID=10	1850 Samuel Morse Drive Reston, VA 20190
National	Society of Thoracic Surgeons (STS)	"The mission of the Society is to enhance the ability of cardiothoracic surgeons to provide the highest quality patient care through education, research, and advocacy."	www.sts.org/sections/aboutthesociety	633 N. Saint Clair Street, Suite 2320 Chicago, IL 60611
National	American Society for Metabolic and Bariatric Surgery	"The vision of the Society is to improve public health and well-being by lessening the burden of the disease of obesity and related diseases throughout the world."	www.asbs.org	100 SW 75th Street, Suite 201 Gainesville, FL 32607
National	Eye Bank Association of America	"The vision of the EBAA is the restoration of sight worldwide. The oldest transplant association in the United States, the EBAA is a nationally recognized accrediting body for eye banks."	www.restorestight.org	1015 Eighteenth Street NW, Suite 1010 Washington, DC 20036
National	American Society for Aesthetic Plastic Surgery	"The mission of the American Society for Aesthetic Plastic Surgery includes medical education, public education and patient advocacy."	www.surgery.org	1-888-ASAPS-11
National	Council of Medical Specialty Societies	"CMSS is a 501(c)(3) not-for-profit association incorporated in the state of Illinois." Includes: American Academy of Allergy, Asthma, & Immunology, AAI, AAD, AAFP, AAN, AAO, AAOS, AAO-HNS, AAP, AAPMR, ACC, ACEP, ACMG, ACOG, ACOEM, ACP, ACPM, ACR, ACS, AMIA, APA, ASCP, ASRM, American Society for Therapeutic Radiology and Oncology, ASA, ASCO, ASCRS, ASPS, AUA, SCCM, SNS, SNM, STS.	www.cmss.org/index.cfm?p=display&detail=Membership%20Info	230 E. Ohio St., Suite 400 Chicago, IL 60611

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4

Mid-Level Provider Practices

Diagnosis is not the end, but the beginning of practice.

Martin H. Fischer, 1944

KEY TERMS

- Advanced Dental Hygiene Practitioners (ADHPs)
- Advanced Practice Registered Nurses (APRNs)
- Audiologists
- Certified Nurse-Midwives (CNMs)
- Certified Registered Nurse Anesthetists (CRNAs)
- Clinical Nurse Specialists (CNSs)
- Dental Hygienists
- Incident-To Billing (Medicare)
- Mid-Level Providers
- Nurse Practitioners (NPs)
- Occupational Therapist Registered
- Occupational Therapists
- Opticians
- Orthotists
- Pharmacists
- Physical Therapists (PTs)
- Physician Assistants (PAs)
- Prosthetists
- Registered Dieticians (RD)
- Registered Pharmacist (RPhs)
- Rehabilitation Therapists
- Speech-Language Pathologists



Key Concept	Definition	Source Location
Mid-Level Provider Scope of Practice	The scope of practice for mid-level providers varies by specialty, but several have responsibilities that resemble or overlap with those traditionally expected of physicians, although arbitrarily limited according to state law.	"Health and Health Care 2010: the Forecast, The Challenge," The Institute for the Future and the Robert Wood Johnson Foundation, Princeton, NJ: Jossey-Bass, 2003, p. 106.
Mid-Level Providers Versus Technicians	The degree of autonomy as a practitioner differentiates mid-level providers from technicians and other healthcare paraprofessionals, the latter who cannot be considered independent providers under any circumstance.	n/a
Mid-Level Provider Autonomy Through Medicare Reimbursement	Services billed under Medicare "incident-to" rules allow nonphysician providers to work without direct supervision (that is, without a physician in the room) by any licensed physician, regardless of specialty or whether he or she provided the primary service to the patient.	"The Ins and Outs of 'Incident-To' Reimbursement," by Alice G. Gosfield, Family Practice Management, November/December 2001, p. 25.
Medicare Reimbursement for Mid-Level Providers	Physician assistants, nurse practitioners, and clinical nurse specialists have the ability to act as independent contractors and bill directly for their services at 85 percent of the physician fee schedule amount when they work collaboratively with a physician.	"The Ins and Outs of 'Incident-To' Reimbursement," by Alice G. Gosfield, Family Practice Management, November/December 2001, p. 26.
Scope of Practice for Physician Assistants (PAs)	The scope of practice for PAs is regulated by education and experience, facility policy, decisions made by overseeing physicians, and state law. Comprehensive treatments may include invasive and noninvasive therapies, prescription of medication, and the utilization of diagnostic procedures.	"Physician Assistant," Occupational Outlook Handbook, 2008-09 Edition, Bureau of Labor Statistics, www.bls.gov/oco/ocos081.htm (accessed August 13, 2009); "PA Scope of Practice" American Academy of Physician Assistants, 2009, www.aapa.org/images/stories/Advocacy-issue-briefs/scope_transitional_web_layout_6-09.pdf (accessed August 13, 2009).
Scope of Practice for Advanced Practice Registered Nurses (APRNs)	APRNs, in addition to specialty education, receive sufficient training in the autonomous provision of diagnostic and therapeutic services, and they are authorized to prescribe medication in all states and the District of Columbia.	"Registered Nurses," The Occupational Handbook, 2008-09 Edition, Bureau of Labor Statistics, November 18, 2007, www.bls.gov/oco/ocos083.htm (accessed October 2, 2009), p. 1, 2.
APRN Specializations	The four APRN specialties are clinical nurse specialists, nurse anesthetists, nurse-midwives, and nurse practitioners.	"Registered Nurses," The Occupational Handbook, 2008-09 Edition, Bureau of Labor Statistics, November 18, 2007, www.bls.gov/oco/ocos083.htm (accessed October 2, 2009), p. 1.
Scope of Practice for Certified Registered Nurse Anesthetists (CRNAs)	CRNAs practice parameters include, but are not limited to, pre-anesthetic assessment and evaluation, development and execution of anesthesia administration plans, observation and management of patient vitals during plan execution, control of patient emergence and recovery from anesthesia, release and discharge of patients who have been placed in post-anesthesia care, provision of follow-up services, management of pain relief therapy programs, emergency response, and the selection, acquisition, and administration of drugs, monitoring modalities, or therapies associated with all of these services.	"Qualifications and Capabilities of the Certified Registered Nurse Anesthetist," American Association of Nurse Anesthetists, August 22, 2008, www.aana.com/BecomingCRNA.aspx?ucNavMenu_TSMMenuTargetID=102&ucNavMenu_TSMMenuTargetType=4&ucNavMenu_TSMMenuID=6&id=112 (accessed November 2, 2009).
Scope of Practice for Nurse Practitioners (NPs)	NPs are afforded a tremendous degree of autonomy and flexibility in their specialty and subspecialty options when providing primary, ambulatory, acute, and long-term care services, thus, their services span the "wellness-illness continuum."	"Consensus Model for APRN Regulation: Licensure, Accreditation, Certification, & Education," Advanced Practice Registered Nurses (APRN) Consensus Work Group and the National Council of State Boards of Nursing APRN Advisory Committee, July 7, 2008, <a accrediting"="" href="http://aanp.org/NR/rdonlyres/56292A59-8240-449D-910D-EF331FC7DC86/0/FinalAPRNJointDialogueReport7708.pdf#search=">http://aanp.org/NR/rdonlyres/56292A59-8240-449D-910D-EF331FC7DC86/0/FinalAPRNJointDialogueReport7708.pdf#search="accrediting" (accessed November 3, 2009), p. 8; "Standards of Practice for Nurse Practitioners," American Academy of Nurse Practitioners, 2007.

Key Concept	Definition	Source Location
Scope of Practice for Clinical Nurse Specialists (CNSs)	CNSs are proficient in a specific area of nursing practice described as it relates to population, setting, disease or subspecialty of medicine, kind of care, or problem-base in a variety of healthcare settings.	“FAQ’s: What is a Clinical Nurse Specialist?” National Association of Clinical Nurse Specialists, 2009, www.nacns.org/AboutNACNS/FAQs/tabid/109/Default.aspx (accessed November 2, 2009).
Scope of Practice for Certified Nurse-Midwives (CNMs)	CNMs work independent of, in collaboration with, or as consult to other healthcare professionals in an effort to provide comprehensive care to women. Beyond care surrounding pregnancy and delivery, they perform prenatal care, delivery services, post-delivery care, infant care, annual women’s health exams, birth control services, menopause services, and an array of counseling services. CNMs work in the hospital setting as well as in freestanding birth centers and the home.	“Midwifery Certification in the United States,” American College of Nurse Midwives, Position Statement, March 2009, www.midwife.org/siteFiles/position/MidwiferyCertification_in_the_United_States_3_31_09.pdf (accessed November 4, 2009); “Share with Women,” American College of Nurse Midwives, <i>Journal of Midwifery and Women’s Health</i> , Volume 51, Number 5, (September/October 2006), p. 385.
Certified Midwife (CM)	Training to be a CM is available and legally sanctioned in three states. This route of education and certification bypasses the nursing training entirely; however, CM education is recognized by the American College of Nurse-Midwives as preparing practitioners “to meet the same high standards that certified nurse-midwives must meet.”	“Become a Midwife,” American College of Nurse-Midwives, 2009, www.mymidwife.org/becoming_mw.cfm (accessed November 3, 2009); “Midwifery Certification in the United States,” American College of Nurse Midwives, Position Statement, March 2009, www.midwife.org/siteFiles/position/MidwiferyCertification_in_the_United_States_3_31_09.pdf (accessed November 4, 2009).
Rehabilitation Therapists Scope of Practice	Rehabilitation therapists are expected to provide services that align with certain general practice parameters: the continual evaluation of progress, the setting of goals and treatment plans catered to the needs of a specific patient, the assessment of the outcomes of treatment, the instruction of patients on how to improve their condition, and the ability to be knowledgeable and proficient in rehabilitative devices.	“Chapter 5—Part B Outpatient Rehabilitation and CORF/OPT Services,” in “Medicare Claims Processing Manual,” by the Centers for Medicare and Medicaid Services (CMS), 220.2C, April 24, 2009, www.cms.hhs.gov/manuals/downloads/clm104c05.pdf (accessed November 11, 2009).
Types of Rehabilitation Therapists	Three mainstream therapy professions fall under the scope described by the Centers for Medicare and Medicaid Services: physical therapy, occupational therapy, and speech-language pathology.	“Chapter 5—Part B Outpatient Rehabilitation and CORF/OPT Services,” in “Medicare Claims Processing Manual,” by the Centers for Medicare and Medicaid Services (CMS), 220A, April 24, 2009, www.cms.hhs.gov/manuals/downloads/clm104c05.pdf (accessed November 11, 2009).
Scope of Practice for Registered Dietitians (RDs)	RDs can practice in hospitals, health maintenance organizations, private healthcare offices, facilities that house sports nutrition and wellness programs, food and nutrition companies, the community-based public health field, universities, medical centers, and research groups focusing on clinical, community, management, consulting dietetics, or a combination of these. Also, RDs can work in business, public health, education, research, and private practice.	“Educational and Professional Requirements,” American Dietetic Association, July 2009, www.eatright.org/cps/rde/xchg/ada/hs.xsl/CADE_748_ENU_HTML.htm (accessed November 4, 2009); “Dietitians and Nutritionists,” Occupational Outlook Handbook, 2008–09 Edition, Bureau of Labor Statistics, www.bls.gov/oco/ocos077.htm (accessed November 5, 2009).
Scope of Practice for Dental Hygienists	Dental hygienists perform cleaning, screening, preventive, educational, diagnostic, assistive, and, sometimes, therapeutic services. They are authorized to assess oral conditions, document and evaluate health histories, and screen the mouth, head, and neck for diseases and conditions, including those related to cancer. Dental hygienists prepare diagnostic tests for dentist interpretation and, sometimes, interpret the results themselves.	“Dental Hygienists,” Occupational Outlook Handbook, 2008–09 Edition, Bureau of Labor Statistics, 2009, www.bls.gov/oco/pdf/ocos097.pdf (accessed November 5, 2009); “Dental Team Careers: Dental Hygienist,” American Dental Association, March 14, 05, www.ada.org/public/careers/team/hygienist.asp (accessed May 25, 2009).
Scope of Practice for Pharmacists	Pharmacists provide an array of primary care and consulting services in a variety of settings. In addition to dispensing drugs, pharmacists counsel patients and providers, monitor patient progress, complete paper work for third-party insurers, and “compound” or mix the pharmaceutical ingredients that constitute a given medication.	“Pharmacists,” Occupational Outlook Handbook, 2008–09 Edition, by Bureau of Labor Statistics, 2009, www.bls.gov/oco/ocos079.htm (accessed November 5, 2009), p. 1.

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Key Concept	Definition	Source Location
Scope of Practice for Orthotists and Prosthetists	The scope of prosthetic and orthotic practice is comprised (not exclusively) of five key components: assessing and managing clinical patients, implementing technical devices, managing practices, and assuming professional responsibility for the care they provide.	"Orthotist and Prosthetist," The Commission on Accreditation of Allied Health Education Programs, 2009, www.caahep.org/Content.aspx?ID=45 (accessed November 10, 2009).
Advanced Orthotists and Prosthetists	The American Board for Certification in Orthotics, Prosthetics, and Pedorthics awards several designations to mid-level orthotic and prosthetic practitioners, including certified orthotist, certified prosthetist, and certified prosthetist/orthotist.	"About ABC," by the American Board for Certification in Orthotics, Prosthetics, and Pedorthics, 2009, www.abcop.org/about/Pages/Default.aspx?PF=1 (accessed November 10, 2009).
Scope of Practice for Opticians	Dispensing opticians assist clients in finding and customizing eyeglasses and contact lenses to meet their prescriptive, comfort, and personal needs. Some opticians grind and insert lenses into frames on the basis of selected size, material, and style; others simply prepare the work orders and issue them to ophthalmic technicians.	"Opticians, Dispensing," Occupational Outlook Handbook, 2008-09 Edition, Bureau of Labor Statistics, www.bls.gov/oco/ocos098.htm (accessed November 5, 2009), p. 1–2.
The Future of Mid Level Providers	With the expected growth in the mid-level provider workforce, providing the number of providers needed to enhance physician productivity, as well as the expansion of mid-level provider roles in providing care, it is possible that the manpower shortage may be met.	"Health and Health Care 2010: the Forecast, The Challenge," The Institute for the Future and the Robert Wood Johnson Foundation, Princeton, NJ: Jossey-Bass, 2003, p. 106.

OVERVIEW

The ongoing physician shortage, paired with declining reimbursement rates, has fueled physician demand for manpower relief. To meet this demand, the healthcare workforce continues to diversify, with versatility no longer limited to the horizontal expansion of specialty and subspecialty areas of medical expertise. As of 2010, trends have solicited a vertical expansion in the role of the nonphysician workforce to provide services that support, supplement, and parallel physician services. Although chapter 6, *Allied Health Professionals*, discusses nonphysician professionals who typically provide services that parallel physician services, and chapter 5, *Technicians and Paraprofessionals*, focuses on the role of certain nonphysician professionals in the provision of physician-support services, this chapter focuses on *mid-level providers*, a class of nonphysician professional practitioners who lie in the midst of these two extremes. The class is derived from the **triage model** (discussed in the *Introduction*) of intraprofessional care. Mid-level providers are afforded a significant level of autonomy within their scope of practice, which authorizes them to act incident-to and *in lieu* of physicians, under certain conditions, for the provision of previously determined services. At the time of publication, these licensed, nonphysician practitioners provided a certain spectra of healthcare services, and, consistent with the triage model, any complex cases that lie outside their scope of practice are passed on to physicians for more extensive care.¹ The degree of practice autonomy differs for each type of mid-level provider and typically is mandated on a state-by-state basis.²

Due to the looming physician shortage, many healthcare providers are turning to nonphysician clinical practitioners to fill the gap in patient care created by the workforce shortage, especially in primary care, which could be accomplished by cementing the role of mid-level providers as physician extenders.

"The Impact of Non-physician Clinicians: Do they Improve the Quality and Cost-Effectiveness of Health Care Services?" by Miranda Laurant et al., Medical Care Research and Review, Vol. 66, No. 6, 2009, p. 405.

Changes in the role of mid-level providers within the ever-evolving continuum of care are driven by various transformations in the regulatory, reimbursement, competitive, and technology environments of the medical profession. As healthcare enters an era of reform, questions regarding the scope and practice of mid-level providers are becoming increasingly important. Although nurse practitioners and physician assistants pioneered this subset of nonphysician professional practice, in recent years, the designation of mid-level provider has been expanded to encompass many other nonphysician clinical practitioners (for example, advanced practice registered nurses, therapists, dietitians, dental hygienists, opticians, pharmacists, and so forth).³

DESCRIPTION AND SCOPE

Mid-level providers are a subset of licensed nonphysician practitioners who may supplement physicians in the provision of select billable services, because they are afforded autonomy within a clearly demarcated scope of practice. A unique scope of practice is attributed to each type of mid-level provider that varies on the basis of practice setting and, therefore, the types of services that they perform.⁴ Despite the expansion of their professional autonomy, the supportive role of mid-level providers remains particularly significant.⁵ In such settings, mid-level practitioners provide specialized manpower support to aid in the provision of physician services rather than independently providing billable services that generate revenue. The distinction between permitted and practiced scope of service is an underlying cause of the debates regarding the regulation and reimbursement of nonphysician practitioners. As a consequence, mid-level provider scope of practice is still somewhat limited under states' laws.

However, due to the increasingly detrimental physician shortage, nonphysician providers will continue to be implemented strategically in increasingly diverse roles in an attempt to bolster a healthcare system that is in dire need of reform. Healthcare analysts expect that physicians will turn to mid-level practitioners to fill the gap created by the workforce shortage, especially as primary (potentially, even *principal*) care providers in the area care.⁶ However, the extent to which mid-level providers will integrate into physician networks is still uncertain, and it will vary across the expanding range of professionals classified accordingly.⁷

MID-LEVEL PROVIDER CRITERIA

As the role of mid-level providers continues to expand in the medical workforce, it becomes increasingly important to define the limits and criteria of what classifies a healthcare professional as a mid-level provider. For the purposes of this *Guide*, mid-level providers are health practitioners who *must hold a license* to practice medicine and *may (in some capacity) practice independently*. The level of practice autonomy afforded to mid-level providers distinguishes them from technicians and paraprofessionals, who may or may not be licensed but who cannot practice independently under any circumstances (see chapter 5, *Technician and Paraprofessional Criteria*).

INDUSTRY TRENDS

The mid-level provider population is expected to continue growing in scope and volume. From 1987 to 1997 alone, the number of patients treated by nonphysician clinicians grew to 1.4 times the original amount.⁸ Additionally, in 1997, patients were 3.4 times more likely to see a nonphysician clinician for preventative care—nearly double the increase in physician preventive services during the same time period.⁹

A study conducted by the Office of the Inspector General (OIG) corroborated this trend in more recent years, reporting that approximately 40 percent of Medicare-billed physician services that exceeded a twenty-four-hour workday actually were performed by qualified nonphysician practitioners, that is, mid-level providers.¹⁰ The services provided by nonphysician clinicians (both qualified and nonqualified) during a three-month period accounted for approximately \$85 million in Medicare claims.¹¹ As healthcare demand continues to increase, the role and utility of mid-level practitioners is likely to grow as well.

Approximately 40 percent of the Medicare billed services by physicians exceeding a twenty-four-hour workday were actually performed by qualified nonphysicians, such as mid-level providers.

"Prevalence and Qualifications of Nonphysicians Who Performed Medicare Physician Services," Office of the Inspector General, August 2009, p. 16.

FOUR PILLARS

As mentioned previously, it is imperative to consider the practice of mid-level providers within the context of the four pillars. Changes in the healthcare regulatory and reimbursement environments may have a substantial effect on the scope of mid-level provider practice, and they may reinforce their role in the provision of services, either incident-to, or *in lieu* of, physicians. Additionally, as the role of the mid-level provider changes, practitioners may be required to master the use of advanced technologies and the provision of specialized services that may have been excluded from their original scope of practice.

REGULATORY

The most predominant regulatory question pending for mid-level providers is the level of physician supervision that is required and regulated by state and federal law. Although supervision and scope requirements differ for each type of mid-level provider, *incident-to* services billed under Medicare (discussed in the following section, *Reimbursement*) allow nonphysician providers to work without direct supervision of a licensed physician, regardless of specialty or whether they are acting as primary care providers.¹² In contrast, state laws differ widely with regard to supervision requirements, as well as the responsibilities and tasks delegated to mid-level providers.¹³ The final rules of the 2010 Outpatient Prospective Payment System (OPPS) and Medicare physician fee schedule (MPFS) served a multifaceted role in the regulation of mid-level providers by imposing more stringent supervision requirements upon some and relegating accountability for the supervision of select diagnostic and therapeutic services to others.¹⁴

REIMBURSEMENT

Because nonphysician providers are not afforded absolute autonomy, handling reimbursement for clinical services furnished by mid-level providers may be a financial concern for healthcare professional practices. For Medicare billing, physicians can bill for services provided by mid-level providers as **incident-to services** at 100 percent of the physician fee schedule amount, under which *incident-to* services are defined as those services provided by a professional other than the physician that are integral and significantly intertwined with care provided by the primary physician.¹⁵ Alternately, some mid-level providers, that is, physician assistants, nurse practitioners, and clinical nurse specialists, also have the ability to act as independent contractors and bill directly for their services at 85 percent of the MPFS amount when working in collaboration with a physician. Additionally, the final rules of the 2010 OPFS and MPFS modified supervision requirements for in-hospital outpatient services to authorize certain mid-level providers (for example, physician assistants, nurse practitioners, clinical nurse specialists, and certified nurse-midwives), as well as other qualified nonphysician practitioners, in the supervision of outpatient diagnostic *and* therapeutic services that fall within their scope of practice.¹⁶

Despite the relative freedom given to some mid-level providers with regard to payment options under Medicare, practice limitations still exist in some settings. According to the 2010 OPFS final rule, Centers for Medicare and Medicaid Services' (CMS's) newly adopted standard for supervision of therapy services states that physician or nonphysician supervisors must be immediately available in settings in which therapists are providing care.¹⁷ The accountable providers may be located anywhere on the hospital campus, as long as they are immediately available to provide assistance if needed.¹⁸

COMPETITION

Although mid-level providers face some competition from other nonphysician clinicians (for example, technicians and paraprofessionals), their primary competitors continue to be physicians, due to their overlapping scopes of practice and recent industry trends. The degree of separation between services provided by physician and mid-level providers varies based on the specific type of professional, the practice setting in question, and the particular state regulations governing scope of practice and supervision of mid-level providers.¹⁹ In response to the predicted shortage in the physician workforce, the decision of whether nonphysician clinicians, such as mid-level providers, will continue to be utilized as physician extenders or as an addition to the physician workforce will determine whether their relationship with physicians will be complementary or competitive in nature.

TECHNOLOGY

Industry advances in technology inadvertently have forced mid-level providers to expand their level of technological capability, which increases their marketability and aptitude as independent practitioners. To maintain pace with new developments in the scope of mid-level provider practices, practitioners must stay abreast of newer technologies to remain a competitive force in the marketplace.

MID-LEVEL PROVIDERS OF CLINICAL SERVICES

PHYSICIAN ASSISTANTS (PAs)

DESCRIPTION AND SCOPE

Physician assistants (PAs) are licensed health professionals who practice medicine under the supervision of physicians, surgeons, or both.²⁰ PAs perform services delegated by supervising physicians.²¹ However, in urban or rural settings suffering from physician shortages, PAs may stand in as principal care providers.²² In situations in which PAs are the principal care providers, they confer with supervising physicians or other members of the medical staff, as state law dictates.²³

In urban or rural settings suffering from physician shortages, PAs may stand in as "principal care providers," conferring with supervising physicians or other members of the medical staff, as state law dictates.

"Physician Assistant," *Occupational Outlook Handbook, 2008-09 Edition*, Bureau of Labor Statistics, www.bls.gov/oco/ocos081.htm (accessed August 13, 2009).

Scope

PAs perform a multitude of medical duties, from providing primary care to performing specialty procedures.²⁴ Comprehensive treatments may include invasive and noninvasive therapies, prescription of medication, and the utilization of diagnostic procedures.²⁵ PAs work with other professionals to effectively diagnose, manage, and treat patients by collecting medical histories, conducting physical evaluations, ordering laboratory exams, and reviewing results of diagnostic tests.²⁶

The scope of practice for PAs is regulated by education and experience, facility policy, decisions made by overseeing physicians, and state law.²⁷ For summaries of laws and regulations regarding the scope of practice and prescription or dispensing rights for PAs, visit the American Academy of Physician Assistants (AAPA), *Summaries of State Laws and Regulations*, at www.aapa.org.²⁸

Education and Training

To become a PA, an individual must graduate from an accredited institution.²⁹ The Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) is the accrediting agency recognized by the Council for Higher Education Accreditation (CHEA); it is also a member of the Association of Specialized and Professional Accreditors.³⁰ At the time of publication, ARC-PA recognized more than 140 PA programs,³¹ most of which existed within schools of allied health, academic health centers, medical schools, and four-year universities.³² The curricula for PA programs range from twenty-four to thirty-two months in length.³³ The first year of training gives students the classroom and laboratory experience necessary to establish an understanding of the essential medical sciences, and the second year focuses on clinical rotation.³⁴

Most of the more than 140 accredited PA programs exist within schools of allied health, academic health centers, medical schools, or four-year universities.

“Physician Assistant,” Occupational Outlook Handbook, 2008-09 Edition, Bureau of Labor Statistics, www.bls.gov/oco/ocos081.htm (accessed August 13, 2009); “About Physician Assistants: FAQ,” American Academy of Physician Assistants, www.aapa.org/about-pas/faq-about-pas (accessed December 4, 2009).

In addition to receiving the training needed to achieve PA professional designation, candidates are afforded several degree options, with 113 programs awarding master’s degrees, twenty-one awarding baccalaureate degrees, three awarding associate degrees, and five awarding certificates.³⁵ Prerequisites for admission into a PA program vary accordingly, although almost all candidates must have prior experience in healthcare; those pursuing baccalaureate degrees must complete two years of college, and those pursuing a master’s degree must have an undergraduate education.³⁶ In both cases, candidates must pursue ample coursework (credit hour requirements vary by institution) in biological, chemical, and social sciences; English; mathematics; and psychology.³⁷

After completing PA training through an accredited program, new PAs are required to pass the Physician Assistant National Certifying Exam, which is administered by the National Commission on Certification of Physician Assistants (NCCPA).³⁸ Practitioners certified by the NCCPA are awarded the professional designation “Physician Assistant-Certified.”³⁹ To maintain certification with NCCPA, individuals must complete 100 hours of continuing medical education every two years and take the recertification exam every six years.⁴⁰

All fifty states and the District of Columbia have legislation “governing the qualifications or practice of physician assistants.”⁴¹ Specifically, all states require that all practicing physician assistants complete their training through accredited programs and, regardless of the acquired degree, sit for same national exam in order to obtain NCCPA accreditation.⁴² However, state and federal agencies may have different expectations and requirements with regard to licensure and scope of practice.⁴³ For up-to-date information on licensing requirements by state visit the AAPA website, www.aapa.org.⁴⁴

Specialties

Regardless of the varying degrees of applied autonomy exercised across different practice settings, PAs are delegated or may assume their own scope of practice in nearly all medical and surgical specialties.⁴⁵ PA services are subdivided into six general areas of practice: primary care, surgical practice, emergency medicine, internal medicine subspecialties, pediatric subspecialties, and other specialties (for example, addiction medicine, anesthesiology, dermatology, hospital medicine, occupational medicine, oncology, psychiatry, and radiology).⁴⁶

INDUSTRY TRENDS

Characteristics and Distribution

In 2006, there were approximately 66,000 physician assistants, with more than half practicing in the offices of other physicians, approximately 25 percent employed by hospitals, and the remainder either practicing in outpatient care facilities or independently.⁴⁷ In a 2008, the AAPA found that 37 percent of PAs practiced in primary care specialties: family and general medicine (26 percent), general internal medicine (5 percent), general pediatrics (3 percent), and obstetrics and gynecology (2 percent). Other

areas with large PA volume included surgery and surgical subspecialties (25 percent), emergency medicine (11 percent), internal medicine subspecialties (10 percent), and dermatology (4 percent).⁴⁸

Additionally, the AAPA reported that 64 percent of all licensed PAs were female, and 88.1 percent were white and non-Hispanic.⁴⁹ The median age of PAs was 39 in 2008.⁵⁰ Of all practicing PAs who responded to the AAPA survey, 40 percent held PA degrees at the bachelor's level, and 43 percent held master's degrees.⁵¹

Supply and Demand

Employment of PAs has been projected to increase from 66,000 in 2006 to 83,000 in 2016.⁵² The U.S. Bureau of Labor Statistics (BLS) predicts that, from 2006 to 2016, the field will grow much faster than the anticipated average for all occupations (27 percent).⁵³ Rates of PA enrollment and graduation, as of 2010, will greatly affect the supply of active practitioners in this field. In 2001, there were roughly 10,100 students enrolled in PA programs.⁵⁴ By 2007, approximately 12,000 students were enrolled in PA programs and approximately 4,600 were set to graduate.⁵⁵

Employment of PAs has been projected to increase from 66,000 in 2006 to more than 83,000 in 2016; PAs have become among the thirty fastest growing professions in the United States.

"Physician Assistant," Occupational Outlook Handbook, 2008-09 Edition, Bureau of Labor Statistics, www.bls.gov/oco/ocos081.htm (accessed August 13, 2009); "Table 6: The 30 fastest Growing Occupations, 2006-2016," Bureau of Labor Statistics, December 4, 2007, www.bls.gov/news.release/ecopro.t06.htm (accessed October 30, 2009); "Physician's Assistants," by Tom Lancefield, Oregon Labor Department, 2008, www.qualityinfo.org/olmisj/ArticleReader?itemid=00002166 (accessed August 18, 2009).

The degree of demand for PA services is demonstrated by the fact that roughly 15 percent of PAs hold more than one clinical job.⁵⁶ As a result, the demand for PAs is only expected to grow. The demand for PAs and other mid-level providers is driven by the same underlying factors: the aging U.S. population, the efforts to lower the cost of care, a downshift in reimbursement rates, and the shortage of physicians.⁵⁷ As a result of the growing demand for their services, PAs are among the thirty fastest growing professions in the United States.⁵⁸

HIGHLIGHTS IN THE FOUR PILLARS

Regulatory

All states and the District of Columbia require PA licensure in order to practice.⁵⁹ Regulations regarding the scope of practice and prescription or dispensing rights vary from states to state. For more information, consult the AAPA website at www.aapa.org.⁶⁰ Also, see chapter 3 of *An Era of Reform*.

Reimbursement

Medicare coverage for PA services has been authorized since 1977.⁶¹ Since that time, Congress gradually has increased coverage for services.⁶² On January 1, 1998, Medicare began reimbursing PAs at 85 percent of the MPFS with certain exceptions:⁶³

1. Incident-to services and shared visits are reimbursed 100 percent;⁶⁴
2. Services performed within health maintenance organizations (HMOs) are reimbursed on a capitation basis;⁶⁵

3. Services performed in a hospital setting are reimbursed with payments capped at 75 percent of the MPFS;⁶⁶
4. Visits to federally certified rural health clinics are reimbursed on a cost-basis;⁶⁷ and
5. PA assistant-at-surgery services are reimbursed at 85 percent of 16 percent of the MPFS (that is, 10.4 percent). Additionally, CMS warns against duplicate payments for surgical services.⁶⁸

Unlike Medicare coverage, which is mandated on the federal level, the eligibility of PAs under Medicaid varies for each state.⁶⁹ At the time of publication, all fifty states covered the services provided by networked PAs at rates equal to or lower than those paid to physicians.⁷⁰

The medical and surgical services performed by PAs are covered by almost all private insurance companies.⁷¹ However, due to the numerous organizations and plans providing coverage, the degree of coverage and the procedure of claims processing may differ from payor to payor.⁷² In some instances, services are billed directly to the PA, and, in others, the claims are filed in the supervising physician's name.⁷³ For more information regarding private payor reimbursement visit the "Payer Profiles" section of the AAPA website at www.aapa.org.⁷⁴

Competition

Trends suggest that demand for healthcare professionals of all kinds will continue to increase. However, the nonphysician professionals capable of providing services that traditionally fell within the scope of physician practices seem to be of particular significance; practitioners who boast this level of autonomy include both PAs and nurse practitioners (NPs).⁷⁵ Growth in PA and NP supply outpaced physician supply trends during the past twenty years, with the combined supply of practitioners in these fields reaching 200,000 in 2006.⁷⁶

Several hypothetical supply scenarios have been generated as preparation for the expected physician shortage. These scenarios focus on two key possibilities: (1) increasing the utilization of PAs and NPs and (2) addressing the primary care deficit by expanding the scope of practice for PAs and NPs.⁷⁷ Trends suggest key issues related to both of these options. Although the most recent surge in PA and NP growth, initiated in the mid-1990s, was promulgated by an increased awareness of physician shortages in primary care, only 50 percent of PAs practice primary care medicine, as compared with 85 percent of NPs.⁷⁸ In addition, the ratio of PAs and NPs continues to shift in favor of PAs; because NPs, the largest population of nonphysician primary care providers, provide more preventive and health maintenance services than do both PAs and physicians, this shift could be a monumental factor hindering the nonphysician workforce's ability to fully remediate the anticipated physician shortage.⁷⁹

ADVANCED PRACTICE REGISTERED NURSES (APRNs)

DESCRIPTION AND SCOPE

Advanced practice registered nurses (APRNs) are Registered Nurses (RNs) (see chapter 5, Registered Nurses) with advanced education and training that allows them to provide primary care services at a higher level, either independently or in conjunction with physicians.⁸⁰

Scope

Although each type of APRN has a highly specific scope of practice, overall, these practitioners receive sufficient training in the autonomous provision of diagnostic and therapeutic services and are authorized to prescribe medication in all fifty states and in the District of Columbia.⁸¹ In its *Consensus Model for APRN Regulation*, the APRN Joint Dialogue Group defined a set framework for the general scope of APRN practice, specifically by identifying four “roles,” or specialties [clinical nurse specialists (CNSs), certified registered nurse anesthetists (CRNAs), nurse-midwives (NMs), and NPs; see *Specialties* in subsequent section]. Prospective APRNs must choose to focus on at least one role, and they also must choose from six “population-foci” (for example, family and individual over a lifetime, adult-gerontology, pediatrics, neonatal care, women’s or gender-related health, and psychiatry and mental health). At least one foci must be the target of an APRN’s practice.⁸² Specific practice parameters for each specialty area, in accordance with this infrastructure, will be addressed in corresponding sections.

The APRN Joint Dialogue Group is the collaborated effort of the Advanced Practice Registered Nurses (APRN) Consensus Work Group and the National Council of State Boards of Nursing APRN Advisory Committee.

“Consensus Model for APRN Regulation: Licensure, Accreditation, Certification, & Education,” The Advanced Practice Registered Nurses (APRN) Consensus Work Group and The National Council of State Boards of Nursing APRN Advisory Committee, July 7, 2008, <http://aanp.org/NR/rdonlyres/56292A59-8240-449D-910D-EF-331FC7DC86/0/FinalAPRNJointDialogueReport7708.pdf#search=“accrediting”> (accessed November 3, 2009), p. 4.

Education and Training

Although the educational requirements for each APRN specialty has distinguishing components, the APRN Joint Dialogue Group’s consensus model addressed, among other things, the parameters of education, accreditation, certification, and licensure requirements suggested across the four APRN specialties.⁸³

The Consensus Model for APRN Regulation describes a formal, “broad-based APRN education,” targeting graduate and post-graduate students, that is clinically and didactically comprehensive, yet tailored to specialty-specific objectives.⁸⁴ Under this model, academic institutions cannot admit students until their formal programs are granted pre-approval, pre-accreditation, or accreditation status by one or more accrediting bodies that are recognized by the U.S. Department of Education, CHEA, or both.⁸⁵ The APRN Joint Dialogue Group specifically lists the Commission on Collegiate Nursing Education (CCNE), National League for Nursing Accrediting Commission (NLNAC), Council on Accreditation of Nurse Anesthesia Educational Programs (COA), the Division of Accreditation of the American College of Nurse-Midwives (ACNM), and the National Association of Nurse Practitioners in Women’s Health Council on Accreditation as approved accrediting entities of APRN programs.⁸⁶ Completion of an appropriate undergraduate program, most likely one that awards a Bachelor of Science in Nursing (BSN), is required for enrollment in an APRN program; often, one or two years of RN clinical experience are required as well.⁸⁷ With attention paid to both didactic and clinical training components, nursing education programs consist of a classroom portion and a clinical portion.⁸⁸ Accreditation standards theoretically are crafted to ensure that program graduates are equipped to attain certification and licensure; as such, training through an accredited program is a proposed eligibility requirement for individuals pursuing licensure and those pursuing certification.⁸⁹

Certification programs are a form of regulatory control, serving as “formal recognition of the knowledge skills and experience demonstrated by the achievement of standards identified by the profession.”⁹⁰ Under the proposed model, certification programs are to be nationally accredited by the American Board of Nursing Specialties or the National Commission for Certifying Agencies (NCCA).⁹¹

Additionally, national certification is intended to be the metric by which licensure is issued; this assumes that communication between educating, certifying, and licensing entities is transparent and dynamic.⁹² As defined by the APRN Joint Dialogue Group, licensure serves to authorize practitioners, specifically through state licensure boards that focus on licensure of APRNs.⁹³

Specialties

As mentioned in *Scope*, four distinct APRN “roles,” or specialties exist: CNSs, CRNAs, NMs, and NPs.⁹⁴ The degree of subspecialty flexibility is defined by the population foci that can feasibly be targeted within each specialty area. Practitioners in these specialty fields are afforded opportunities for further subspecialization.

INDUSTRY TRENDS

Characteristics and Distribution

There were approximately 240,460 APRNs reported in 2004, representing 8.3 percent of the RN population.⁹⁵ Of these practitioners, 226,959 APRNs (94.4 percent) were employed in nursing.⁹⁶ There were 168,546 (70.1 percent) nationally certified APRNs in 2004, and 148,647 (61.82 percent) were recognized by their state board.⁹⁷ Additionally, NPs represented the largest APRN population in 2004 (141,209 reported NPs), followed by NMs (13,684 practitioners), CNSs (72,521 practitioners), and CRNAs (32,523 practitioners, increased to 39,000 by 2007).⁹⁸ The three most pursued APRN specialty educational preparations in 2004 were adult health, or medical-surgical (34,268 practitioners, or 14.3 percent), anesthesia (31,521 practitioners, or 13.1 percent), and family practice (60,146 practitioners, or 25 percent).⁹⁹ Additionally, 52.1 percent of RNs with a master’s or doctoral degree in 2004 had a baccalaureate degree in nursing prior to pursuing APRN training.¹⁰⁰ Approximately 75 percent of APRNs (179,932 practitioners) received a master’s degree, with 18,631 practitioners receiving a master’s certificate for their APRN training.¹⁰¹

Supply and Demand

Efforts to make healthcare more accessible, available, and affordable have led to an increased interest in the field of advanced practice nursing.¹⁰² The number of RNs who pursued any nursing or nursing-related master’s or doctoral degrees grew 339 percent from 1980 (85,860 practitioners) to 2004 (376,901 practitioners) as compared with the 43.5 percent decrease in RNs who only completed a nursing or nursing-related diploma program.¹⁰³ From 2000 to 2004, the number of RNs with higher education increased by 37 percent (101,833 practitioners), representing the largest upward trend for that four-year period. Following this tendency toward higher education, the number of APRNs grew 22.5 percent from 2000 (196,279) to 2004 (240,460).¹⁰⁴ These growth rates are especially pertinent in light of the 15.2 percent decrease (2000 to 2004) in RNs who only have a diploma.¹⁰⁵

The number of RNs who pursued an advanced nursing degree grew 339 percent from 1980 to 2004, while RNs who only completed a nursing or nursing-related diploma program decreased 43.5 percent.

"The Registered Nurse Population: Findings from the March 2004 National Sample Survey of Registered Nurses," Health Resources and Services Administration, U.S. Department of Health and Human Resources and Services Administration, Bureau of Health Professions, 2006, <ftp://ftp.hrsa.gov/bhpr/workforce/0306rnss.pdf> (accessed November 2, 2009), p. 30.

Forecasts suggest that the demand for APRNs will continue to grow into, and beyond, the next decade, as more effort is made to increase healthcare efficiency, especially in rural and underserved communities.¹⁰⁶

HIGHLIGHTS IN THE FOUR PILLARS

Regulatory

Due to increasing APRN volume in recent years, policy makers raised concern about the fact that APRN standards and scope varied from state to state.¹⁰⁷ On July 7, 2008, the APRN Joint Dialogue Group proposed a solution in its report, *Consensus Model for APRN Regulation*.¹⁰⁸ This report more clearly defined the scope of practice for APRNs, distinguishing between the four "roles," or specialized areas.¹⁰⁹ Also, the report outlined a model for education, accreditation, certification, and licensure of APRNs "in order to continue to ensure patient safety while expanding patient access to APRNs."¹¹⁰ Because licensing regulation and prescribing rights are controlled at the state level, the model served only as a template.¹¹¹ With some exception, the states have followed suit and developed policies for each of the four focus areas that mirror the APRN proposed model.¹¹²

As discussed in *Overview* under *Regulatory* and *Reimbursement*, changes to the supervision requirements under the 2010 OPSS and MPFS have encouraged a heightened dimension of autonomy for certain APRNs (NPs, CRNAs, and NMs).

Reimbursement

Although APRNs may be reimbursed by third-party payors (for example, Medicare, Medicaid, private insurers, and Managed Care Organizations (MCOs)) for patient care and overseeing diagnostic and, as per the 2010 OPSS and MPFS, select therapeutic procedures, the regulatory implications surrounding APRN reimbursement are complex and circumstantial.¹¹³ APRNs are only eligible for incident-to billing (100 percent reimbursement) when they are employed under direct supervision of a physician. Those who practice independent of a physician or provide care in the hospital setting are only reimbursed 85 percent of the MPFS.¹¹⁴ Complications arise due to the state-by-state variability of APRN practice scope.¹¹⁵ Identifying incidence of Medicare fraud may be difficult, because the state-sanctioned APRN practice scopes typically are general and make no explicit mention of services that are outside practice parameters.¹¹⁶ More information regarding the reimbursement and regulation of nonphysician clinicians may be found in chapter 3 of *An Era of Reform*.¹¹⁷

Although similar, the rules that govern Medicaid reimbursement differ slightly, because they are dictated on the state level.¹¹⁸ Although some states will reimburse APRNs a percentage of the MPFS, others limit reimbursement coverage to specific patient populations and specialty areas.¹¹⁹

Competition

Research findings suggest that similar health outcomes are procured from primary care services provided by nurses with advanced and adequate training and from those provided by doctors.¹²⁰ Further, patient satisfaction for first contact care was higher for nurse visits than doctor visits.¹²¹ Although doctors ultimately were preferred by patients in urgent cases, this may be due to the perceived critical nature of the problem. Also, studies indicate that nurses may have had lower productivity than doctors, despite comparable health outcomes; this was quantified by length of consult and rates of recall.¹²² These results are in part explained by the lack of autonomous experience in the nursing profession, which may be alleviated with time.¹²³ The rising demand for primary and preventive care services is expected to continue affecting the healthcare market and may shed a favorable light on APRN services.¹²⁴

Research findings suggest that similar health outcomes are procured from primary care services provided by nurses with advanced and adequate training and those provided by doctors.

“Substitution of Doctors by Nurses in Primary Care (Review),” by M. Laurant, D. Reeves, R Hermens, J. Braspenning, et al., The Cochrane Collaboration, Wiley Publishers, p. 21.

Also, the level of autonomy afforded to APRNs may improve their marketability; for example, physicians are hiring PAs to increase their productivity.¹²⁵ Interestingly, APRNs are compensated significantly less than PAs, despite the fact that PAs must be under direct supervision of physicians.¹²⁶ Their autonomous flexibility and substantially lower earnings within the ongoing manpower and economic crises may, again, further APRN favorability.

Competition exists within the APRN community as well.¹²⁷ Changes in the healthcare environment (for example, shifts in site of service and services needed) may affect competition within the APRN community.¹²⁸ As previously mentioned, health maintenance and prevention at the community level is being emphasized at a growing rate.¹²⁹ The feasibility of this shift in perspective is bolstered by the shift out of hospital-centric medicine and into community-based care.¹³⁰ Accordingly, APRNs who practice in nonhospital settings and emphasize community-based needs may find that they conform seamlessly to the ongoing changes in the delivery and outlook of healthcare.¹³¹

Technology

Significant advances in technology, primarily, genetic testing and related therapies, as well as telemedicine and telenursing, may indirectly raise the knowledge and proficiency expectations for APRNs.¹³² Therefore, APRNs who are increasing their aptitude for computer technology, distance learning, and new diagnostic and therapeutic measures may find that their marketability improves as a result.¹³³

APRN Specialties

CERTIFIED REGISTERED NURSE ANESTHETISTS (CRNAs)

DESCRIPTION AND SCOPE

Certified registered nurse anesthetists (CRNAs) are nonphysician practitioners trained in the provision of anesthesia services as they relate to surgical, labor and delivery, and pain management.¹³⁴ APRNs practice in one of the first fields of specialized nursing,¹³⁵ and they work in a variety of settings, including hospital surgical departments, obstetrical wards and delivery rooms, ambulatory surgical centers, and dental, podiatric, and plastic surgery practices.¹³⁶ Although CRNAs collaborate with a variety of health professionals, including anesthesiologists and other physicians, as well as allied health professionals such as dentists and podiatrists, CRNAs are afforded a high level of autonomy due to the profession's rigorous training requirements and practice expectations.¹³⁷

SCOPE

The scope of CRNA practice is based on “expertise, state statutes or regulations, and institutional policy.”¹³⁸ Generally speaking, CRNA practice parameters include, but are not limited to, pre-anesthetic assessment and evaluation, development and execution of anesthesia administration plans, the observation and management of patient vitals during plan execution, control of patient emergence and recovery from anesthesia, release and discharge of patients who have been placed in post-anesthesia care, provision of follow-up services, management of pain relief therapy programs, emergency response, and the selection, acquisition, and administration of drugs, monitoring modalities, or therapies associated with all of these services.¹³⁹

EDUCATION AND TRAINING

Practicing CRNAs must meet specific educational and training requirements, collectively accounting for seven to eight years of education.¹⁴⁰ Ultimately, these professionals must graduate from an accredited program in nurse anesthesia and must be certified by the Council on Certification of Nurse Anesthetists (CCNA).¹⁴¹ COA is the only accrediting body governing nurse anesthesia programs recognized by the U.S. Secretary of Education and the Commission on Higher Education.¹⁴² As of 2010, nurse anesthetists may receive training at more than 100 accredited programs and more than 1,800 approved clinical sites; the COA publishes an updated list every year.¹⁴³ Prerequisites to enrollment in an accredited program include an appropriate baccalaureate degree, typically a BSN; a current registered nurse license (see *Registered Nurses*); and at least one year of practice as a nurse in an acute care setting.¹⁴⁴

Accredited programs, tailored to the master's degree level or higher, are typically twenty-four to thirty-six months in length and are either offered through or affiliated with a university's school of nursing or health sciences.¹⁴⁵ Accreditation standards emphasize the “scientific, clinical and professional foundation upon which to build a safe and clinical practice.”¹⁴⁶ As such, the required curriculum spans pharmacology, chemistry, anatomy, physiology, and the advanced constituents of these subject areas.¹⁴⁷ Additionally, students receive training in the professional components of their future trade, and they

acquire knowledge of the principles in physics, technology, and pain management that relate to anesthesia practice.¹⁴⁸ Finally, they receive ample experience in research and exposure to clinical correlation by attending conferences.¹⁴⁹ Certain minimum criteria exist that are met and often exceeded by all programs seeking or maintaining accreditation.¹⁵⁰ Clinical residencies are a required component of training through an accredited program; students must complete an average of 1,595 residency hours.¹⁵¹

Candidates who meet all the requirements for admission into an accredited nurse anesthetist program and graduate, successfully fulfilling academic and clinical requirements, are eligible to take the national certification examination administered by the CCNA.¹⁵² Certification is required for practice as a CRNA in all but three states (Hawaii, Indiana, and Michigan) and Puerto Rico.¹⁵³ Regulations and licensure requirements vary for each state, specifically with regard to the degree of autonomy afforded to CRNAs (see subsequent heading in this section, *Regulatory*).¹⁵⁴

Recertification must be pursued biennially; requirements include licensure as a resident nurse, forty continuing education credits, documentation of active practice in anesthesia for the two years prior, and evidence that the candidate is mentally and physically equipped to continue providing anesthesia services.¹⁵⁵

SPECIALTIES

CRNAs may become highly proficient in one of several specialty areas, including pediatric, obstetric, cardiovascular, plastic, dental, and neurosurgical anesthesia.¹⁵⁶ Additionally, some practitioners are credentialed in critical care nursing and respiratory care.¹⁵⁷

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

As of 2010, approximately 39,000 nurse anesthetists and student nurse anesthetists practiced in the United States, with approximately 80 percent practicing in collaboration with an anesthesiologist and the remaining 20 percent providing anesthesiology services independently, usually in a rural setting and in conjunction with a surgeon or physician of another specialty.¹⁵⁸ Anesthesiologists and CRNAs comprised 25 percent of all *locum tenens* placements, with 60 percent of CRNAs having experience in temporary employment.¹⁵⁹ Men comprised 44 percent of practicing and training nurse anesthetists, which is significant as compared with the 10 percent of all nursing practitioners who were male.¹⁶⁰

44 percent of practicing and training nurse anesthetists are men, even though only 10 percent of all NPs are male.

"Certified Registered Nurse Anesthetists (CRNAs) at a Glance," American Association of Nurse Anesthetists, August 22, 2008, www.aana.com/aboutaana.aspx?ucNavMenu_TSMenuTargetID=179&ucNavMenu_TSMenuTargetType=4&ucNavMenu_TSMenuID=6&id=265 (accessed November 2, 2009).

The American Association of Nurse Anesthetists (AANA) reports approximately 39 percent of CRNAs are hospital employed, 36 percent are employed by anesthesiologist group practices, 15 percent are self employed, and 10 percent are employed by universities, offices, surgery centers, clinics, or the military.¹⁶¹

SUPPLY AND DEMAND

Anesthesia providers, like many other healthcare professionals, will continue to face the intense and increasing pressure of market demand that is expected to continue growing by proxy of imminent market trends.¹⁶² The CRNA community is working toward maintaining pace with this impending need; from 2001 to 2007, the number of accredited nurse anesthesia programs increased by more than 20 percent.¹⁶³ Consequently, the number of graduates increased from 800 in 2001 to more than 1,800 in 2007.¹⁶⁴ CRNAs in the United States administer approximately 30 million anesthetics annually, and they are the only anesthesia providers in nearly all rural hospitals.¹⁶⁵ Despite promising growth trends and nearly 40,000 practitioners reported at the time of publication, demand is projected to continue outpacing supply.¹⁶⁶ Data available in 2010 suggests a significant increase in hospital vacancies; however, there exists notable inconsistency in rural and urban needs.¹⁶⁷ Rural areas are expected to see higher vacancy rates, especially in locations adjacent to metro-area counties.¹⁶⁸ As such, the overall labor market may serve as a disincentive to practicing and aspiring CRNAs.¹⁶⁹ In addition to the impact of geographic drivers, hospital vacancy rates also may be a result of the growing number of opportunities for CRNAs in ambulatory surgery centers (ASCs), pain clinics, and office-based settings.¹⁷⁰

CRNAs in the United States administer about 30 million anesthetics annually, and they are the only anesthesia providers in nearly all rural hospitals.

"Nurse Anesthetists and Health Reform," American Association of Nurse Anesthetists, April 2009, www.aana.com/WorkArea/downloadasset.aspx?id=20492 (accessed November 2, 2009).

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

As previously discussed, regulation and licensure of CRNA practitioners is developed and enforced at the state level.¹⁷¹ In January 2001, the Health Care Financing Administration issued a final rule that displaces regulatory responsibility from federal entities to state and hospital authorities.¹⁷² Most important, the rule relinquished federally sanctioned physician supervision of anesthesia services in general and critical access hospitals as well as in ASCs.¹⁷³ Therefore, in states in which the legislation permits, CRNAs were authorized to practice independent of a physician.¹⁷⁴ However, hospitals also are permitted to implement standards of higher stringency than their states mandate.¹⁷⁵ As such, CRNAs employed by a hospital requiring physician supervision in a state that does not must abide by hospital policy.¹⁷⁶ As of May 2007, CMS approved the exemption of fifteen states from requirements for CRNA supervision.¹⁷⁷ The recent exemption of the fifteenth state, California, triggered conflict between anesthesiologists and CRNAs, which resulted in several lawsuits filed by physicians in efforts to preserve the homogeneity of their competitive market.¹⁷⁸

REIMBURSEMENT

Medicare honors state authority in regulating and licensing health professional practices and, as such, honors the CRNA policies of each state and each hospital or establishment.¹⁷⁹ As of July 2007, Medicare payments for anesthesia services provided independently by anesthesiologists and CRNAs were reimbursed equally.¹⁸⁰ However, the conditions vary when anesthesiologists and CRNAs are working in

collaboration; Medicare payment of anesthesiologists and CRNAs providing the same services may not be equal if anesthesiologists are simultaneously supervising four or more services.¹⁸¹ Additionally, Medicare covers nonanesthesia services provided by CRNAs (that is, pain management services); revenue from such services represents 2 percent of CRNA total revenue.¹⁸² Medicare beneficiaries comprise 35 percent of CRNA patient mix.¹⁸³

CRNAs receive direct coverage from Medicare, as well as state, federal, and commercial programs and carriers.¹⁸⁴ CRNAs in thirty-six states are reimbursed directly under Medicaid, and twenty-two states require private insurers to directly reimburse CRNAs.¹⁸⁵ Additionally, the Civilian Health and Medical Program of Uniformed Services, the Federal Employee Health Benefit Program, thirty-eight Blue Cross Blue Shield companies, and a significant number of managed care plans provide direct reimbursement for services performed by CRNAs.¹⁸⁶

COMPETITION

Anesthesia services are provided in three ways: by an anesthesiologist alone; by an anesthesiologist supervising CRNA(s), other accompanying practitioners, or both; or by a CRNA alone.¹⁸⁷ The increasing level of autonomy afforded to CRNAs has broadened the scope of services these professionals are authorized to provide.¹⁸⁸ CRNAs provide a similar range of services to anesthesiologists for comparatively marginal compensation.¹⁸⁹ Although CRNAs are the highest-compensated nonphysician practitioners (median annual compensation of \$131,400), they still earn significantly less than anesthesiologists (median annual compensation of \$359,699).¹⁹⁰ Both CRNA and anesthesiologist services are reimbursed directly by the payors discussed in the previous section, *Reimbursement*, however, fees covered by private payors for CRNA services, for example, are 10 to 25 percent less than those for anesthesiology.¹⁹¹ Also, the cost of CRNA education and training is substantially less than the cost of anesthesiologist education and training, with the cost of training one anesthesiologist being equivalent to the expense of educating eight CRNAs.¹⁹²

CRNAs are the highest-compensated nonphysician practitioners.

"CRNA Compensation Rivals Some Physician Salaries," Physician Compensation Report, Media Health Leaders, Volume 8, Number 9, (September 2007), p. 4.

Although the broadened scope of CRNA services may add a new dimension of competition to the marketplace for anesthesia services, the demand for these services places anesthesia providers, namely anesthesiologists, under a significant amount of pressure.¹⁹³ Accordingly, integration of CRNAs into the workforce, both as independent practitioners and as part of collaborative teams, may relieve the pressure faced by the physician and RN workforce, as opposed to adding an element of competitive tension.¹⁹⁴ The majority of CRNAs who practice independently (20 percent of the total population) do so in rural or underserved settings in which the anesthesiologist shortage is severe.¹⁹⁵

The remaining 80 percent of the CRNA population works collaboratively with their physician counterparts, and they are projected to continue doing so as demand increases.¹⁹⁶ Additionally, trends suggest that collaboration may increase cost efficiency.¹⁹⁷ The literature has discussed both successful and failed collaboration between CRNAs and anesthesiologists for the purpose of cost containment.¹⁹⁸ It is suggested that hospital employment of CRNAs and physicians may serve as a disinvestment if the ratio of medical doctors to CRNAs is too high.¹⁹⁹

TECHNOLOGY

See chapter 3, *Technology* for a brief discussion of pharmaceutical developments that have enhanced the administration of anesthesia (that is, “soft drugs”).

NURSE PRACTITIONERS (NPs)

DESCRIPTION AND SCOPE

Nurse practitioners (NPs) are licensed APRNs who provide primary care services, specialty care services, or both to a variety of patients in ambulatory, acute, primary, and long-term care settings.²⁰⁰ NPs are afforded a significant amount of autonomy, and, therefore, they may choose to practice independently or with other practitioners.²⁰¹

SCOPE

The scope of practice for NPs is extremely broad, because they are afforded a tremendous degree of autonomy and flexibility in their specialty and subspecialty options.²⁰² The quality of NP care has been compared to the scopes and standards of physician practices.²⁰³ NPs provide primary, ambulatory, acute, and long-term care services that span the “wellness-illness continuum.”²⁰⁴ NPs are found in many settings, including private practices; public clinics; emergency and inpatient hospital settings; school clinics; jails; nursing homes; long-term, hospice, and assisted living facilities; HMOs; veteran and military forces hospitals; and urgent care facilities.²⁰⁵ Regardless of the setting in which a particular NP might practice or whether their services target patients with acute or chronic conditions, NPs across the industry provide the same general range of diagnostic, therapeutic, and management care.²⁰⁶ Specific services they are authorized to provide include recording and analyzing patient histories; performing physical examinations; ordering various diagnostic, laboratorial, and procedural services; prescribing medication; and managing patient referrals.²⁰⁷

EDUCATION AND TRAINING

NP certification examinations are offered by the following NCCA-accredited certification programs: American Academy of Nurse Practitioners; American Nurses Credentialing Center (ANCC) Commission on Certification; National Certification Corporation for the Obstetric, Gynecologic, and Neonatal Nursing Specialties; Oncology Nursing Certification Corporation; or the Pediatric Nursing Certification Board.²⁰⁸ In order to sit for an exam administered by any of these programs, candidates must meet the specific eligibility requirements for the test they are taking.²⁰⁹ Additionally, they must have completed NP education and training through a graduate, post-graduate, or doctoral program that has been accredited by either the CCNE or the NLNAC.²¹⁰ Proof of a baccalaureate or higher degree in nursing is prerequisite to enrolling in NP education and training programs.²¹¹ Finally, candidates must maintain Registered Nurse licensure for the duration of the practice time presented in the application.²¹² Although education through an accredited program and certification are recognized as key prerequisites to NP practice, rules and regulations are issued by state licensing boards and, therefore, differ for each state.²¹³

In order to maintain and renew NP certification, professionals must meet continued education requirements as outlined by the state board and certifying body with which they are affiliated.²¹⁴

SPECIALTIES

The breadth of NP specialization is demonstrated by the fifteen NCCA-accredited certification programs across five certifying bodies.²¹⁵ NPs can specialize in acute care, adult health, family health, gerontology health, neonatal health, oncology, pediatric and child health, psychiatric and mental health, or women's health. Additionally, NPs are found practicing in numerous subspecialty fields, including allergy and immunology, cardiovascular disease, dermatology, emergency medicine, endocrinology, gastroenterology, hematology and oncology, neurology, occupational health, orthopedics, pulmonology and respiratory medicine, sports medicine, and, urology.²¹⁶

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

In 2008, an estimated 8,000 NPs entered the U.S. healthcare workforce, which contained more than 125,000 practicing NPs at the time of publication.²¹⁷ Of all NPs, 88 percent were awarded graduate degrees, and 92 percent were nationally certified.²¹⁸ Hospital-based NPs comprised 39 percent of all APRNs in this field, and 13 percent worked in long-term care settings.²¹⁹ Additionally, 66 percent of NPs provided care in at least one primary care setting, with 31 percent practicing at a minimum of one location that provided inpatient, emergency, surgical, specialty, or other nonprimary care services.²²⁰ Because NPs are authorized to prescribe medication in all states, with only three states restricting their ability to prescribe controlled substances, 96.5 percent of NPs provided prescribing services, writing, on average, nineteen prescriptions a day.²²¹

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"Nurse Practitioner Facts," American Academy of Nurse Practitioners, www.aanp.org/NR/rdonlyres/32B74504-2C8E-4603-8949-710A287E0B32/0/AANP_NPFactsLogo709.pdf (accessed November 3, 2009).

Family medicine is the specialty area with the largest NP volume, accounting for 49.2 percent of the total population.²²² Other specialty areas in which NPs are abundant include adult medicine (17.9 percent), pediatric medicine (9.4 percent), and women's health (9.1 percent).²²³

SUPPLY AND DEMAND

Excluding dually specialized APRNs, the NP population accounted for 51.1 percent of all APRNs in 2004.²²⁴ The number of NPs in the United States increased by 37.3 percent from 2000 to 2004. From 2004 to 2008, the proportion of NPs who were nationally certified increased from 77.6 percent in 2004 to 92 percent in 2008.²²⁵ Further, NPs with a master's degree went from representing 65.5 percent of all NPs in 2004 to 88 percent in 2008. Although nearly 88 percent of NPs were employed in nursing in 2004, only 65.7 percent of this population subset practiced under a job title linked to their professional designation.²²⁶ Additionally, 14,689 APRNs were trained as CNSs as well as NPs, and 2,892 held dual certification in NM and NP (see *Industry Trends* under *Clinical Nurse Specialists* and *Certified Nurse-Midwives* for more information about dually certified practitioners).²²⁷

HIGHLIGHTS IN THE FOUR PILLARS

COMPETITION

The NP profession is heavily focused in primary care,²²⁸ which is an attribute that will serve the profession well in the future.²²⁹ Without taking healthcare reform initiatives into consideration, there already exists a primary care workforce shortage.²³⁰ Legislation encouraging increased access to primary care would only exacerbate the deficit.²³¹ With increased emphasis being placed on preventive medicine and health maintenance, NPs will find that their services are in high demand, namely, because research suggests they provide high-quality care in a cost-effective manner.²³² In a study comparing NP management to physician management of patients with high cholesterol levels, groups managed by NPs had higher rates of drug compliance, with more patients achieving their goals, and lower drug spending.²³³ In fact, NPs have been reported to provide care equal to—or even at a higher quality than—physicians. Additionally, patient satisfaction with NP care has been reported as very high.²³⁴ NPs also have proven successful in nonconventional primary care settings with certain corporate employers choosing to implement in-house medical clinics staffed by nurse practitioners to alleviate rising healthcare costs. Results of cost-assessment conducted on an onsite NP practice that provides services to employees and their families indicate that this innovative strategy shows significant healthcare savings for the company.²³⁵ Additionally, NPs are perceived as having the potential to influence the adoption of retail-based practices into the healthcare system, broadening access to primary care services.²³⁶

CLINICAL NURSE SPECIALISTS (CNSs)

DESCRIPTION AND SCOPE

Clinical nurse specialists (CNSs) are APRNs who demonstrate expertise in the provision of highly specialized patient care and consultation.²³⁷ Specialty options are discussed in greater detail within this section under *Specialties*.

SCOPE

As previously mentioned, CNSs are proficient in a specific area of nursing practice described as it relates to population (for example, pediatrics, gerontology, and so forth), setting (for example, critical or emergency care), disease or subspecialty of medicine (for example, oncology, diabetes, and so forth), kind of care (for example, rehabilitative, psychiatric, and so forth), or problem-base (for example, stress, pain, and so forth).²³⁸ CNSs practice in a multitude of healthcare settings, providing specialty services in patient care as well as consult to other professionals.²³⁹

EDUCATION AND TRAINING

CNS education and training must be completed through a graduate-level program accredited by either CCNE or NLNAC.²⁴⁰ In order to be eligible for enrollment into an accredited program, candidates must possess, at least, a baccalaureate nursing degree.²⁴¹ Candidates eligible to sit for certification examinations offered by ANCC met CNS test-specific requirements and maintained licensure for the duration of training and practice.²⁴²

Although education through an accredited program and certification are recognized as key prerequisites to CNS practice, rules and regulations are issued by state licensing boards and, therefore, differ for each state.²⁴³ To maintain and renew CNS certification, professionals must meet the continuing education requirements set by the appropriate state boards, as well as those set by the ANCC and other certification programs, or both.²⁴⁴

SPECIALTIES

The ANCC awards certification and credentialing to CNS professionals specializing in adult health (formerly known as medical-surgical nursing), adult psychiatric and mental health, advanced diabetes management, child and adolescent psychiatric and mental health, gerontology, pediatrics, and public and community health.²⁴⁵ Additionally, the Oncology Nursing Certification Corporation, the American Association of Critical Care Nurses Certification Corporation, and the Orthopaedic Nurses Certification Board offer CNS certification in their respective specialty areas.²⁴⁶

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

With 72,521 practitioners in 2004, the CNS specialty field represented the second-largest APRN population after NPs.²⁴⁷ Of all CNSs reported in 2004, 32,385 received national certifications, and 27,379 were state certified.²⁴⁸ In compliance with largely accepted educational requirements, 93.3 percent of CNSs received their highest education through master's degree programs, with 3.8 percent with post-master's training and certificates, and 0.3 percent with doctoral degree training as preparation for CNS.²⁴⁹

The CNS specialty field represents the second-largest APRN population after NPs.

"The Registered Nurse Population: Findings from the March 2004 National Sample Survey of Registered Nurses," Health Resources and Services Administration, U.S. Department of Health and Human Resources and Services Administration, Bureau of Health Professions, 2006, <ftp://ftp.hrsa.gov/bhpr/workforce/0306rnss.pdf> (accessed November 2, 2009), p. 32, 34.

Of the APRNs reported in 2004 for this specialty area, 14,689 were trained as NPs as well as CNSs.²⁵⁰ Similar to general trends, 93.4 percent of these dually specialized APRNs had completed CNS training through a master's degree program, with 33.9 percent completing post-master's training and certification and 2.6 percent awarded doctoral degrees.²⁵¹

SUPPLY AND DEMAND

RNs who receive only CNS training comprise 23.7 percent of the APRN population, and RNs who receive CNS/NP dual training comprise 6 percent of all APRNs.²⁵² The total number of CNSs increased 5.1 percent from 69,017 in 2000 to 72,521 in 2004.²⁵³ Federal and state certification increased during this four-year period by 2.1 percent and 31.2 percent, respectively.²⁵⁴

Although CNSs employed in nursing comprised 85.1 percent of the total specialty population, only 19.4 percent of CNSs practicing in nursing did so under the title of clinical nurse specialist.²⁵⁵

Additionally, only 5.7 percent of dual specialty CNSs/NPs employed in nursing (93.4 percent of these practitioners are employed in nursing) practiced under the title of clinical nurse specialist.²⁵⁶

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

CNS services are not consistently regulated across all states; proponents of regulatory reform delineate certain regulatory challenges that practitioners in this field face.²⁵⁷ One such challenge lies in the definition and scope of each APRN category, specifically CNS.²⁵⁸ Because all four APRN areas of practice fall under the APRN umbrella, their distinguishing characteristics wane in light of their basic commonality.²⁵⁹ With only thirty-seven states offering some measure of CNS recognition, the need for universal designation or recognition requirements is essential in order to (1) ensure third-party payment (some third parties will only reimburse for services performed by practitioners who are recognized by their states) and (2) void the field of all practitioners who have not been adequately prepared and may be misrepresenting the profession.²⁶⁰

CERTIFIED NURSE-MIDWIVES (CNMs)

DESCRIPTION AND SCOPE

Certified nurse-midwives (CNMs) provide primary healthcare services to women, specifically before, during, and after pregnancy.²⁶¹ Additionally, these APRNs provide medical care to newborns for a month after birth.²⁶²

SCOPE

CNMs work independent of, in collaboration with, or as consult to other healthcare professionals in an effort to provide comprehensive care to women in the United States. More specifically, they provide primary, obstetrical, gynecological, and newborn care services.²⁶³ CNMs work alongside a very diverse collection of healthcare professionals, including physicians (especially those who specialize in treating illnesses during pregnancy), nurses, social workers, physical therapists, nutritionists, childbirth mentors, and doulas.²⁶⁴ The scope of CNM service is not limited to care surrounding childbirth; it includes prenatal care, delivery services, post-delivery care, infant care, annual women's health exams, birth control services, menopause services, and an array of counseling services.²⁶⁵ CNMs work in the hospital setting as well as in freestanding birth centers and the home.²⁶⁶

EDUCATION AND TRAINING

Individuals interested in pursuing certification must first enroll in a NM education program that has been accredited through the Accreditation Commission for Midwifery Education (ACME, formerly known as the ACNM Division of Accreditation).²⁶⁷ The United States Department of Education recognizes ACME as an accrediting agency.²⁶⁸ Certified programs are typically at the graduate-degree level, and they focus on core competencies centered around "midwifery, public health, and other related fields."²⁶⁹ NM programs must be part of or affiliated with an accredited institution for higher education.²⁷⁰ The typical

applicant has a BSN, however, many education programs accept applicants who do not have a nursing background because they incorporate basic nursing training into their curricula.²⁷¹

Many NM education programs accept applicants who do not have a nursing background and incorporate basic nursing training into their curricula accordingly.

"Become a Midwife," American College of Nurse-Midwives, 2009, www.mymidwife.org/becoming_mw.cfm (accessed November 3 2009).

Upon completion of training through an accredited program, candidates are eligible to sit for the American Midwifery Certification Board (AMCB) national certifying exam.²⁷² The AMCB is certified by NCCA and holds membership with the National Organization for Certifying Agencies.²⁷³ Candidates who pass the certifying exam are awarded the title Certified Nurse-Midwife (CNM).²⁷⁴

Although the majority of aspiring NMs choose to pursue this professional route, training to be a certified midwife (CM) also is available and legally sanctioned in three states (New York, New Jersey, and Rhode Island).²⁷⁵ This route of education and certification bypasses the nursing training entirely, however, CM education is recognized by the ACNM as preparing practitioners "to meet the same high standards that certified nurse-midwives must meet."²⁷⁶

State licensure is contingent upon successful completion of accredited training and certifying examination.²⁷⁷ States are encouraged to implement policy that reflects the education content and certification process while promoting collaboration, preserving equal representation of decision-making entities, and ensuring access to licensed and competent professionals who have been provided title protection.²⁷⁸ The ACNM also advises states to grant NMs prescribing rights.²⁷⁹

SPECIALTIES

AMCB awards certificates in nurse-midwifery and midwifery.²⁸⁰ Nurse-midwifery training involves both nursing and midwifery as compared with midwifery training which lacks the nursing component.²⁸¹ ACNM recognizes that although this is the case, "dual preparation is not a basic requirement to provide competent midwifery care to women and their families."²⁸² As previously mentioned, CM certification is only permitted in three states.²⁸³

Within nurse-midwifery, practitioners have specialization options beyond the ACNM core competencies; as technology progresses, the scope of these options is expected to broaden. Specialty procedures and specialized areas of practice are covered under Standard VIII: Expanded Midwifery Practices, of the Standards for the Practice of Midwifery and include first assisting, vacuum extraction, and circumcision procedures.²⁸⁴

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

In 2004, there were approximately 13,684 APRNs formally trained in nurse-midwifery.²⁸⁵ This included 2,892 individuals dually prepared as NPs and NMs.²⁸⁶ Further, 93.7 percent of all NMs reported were certified nationally, and approximately 75 percent were recognized by their state boards.²⁸⁷ With student enrollment in accredited education programs reaching 1,158 in 2004,²⁸⁸ the majority (56.7 percent)

of NMs completed graduate-level training in the field, approximately 5.8 percent were certified at the post-master's degree level, and 36.9 were awarded post-RN certification.²⁸⁹ With regard to employment, practicing NMs comprised 89.3 percent of all NMs.²⁹⁰ Of all CNM visits, 90 percent were focused on primary, gynecological, preventive care, or a combination of these.²⁹¹

Of the practitioners dually trained as NMs and NPs, approximately 45.2 percent were trained through one or more graduate-degree programs, 33.2 percent were trained through one or more post-RN programs, and 18.5 percent were trained through post-graduate degree programs.²⁹² Finally, 80.4 percent were employed in nursing.²⁹³

SUPPLY AND DEMAND

NMs represent 4.3 percent of all APRNs and, as such, constitute the smallest of the four APRN populations.²⁹⁴ Of those NMs actively practicing in the field, 57.6 percent held position titles that corresponded to their NM designation.²⁹⁵ Alternately, only 37.2 percent of practitioners dually trained as NMs and NPs used nurse-midwife as their position designation,²⁹⁶ and they represented 1.2 percent of the total APRN population.²⁹⁷

The number of CNM- or CM-attended births increased from approximately 238,472 in 1996 to 317,168 in 2006, representing a 33 percent change.²⁹⁸ Of all midwife-attended births, which accounted for 7.9 percent of all births, 94.3 percent were attended by CNMs.²⁹⁹ Of all CNM- or CM-attended births in 2006, 306,629 (97 percent) took place in a hospital setting, and 6,244 (2 percent) and 3,951 (1 percent) took place in freestanding birth centers and homes, respectively.³⁰⁰ Midwives attended 14,774, or 60 percent, of all home births, with CNMs and CMs only accounting for 3,951, or 27 percent, of these occurrences.³⁰¹

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

Although CNM practice and prescribing rights are legally permissible in all fifty states, CM certification is only permitted in three states and prescribing rights are only recognized in two.³⁰² As previously mentioned, educational requirements for certification in midwifery are the same for both CNMs and CMs; however, the difference lies in whether practitioners are proficient in the complementary nursing services.³⁰³

REIMBURSEMENT

All states mandate Medicaid reimbursement of both CNM and CM services.³⁰⁴ Also, approximately two thirds of the states require that private insurers reimburse for CNM services.³⁰⁵

COMPETITION

In recent years, debate has raged between physicians and CNMs regarding the constitutional right for CNMs to practice independently of physicians, as a result, providing competition for services. Most notably, in 2008 the Supreme Court of Missouri, in a case brought by the Missouri State Medical Association against the State of Missouri and the Missouri Midwives Association, decided that the plaintiffs "had no standing to bring the suit" regarding the invalidation of a 2007 statute that legalized the practice

of midwifery.³⁰⁶ As of 2009, similar debates were continuing in other states, including Idaho, Illinois, Indiana, Iowa, Nebraska, New Mexico, Oregon, South Dakota, Virginia, and Wyoming.³⁰⁷

REHABILITATION THERAPISTS

DESCRIPTION AND SCOPE

Rehabilitation therapists are mid-level providers trained to provide an array of services intended to restore or enhance a patient's function and to recover, as much as possible, the patient's health and well-being.³⁰⁸

SCOPE

A set of general parameters have been established to describe the scope services that all rehabilitative therapists are expected to provide:

1. Due to the restorative and management nature of their care, therapists must continually conduct evaluations and reevaluations.
2. Therapists must set goals specifically catered to a patient's disorder, disability, or dysfunction in consideration of the specific problems that were identified during the evaluation process.
3. Therapists must develop treatment plans specific to patient needs. Plan development must include procedures tailored toward achieving set goals and specific information regarding the frequency of treatment, the intensity of treatment, or both.
4. Therapists must contemporaneously assess outcomes during the implementation of treatment plans.
5. Therapists must instruct patients so that they properly develop the skills they need to maintain their improved condition(s).
6. Therapists must be proficient in choosing devices to serve the purpose of replacing or enhancing function.
7. Therapists must be experienced in educating patient families in the proper enforcement of therapies in order to ensure that the maintenance program is effective.³⁰⁹

The scope of practice within each type of rehabilitative therapy stems from these overarching criteria, but it is customized to align with the specialized services that therapists are trained to provide within their specialty area.

EDUCATION AND TRAINING

Although education and training requirements are, to some degree, unique for each type of rehabilitation therapist, all therapists must complete education and training at the master's degree level or higher.³¹⁰ Specific training, accrediting, and licensing requirements for each therapy type are addressed in the following sections.

DIFFERENT TYPES OF REHABILITATION THERAPISTS

Three mainstream therapy professions fall under the scope described by the CMS: physical therapy, occupational therapy, and audiology and speech-language pathology.³¹¹

Physical Therapists

Scope

Physical therapists provide rehabilitative services intended to aid in the recuperation of functionality and mobility, the remediation of pain, and the maintenance of restored strength to minimize or eliminate any permanent effects of patient conditions.³¹² These practitioners treat accident victims and patients with low-back pain, arthritis, heart disease, fractures, head injuries, cerebral palsy, and other disabling conditions.³¹³ Physical therapy services may include exercise, electrical stimulation, hot packs or cold compresses, and ultrasound to treat their patients.³¹⁴ Although some physical therapists provide a broad scope of services, others specialize in areas such as pediatrics, geriatrics, orthopedics, sports medicine, neurology, and cardiopulmonary physical therapy.³¹⁵

Education and Training

As of 2007, there were 207 physical therapy education programs accredited by the Commission on Accreditation in Physical Therapy Education; of these, there were forty-three master's degree programs and 166 doctoral programs.³¹⁶ Coursework for rehabilitative therapy students includes biology, chemistry, physics, biomechanics, neuroanatomy, human growth and development, manifestations of disease, examination strategies, and therapeutic procedures.³¹⁷ In addition to completing classroom and laboratory training, students are required to participate in supervised clinical training.³¹⁸ Physical therapists are required to pass state and federal licensure examinations in order to practice.³¹⁹

Occupational Therapists

Scope

Occupational therapists care for patients with mental, physical, developmental, emotional conditions, or a combination of these that impair their ability to undertake daily tasks, occupational tasks, or both.³²⁰ They do so by helping patients restore motor function and cognitive abilities and by helping them compensate for any permanent damage they may need to live with.³²¹ Occupational therapists treat patients with spinal cord injuries, cerebral palsy, or muscular dystrophy; patients with short term memory loss or loss of coordination skills; elderly patients; patients who suffer from mental illness; or patients who are developmentally challenged or emotionally disturbed.³²²

Education and Training

Occupational therapy programs that are accredited by the Accreditation Council for Occupational Therapy Education must be at the master's degree level or higher, however, a portion of these programs offer a curriculum that incorporates entry-level training as well.³²³ As of 2007, there were 124 master's degree programs that offered entry-level training, sixty-six programs that combined bachelor's and master's degrees, and five doctoral degree programs that offered entry-level training.³²⁴ Curricula include physical, biological, and behavioral sciences in addition to the skills associated with the practice of occupational therapy.³²⁵ Additionally, students of occupational therapy must complete six months of clinical work.³²⁶ Licensure is regulated in all states; candidates must complete accredited training and sit for the national

certifying exam administered by the National Board of Certification in Occupational Therapy.³²⁷ The designation assigned to practitioners who achieve licensure is **Occupational Therapist Registered**.³²⁸

Audiologists and Speech-Language Pathologists

Scope

The Council for Clinical Certification in Audiology and Speech-Language Pathology (CFCC) of the American Speech-Language-Hearing Association certifies audiologists and speech-language pathologists who meet their designated criteria.³²⁹ **Audiologists** provide services in the management of auditory and balance related conditions.³³⁰ **Speech-language pathologists** assess patients in order to diagnose a variety of speech, language, cognitive, and swallowing conditions.³³¹ These rehabilitation therapists work in a variety of settings, primarily in schools, hospitals, rehabilitation centers, private practices, skilled nursing and adult day care facilities, health departments, community facilities, government facilities and offices, and research laboratories.³³²

Education and Training

Individuals pursuing CFCC certification must first complete graduate-level training in either speech-language pathology or audiology through an accredited program. The CFCC has approved audiology and speech-language pathology programs at approximately 120 and 230 colleges and universities, respectively (the Accreditation Commission of Audiology Education also accredits audiology programs).³³³ In addition to training through an accredited program, candidates must complete a supervised clinical fellowship and 300–400 hours of supervised clinical experience.³³⁴ After completing the required education and training, candidates are eligible to sit for certification examinations.³³⁵ Audiology certification is awarded by the CFCC (Certificate of Clinical Competence in Audiology) as well as the American Board of Audiology; speech-language pathologists are certified through the CFCC.³³⁶ Audiologists are licensed and regulated in all fifty states; typically, certification meets the requirements for state licensure in audiology.³³⁷ In twenty states, audiologists also must be licensed to dispense hearing aids.³³⁸ Speech-language pathology is regulated and licensed in forty-seven states, each with different requirements for licensure.³³⁹ Candidates must sit for the national examination on speech-language pathology administered through the Praxis Series of the Educational Testing Service, and they may need to acquire the CFCC Certificate of Clinical Competence in Speech-Language Pathology.³⁴⁰

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

As of May 2008, there were 381,920 rehabilitation therapists employed in the United States, with 167,300 physical therapists (43.8 percent), 94,800 occupational therapists (24.8 percent), 107,340 speech-language pathologists (28.1 percent), and 12,480 audiologists (3.3 percent).³⁴¹ As a whole, the sites of services in which the largest volumes of rehabilitation therapists practiced were the offices of nonphysician practitioners (36.8 percent), general medical and surgical hospitals (32.6 percent), and elementary and secondary schools (26.8 percent).³⁴² Table 4-1 details the distribution of rehabilitation therapists across specific therapy types and the most common sites of service.

The largest volume of rehabilitation therapists practices were the offices of nonphysician practitioners (36.8 percent), general medical and surgical hospitals (32.6 percent), and elementary and secondary schools (26.8 percent).

"Physical Therapists," "Occupational Therapists," "Speech-Language Therapists," and "Audiologists," in "Occupational Employment and Wages," the Bureau of Labor Statistics, May 2008, www.bls.gov/oes/2008/may/oes_alpha.htm (accessed November 11, 2009).

Table 4-1: Rehabilitation Therapists Employment Estimates, May 2008

	Physical Therapists		Occupational Therapists		Speech-Language Pathologists		Audiologists		Total	
	#	%	#	%	#	%	#	%	#	%
Offices of Other Health Practitioners	56,030	33.5	20,340	21.5	16,560	15.4	2,460	19.7	95390	36.8
General Medical and Surgical Hospitals	46,990	28.1	23,620	24.9	12,440	11.6	1,330	10.7	84380	32.6
Elementary and Secondary Schools	0	0.0	12,580	13.3	55,450	51.7	1,360	10.9	69390	26.8
Home Health Care Services	17,840	10.7	6,390	6.7	3,040	2.8	0	0.0	27270	10.5
Nursing Care Facilities	10,370	6.2	8,630	9.1	4,260	4.0	0	0.0	23260	9.0
Offices of Physicians	8,210	4.9	0	0.0	0	0.0	3,550	28.4	11760	4.5
Other	27,860	16.7	23,240	24.5	15,590	14.5	3,780	30.3	70470	27.2
Total	167,300	100.0	94,800	100.0	107,340	100.0	12,480	100.0	381920	100.0
Percent of Therapists	43.8		24.8		28.1		3.3		100.0	

Source: "Physical Therapists," "Occupational Therapists," "Speech-Language Therapists," and "Audiologists" in "Occupational Employment and Wages," the Bureau of Labor Statistics, May 2008, http://www.bls.gov/oes/2008/may/oes_alpha.htm (accessed 11/11/09).

SUPPLY AND DEMAND

The BLS projects a net increase of 82,000 rehabilitation therapists (physical therapists, occupational therapists, speech-language pathologists, and audiologists), which represents a 21 percent increase, from 394,000 to 476,000 jobs.³⁴³ The numbers of physical therapists and occupational therapists are expected to increase the most, with growth rates of 23 percent and 21 percent, respectively.³⁴⁴ Table 4-2 provides further detail with regard to the expected rates of change across the various practice areas.

Projected growth in the supply of rehabilitation therapists is linked closely to the anticipated increase in demand, fueled by an aging population, advances in medical technologies and capabilities, and an increased emphasis on health promotion.³⁴⁵

Table 4-2: Rehabilitation Therapists Employment Estimates and Projections

	2006	2016	Change	
			#	% change 2006-16
Physical Therapists	173,000	220,000	47,000	27
Occupational Therapists	99,000	122,000	23,000	23
Speech-Language Pathologists	110,000	121,000	11,000	11
Audiologists	12,000	13,000	1,000	10
Total	394,000	476,000	82,000	21

Source: "Physical Therapists," "Occupational Therapists," "Speech-Language Therapists," and "Audiologists" in "Occupational Outlook Handbook, 2008-09 Edition," by Bureau of Labor Statistics, 2009, <http://www.bls.gov/oco.htm> (accessed 11/05/09).

The increasing number of elderly individuals suggests increased need for rehabilitative and preventative therapeutic services, because this subset of the population is at higher risk of chronic and debilitating conditions that require therapeutic care.³⁴⁶ Additionally, because the risk of heart attack and stroke increases with age, a graying population will require increased availability of cardiac and physical rehabilitation services.³⁴⁷ Medical developments have improved the survival rate of trauma victims, who in turn will require rehabilitative services, further contributing to the growing demand.³⁴⁸ Also, technological advances have broadened the range of rehabilitative capabilities, allowing therapists to treat conditions that were previously untreatable.³⁴⁹ Lastly, healthcare reform efforts focused on improving spending, as well as on health outcomes, are encouraging initiatives in health promotion, prevention, and maintenance, potentially raising the demand for services provided by rehabilitation therapists.³⁵⁰ As a result of this expected increase in demand, the job market for rehabilitation therapists may expand, that is, employers will hire therapists to evaluate jobsites, develop and maintain exercise programs, and provide training in safe workplace practices.³⁵¹

In 2006, 4,419,907 beneficiaries reportedly received services in physical therapy, occupational therapy, or speech-language pathology; this represents 9.7 percent of all Medicare Part B beneficiaries.³⁵² Approximately 98 percent of these rehabilitation patients received physical therapy services, 23 percent received occupational therapy services, and 11 percent received speech-language pathology services (with some beneficiaries receiving services in more than one of these areas).³⁵³ The number of therapy beneficiaries increased 14 percent from 2002 to 2004 and 3.5 percent from 2004 to 2006.³⁵⁴

9.7 percent of all Medicare Part B beneficiaries received services in physical therapy, occupational therapy, or speech-language pathology in 2006.

"Outpatient Therapy Alternative Payment Study 2 (OTAPS 2) Task Order: CY 2006 Outpatient Therapy Services Utilization Report," by Daniel E. Ciolek, M.S. and Wenke Hwang, PhD; Computer Sciences Corporation, Federal Sector—Civil Group, February 1, 2008, p. 7.

HIGHLIGHTS IN THE FOUR PILLARS

REIMBURSEMENT

Despite the relative freedom given to some mid-level providers with regard to payment options under Medicare, practice limitations still exist in some settings. Of note, the 2010 OPPTS final rule confirmed the contested proposal that required that outpatient therapeutic services provided in a hospital setting be directly supervised by a physician.³⁵⁵ As detailed in *Overview* under *Competition* in this section, therapists continue to advocate for the elevation of their profession to physician status, allowing them to be reimbursed fully and independently in all situations. Services provided to patients other than Medicare beneficiaries may follow different reimbursement policies, determined at the state level.³⁵⁶

REGULATORY

The 1997 Balanced Budget Act set therapy caps for reimbursement of outpatient physical therapy and speech-language pathology; this motion initiated much controversy and, as a consequence, therapy cap exceptions were sanctioned under the 2005 Deficit Reduction Act, which became effective January 1, 2006.³⁵⁷ The effective date of these exceptions has since been extended, first through the Medicare, Medicaid, and SCHIP Extension Act of 2007 (effective June 30, 2008) and again through the Medicare

Improvements for Patients and Providers Act of 2008 (MIPPA), issued July 15, 2008, and effective December 31, 2009.³⁵⁸

Beginning January 1, 2010, in order for physical therapy services to be independently reimbursed by Medicare, they must be provided by qualified physical therapists who are licensed to practice as physical therapists in the states in which they provide services. To be considered qualified, physical therapists also must have graduated from an accredited physical therapy education program and passed a national examination approved by the states in which they are practicing.³⁵⁹ Although they must still satisfy the educational and examination requirements, therapy services provided incident-to the services of a physician or NP do not require a licensed physical therapist to provide them.³⁶⁰ *Incident-to* services are those billed by physicians or other professionals and reimbursed at the standard physician rate but performed by nonphysicians including physical therapists.³⁶¹ These incident-to therapy services must be an integral (although incidental) part of a treatment plan when a physician personally performs the initial service and is actively involved in the patient's care.³⁶² They also must be furnished under the direct supervision of a physician, although this requires only that the physician be in the same office suite and available to provide direction and assistance if needed.³⁶³ On August 5, 2009, the OIG released findings on its billing of incident-to services study and found that unqualified nonphysicians performed 21 percent of the services that physicians did not personally perform.³⁶⁴ Previously, these services were properly billable to Medicare because of a lack of requirements for those providing incident-to services, but after January 1, 2010, therapists must have at least the aforementioned educational and examination requirements in order to properly perform incident-to services. Concern voiced by the OIG and CMS regarding the high rate of unqualified personnel performing these services indicates increased future scrutiny of this issue.³⁶⁵

COMPETITION

Competition with Physicians

Physicians are a primary—and growing—source of competition for rehabilitative, or mid-level, therapists, due to the growing similarities in, and overlap of, services that these healthcare practitioners provide. The scope of rehabilitation therapy services is broadening as a result of changes in market demand paired with the need for supplemental manpower in a time of detrimental physician shortages.³⁶⁶ Though traditionally limited to the provision of care complementary to—and navigated by—physician services, rehabilitation therapists are moving into increasingly autonomous practice domains.³⁶⁷

The elevation of educational standards has been among the most significant methods by which mid-level providers have fueled and accelerated this transition into the independent provision of care. In 2008, the Association of Schools of Allied Health Professions (ASAHP) issued a position statement, “Descriptive Differentiation of Clinical Doctorates,” intended to distinguish “entry level clinical doctorates” (for example, doctorates in physical therapy and audiology) from advanced practice doctorates (for example, doctorates in nursing and nutrition).³⁶⁸ In this position statement, the ASAHP recognized “both institutional autonomy and variances in state regulations or professional standards.”³⁶⁹ Along similar lines, the American Physical Therapy Association (APTA) has declared that, by 2020, physical therapy will be provided solely by doctors of physical therapy, “recognized by consumers and other health care professionals as the practitioners of choice to whom consumers have direct access . . . (and) will hold privileges of autonomous practice.”³⁷⁰ In doing so, the APTA expects that physical therapists will establish a reputation of professionalism that will be instrumental in developing the continuum of care and the

intraprofessional relationships of evidence-based, direct access services that emphasize patient or client management, prevention, and wellness.³⁷¹ These goals are not being achieved effortlessly; although improvements in policy and market trends have been seen, the profession remains in transition, and much controversy persists among physicians, as well as other nonphysician clinicians, including physical therapists, who do not pursue clinical doctorates.³⁷²

Competition With Other Nonphysician Practitioners

In addition to physicians, other nonphysician clinicians (for example, “physician extenders” and allied health professionals who provide “parallel” services to physicians) contribute to the competitive market for rehabilitative therapists. A very significant example of this evolving market force continues to become apparent as chiropractic methods become more accepted in the medical community. Doctors of chiropractic are coming into direct competition with physical therapists for the provision of services, such as spinal manipulation.³⁷³ However, physical therapists are still believed to maintain the competitive edge, because they have a stable relationship with the medical community (a primary source of patient referrals), and physical therapist services are more accepted by insurance providers.³⁷⁴ However, doctors of chiropractic are believed to have more experience and successes with spinal manipulation than physical therapists.³⁷⁵

Although physical therapy programs have begun to implement spinal manipulation into their curriculums, physical therapy training remains inconsistent.³⁷⁶ As such, physical therapists are excluded from Medicare reimbursement for spinal manipulation to correct a subluxation.³⁷⁷

As previously mentioned, APTA’s *Vision Statement for Physical Therapy 2020* is aimed at a physical therapist population solely comprised of doctors of physical therapy, which may “hasten the granting of pervasive direct access and ‘physician status’ for reimbursement, and ensure the profession’s continued growth, maturation, and services.”³⁷⁸ Elevating the baseline level of education to a clinical doctorate in physical therapy will likely serve as an advantage to these professionals when they compete against doctors of chiropractic, as well as against other healthcare professionals.

Competition Among Rehabilitation Therapists

There has been an increase in competition between therapists who graduated from master’s degree (M.A. or M.S.) or research doctoral degree (Ph.D.) programs and therapists who received clinical doctorates [that is, a doctorate of physical therapy (DPT)]. Significant progress in scientific technology, development, research, and literature has been made, and future advances will continue to affect the healthcare industry. These ongoing scientific developments, paired with the impact of escalating market demands on the ever-expanding scope of rehabilitative services that therapists could potentially provide, have prompted, as of 2010, a reevaluation of the standards for education in order to determine if they meet practice expectations and community needs.³⁷⁹ Though existing policies require only a master’s degree to practice, rehabilitation therapists with clinical doctorates, namely in the field of physical therapy, represent a growing proportion of therapists.³⁸⁰ As of 2008, 17,300 students had been awarded DPT degrees, with 200 out of 215 accredited programs offering DPT degrees.³⁸¹ Additionally, 19,088 students were enrolled in post-professional (transitional) degree programs from 1999 to 2008, with a total of 10,333 graduates estimated through 2009.³⁸² Graduates of master’s-level physical therapy programs view the growing volume of DPT graduates as a threat to their relative market value and their role in the existing healthcare workforce.³⁸³ With the push for policy reform, gradual changes in favor of DPT training will only further the effect of education disparity on the competitive market.

TECHNOLOGY

Industry advances in technology have inadvertently forced rehabilitation therapists to expand their level of technological capability, which increases their marketability and aptitude as independent practitioners. The movement toward clinical doctorate programs in the various areas of rehabilitative therapy is intended to ensure that therapists demonstrate mastery of the technologies required to competently practice.³⁸⁴

REGISTERED DIETICIANS (RDs)

DESCRIPTION AND SCOPE

Registered dietitians (RDs) promote healthy dietary habits and consult on matters of nutritional modification in order to prevent, treat, and manage illnesses and conditions.³⁸⁵ They do so by creating dietary programs and overseeing the meal preparation and distribution for their patients.³⁸⁶

SCOPE

RDs work in a variety of industries (for example, healthcare business and industry, public health, education, research, and private practice) to provide a broad scope of services.³⁸⁷ Specifically within healthcare, RDs practice in hospitals, HMOs, private healthcare offices, facilities that house sports nutrition and wellness programs, food and nutrition companies, the community-based public health field, universities, medical centers, and research groups.³⁸⁸ RDs in each of these settings may choose to assume their role in clinical, community, management, consulting dietetics, or a combination of these.³⁸⁹

EDUCATION AND TRAINING

RDs have completed a bachelor's degree (graduate degrees are also available) at an accredited university in the United States wherein the curriculum is recognized by the Commission on Accreditation for Dietetics Education (CADE) as a "didactic program in dietetics."³⁹⁰ CADE is the accrediting agency of the American Dietetic Association (ADA); it is recognized by the U.S. Department of Education and the CHEA.³⁹¹ Coursework requirements and elective options span a number of subject areas, including food and nutritional sciences, foodservice management, business, economics, computer science, culinary arts, sociology, communication, as well as courses in biochemical, physiological, microbiological, anatomical, and chemical sciences.³⁹² Degree options pursued by individuals interested in becoming an RD include dietetics, foods and nutrition, and food service systems management, among others.³⁹³ Candidates must then enroll in a six-month to one-year CADE-accredited practice program, typically provided through a healthcare facility, community agency, or foodservice company; some programs are integrated in undergraduate or graduate programs as well.³⁹⁴ Upon completing their practice training, candidates may sit for the Commission on Dietetic Registration's (CDR) national examination.³⁹⁵ CDR is recognized by the National Commission for Certifying Agencies as the certifying body for dietetic specialties and subspecialties.³⁹⁶ Additionally, many states have adopted regulatory requirements apart from CDR credentialing; by in large, these requirements are well aligned with the educational and training requirements set and enforced by the ADA, CADE, and CDR.³⁹⁷ At the time of publication, forty-eight states

had adopted dietetic laws, with thirty-five mandating licensure, twelve requiring statutory certification, and one with registration requirements.³⁹⁸ Those who pass the certifying exam and become RDs must adhere to continuing education requirements (known as the Professional Development Portfolio requirements) in order to maintain their certification.³⁹⁹

At the time of publication, forty-eight states have adopted dietetic laws, with thirty-five mandating licensure, twelve requiring statutory certification, and one with registration requirements.

"Dietitians and Nutritionists," Occupational Outlook Handbook, 2008-09 Edition, Bureau of Labor Statistics, www.bls.gov/oco/ocos077.htm (accessed November 5, 2009).

SPECIALTIES

CDR awards five specialty certifications, through which RDs may become board certified specialists in renal nutrition, board certified specialists in pediatric nutrition, board certified specialists in sports dietetics, board certified specialists in gerontological nutrition, board certified specialists in oncology nutrition, or a combination of these.⁴⁰⁰ Depending on the specialty area, RDs must document two years of primary certification and between 1,500 and 2,000 hours of specialty practice experience before they are eligible for advanced certification.⁴⁰¹ In addition, as aforementioned, RDs may choose to practice as clinical dietitians, community dietitians, management dietitians, or consulting dietitians.⁴⁰²

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

As of May 1, 2009, there were 78,032 registered dietitians, 2,508 of whom were men (3.2 percent), 73,060 of whom were female (93.63 percent), and the remaining 2,404 of whom did not specify (3.08 percent).⁴⁰³ The BLS reported 53,630 employed dietitians in 2008, with 18,390 working in hospitals (34.3 percent), 4,800 working in nursing care facilities (8.95 percent), 4,120 employed by local government (7.68 percent), 3,540 employed through outpatient care facilities (6.6 percent), and 3,360 employed by special food services (6.27 percent).⁴⁰⁴

SUPPLY AND DEMAND

RD employment is expected to increase 9 percent from 2006 to 2016, which is near the average expected growth rate for all occupations.⁴⁰⁵ Predictions are based on the expectation that healthcare will continue to assume a more preventive emphasis, wherein improved health education, consult, and interventions to improve dietary habits are key to preventing the occurrence of disease.⁴⁰⁶ Increased emphasis placed on preventing, managing, and properly treating obesity and diabetes, which are exceedingly prevalent in the United States, will especially affect the dietitian job market.⁴⁰⁷ Further, dietitians with renal, diabetic, or gerontological specialty training will likely be in increasing demand as the country's population continues to age.⁴⁰⁸

HIGHLIGHTS IN THE FOUR PILLARS

REIMBURSEMENT

At the time of publication, reimbursement for dietetic services was limited, with many patients paying for services out of pocket.⁴⁰⁹ Although some plans have started covering nutritional services, the degree of coverage varies with each plan.⁴¹⁰ As of 2010, trends in obesity and diabetes have become issues of increasing public concern; in response, Medicare may expand its coverage to include nutritional therapy services provided to patients suffering of renal conditions and diabetes.⁴¹¹

Although some plans have started covering nutritional services, reimbursement for dietetic services is limited, with many patients paying out of pocket. In consideration of trends in obesity and diabetes, as reported in 2010, Medicare may expand its coverage.

"Dietitians and Nutritionists," *Occupational Outlook Handbook, 2008-09 Edition*, Bureau of Labor Statistics, www.bls.gov/oco/ocos077.htm (accessed November 5, 2009).

COMPETITION

Growing needs in dietary and nutritional care also have broadened the scope of professionals providing the demanded services; as such, RDs may face competition from health educators, dietetic technicians, and food service administrators.⁴¹² Competition also is expected to intensify within the dietitian community; trends suggest that dietitians with higher degrees will have the most ideal employment opportunities, although those without a bachelor's degree will find the market extremely competitive.⁴¹³ Further, heightened healthcare demand across all fronts may shift the distribution of RD demand.⁴¹⁴ Though hospitals, the primary site of RD service, will continue to employ a significant number of dietitians, they also may begin outsourcing to food service agencies; the same is expected of nursing care facilities.⁴¹⁵ Accordingly, dietitian demand in these settings may decrease.⁴¹⁶ Alternately, "outpatient services," including independent food service companies, may grow in demand.⁴¹⁷ Additionally, medical nutrition therapy is expected to continue moving toward a more outpatient market.⁴¹⁸

DENTAL HYGIENISTS

DESCRIPTION AND SCOPE

Dental hygienists are licensed healthcare professionals who provide an array of preventive, diagnostic, and therapeutic dental services and educate patients on the importance and practice of good oral hygiene.⁴¹⁹

SCOPE

Dental hygienists provide a broad scope of services that continues to expand as demand for dental care increases.⁴²⁰ Dental hygienists perform cleaning, screening, preventive, educational, diagnostic, assistive, and, sometimes, therapeutic services.⁴²¹ They are authorized to assess oral conditions, document and evaluate health histories, and screen the mouth, head, and neck for diseases and conditions, including

those related to cancer.⁴²² They are proficient in diagnostic technologies, that is, x-rays, as well as the use of cleaning instruments.⁴²³ Not only do they help manage oral hygiene by performing cleanings, but they also apply preventive sealants and fluorides and educate patients on preventive and self-maintenance efforts in oral hygiene.⁴²⁴ Dental hygienists prepare diagnostic tests for dentist interpretation and, sometimes, interpret the results themselves.

Although slightly more than half of the states maintain the traditional scope of practice, under which dental hygienists provide “comprehensive oral healthcare” under the direct supervision of a dentist, the remaining states have begun to see a reduced stringency in the supervisory limitations placed on dental hygienists, which broadens the practice scope.⁴²⁵ In states in which dental hygienists who pursue higher education have been afforded increased autonomy, these professionals have been able to even start their own practices.⁴²⁶ Dental hygienists who pursue certification as Advanced Dental Hygiene Practitioners [candidates through master’s degree programs (ADHP)] are authorized to administer anesthesia in states with broadened practice scopes.⁴²⁷ These transformations in dental care delivery have been prompted by the growing need among underserved populations; ADHPs are discussed in the following sections.⁴²⁸

Slightly more than half of the states maintain the traditional scope of practice, under which dental hygienists provide “comprehensive oral healthcare” but must remain under the direct supervision of a dentist. In states with fewer restrictions, dental hygienists have been afforded increased autonomy, and these professionals have been able to start their own practices.

“Dental Hygiene Treatment,” in “Practice Management for Dental Hygienists” by Esther Andrews, 2007, Lippincott, Williams, and Wilkins, p. 101.

EDUCATION AND TRAINING

A high school diploma, college entrance exam scores, and, for some programs, completion of one year of college are the prerequisites for admission to an accredited dental hygiene program.⁴²⁹ The Commission on Dental Accreditation (CODA) is recognized by the U.S. Department of Education as the accrediting body of dental and dental-related education programs; at the time of publication, there were 303 entry-level programs (that is, associate or baccalaureate degree programs), sixty degree completion programs, and eighteen master’s degree programs accredited by CODA.⁴³⁰ The approved curriculum spans several subject areas with courses in general education, dental science, and dental hygiene science.⁴³¹ Additionally, 54 percent of accredited programs utilize clinical facilities separate from their campus, and 80 percent require some form of clinical rotation at either a community or public health site.⁴³² In order to practice, dental hygienists must attain licensure, which requires that they pass written and clinical exams.⁴³³ All fifty states require that candidates sit for the National Board Dental Hygiene Examination, administered by the American Dental Association’s Joint Commission on National Dental Examinations.⁴³⁴ In addition to this written examination, each state administers a clinical examination and, in most cases, an examination on the regulations that surround dental hygiene.⁴³⁵

SPECIALTIES

Although specialty certification is not offered, 12 percent of all dental hygiene programs offer some form of specialization track, with the majority of these programs found in bachelor’s and master’s degree programs.⁴³⁶ As previously mentioned, dental hygienists may pursue advanced training as **ADHPs**.

ADHPs possess a heightened degree of knowledge of the relationship between oral and systemic health, preventive medicine, health education, and wellness; their integration into healthcare allows for a new dimension of primary oral care from which more urgent patients may be referred to dentists and other healthcare providers.⁴³⁷ In brief, ADHP competencies include provision of primary oral healthcare, knowledge of healthcare policy and advocacy, management of oral care delivery, translational research, and professionalism.⁴³⁸

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

Dental hygienist employment was 173,090 as of May 2008.⁴³⁹ Of these, 165,790 dental hygienists worked for dentist offices (95.8 percent), 1,800 worked for employment services (1 percent), 1,580 worked for physician practices (less than 1 percent), 580 worked for hospitals, and 490 were found in outpatient care facilities.⁴⁴⁰ Dental hygienists are often employed part-time (that is, two or three days a week).⁴⁴¹ As such, greater than 50 percent of all dental hygienists worked part time, and a considerable number worked multiple jobs.⁴⁴²

50 percent of all dental hygienists work part time.

"Dental Hygienists," Occupational Outlook Handbook, 2008-09 Edition, Bureau of Labor Statistics, www.bls.gov/oco/pdf/ocos097.pdf (accessed November 5, 2009).

Annually, more than 6,000 dental hygiene graduates complete training through accredited programs, and, as such, they are afforded advanced degree options.⁴⁴³ Of all dental hygiene students reported in 2009, 97 percent were female.⁴⁴⁴ Training programs are affiliated with a variety of institutions; specifically, the majority of programs (52 percent) were found within community or junior colleges in 2006, with 21 percent found within four-year colleges and universities, 14 percent found within technical colleges, 7 percent found within dental schools, and 3 percent within academic medical centers.⁴⁴⁵

SUPPLY AND DEMAND

The number of employed dental hygienists increased from 167,000 in 2006 to 173,090 in 2008; a 30 percent increase is projected for the decade from 2006 to 2016.⁴⁴⁶ According to the BLS, dental hygiene is among the fastest growing professions.⁴⁴⁷ These employment trends may prove favorable in light of population and health trends. More than 45.6 million people in the United States live in areas where a dental workforce shortage exists.⁴⁴⁸ As a result, oral disease, which is largely preventable, has a high prevalence in the United States, specifically among underserved populations.⁴⁴⁹ One third of lower-income adults have dental decay that has gone untreated.⁴⁵⁰ Tooth decay is considered the most prevalent chronic disease among children, especially among those who do not have regular access to dental care.⁴⁵¹ In addition to the health issues associated with oral disease have been found to be a co-morbidity of diabetes, cardiovascular disease, and other systemic and chronic conditions.⁴⁵² Demand is only expected to increase the intensity of these trends, as the population continues to age and the number of people within minority demographics with oral disease conditions is expected to increase by 20 percent from 2000 to 2050.⁴⁵³

More than 45.6 million people in the United States live in areas where a dental workforce shortage exists.

"Competencies for the Advanced Dental Hygiene Practitioner (ADHP)," American Dental Hygienists' Association, March 10, 2008, 4.

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

Direct access to care, which grants dental hygienists the autonomy to provide care in nursing home and school settings without dentist supervision, was implemented by twenty-two states as of 2008.⁴⁵⁴ This represents a 120 percent increase from ten states in 2000.⁴⁵⁵ In addition to direct access, the administration of anesthesia has entered the scope of dental hygiene in many states.⁴⁵⁶ Specifically, forty states authorize dental hygienists to administer local anesthesia, and twenty-six states authorize dental hygienists to monitor and manage the use of nitrous oxide analgesia.⁴⁵⁷

REIMBURSEMENT

With autonomous ADHPs still fairly new to healthcare, only twelve states have expanded Medicaid coverage to include the services they provide.⁴⁵⁸ However, as initiatives toward developing a uniform set of objectives and priorities with regard to ADHP education, research, oral and dental health, and community needs, the dental community hopes to encourage policy makers to ensure access to dental care among underserved populations, specifically by way of expanding Medicaid to include coverage of dental hygiene services.⁴⁵⁹

COMPETITION

As initial efforts toward nondentist provider autonomy materialize, practice outcomes suggest that ADHPs provide quality, cost-effective oral healthcare to populations that previously have been served inadequately.⁴⁶⁰ Specifically, contingent upon proper formal training, these professionals may increase workforce efficacy and efficiency while lowering the cost of dental care, promoting primary and preventive attitudes toward oral healthcare, and broadening the serviced population in hopes of lowering the prevalence of oral disease.⁴⁶¹ Although the number of dental hygienists is expected to grow 30 percent from 2006 to 2016, the dentist volumes are only expected to see a 9 percent increase, and the number of graduates from dental hygiene programs continually outpaces the number of dental graduates.⁴⁶² As such, dental hygienists will prove beneficial as independent healthcare providers and as collaborators with dentists as the waning workforce has the potential to hinder access to quality care.⁴⁶³

TECHNOLOGY

Movements toward ADHP autonomy result in elevated expectations in terms of their technological and industry-based knowledge. Proficiency in new technology will enhance marketability in an increasingly competitive market.

MID-LEVEL PROVIDERS OF SPECIALIZED TECHNICAL SERVICES

PHARMACISTS

DESCRIPTION AND SCOPE

Pharmacists are authorized to dispense prescription drugs and advise patients and practitioners on matters of drug dosage, chemical and biological interactions, and potential adverse reactions.⁴⁶⁴

Scope

The scope of pharmacy practice continues to extend beyond the traditional role of drug dispensing.⁴⁶⁵ Pharmacists provide an array of primary care and consulting services in a variety of settings.⁴⁶⁶ Specifically, pharmacists are found in community pharmacies, hospitals, long-term care establishments, the pharmaceutical industry, managed care, and government agencies (for example, the Department of Defense, Department of Veterans Affairs, Public Health Service).⁴⁶⁷ In addition to dispensing drugs, pharmacists counsel patients and providers, monitor patient progress, complete paper work for third-party insurers, and “compound” or mix pharmaceutical ingredients that constitute a given medication.⁴⁶⁸ Compounding has become a smaller and smaller portion of pharmacy practice, because it is mostly done by pharmaceutical companies at standard dosages.⁴⁶⁹

Compounding (mixing pharmaceutical ingredients together) has become a smaller and smaller portion of pharmacy practice, because it is mostly done by pharmaceutical companies at standard dosages.

“Pharmacists,” *Occupational Outlook Handbook, 2008-09 Edition, Bureau of Labor Statistics, www.bls.gov/oco/ocos079.htm* (accessed November 5, 2009), p. 1.

Pharmacists who practice in community pharmacies (for example, retail drugstores, hospitals, nursing homes, mental health facilities, or health clinics) comprise the majority of professionals in this field; they advise patients on how to use over-the-counter medications as well as the prescription drugs they dispense.⁴⁷⁰ Additionally, they serve as consult to patients on diet, exercise, stress management, home health equipment and care, and other general health issues.⁴⁷¹ Pharmacists practicing within healthcare facilities serve as consult to medical professionals, as well. They also compound sterile solutions for intravenous administration and plan, monitor, and refine pharmaceutical regimens.⁴⁷² Those providing home health services manage drug therapy programs and prepare the administered infusions.⁴⁷³

Education and Training

In order to practice pharmacy, pharmacists must be awarded licensure by their state’s board of pharmacy. Although the requirements for pharmacists to receive their licensure and become **registered pharmacists (RPhs)** are determined by the state, generally accepted prerequisites include graduation from an accredited college of pharmacy, completion of residency or internship training, and successful completion of a series of state-sanctioned examinations.⁴⁷⁴

Historically, pharmacists were required to have, at minimum, an undergraduate degree in pharmacy (that is, a bachelor’s of science).⁴⁷⁵ However, in the early 1990s, the majority of pharmacy educational

institutions voted in favor of making the Doctorate of Pharmacy (PharmD) the professional degree awarded.⁴⁷⁶ As such, the PharmD has become the only accepted degree path available to those pursuing a career in pharmacy; it must be achieved through an accredited institution.⁴⁷⁷ The Accreditation Council for Pharmacy Education is the national accrediting body approved by the U.S. Department of Education; at the time of publication there were 113 accredited programs from which students could choose.⁴⁷⁸ Prerequisite to admission into a PharmD program, applicants must have at least two years of pre-pharmacy education, with courses in biology, chemistry, physics, and mathematics.⁴⁷⁹ Coursework typical of an accredited pharmacy program includes pharmacognosy, pharmacology, pharmaceutical chemistry, pharmaceutics, clinical pharmacy, drug information, and pharmacy administration.⁴⁸⁰ Many programs also award master's of science degrees, doctorate degrees, or both for advanced education pursued after PharmD completion.⁴⁸¹ These tracks are targeted to those individuals seeking clinical, laboratory, and research experience.⁴⁸²

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"Pharmacist Education," American Pharmacists Association, 2009, www.pharmacist.com/AM/PrinterTemplate.cfm?Section=Pharmacist_Education&Te (accessed November 9, 2009).

Graduates, especially those who wish to practice in a hospital setting, are required to complete residency or post-graduate training that may include completion of a research project.⁴⁸³ Fellowship programs also are available and are geared toward providing specialized training in clinical practice or laboratory research.⁴⁸⁴

Upon completion of required education and training, candidates must sit for several examinations as mandated by their state.⁴⁸⁵ All states require that candidates sit for the National Association of Boards of Pharmacy (NABP) Licensure Examination, which focuses on pharmacy skills and knowledge.⁴⁸⁶ Candidates in forty-four states must also pass the Multistate Pharmacy Jurisprudence Exam (MPJE), also administered by the NABP, to assess understanding of pharmacy law.⁴⁸⁷ The remaining states and territories have a similar pharmacy law exam, and some states have supplemental examinations that focus on the laws that are specific to their jurisdiction.⁴⁸⁸ With the exception of California, all states grant license transfers to individuals licensed by one jurisdiction but wishing to practice in another.⁴⁸⁹

RPhs in most states are required to pursue continuing education through any variety of options, including correspondence courses, professional meetings, professional association seminars, or classes offered in colleges or schools of pharmacy.⁴⁹⁰

Specialties

Pharmacists may specialize in various areas, including intravenous nutrition and oncology, as well as nuclear, geriatric, and psychiatric pharmacy.⁴⁹¹ They also may acquire specialized expertise by way of their advanced education, their fellowship training, or both; graduate emphases, most often clinical or research-based, include pharmaceutics, pharmaceutical chemistry, pharmacology, and pharmaceutical administration.⁴⁹²

INDUSTRY TRENDS

Characteristics and Distribution

As of May 2008, there were 266,410 pharmacists practicing in the United States, 55,530 of whom worked in hospitals (20.1 percent), 21,690 of whom worked in grocery stores (8.1 percent), 16,750 of whom worked in department stores (6.3 percent), 12,500 of whom worked in other retail stores (4.7 percent), 2,790 of whom worked in physician offices, and 6,110 of whom worked for the federal executive branch (6.05 percent).⁴⁹³

As of 2004, men comprised 55 percent of all pharmacists and tended to be older than female pharmacists (the male median age being 51 and the female median age being 43), representing the majority of older professionals in the field.⁴⁹⁴ Alternately, women represented the majority of new graduates; 61 percent of pharmacists with a PharmD (as per the recent change in requirements) were female, as compared with 40 percent of pharmacists who were practicing with a bachelor's degree.⁴⁹⁵ Overall, 22 percent of pharmacists were prepared at the PharmD level.⁴⁹⁶

Supply and Demand

The number of pharmacists has increased by nearly 10 percent, from 243,000 in 2006 to 266,410 in 2008.⁴⁹⁷ From 2006 to 2016, the population of pharmacists is expected to grow 22 percent, a much higher rate than the expected average growth rate across all professions.⁴⁹⁸ However, predictions suggest that the anticipated growth rate will fall short of demand.⁴⁹⁹ In 2004, there was a pharmacist vacancy of approximately 5 percent, equivalent to a shortage of 10,400 pharmacists.⁵⁰⁰ By 2030, demand is predicted to reach 357,000, while supply is only expected to reach 315,000.⁵⁰¹ Such outcomes would result in an 11 percent shortage.⁵⁰²

Increases in demand may be attributed to a number of factors.⁵⁰³ The aging demographic represents a major contributor, because middle-aged and elderly people represent the larger portion of the pharmaceutical consumer base.⁵⁰⁴ This will affect demand in not only community pharmacies but also in assisted living facilities and home health organizations.⁵⁰⁵ Other drivers of demand include the increase in available pharmaceuticals due to scientific developments, increased coverage of prescription drugs, and insurers hiring pharmacists in patient education and vaccination administration as a way to encourage prevention and, therefore, lower costs.⁵⁰⁶

HIGHLIGHTS IN THE FOUR PILLARS

Regulatory

Pharmacy may be considered one of the most regulated professions, at both state and federal levels, because the state boards of pharmacy wish to “assure the public health, safety, and welfare,” and federal agencies, such as the Food and Drug Administration (FDA) and the Drug Enforcement Administration (DEA), are of the authority to regulate pharmacists as well.⁵⁰⁷ The FDA is tasked with ensuring that prescription drugs are safe and effective, and the DEA is responsible for controlling the distribution of narcotics and other drugs that potentially may be abused or misused.⁵⁰⁸ Additionally, pharmacists must comply with state and federal policies that indirectly regulate their practices (for example, Medicare and Medicaid).⁵⁰⁹

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“Pharmacist Education,” American Pharmacists Association, 2009, www.pharmacist.com/AM/PrinterTemplate.cfm?Section=Pharmacist_Education&Te (accessed November 9, 2009).

Reimbursement

Programs on both the federal and state level facilitate pharmacist reimbursement.⁵¹⁰ Medicare Part D is a federal program that provides guidelines by which sponsors may negotiate pharmacy reimbursement with manufacturers and pharmacies.⁵¹¹ Part D negotiations are typically made with regard to ingredient costs [based on the average wholesale price (AWP) with a set discount or on a maximum allowable cost], dispensing fees, and sales tax.⁵¹² Medicaid programs are developed on the state level; although states establish pharmacy reimbursement rates that correlate to overarching federal requirements and receive federally sanctioned rebates, they also are authorized to negotiate with manufacturers for supplementary drug rebates.⁵¹³ Medicaid negotiations derive from either the AWP or the federal or state maximum allowable cost in addition to the dispensing fee.⁵¹⁴

Competition

During the advent of healthcare reform, the degree of efficiency with which pharmacists are utilized has been re-evaluated, with many arriving at the conclusion that these providers, already imperative for their provision of patient care alongside dispensing services, may be integral to combating the primary care shortage challenges ahead.⁵¹⁵ Specifically, pharmacies are optimal for the provision of preventive services apart from medication dispensing, that is, vaccination and medical therapy management.⁵¹⁶ Many pharmacists already provide medication therapy management services (that is, comprehensive medication reviews, patient education and training on drug regimens, and the provision of methods to enhance patient compliance).⁵¹⁷ Delivery of such services transcends many sites of pharmacy service, namely the community, ASCs, hospitals, health systems, long-term care facilities, and MCOs.⁵¹⁸ In states that permit medication therapy management by pharmacists through institutions, as well as the administration of injected drugs in retail settings, pharmacies have appended primary care clinical practices onto their existing practices, employing an autonomous clinician, frequently an NP with whom to collaborate.⁵¹⁹ Pharmacists may act as “alternative immunizers,” relieving the pressure of existing and growing demand that is placed on primary care physicians.⁵²⁰ As nondispensing services have increased in popularity among pharmacists, concern has been raised regarding the insufficient level of reimbursement for these services; although Medicare Part D covers medication therapy management services in certain instances, the degree to which coverage transposes onto services provided is unclear.⁵²¹

Technology

The technological advances of most significant importance to pharmacy practice are e-prescribing by way of computerized physician order entry as well as other robotic advances that may allow practitioners to transfer prescriptions, catch errors prematurely, count pills, and label and deliver medication.⁵²² For more information about advances in management technology that may be pertinent to pharmaceutical practice, see chapter 5 of *An Era of Reform*.

PROSTHETISTS AND ORTHOTISTS

DESCRIPTION AND SCOPE

Prosthetists and **orthotists** assist patients who are missing limbs by fitting, refining, and maintaining prosthetics.⁵²³ Orthotists assist patients who suffer from limb or spinal disabilities by fitting, refining, and maintaining orthopedic braces.⁵²⁴ These professionals are afforded the autonomy to manage and deliver comprehensive care in their field; they do so complementary to physician prescription, physiological need, cosmetic objectives, or a combination of these.⁵²⁵

Scope

Orthotists and prosthetists address neuromuscular and skeletal conditions by maximizing function, minimizing further disability, and enhancing aesthetics and, therefore, patient satisfaction.⁵²⁶ These practitioners treat a wide range of conditions and related conditions, including disability caused by age, obesity, diabetes, vascular disease, and trauma; arthritis; stroke; fractures; spina bifida; scoliosis; cerebral palsy; plagiocephaly; mastectomy; and sports-related conditions and injuries.⁵²⁷ Orthotists and prosthetists provide this broad scope of services by utilizing technologies that allow them to redistribute anatomical and physiological forces to meet a patient's particular needs.⁵²⁸ Specifically, orthotists fit patients who have disabilities of the spine, limbs, or both with devices called orthoses. Prosthetists fit patients who are missing limbs in part or entirely with devices called prostheses.⁵²⁹ The scope of prosthetic and orthotic practice is comprised (not exclusively) of four key components: (1) assessing and managing clinical patients, (2) implementing technical devices, (3) managing practices, and (4) assuming professional responsibility for the care they provide.⁵³⁰ Orthotists and prosthetists practice in a variety of settings, including private practices, hospitals, specialty clinics, home health settings, nursing homes, rehabilitative facilities, and academic institutions (that is, colleges, universities, and medical schools).⁵³¹

Education and Training

To be eligible for certification by the American Board of Certification in Orthotics Prosthetics and Pedorthics (ABC), candidates must graduate from an orthotics and prosthetics program accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP).⁵³² CAAHEP, recognized by CHEA, has approved eight programs in the United States; six of these programs offer post-baccalaureate master's or certificate programs (six to twelve months in duration), and three offer baccalaureate degrees (four years in duration).⁵³³ Prerequisites for enrollment into a four-year baccalaureate program include a high school diploma or equivalent alongside institutional admission requirements.⁵³⁴ Prerequisites for admission into post-graduate certificate or degree programs include a baccalaureate degree with coursework in biology, chemistry, physics, psychology, algebra, human anatomy, and physiology documented.⁵³⁵ Curricula for orthotics and prosthetic programs cover biomechanics, gait analysis, kinesiology, pathology, material science, research methods, imaging, measurement, taking impressions, rectifying models, diagnostic fitting procedures, post-operative follow-up, power, static and dynamic alignment of sockets for amputated limbs, fitting of lower and upper limb orthosis, or a combination of these.⁵³⁶ Education requirements also include clinical training.⁵³⁷

Completion of a twelve-month residency accredited by the National Commission on Orthotic and Prosthetic Education (NCOPE) also is required for ABC certification.⁵³⁸ Once candidates have completed educational and clinical training, they may sit for the ABC competency assessment or examination.⁵³⁹ The ABC certification has been recognized by federal, state, and private agencies as the standard

for orthotic and prosthetic certification; it also has been approved by the NCCA.⁵⁴⁰ Examinations are tailored to the specific certification(s) pursued, assessing practice knowledge and skills.⁵⁴¹ The Board of Certification/Accreditation International (BOC) is “an independent, not-for-profit agency that certifies orthotists, prosthetists, pedorthists, orthotic and mastectomy fitters, and accredits their facilities” that is also recognized by the NCCA.⁵⁴² Candidates often seek dual certification from ABC and BOC.⁵⁴³

At the time of publication, eight states had implemented regulation of prosthetist and orthotist licensure; in most cases, these regulations followed the ABC’s licensure model and assistive guidelines.⁵⁴⁴ Additionally, the ABC administers licensure examinations for six of these states.⁵⁴⁵

Specialties

The ABC awards several designations to mid-level orthotic and prosthetic practitioners, including certified orthotist, certified prosthetist, and certified prosthetist/orthotist.⁵⁴⁶ Although subspecialty certification may not be awarded, certain practice areas have grown in popularity, including orthotic management of sports, orthotic management of diabetes, and prefabricated spinal system services.⁵⁴⁷

INDUSTRY TRENDS

Characteristics and Distribution

In 2008, there were 5,358 total ABC-certified orthotists and prosthetists, 38 percent of whom were certified orthotists (2,122), 25 percent of whom were certified prosthetists (1,398), and 36 percent of whom were dually prepared (2,018).⁵⁴⁸ Prosthetists and orthotists aged 55 and older comprised nearly a quarter of the practitioner population (1,100).⁵⁴⁹ Data from 2006 indicates that 238 aspiring prosthetists and orthotists graduated from accredited programs, 91.2 percent of graduates became certified, and 95 percent of certified graduates entered the field.⁵⁵⁰ Also, of the 7,177 prosthetists and orthotists certified in 2006, 73.2 percent were certified by the ABC alone (5,251), with 19 percent certified by the ABC as well as the BOC (1,365), and 3.3 percent certified by the ABC and the Board of Certified Pedorthists, which merged with the ABC on January 1, 2007.⁵⁵¹

Of the 5,490 practitioners who were employed in May 2008, 27.9 percent worked in manufacturing settings (2,080), 20.8 percent worked in health and personal care stores (1,140), 8.6 percent worked in hospitals (470), 8.2 percent worked for the federal government (450), and 7.5 percent worked in physician practices (384).⁵⁵²

According to 2006 practice data, orthotists spend approximately 55 percent of their time on conditions of the lower extremity, 8 percent of their time on conditions of the upper extremity, 21 percent of their time on spinal conditions, and 10 percent of their time on scoliosis.⁵⁵³

Supply and Demand

Demand for orthotic and prosthetic care is expected to increase by 25 and 47 percent, respectively.⁵⁵⁴ By 2020, predictions suggest an estimated 7.3 million individuals will suffer from paralysis, deformity, or orthopedic disabilities, and a predicted 2.4 million patients will have amputations, use prostheses, or both.⁵⁵⁵ Diabetes is among the leading reasons for amputation, with rates of amputation that are ten times higher in diabetic patients as compared with nondiabetic patients.⁵⁵⁶ Alternately, obesity is one of the main factors driving demand for orthotic services, because orthoses are used to stabilize joints while minimizing pain and enhancing functionality.⁵⁵⁷ Additionally, the elderly demographic is at a heightened risk of back injury and paralysis; as a result of the aging demographic, the need in this subset of

the community is expected to increase significantly.⁵⁵⁸ Assuming that trends in prosthetic and orthotic training remain consistent, and that two new schools are opened by the end of 2010, population-based demand will still result in a 4.2 percent shortage of prosthetists and orthotists by 2030.⁵⁵⁹ If additional programs are not developed, the shortage may reach 9.5 percent.⁵⁶⁰

Diabetes is among the leading reasons for amputation, with rates of amputation that are ten times higher in diabetic patients as compared with nondiabetic patients.

"O&P Trends & Statistics," American Academy of Orthotists, and Prosthetists, www.opcareers.org/assets/pdf/TrendsFINAL.pdf (accessed November 10, 2009).

Practice areas of projected growth include orthotic management in sports, orthotic management in diabetes, and provision of prefabricated spinal systems.⁵⁶¹ It is important to note a bifurcation in growth of prefabricated and customized appliances, as the former saw a growth of 10.6 percent and the latter actually decreased by 7.2 percent.⁵⁶² The growth rate of orthotic management in diabetes is 1.6 percent growth for prefabricated devices, and implementation of prefabricated spinal systems grew by 105 percent from 2004 to 2005.⁵⁶³

HIGHLIGHTS IN THE FOUR PILLARS

Regulatory

As previously mentioned, only eight states regulate the professional licensure of orthotic and prosthetic practitioners.⁵⁶⁴ The ABC provides states with a Model Licensure Act as well as a Model Licensure Rules and a Licensure Handbook to guide their development of policies that effectively set the profession's practice standards.⁵⁶⁵

At the time of publication, eight states had implemented regulation of prosthetist and orthotist licensure; in most cases, these regulations followed from the American Board of Certification in Orthotics Prosthetics and Pedorthics' licensure model and assistive guidelines.

"Credentialing, Licensing, and Medicare," American Board for Certification in Orthotics, Prosthetics, and Pedorthics, OandPCARE.org, 2009, 2009, www.oandpcare.org/payor/credentials.asp (accessed November 10, 2009).

Reimbursement

Under section 427 of the Benefits Improvement and Protection Act (BIPA) of the Social Security Act, prosthetics and custom-fabricated orthotics can only be supplied by healthcare professionals who meet CMS criteria as a "qualified practitioner;" orthotists and prosthetists who are certified by an accrediting organization, namely, the ABC or BOC, are covered under these criteria.⁵⁶⁶

Additionally, orthotic claims can only be made when accompanied by a prescription or certificate of medical necessity, as furnished by a physician.⁵⁶⁷ Orthotic devices must be "reasonable and necessary," must be rigid or semi-rigid, and must follow from the objective of supporting a weakened, deformed, diseased, or injured body region or member.⁵⁶⁸ Prosthetic devices are only covered if they are under provision of incident-to services or follow from physician orders.⁵⁶⁹

Competition

The BIPA provision that limits the range of providers covered for services related to custom-fabricated prosthetics and orthotics has incentivized the innovation of standardized devices that feasibly are furnished by an array of healthcare professionals (for example, physicians, PAs, and manufacturer representatives).⁵⁷⁰ This may negatively affect the demand for orthotist and prosthetist services.⁵⁷¹

Alternately, orthotic and prosthetic professional providers may serve as key contributors on chronic disease management teams.⁵⁷² This could potentially increase the quality and efficacy of care of increasingly prevalent chronic diseases, such as diabetes and obesity.⁵⁷³

Technology

Technological advances play a significant role in the growing demand for orthotic and prosthetic professionals.⁵⁷⁴ Such advances include the use of lightweight, high-strength materials, originally developed as aerospace technologies, in prosthetic and orthotic devices; development of nanotechnologies that further reduce the force load while ensuring optimum strength; and utilization of computer-aided design and manufacturing technologies to design and create models with heightened accuracy and efficiency.⁵⁷⁵ Manipulation of myoelectric signals will allow for muscular control of prosthetic devices.⁵⁷⁶ Electronic knees and customized prosthetic feet serve to increase the versatility of feasible activity, allowing patients to traverse challenging hills or paths confidently and even to run, golf, and swim.⁵⁷⁷ As a result of these tremendous advances, practitioners will have to pursue the knowledge, skill-set, and experience necessary to effectively implement these technologies into practice.⁵⁷⁸

OPTICIANS

DESCRIPTION AND SCOPE

Opticians are trained in designing, measuring, fitting, and adjusting optical lenses and frames according to a patient's prescribed needs, specified needs, or both.⁵⁷⁹

Scope

Dispensing opticians assist clients in finding and customizing eyeglasses and contact lenses to meet their prescriptive, comfort, and personal needs.⁵⁸⁰ They recommend frames, lenses, and protective coatings that take into consideration the patient's prescription, job, tendencies, and facial structure.⁵⁸¹ They take necessary facial and focal measurements, and they may even pull previous records to replicate eyeglasses or lenses the patient may have attained previously.⁵⁸² Although some opticians grind and insert lenses into frames on the basis of selected size, material, and style, others simply prepare the work orders and issue them to ophthalmic technicians.⁵⁸³

Opticians also utilize special instruments to examine clients' eyes, corneas, and lids in order to fit contact lenses.⁵⁸⁴ After contact lenses have been fitted and prepared, opticians teach their clients how to insert, remove, and care for their new lenses.⁵⁸⁵

Opticians may practice in medical offices, optical stores, or department or club stores.⁵⁸⁶ Some experienced opticians open their own establishments, manage optical stores, or are employed as sales representatives for manufacturers or wholesalers that specialize in eyeglasses, contact lenses, or both.⁵⁸⁷

Education and Training

Although, traditionally, a high school diploma was sufficient education to pursue employment in this field, twenty-one states have mandated licensure, which, oftentimes, require that two to four years of postsecondary education or apprenticeship be completed before candidates are eligible to sit for the corresponding examination(s).⁵⁸⁸ In 2007, there were twenty-one associate degree programs accredited by the Commission on Opticianry Accreditation, which, at the time, was under review for recognition by the CHEA.⁵⁸⁹

Examinations required for licensure vary by state, but may include state practical or written assessments, as well as the certifications examination administered by the American Board of Opticianry (ABO) and the National Contact Lens Examiners (NCLE), both of which are accredited by the NCCA.⁵⁹⁰ Certification exams include the ABO's National Opticianry Competency Examination and the NCLE's Contact Lens Registry Examination.⁵⁹¹ Advanced certification is also available to those practitioners who meet experience and advanced education requirements and pass the corresponding examinations.⁵⁹² Advanced certification is designated as ABOC-AC (American Board of Opticianry Advanced Certification) and NCLE-AC (National Contact Lens Examiners Advanced Certification).⁵⁹³ ABO- and NCLE-certified practitioners must meet continuing education requirements with each three-year certification period in order to maintain certification.⁵⁹⁴

Specialties

Through additional training, opticians may specialize in fitting contacts, artificial eyes, or cosmetic shells that are used to conceal optical blemishes.⁵⁹⁵ As previously mentioned, advanced certification is available through ABO or NCLE; these certification programs ensure that practitioners possess advanced knowledge and expertise in ophthalmic dispensing.⁵⁹⁶

INDUSTRY TRENDS

Characteristics and Distribution

As of May 2008, there were 59,470 opticians employed in the United States, with 23,620 employed in the practices of nonphysician clinicians, 20,630 employed in health and personal care stores, 7,950 employed in physician practices, 3,220 employed in stores that carry general merchandise, and 1,840 employed in department stores.⁵⁹⁷ As of 2007, private opticians comprised 5.57 percent of the ophthalmic market; in 2006, the subset of self-employed opticians that opened unincorporated enterprises comprised 2 percent of the total practitioner population.⁵⁹⁸

Supply and Demand

Employment is expected to rise 9 percent from 66,000 jobs in 2006 to 72,000 jobs in 2016.⁵⁹⁹ This increase in supply may be driven by the increase in demand associated with the aging demographic.⁶⁰⁰ The elderly population represents the demographic most in need of vision care.⁶⁰¹ Additionally, public understanding of the importance of regular eye examinations may lead to an increased demand for optician services.⁶⁰² Lastly, the increased availability of fashionable eyewear may contribute to the heightened demand, as the purchase of multiple frames becomes more common.⁶⁰³

HIGHLIGHTS IN THE FOUR PILLARS

Regulatory

Though the opticianry regulations and licensure requirements implemented by certain states have increased in stringency, the industry lacks a uniform set of basic standards to which practitioners are held to across all states.⁶⁰⁴

Competition

Recent trends suggest a deterioration of the private optician market.⁶⁰⁵ This may, in part, be attributed to the growth of ophthalmic dispensing in recent years, as well as the emerging role of opticians as employees of ophthalmic- or optician-based practices, as well as corporate co-management infrastructures.⁶⁰⁶ Although market trends suggest that practitioners have been focusing more on the diagnosis and treatment of ocular disease and less on providing dispensing services, ophthalmologists are turning to dispensing in efforts to offset the losses accrued due to cuts in surgical fees.⁶⁰⁷ The provision of dispensing services in ophthalmic, as well as optometric practices, places private practice opticians at a disadvantage while it expands the job market for opticians wishing to join these diverse groups driven by efforts in optometric co-management.⁶⁰⁸

A significant driver of the dispensing competitive market is the emergence of corporate chains providing optical care.⁶⁰⁹ Optical chains comprise 31.55 percent of the ophthalmic market, second only to the private practice of optometry.⁶¹⁰ Over time, the skepticism associated with these chains has begun to subside, with consumers reporting the same caliber of satisfaction after visiting independent optometrists or practitioners affiliated with corporate chains.⁶¹¹ However, 70 percent of patients who visited private practices were likely to return, as compared with 54 percent of those who visited practices that were affiliated with corporations.⁶¹² Patients remain of the opinion that private practices provide better quality of care than their corporate counterparts.⁶¹³

Optical chains comprise 31.55 percent of the ophthalmic market, second only to the private practice of optometry.

"State of the Profession: 2008," by Richard C. Edlow, OD and Glenn R. Markus, the American Optometric Association, January 2008, p. 2.

Technology

Innovations in optical dispensing may simultaneously increase efficiency, efficacy, and accuracy of dispensing services and encourage opticians to pursue advanced education and training in order to enhance their marketability.⁶¹⁴ Innovations in digital surfacing allow practitioners to generate complex and highly specialized surfaces by utilizing advanced software and sophisticated surface cutting and polishing tools.⁶¹⁵ Material innovations in lens coatings and frames have increased the options in comfort, durability, scratch and dirt resistance, antireflectivity, and UV-protection available to consumers.⁶¹⁶ Opticians may need to establish a working knowledge of developments in refractive systems, materials used in frames, and various edging and cutting techniques in order to compete in the evolving market.⁶¹⁷

CONCLUSION

The role of mid-level providers may undergo significant changes due to the various measures of health-care reform and change anticipated for the coming decades.

Future trends for mid-level providers may be affected by contradicting market forces, making prediction of future utilization uncertain. For example, a recent study by the OIG found that 21 percent of the services provided by nonphysician providers that were billed to Medicare under incident-to rules in the first quarter of 2007 were performed by personnel who were unqualified to provide such services, presenting an increased risk to Medicare beneficiaries.⁶¹⁸ It is expected that CMS will increase the level of scrutiny of billing for incident-to services provided by nonphysician practitioners, a potential barrier to the expansion of mid-level provider practices.⁶¹⁹ Other barriers to implementation of mid-level providers as independent practitioners include state limitations (enforced at the time of publication) to the services provided by nonphysician practitioners, the popular perception of nonphysician care as being of a lower quality, and a potentially unfavorable cost to productivity ratio for nonphysician specialties.⁶²⁰

Of the services billed to Medicare under incident-to rules in first quarter 2007, 21 percent were performed by nonphysicians who were unqualified to provide such services, presenting an increased risk to Medicare beneficiaries.

"Prevalence and Qualifications of Nonphysicians Who Performed Medicare Physician Services," Office of the Inspector General, August 2009, p. iii.

Conversely, with the looming physician workforce shortage, the use of nonphysician providers is expected to increase, though most likely in a nonuniform manner.⁶²¹ NPs already function as the "first point of entry" for patients receiving medical care, and positive reviews of care provided by NPs and PAs provide arguably compelling evidence for the expansion of the mid-level provider role in medical practice.⁶²² With the expected growth in the mid-level provider workforce, providing the increase in NP and PA populations needed to enhance physician productivity, as well as the expansion of mid-level provider roles in providing care, it is possible that the manpower shortage may be met.⁶²³ The decisions made in this era of healthcare reform will be crucial to the future of the mid-level provider workforce.

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Department of Health and Human Services, Health Resources and Services Administration (HRSA), Bureau of Health Professions	The HRSA is the primary federal agency for improving access to healthcare services for people who are uninsured, isolated, or medically vulnerable. The Bureau of Health Professions helps supply practitioners to areas facing workforce shortages.	“The Adequacy of Pharmacist Supply: 2004 to 2030,” Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, December 2008, p. 2.	ftp://ftp.hrsa.gov/bhpr/workforce/pharmacy.pdf
Office of the Inspector General (OIG)	The OIG produces reports from the information it gathers through a nationwide network of audits, investigations, inspections, and other mission-related functions performed by OIG components.	www.oig.hhs.gov/oei/reports	www.oig.hhs.gov/oei/reports
Consensus Model for APRN Regulation: Licensure, Accreditation, Certification, & Education	Created in July 2008, this report clearly defines the scope of practice for Advanced Practice Registered Nurses (APRNs), distinguishing between the four “roles,” or specialized areas. The report also outlines a model for education, accreditation, certification, and licensure of APRNs “in order to continue to ensure patient safety while expanding patient access to APRNs.”	“Consensus Model for APRN Regulation: Licensure, Accreditation, Certification, & Education” Advanced Practice Registered Nurses (APRN) Consensus Work Group and the National Council of State Boards of Nursing APRN Advisory Committee, July 7, 2008, http://aanp.org/NR/rdonlyres/56292A59-8240-449D-910D-EF331FC7DC86/0/FinalAPRNJointDialogueReport7708.pdf#search=“accrediting” (accessed November 3, 2009) p. 4.	http://aanp.org/NR/rdonlyres/56292A59-8240-449D-910D-EF331FC7DC86/0/FinalAPRNJointDialogueReport7708.pdf#search=“accrediting”

 **Associations**

Type of Association	Professional Association	Description	Source	Contact Information
National	American Academy of Physician Assistants (AAPA)	The AAPA is a "national organization to represent physician assistants in all medical and surgical specialties. Founded in 1968, the Academy works to promote quality, cost effective health care and the professional and personal growth of PAs."	"About Physician Assistants," American Academy of Physician Assistants, www.aapa.org/about-pas (accessed November 13, 2009).	American Academy of Physician Assistants 950 North Washington Street Alexandria, VA 22314-1552 Phone: 703-836-2272 Fax: 703-684-1924
Accreditation	Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA)	An independent accrediting "agency that protects the interests of the public and PA profession by defining the standards for PA education and evaluating PA educational programs within the territorial United States to ensure their compliance with those standards."	"Accreditation Review Commission on Education for the Physician Assistant," Accreditation Review Commission on Education for the Physician Assistant, Inc., www.arc-pa.org/ (accessed November 13, 2009).	Accreditation Review Commission on Education for the Physician Assistant, Inc. 12000 Findley Road, Suite 240 Johns Creek, Georgia Phone: 770-476-1224 Fax: 770-476-1738 E-mail: webmaster@arc-pa.org
National	American Dietetic Association (ADA)	Founded in Cleveland, Ohio, in 1917, "the ADA is the world's largest organization of food and nutrition professionals. ADA is committed to improving the nation's health and advancing the profession of dietetics through research, education and advocacy."	"ADA: Who We Are, What We Do," American Dietetic Association, www.eatright.org/cps/rde/xchg/ada/hs.xsl/home_404_ENU_HTML.htm (accessed November 13, 2009).	American Dietetic Association 120 South Riverside Plaza, Suite 2000 Chicago, Illinois 60606-6995 Phone: 800-877-1600
National	American Dental Association (ADA)	The ADA is the professional association of dentists committed to the public's oral health, ethics, science, and professional advancement; it leads a unified profession through initiatives in advocacy, education, research, and the development of standards.	"ADA Mission & Vision," American Dental Association, www.ada.org/ada/about/mission/index.asp (accessed November 13, 2009).	American Dental Association 211 East Chicago Ave. Chicago, IL 60611-2678 Phone: 312-440-2500: www.ada.org
National	American Dental Hygienists' Association (ADHA)	ADHA is the largest professional organization representing the interests of dental hygienists, providing professional support and educational programs.	"About ADHA," American Dental Hygienists' Association," http://www.adha.org/aboutadha/index.html (accessed November 13, 2009).	American Dental Hygienists' Association 444 North Michigan Avenue, Suite 3400 Chicago, IL 60611 Phone: 312-440-8900 www.adha.org
National	American Pharmacists Association (APhA)	"APhA was the first-established national professional society of pharmacists, having been founded in 1852 as the American Pharmaceutical Association. It remains the largest association of pharmacists in the United States, boasting more than 60,000 practicing pharmacists, pharmaceutical scientists, student pharmacists, pharmacy technicians, and others interested in advancing the profession. Members are recognized in society as essential in all patient care settings for optimal medication use that improves health, wellness, and quality of life."	"About APhA," American Pharmacists Association, www.pharmacist.com/AM/Template.cfm?section=About_APha2 (accessed November 13, 2009).	American Pharmacists Association 2215 Constitution Avenue NW Washington, DC 20037 Phone: 202-628-4410 Fax: 202-783-2351
Accreditation	Accreditation Council for Pharmacy Education (ACPE)	An autonomous and independent agency established in 1932, "ACPE is the national agency for the accreditation of professional degree programs in pharmacy and providers of continuing pharmacy education."	"ACPE," Accreditation Council for Pharmacy Education, www.acpe-accredit.org/about/default.asp (accessed November 13, 2009).	Accreditation Council for Pharmacy Education 20 North Clark Street, Suite 2500 Chicago, IL 60602

Type of Association	Professional Association	Description	Source	Contact Information
Accreditation	National Commission on orthotic and Prosthetic Education (NCOPE)	“Serving in cooperation with the Commission on Accreditation of Allied Health Education Programs (CAAHEP) for accreditation of educational programs, NCOPE is the accreditation body for the orthotics and prosthetics (O&P) profession, whose obligation is to ensure educational and residency programs meet the minimum standards of quality to prepare individuals to enter the O&P profession.”	“NCOPE,” National Commission on Orthotic and Prosthetic Education, www.ncope.org/info_schools/caahep.asp (accessed November 13, 2009).	National Commission on orthotic and Prosthetic Education 330 John Carlyle St., Suite 200 Alexandria, VA 22314 Phone: 703-836-7114 E-mail: info@ncope.org
Trade Association	American Orthotic and Prosthetic Association (AOPA)	Established in 1917, “AOPA is a national trade association committed to providing high quality, unprecedented business services and products to O&P professionals.”	“About AOPA,” American Orthotic and Prosthetic Association, www.aopanet.org/index.php?option=com_content&view=article&id=52&Itemid=59 (accessed November 13, 2009).	American Orthotic and Prosthetic Association 330 John Carlyle Street, Suite 200 Alexandria, VA 22314 Phone: 571-431-0876 Fax: 571-431-0899 E-mail: info@AOPAnet.org
Accreditation	Commission on Accreditation of Allied Health Education Programs (CAAHEP)	Recognized by the Council for Higher Education Accreditation, “CAAHEP is the largest programmatic accreditor in the health sciences field. CAAHEP reviews and accredits over 2000 educational programs in twenty health science occupations.”	“What is CAAHEP?” Commission on Accreditation of Allied Health Education Programs, www.caahep.org/ (accessed November 13, 2009).	Commission on Accreditation of Allied Health Education Programs 1361 Park St. Clearwater, FL 33756 Phone: 727-210-2350 Fax: 727-210-2354
Accreditation	American Board for Certification in Orthotics, Prosthetics, and Pedorthics, Inc. (ABC)	Established in 1948, “ABC is the national certifying and accrediting body for the orthotic, prosthetic and pedorthic professions that is the quality standard in orthotic, prosthetic and pedorthic certification and today has more than 12,000 certified individuals and over 3,000 accredited facilities.”	“About ABC,” American Board for Certification in Orthotics, Prosthetics, and Pedorthics, www.abcop.org/about/Pages/Default.aspx (accessed November 13, 2009).	American Board for Certification in Orthotics, Prosthetics, and Pedorthics 330 John Carlyle St, Suite 210 Alexandria, VA 22314 Phone: 703-836-7114 Fax: 703-836-0838 E-mail: info@abcop.org
Accreditation	Board of Certification/Accreditation, International (BOC)	Founded in 1942, “BOC is an independent, not-for-profit agency that certifies orthotists, prosthetists, pedorthists, orthotic and mastectomy fitters and accredits their facilities [with a dedication] to promoting the highest standards of excellence and competence of orthotists and prosthetists.”	“About BOC,” Board of Certification/Accreditation, International, www.bocusa.org/BOC.cfm?Page=19 (accessed November 13, 2009).	Board of Certification/Accreditation, International 10451 Mill Run Circle, Suite 200 Owings Mills, MD 21117-5575 Phone: 410-581-6222/ 877-776-2200 (toll-free)/ 410-581-6228 (facsimile) E-mail: info@bocinternational.org
National	American Academy of Orthotists and Prosthetists	Founded in 1970 to “further the scientific and educational attainments of professional practitioners in the disciplines of orthotics and prosthetics.” The “American Academy of Orthotists and Prosthetists is dedicated to promoting professionalism and advancing the standards of patient care through education, literature, research, advocacy and collaboration.”	“Academy—A Historical Perspective” American Academy of Orthotists and Prosthetists, www.oandp.org/about/hisotry/historical.asp (accessed November 13, 2009); “About the Academy” American Academy of Orthotists and Prosthetists, www.oandp.org/about/ (accessed November 13, 2009).	American Academy of Orthotists and Prosthetists 1131 H Street, NW, Suite 501 Washington, DC 20005 Phone: 292-380-3663 Fax: 202-380-3447

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Type of Association	Professional Association	Description	Source	Contact Information
National	American Physical Therapy Association (APTA)	"A national professional organization representing more than 72,000 members the organization represents and promotes the profession of physical therapy, is to further the profession's role in the prevention, diagnosis, and treatment of movement dysfunctions and the enhancement of the physical health and functional abilities of members of the public."	"About APTA" American Physical Therapy Association, www.apta.org/AM/Template.cfm?Section=About_APTA&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=41&ContentID=23725 (accessed November 13, 2009).	American Physical Therapy Association 1111 North Fairfax Street Alexandria, VA 22314-1488 Phone: 703-684-APTA (2782)/ 800-999-2782/ 703-683-6748 (TDD) Fax: 703-684-7343
Accreditation	Commission on Opticianry Accreditation (COA)	A nonprofit agency that "accredits two-year opticianry degree programs and one-year ophthalmic laboratory technology certificate programs."	"Commission on Opticianry Accreditation: Target Your Career with Quality Education," Commission on Opticianry Accreditation, www.coaccreditation.com (accessed November 13, 2009).	Commission on Opticianry Accreditation Ellen Stoner, Director of Accreditation PO Box 142 Florence, IN 47020 Phone: 703-468-0566 Fax: 888-306-9036 E-mail: Ellen@COAccreditation.com
Accreditation	American Board of Opticianry (ABO) and the National Contact Lens Examiners (NCLE)	The ABO and NCLE are "national, non-profit organizations which administer voluntary certification examinations for dispensing opticians and contact lens technicians. Our purposes are to identify qualified eyewear providers by examination, urge growth of optical skills with continuing education, and approve continuing education programs."	"Welcome to ABO and NCLE," American Board of Opticianry and the National Contact Lens Examiners, www.abo-ncle.org (accessed November 13, 2009).	American Board of Opticianry and the National Contact Lens Examiners 6506 Loisdale Rd., Suite 209 Springfield, VA 22150 Phone: 703-719-5800 Fax: 703-719-9144 E-mail: mail@abo-ncle.org
National	American Optometric Association (AOA)	"Founded in 1898, the AOA is a federation of state, student and armed forces optometric associations. Through these affiliations, the AOA serves members consisting of optometrists, students of optometry, paraoptometric assistants and technicians. Together, the AOA and its affiliates work to provide the public with quality vision and eye care."	"About the AOA," American Optometric Association, 2009 http://aoa.org/x4670.xml (accessed September 10, 2009).	American Optometric Association 243 N. Lindbergh Blvd. St. Louis, MO 63141 Phone: 800-365-2219 www.aoa.org

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5

Technicians and Paraprofessionals

Treat the patient, not the x-ray.

James M. Hunter

KEY TERMS

- Direct Care Workforce
- Registered Nurses (RNs)
- Physician Extender
- Supervision



Key Concept	Definition	Citation
"Incident-to" Provision	Covers services for Medicare reimbursement that are, "an integral, although incidental, part of the physician's personal professional services to the patient." Billing under incident-to rules only applies to those services furnished by nonprofessional practitioners (for example, paraprofessionals) who provide patient services that are integral and incidental to services provided by the attending physician; this allows the billed service to appear as though it was performed by the physician and is reimbursed at 100 percent of the physician fee schedule.	"The Ins and Outs of 'Incident-To' Reimbursement," by Alice G. Gosfield, Family Practice Management, November/December 2001, p. 24.
Technician and Paraprofessional Criteria	(1) The inability to practice independently distinguishes them from other nonphysician practitioners, and (2) the presence or absence of licensure requirements affects scope of practice and education requirements.	n/a
Licensed Technicians and Paraprofessionals	Highly educated nonphysician providers who bolster the technological sophistication, efficiency, and quality of physician services. Although these technicians and paraprofessionals must be supervised by an authorized independent practitioner, their expertise is integral to the efficient provision of quality care.	n/a
Possible Classifications for Licensed Technicians and Paraprofessionals	(1) nurses, (2) therapists, (3) technologists, (4) clinical technicians, (5) clinical assistants, or (6) other licensed technicians and paraprofessionals.	n/a
Unlicensed Technicians and Paraprofessionals	Provide services that do not require the same level of education, training, and regulation as their licensed counterparts. As such, these unlicensed physician extenders, having little to no practice autonomy, strictly provide manpower relief to supervising, licensed providers.	n/a
Categories of Unlicensed Technicians and Paraprofessionals	(1) nonclinical technicians, (2) nonclinical assistants, (3) aides, or (4) other unlicensed technicians and paraprofessionals.	n/a
Baby Boomer Population	" . . . those Americans born between 1946 and 1964", who are becoming the fastest-growing segment of the population as they age; relevant to healthcare in that the elderly population (aged sixty-five and older) require a disproportionate amount of healthcare services and baby boomers will increase the elderly population by 5 million from 1999 through 2010 alone.	"Demographic Trends and the Burden of Disease: Increasing Diversity," In "Health and Health Care 2010: The Forecast, The Challenge", by The Institute for the Future and The Robert Wood Johnson Foundation, Jossey-Bass, 2003, p. 17.
Long-Term Care Setting	Provide personal care services and healthcare services to individuals needing chronic care (for example, nursing homes, assisted living facilities, boarding care, adult day care programs).	"What is Technology for Long-Term Care?" Technology for Long-Term Care, last modified December 1, 2009, www.techforltc.org/ltc.cfm , (accessed December 1, 2009), p. 1.
Registered Nurse (RN) Scope of Practice	Basic duties common to all practicing RNs may include consultation with physicians or other health professionals, some level of patient education, evaluation and observation of patient progress and treatment, and provision of assistance with various diagnostic and therapeutic procedures administered by the treating independent practitioner.	"Registered Nurses," The Occupational Handbook, 2008-09 Edition, Bureau of Labor Statistics, November 18, 2007, www.bls.gov/oco/ocos083.htm (accessed October 2, 2009), p. 1.
RN Subspecialties by Health Condition Pathway of Specialization	Addiction, Intellectual and Developmental Disabilities, Diabetes Management, Genetics, HIV/AIDS, Oncology, and Wound, Ostomy, and Continence	"Registered Nurses," The Occupational Handbook, 2008-09 Edition, Bureau of Labor Statistics, November 18, 2007, www.bls.gov/oco/ocos083.htm (accessed October 2, 2009), p. 1.
RN Subspecialties by Organ or Body System Type Pathway of Specialization	Cardiovascular, Dermatology, Gastroenterology, Gynecology, Nephrology, Neuroscience, Ophthalmic, Orthopedic, Otorhinolaryngology, Respiratory, and Urology	"Registered Nurses," The Occupational Handbook, 2008-09 Edition, Bureau of Labor Statistics, November 18, 2007, www.bls.gov/oco/ocos083.htm (accessed October 2, 2009), p. 1.
RN Subspecialties by Population Type Path of Specialization	Neonatology, Pediatrics, and Gerontology or Geriatrics	"Registered Nurses," The Occupational Handbook, 2008-09 Edition, Bureau of Labor Statistics, November 18, 2007, www.bls.gov/oco/ocos083.htm (accessed October 2, 2009), p. 1.
RN Subspecialties by Work Setting or Type of Treatment Pathway of Specialization	Ambulatory Care, Critical Care, Emergency/Trauma, Holistic, Home Health Care, Hospice and Palliative Care, Infusion, Long-Term Care, Medical-Surgical, Occupational Health, Radiology, Rehabilitation, and Transplant	"Registered Nurses," The Occupational Handbook, 2008-09 Edition, Bureau of Labor Statistics, November 18, 2007, www.bls.gov/oco/ocos083.htm (accessed October 2, 2009), p. 1.

OVERVIEW

The healthcare workforce dynamic continues to diversify in order to offset the ongoing physician shortage, increasing demand attributed to a graying population and an increased incidence of chronic disease, and the perpetual downshift in reimbursement rates. As physician supply and reimbursement continue to decline, physician demand for support services will escalate, resulting in the evolution of the role of technicians and paraprofessionals to meet versatile manpower needs.

DESCRIPTION AND SCOPE

As discussed in the *Introduction*, the nonphysician practitioner population falls into three categories based on the types of services they are authorized to provide. Chapter 6, *Allied Health* focuses on health-care professionals who work in *parallel* with physicians by providing a *complementary*, but entirely different, scope of services. Chapter 4, *Mid-Level Provider Practices* discusses the subset of nonphysician practitioners who *supplement* physicians by triaging patient care that falls within a specific subscope of physician services. This chapter addresses the group of nonphysician practitioners who work as **physician extenders**, providing physical and technological manpower support during the provision of physician services.

TECHNICIAN AND PARAPROFESSIONAL CRITERIA

Within the context of the taxonomy utilized in this *Guide*, technicians and paraprofessionals are classified on the basis of two elements:

1. the inability to practice independently
2. the presence or absence of licensure requirements

The first element defines technicians and paraprofessionals, or rather, distinguishes them from other nonphysician practitioners. Notwithstanding the fact that these physician extenders are unauthorized to practice autonomously, that is, independently bill for services, the utility of their services is contingent upon the provision of complementary physician services. The legal and practical contingency of their services is inconsequential in light of the underlying role filled by *all* technicians and paraprofessionals: as manpower support working synergistically with physicians to provide efficient and quality care.

This defining element accounts for a broad range of healthcare professionals, not all of whom unequivocally fulfill the same support needs. As such, the second element serves to further distinguish between the scope of *licensed* and *unlicensed* technician and paraprofessional practice. This distinction is a significant one, because technicians and paraprofessionals may or may not be required to achieve a mandated minimum education or certification standard to legally practice. Some technicians and paraprofessionals are highly specialized and must meet stringent education and training requirements in a complex field. These professionals may provide highly technical services, either in an effort to facilitate more efficient delivery, or because physicians are not qualified to perform those specific services. Alternately, other technicians and paraprofessionals must meet few, if any, prerequisite educational requirements and may only receive informal on-the-job training.

As a result of these two characteristics, the technician and paraprofessional population includes a range of clinical and technical professionals who provide a spectrum of services. The broad spectra of

licensed and unlicensed technicians and paraprofessionals can be divided further into several broad categories. “Licensed” technicians and paraprofessionals may be classified as

1. nurses,
2. therapists,
3. technologists,
4. clinical technicians,
5. clinical assistants, or
6. other licensed technicians and paraprofessionals.

“Unlicensed” technicians and paraprofessionals are divided into

1. nonclinical technicians,
2. nonclinical assistants,
3. aides, or
4. other unlicensed technicians and paraprofessionals.

The occupational roles that fall within each of these categories will be discussed in detail in subsequent sections.

INDUSTRY TRENDS FOR PARAPROFESSIONALS

No uniform method of classifying healthcare professionals has been adopted, and, as such, comprehensive data that represents this subset of the workforce is limited. However, the specific practice scopes and settings attributed to each technician and paraprofessional subpopulation (listed in the previous section) are better understood and have been assessed in depth.

Market projections suggest that the U.S. healthcare delivery system will generate new jobs at the highest annual rate from 2008 through 2016, namely by bolstering medical and dental practices, including those found in the home health, outpatient, and laboratory care settings, with technician and paraprofessional manpower.¹ The anticipated increase in healthcare demand will only intensify the growing demand for technician and paraprofessional support services.² From 2000 to 2016 alone, growth projections of 48 percent and 35 percent have been calculated for healthcare support and healthcare practitioner occupations, respectively.³

Additionally, seven of the ten healthcare jobs expected to see the highest growth rates from 2004 to 2014 are technician and paraprofessional positions.⁴ Particularly due to the growing elderly patient base, personal and home health aides are predicted to be the second- and third-fastest growing occupations from 2006 to 2016, respectively.⁵ Despite the emergence of healthcare reform efforts intended to reduce healthcare spending, the anticipated increase in newly insured Americans will compensate for any differences in healthcare service provision caused by reform efforts.⁶

Personal and home care aides and home health aides are predicted to be the second- and third-fastest growing occupations from 2006 to 2016, respectively.

“Occupational Projections for Direct-Care Workers 2006–2016,” Paraprofessional Healthcare Institute, April 2008, p. 2.

Seven of the top ten healthcare jobs expected to experience the most growth between 2004 and 2014 are paraprofessional positions.

"State of the Healthcare Workforce: 2007," American Federation of Teachers, 2007, p. 38.

FOUR PILLARS

The broadening scopes of technician and paraprofessional practice may have a significant effect on the healthcare industry's regulatory, reimbursement, competitive, and technological environments. As such, a contextual understanding of these nonphysician practitioners may be achieved by considering them within the framework of the four pillars. The continuing rise in demand for mid-level provider services may have a long-term effect on the intraprofessional competitive market and, as a result, may be of added significance to the roles played by technicians and paraprofessionals. Advances in technology continue to drive changes in healthcare delivery and elevated standards for technological literacy; in order to maintain pace with dynamic technological expansion, technicians and paraprofessionals may need to raise their skill sets and competencies.

REGULATORY

Much like mid-level providers, technicians and paraprofessionals are subject to regulatory constraints related to **supervision requirements**. Although these nonphysician practitioners are not authorized to practice autonomously, the level of freedom in critical thinking, triage services, and decision-making differs by specialty and state. For example, the scopes of services for some technicians and paraprofessionals discussed in this chapter are regulated specifically by detailed state-approved scope of practice papers. However, others may perform any task delegated to them by the attending independent care practitioner, as long as the task is in compliance with the state's general scope of practice limitations.

REIMBURSEMENT

Technician and paraprofessional services may not bill for services independently. Instead, they may only be reimbursed through the practice expense of supervising practitioners.⁷ Under Medicare, many technicians and paraprofessionals may only bill for *incident-to* services, that is, services integral and incidental to services provided by the attending independent practitioner. Services provided "incident to" physician services are billed as though they were performed by the physician and, therefore, are reimbursed at 100 percent of the physician fee schedule.⁸ Technicians and paraprofessionals may also perform incident-to services under the supervision of an authorized nonphysician practitioner. However, nonphysician practitioners who supervise and bill for these services under their provider numbers are only reimbursed at 85 percent of the physician fee schedule.⁹

Reimbursement for technicians and paraprofessionals under Medicaid differs by state. Some private payors employ the same guidelines as Medicare, and only reimburse incident-to services performed by technicians and paraprofessionals.¹⁰ However, as the extender role of technicians paraprofessionals broadens, reimbursement coding under incident-to rules may be changed to specify procedures that typically are performed by physician extenders. Also, billing and coding measures may be reconfigured to tie reimbursement for extender services to employing facilities, rather than supervising practitioners.¹¹

COMPETITION

The lack of practice autonomy afforded to technicians and paraprofessionals limits the degree of competition between these practitioners and physicians. As such, mid-level providers serve as a key source of competition for their technician and paraprofessional counterparts. The intraprofessional competitive environment is also significant, namely due to the number of interrelated and interchangeable technician and paraprofessional positions. As technicians and paraprofessionals grow in utility and scope of practice, intracompetitive factors related to discrepancies in or overlap of specific roles may become increasingly significant.

TECHNOLOGY

Future investments in health information technology [for example, mandatory implementation of electronic health records (EHRs)] may encourage increased use of technician and paraprofessional health-care personnel.¹² However, technological growth may have a negative impact on the technician and paraprofessional workforce as well. Although some developments may result in the displacement of technicians and paraprofessionals in the provision of certain routine tasks, practitioners who keep pace with technological advancements will increase their marketability to employers and contribute to the expansion of technician and paraprofessional practice scope services.

LICENSED TECHNICIANS AND PARAPROFESSIONALS

Licensed technicians and paraprofessionals are highly educated nonphysician providers who bolster the technological sophistication, efficiency, and quality of physician services. Although these technicians and paraprofessionals must be supervised by an authorized independent practitioner, their expertise is integral to the efficient provision of quality care.

NURSES

The nursing professions classified herein as paraprofessional nurses include Registered Nurses (RNs) and Licensed Practical Nurses or Licensed Vocational Nurses (LPN or LVN). Tables 5-1, 5-2, and 5-3 supplement the following sections by providing more information on these paraprofessional nurses.

REGISTERED NURSES

Description and Scope

Registered nurses (RNs), one of the largest professional cohorts in the healthcare workforce, provide a variety of preventative and medical care services in collaboration with other health professionals, including the assessment, diagnosis, and, in some cases, treatment of patients.¹³ All RNs are afforded some level of autonomy, because they share accountability for the provision of patient care before, between, and after physician services.¹⁴ The distinction between paraprofessional RNs and advanced practice registered nurses (APRNs) is that the latter, in addition to achieving a higher level of education and competence, has a sufficient level autonomy to facilitate independent practice and billing (see chapter 4, *Advanced Practice Registered Nurses (APRNs)*).¹⁵ See table 5-1 for information related to RN scope of practice and educational requirements.

Table 5-1: Paraprofessional Nurse Specialties and Educational and Training Requirements

Specialties	Alternate Job Titles	Subspecialties [†]	Description	Educational and Training Requirements	Number of Accredited Programs ^{**}	Accreditation and Certification Organizations
Registered Nurse (RN)	n/a	See Table 5-2	Provides a variety of preventative and medical care services in collaboration with other health professionals, including the assessment, diagnosis, and, in some cases, treatment of patients.	High school diploma or equivalent, plus accredited nursing program, plus NCLEX-RN licensure exam (minimum)	59 offering diploma programs in nursing, 617 offering an associate degree in nursing,* 259 offering a BSN, 629 RN-to-BSN programs, and 197 alternative bachelor's degree-to-BSN programs	NLNAC (accreditation) NCSBN (licensure exam)
Licensed Practical Nurse (LPN)	Licensed Vocational Nurses (LVN)—only referred to as such in California and Texas	Most are generalists, but activities can vary by work setting	Provides bedside assistance and monitors, evaluates, and helps care for patients under the supervision of a physician or RN.	High school diploma or equivalent, plus approved practical nursing program (approximately one year in length), plus NCLEX-PN licensure exam (minimum)	More than 1,500 (state-approved) 153 (NLNAC accredited)	NLNAC (accreditation) NCSBN (licensure exam)

Notes:

* ADN: Associate degree in nursing, BSN: Bachelor's of science degree in nursing, NLNAC: National League for Nursing Accrediting Commission, NCSBN: National Council of State Boards of Nursing.

** All estimates are for 2006; estimates for LPNs are specifically for educational programs in practical nursing.

† Note that Advanced Practice Nurses (a subset of RNs with additional training and qualifications) are not included as a sub-specialty due to the increased independence in practical applications of their services. The various types of APNs are discussed in more detail in chapter 4, *Mid-Level Provider Practices*.

Sources by Specialty:

1. "Registered Nurses," *The Occupational Handbook*, 2008-09 Edition, Bureau of Labor Statistics, December 18, 2007, www.bls.gov/oco/ocos083.htm (accessed October 2, 2009), p. 1.
2. "About NLNAC," *The National League for Nursing Accrediting Commission*, www.nlnac.org/About%20NLNAC/whatsnew.htm (accessed November 16, 2009).
3. "About NLNAC," *National League for Nursing Accrediting Commission, Inc.*, 2002, www.nlnac.org/About%20NLNAC/whatsnew.htm (accessed November 16, 2009), p. 1; "Registered Nurses," *Bureau of Labor Statistics, Occupational Outlook Handbook*, 2008-2009 edition, p. 1-4.
4. "Licensed Practical and Licensed Vocational Nurses," *Bureau of Labor Statistics, Occupational Outlook Handbook*, 2008-2009 edition, p. 1; "About NLNAC," *National League for Nursing Accrediting Commission, Inc.*, 2002, www.nlnac.org/About%20NLNAC/whatsnew.htm (accessed November 16, 2009), p. 1.

RNs are one of the largest professional cohorts of the healthcare workforce.

"Nursing: Scope & Standards of Practice," American Nurses Association, Silver Spring, MD, 2004 edition, p. 9.

Scope

Experience, education, specialty, and the local market in which RNs practice largely determine their level of autonomy and scope of practice. Although RN scope of practice varies widely due to the broad range of specialties available, the most basic of duties, common to all practicing RNs, may include some level of patient education, evaluation and monitoring of patient progress and treatment, and assistance during various diagnostic and therapeutic procedures administered by the treating independent practitioner.¹⁶ Licensed RNs lack the autonomy afforded to APRNs and are reimbursed under a supervising

Table 5-2: List of Registered Nursing Specialties and Subspecialties

Path of Specialization	Subspecialty Area*
By Work Setting or Type of Treatment	Ambulatory care
	Critical care
	Emergency or trauma
	Holistic
	Home health care
	Hospice and palliative care
	Infusion
	Long-term care
	Medical-surgical
	Occupational health
	Perianesthesia
	Perioperative
	Psychiatric-mental health
	Radiology
	Rehabilitation
Transplant	
By Health Condition	Addiction
	Intellectual and developmental disabilities
	Diabetes management
	Genetics
	HIV/AIDS
	Oncology
By Organ or Body System Type	Wound, ostomy, and continence
	Cardiovascular
	Dermatology
	Gastroenterology
	Gynecology
	Nephrology
	Neuroscience
	Ophthalmic
	Orthopedic
	Otorhinolaryngology
	Respiratory
	Urology
	By Population Type
Pediatrics	
Gerontology or Geriatrics	

* This list, although extensive, may not be considered comprehensive.

Source: "Registered Nurses," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-2.

practitioner. RNs typically work in consultation with physicians or other healthcare professionals, and depending on experience, may provide supervision for LPNs, LVNs [see *Licensed Practical Nurses (LPNs) and Licensed Vocational Nurses (LVNs)*], nursing aides (see *Aides*), or a combination of these.¹⁷

Education and Training

Although several RN educational paths exist, all practicing RNs are required to graduate from an accredited nursing education program and successfully pass the National Council Licensure Examination for Registered Nurses (NCLEX-RN), offered by the National Council of State Boards of Nursing.¹⁸ Nursing education programs must be accredited by the National League for Nursing Accrediting Commission and may result in a diploma, an associate degree in nursing (ADN), or a Bachelor of Science in Nursing (BSN).¹⁹ As of 2006, there were fifty-nine programs offering diploma programs in nursing, 617 offering ADN programs, and 259 offering BSN programs.²⁰ Additionally, there were 629 RN-to-BSN programs and 197 programs tailored to individuals holding a bachelor's degree in another field who wish to pursue a BSN.²¹ Although requirements vary by state, additional certification by the American Nurses Credentialing Center is available for certain specialties.²²

With a growing number of foreign-born nurses entering the nursing workforce, regulation of nursing educational and licensure requirements has been of increasing concern in recent years. Foreign-born nurses must meet stringent requirements in order to practice in the United States. Specifically, they must demonstrate proficiency in written and spoken English, complete educational training comparable to the education provided by accredited programs in the United States, pass either the NCLEX-RN or the Commission on Graduates of Foreign Nursing Schools (CGFNS) qualifying examination, and have fulfilled any additional state licensure requirements.²³

Table 5-3: Paraprofessional Nurse Distribution, Characteristics, and Demand

Specialty	Workforce in 2006	Workforce in 2016	Percent Change 2006–2016	Primary Types of Work Settings	Additional Characteristics*	Notes on Demand
Registered Nurse (RNs)	2,400,000	2,900,000	23.50%	Hospitals (59.0%) Physician offices (8.0%) Home health services (5.0%) Nursing care facilities (5.0%) Employment services (4.0%) Outpatient care centers (3.0%)	There are 8 RNs per 100 population: 94.2% female, 81.8% white, and 16% foreign-born. The average age is 43.7.	Projections indicate that, although the number of RNs is increasing, relative to the general population, the number of RNs will decrease between 2005 and 2020, reaching 260,000 by 2025. This will create a worsening nurse shortage.
Licensed Practical Nurse (LPNs)	748,605	853,703	14.0%	Hospitals (25.8%) Nursing care facilities (25.8%) Physician offices (12.3%)	There are 2.1 LPNs per 100 population: 95% female, 67% white, and 26% black. The average age is 43.	Growth is primarily due to the growing number of elderly requiring services, and more job growth is expected in home health and nursing care facilities than in hospitals, the traditional primary employer of LPNs and Licensed Vocational Nurses.

Notes:

* Statistics are for the period 2000-2001.

Sources by Specialty:

1. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-1111 Registered Nurses," Bureau of Labor Statistics, 2008, p. 1; "Registered Nurses," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 4–5; "Current and Future State of the US Nursing Workforce," by Peter I Buerhaus, Journal of the American Medical Association, Vol. 300, No. 20, November 26, 2009; "Overall Capacity of the U.S. Health Care System," RAND COMPARE, randcompare.org, 2009, www.randcompare.org/current/dimension/capacity (accessed December 11, 2009); "The Recent Surge in Nurse Employment: Causes and Implications," by Peter I. Buerhaus, David I. Auerbach, Douglas O. Staiger, Health Affairs, Vol. 28, No. 4 (2009), p. w663.
2. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2008 and projected 2018: 29-1111 Registered Nurses," Bureau of Labor Statistics, 2008 p. 1; "Registered Nurses," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 4–5; "Supply, Demand, and Use of Licensed Practical Nurses," HRSA, November 2004, p. 16, 21; "Health and Health Care 2010: The Forecast, the Challenge," The Robert Wood Johnson Foundation, 2nd edition, January 2003, p. 103–4.
3. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2061 Licensed Practical and Licensed Vocational Nurses," Bureau of Labor Statistics, 2006, p. 1; "Licensed Practical and Licensed Vocational Nurses," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 2; "Supply, Demand, and Use of Licensed Practical Nurses," HRSA, November 2004, p. 16, 20–21.

Specialties

RN specialties vary based on a number of criteria, including

1. work setting or specialty services provided,
2. emphasis on the treatment and care of specific health conditions,
3. concentration on treatments related to a specific organ or body system, or
4. expertise in provision of care to a specific population base.²⁴

For a complete list of representative specialties according to each of these criteria, see table 5-2.

Although APRNs traditionally are considered a subset of the RN workforce, they are discussed extensively in chapter 4, *Advanced Practice Registered Nurses (APRNs)* because of the expanded scope duties and autonomy they are afforded as mid-level providers.

Industry Trends

Characteristics and Distribution

The RN workforce demographic is predominantly older and female. With regard to age, like the age demographics of the United States population, the number of older RNs in the United States is growing.²⁵ In 2006, the average age of an RN was 43.7 years; the largest age group for RNs was composed of RNs in their 40s. By 2012, the largest age group of RNs will be composed of RNs in their 50s (as the previously cited RNs in their 40s grow older), and the average age of RNs will be 44.5 years.²⁶

Women comprised 94.2 percent of the total estimated workforce in 2004. Additionally, 81.8 percent of the 2004 workforce identified themselves as white and non-Hispanic.²⁷ A recent study suggested that the traditional stigma of the RN profession as one for white women has served as a barrier to men and minorities entering the RN workforce.²⁸ Despite the predominantly white makeup of the RN workforce, a growing portion of the workforce exists that is comprised of foreign-born nurses. The number of foreign-born RNs practicing in the United States has grown from 9 percent in 1994 to more than 16 percent as of 2008.²⁹ See table 5-3 for information related to RN workforce characteristics.

The number of foreign-born RNs practicing in the United States has grown from 9 percent in 1994 to more than 16 percent as of 2008.

"The Recent Surge in Nurse Employment: Causes and Implications," By Peter I. Buerhaus, David I. Auerbach, Douglas O. Staiger, Health Affairs, Vol. 28, No. 4, 2009, p. w662.

Supply and Demand

In 2007, 2.4 million RNs practiced in the United States, with an average of about 800 RNs per 100,000 people, however, evidence of a growing nursing shortage has existed since the late 1990s.³⁰ According to the BLS, the RN workforce is expected to grow by 23.5 percent from 2006 to 2016 to include more than 500,000 new RNs.³¹ However, projections indicate that the number of RNs will decrease between 2005 and 2020 relative to the general population.³² In turn, the continued growing shortage of full-time RNs is predicted to reach 260,000 by 2025.³³

The United States had 2.4 million RNs operating as of 2007, an average of about 800 per 100,000 population. Of these RNs, approximately 70 percent were full-time RNs and 30 percent worked part time.

"Overall Capacity of the U.S. Health Care System," RAND COMPARE, randcompare.org, 2009, www.randcompare.org/current/dimension/capacity (accessed December 11, 2009).

The number of RNs is projected to decrease as compared to the general population between 2005 and 2020.

"Overall Capacity of the U.S. Health Care System," RAND COMPARE, randcompare.org, 2009, www.randcompare.org/current/dimension/capacity (accessed December 11, 2009).

The number of RNs began decreasing in the 1970s, when women began pursuing careers in fields other than nursing and teaching.³⁴ In 2000, thirty states endured shortages greater than 3 percent; the national supply of 1.89 million RNs and estimated demand of 2 million RNs resulted in a 6 percent

shortage. The demand for nurses will rise about 3 percent per year during the next few decades, but the number of nurses in the workforce will remain relatively stable.³⁵ In recent years, the average age of RNs has increased steadily due to fewer nursing school graduates, higher average ages of recent graduating classes, and an aging of licensed nurses on the whole.³⁶ Although the American Association of Colleges of Nurses (AACN) reported a 16.6 increase in baccalaureate program enrollment in 2003, the growth in student capacity has substantially decreased, with a humble 2 percent increase in 2008.³⁷ Additionally, the number of graduates from associate degree programs is declining, and the shift from two- to four-year programs will temporarily thwart the growth in supply needed to balance anticipated demands.³⁸ Finally, although there *has* been and will continue to be an increase in nurses graduating from four-year programs, the percentage of nurses working in hospitals has been dropping steadily. This is due to the advent of retail and work-site clinics, ambulatory centers, physician practices, health insurers, and disease management companies. As such, the shortage problem is not only due to the population demand, but it is also due to the competition procured by diversifying the occupational milieu nurses have come to occupy.³⁹

Despite the mild growth in the number of nurses who complete their bachelor's degrees, predicted trends are disconcerting. The United States Department of Health and Human Services (HHS) anticipates 1 million unfilled nursing positions by 2020.⁴⁰ The six-fold increase in denied applicants for nursing school since 2002, a rate that is seemingly higher than ever, will undoubtedly contribute to the nursing shortage. Reasons for the halt placed in nursing education include financial deterrents to offering and expanding nursing education, paucity of training sites, and a shortage of qualified nursing faculty. Instructors in the nursing profession must possess an advanced degree (for example, from a master's or doctoral program) but often receive lower compensation than if they had remained in the acute-care setting.⁴¹ Consequently, few incentives exist to encourage nurses to instruct. Congress attempted to pass legislation that would provide loan forgiveness to nurses who received advanced nursing degrees and agreed to teach for at least four years. Unfortunately, without more economic incentives, the nursing education system will soon begin to experience a shortage of instructors as the current instructor population ages.⁴²

The factors influencing the number of new graduates employed do not solely contribute to the aging nursing workforce. For example, too many RNs are postponing retirement, which leaves few openings for new graduates in the field. In 2000, the graduating class was an average of thirty-three years old, and only 9 percent (as compared with 25 percent in 1980) of RNs were under the age of thirty. Also, as of 2000, there were nearly 500,000 licensed nurses not working in the field, with only 7 percent of those professionals seeking employment in nursing.⁴³ Table 5-3 outlines in detail trends in RN demand.

Highlights in the Four Pillars

Regulatory

Due to state sovereignty in determining the role and scope of RNs, federal regulation of these practitioners has been minimal and is not anticipated to change significantly. Most of the regulatory and reimbursement controversy surrounding the nursing profession is centered on APRNs, namely because of their expanding scopes of practice and permitted levels of autonomy (see chapter 4, *Advanced Practice Registered Nurses (APRNs)*).

Competition

Higher levels of education and training are becoming increasingly favorable for nurses, consequently affecting the intraprofessional competitive dynamic that they must face. According to AACN, hospitals prefer nurses who have bachelor's degrees, because, statistically, facilities with more nurses possessing a higher level of education have lower mortality rates and are afforded an atmosphere of greater job satisfaction.⁴⁴ Additionally, APRNs are favored to RNs, because their autonomy and expertise as mid-level providers allows them to serve *in lieu of or* incident-to a dwindling physician population; as a result, the number APRNs has increased significantly (see chapter 4, *Advanced Practice Registered Nurses (APRNs)* under *Supply and Demand*), especially in light of the growing RN shortage.⁴⁵

Technology

As the largest professional workforce in the healthcare field, changes in competition and technology do not have the same impact on the utilization of RN services that they would on professions with smaller workforce cohorts. However, as technology improves, RNs will be required to maintain pace of current developments within their field.

LICENSED PRACTICAL NURSES AND LICENSED VOCATIONAL NURSES

Description and Scope

LPNs, also known as LVNs, comprise another part of the nursing workforce and provide a variety of healthcare services under the supervision of physicians and RNs.⁴⁶ In all but two states, these practitioners are called LPNs; in California and Texas, LVN and LPN designations are used interchangeably.⁴⁷ For the purpose of this *Guide*, both LPNs and LVNs will be referred to as LPNs. Although LPNs care for many different patient populations in diverse healthcare settings, they are not held to the same training requirements as RNs and APRNs and, therefore, are not authorized to provide care with either respective grade of autonomy (see chapter 4, *Advanced Practice Registered Nurses (APRN)* and *Registered Nurses* for more detail on RNs and other advanced nursing specialties, respectively).⁴⁸

Scope

LPNs work in collaboration with other health professionals to provide personal, preventive, rehabilitative, and other care services to a diverse population in many healthcare settings.⁴⁹ LPNs work under the direction of physicians and RNs to diagnose, manage, and treat patients.⁵⁰ Although most LPNs are considered generalists, tasks and responsibilities vary depending on the healthcare setting; also, the flexibility of LPN responsibilities varies by state.⁵¹ With experience, some LPNs may be able to supervise nursing aides as a part of their practice. However, LPNs are more limited in their scope of practice than RNs and APRNs. Most LPNs may not perform telephone triage nor may they develop and make changes to patient care plans independent of a supervising practitioner.⁵²

Education and Training

Educational requirements for LPNs include (1) graduation from a state-accredited educational program in practical nursing that is approximately one year in length and (2) successful completion of the National Council Licensure Examination for Practice Nurses (NCLEX-PN), offered by the National Council of State Boards of Nursing (NCSBN).⁵³ The typical training program includes both theoretical and practical perspectives of nursing, and the NCLEX-PN exam determines competency in several core areas of LPN practice.⁵⁴

Industry Trends

Characteristics and Distribution

The LPN workforce is fairly large, consisting of 748,605 practitioners in 2006.⁵⁵ LPNs are most commonly employed in hospitals (25.8 percent) or nursing care facilities (25.8 percent), with smaller proportions of the LPN workforce practicing in physician offices (12.3 percent), residential care facilities (6.3 percent), and other settings.⁵⁶

The demographics of the LPN workforce are skewed, with women representing 95 percent of the LPN workforce in 2001, and 67 percent of the workforce were reported as white.⁵⁷ Additionally, the LPN workforce is fairly old, with an average age of 43.⁵⁸

Supply and Demand

Job demand for LPNs is expected to increase in the coming years. The LPN workforce is expected to grow by 14 percent from 2006 to 2016.⁵⁹ Much of this growth is attributed to the growing elderly population, which is expected to elevate demand for LPNs in long-term care settings.⁶⁰ Although employment in hospitals is expected to wane, many nursing tasks in hospitals may be delegated to LPNs in the future, especially with the anticipated RN shortage and the growing chasm in educational training between paraprofessional (LPNs, LVNs, and RNs) and mid-level (APRNs) nurses.⁶¹

Highlights in the Four Pillars

Regulatory

The Nurse Licensure Compact (NLC) is an ongoing piece of LPN regulation that is gaining momentum. Although licensure is awarded at the state level, the NLC allows APRNs, RNs, and LPNs to practice in any of the twenty-three member states without pursuing additional licensure.⁶² Other than changes in uniform standards for training and licensure, regulation of LPN practice has remained minimal in recent years.

Reimbursement

Similar to all other technicians and paraprofessionals, LPNs are not authorized to bill for services independently, instead, they are reimbursed under the provider number of their supervising practitioners. LPN services provided in accordance with physician orders may be billed to Medicare as “incident-to” services (see *Reimbursement* under *Overview* in this chapter for a more thorough explanation of Medicare “incident-to” rules).⁶³ LPNs may also provide incident-to services under APRNs who bill under their own provider number, however, APRNs are only reimbursed at 85 percent of the physician fee schedule.⁶⁴

Competition

The nursing profession employs a very structured hierarchy: LPNs must work, to varying degrees, under the direction and supervision of RNs and physicians, as mandated by the state in which they practice.⁶⁵ However, LPN scope of practice is regulated differently in each state, and, with ongoing RN shortages, LPNs may functionally fill the role previously assumed by RNs.⁶⁶ Although LPNs traditionally are not permitted to practice autonomously, the inadequate uniformity and detail in the regulation of LPN practice across all states may allow for some flexibility in LPN scope of practice, which may pose a growing threat to the RN population.⁶⁷

THERAPISTS

DESCRIPTION AND SCOPE

Although rehabilitation therapists have been classified as mid-level providers of clinical services (see chapter 4, *Rehabilitation Therapists*), other therapists comprise a subset of licensed technicians and paraprofessionals (see table 5-4 for information related to paraprofessional therapist scope of practice, educational requirements, and specialties).

Table 5-4: Paraprofessional Therapist Specialties and Educational and Training Requirements

Specialties	Alternate Job Titles	Subspecialties	Description	Educational and Training Requirements	Number of Accredited Programs**	Accreditation and Certification Organizations
Radiation Therapist	n/a	n/a	Serves as one part of the radiation therapy treatment team; administers radiation therapy, a treatment option for cancer.	Associate degree <i>or</i> bachelor's degree <i>or</i> certificate in radiation therapy, plus certification, plus annual registration, plus biennial continuing education (<i>minimum</i>), plus licensure (varies by state)	123	JRCERT (accreditation) ARRT (certification)
Respiratory Therapist	n/a	n/a	Provides medical care for patients with respiratory ailments or cardiopulmonary diseases, including any duties related to the evaluation, treatment, and management of patients.	Associate degree in accredited respiratory therapy program, plus CRT certification, plus licensure (<i>minimum</i>), plus RRT certification	369	CAAHEP (accreditation) NBRC (certification)

Notes:

* JRCERT: Joint Review Committee on Education in Radiologic Technology; AART: American Registry of Radiologic Technologists ; CRT: [Entry-Level] Certified Respiratory Therapist; RRT: Advanced Registered Respiratory Therapist ; CAAHEP: Commission on Accreditation of Allied Health Education Programs; NBRC: National Board for Respiratory Care

** Note that number of accredited programs for radiation therapists is a 2007 estimate, and the number for respiratory therapists is a count provided by the accrediting organization at the time of publication.

Sources by Specialty:

1. "Radiation Therapists," by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "The Practice Standards for Medical Imaging and Radiation Therapy," by the American Society of Radiologic Technologists, 2007, p. 2; "Radiation Therapy: Certification Handbook and Application Materials", by The American Registry of Radiologic Technologists, 2009, p. 6, 7, 23-24.
2. "Respiratory Therapists," by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 ed., p. 1-2; "Respiratory Therapist," by AMA, Health Care Careers Directory, 2009-2010, p. 1; "Standards and Guidelines for the Profession of Respiratory Care," by CAAHEP, 2003, p. 1; "RRT Examination,," by the National Board for Respiratory Care, 2009, www.nbrc.org/Examinations/RRT/tabid/60/Default.aspx (accessed October 6, 2009), p. 1-2; "CRT Examination,," by the National Board for Respiratory Care, 2009, www.nbrc.org/Examinations/CRT/tabid/61/Default.aspx (accessed October 6, 2009), p. 1.

Scope

In addition to maintaining records and monitoring patient care, paraprofessional therapists provide clinical care as prescribed by the attending physician or authorized practitioner.⁶⁸ The clinical services administered by these therapists require knowledge of complex medical equipment and techniques. They may only administer clinical care in accordance with the direct order(s) of a qualified practitioner.⁶⁹

Education and Training

Education, licensure, and certification requirements not only vary for each type of paraprofessional therapist, but they also differ for every state and employer. In general, minimum educational requirements may include associate-level training through an accredited program, certification, and state licensure.

Specialties

There are two types of therapists categorized as licensed technicians and paraprofessionals: (1) radiation therapists and (2) respiratory therapists.

Radiation Therapists

Scope

Radiation therapists administer radiation therapy, which is a treatment option for cancer.⁷⁰ Radiation therapists are part of the radiation therapy treatment team, which also may include a patient's primary care physician (chapter 3, *Primary Care*), a radiation oncologist (chapter 3, *Radiology*), a dosimetrist (*Other Licensed Technicians and Paraprofessionals*), an oncology nurse (*Registered Nurses* and table 5-2), and a medical physicist (chapter 3, *Radiology*), among others.⁷¹

Education and Training

Employers typically require an associate or bachelor's degree in radiation therapy or a degree in radiography supplemented by a certificate in radiation therapy.⁷² Programs must be accredited by the American Registry of Radiologic Technologists (ARRT).⁷³ Within five years of graduating from an accredited program, radiation therapists must sit for a national certification examination offered by the ARRT. An individual who passes the examination becomes certified as a Registered Technologist in radiation therapy.⁷⁴ In addition, many states mandate licensure, which may require prior completion of the ARRT certification exam.⁷⁵

Respiratory Therapists

Scope

Respiratory therapists work under the direction of a physician to provide medical care to patients with respiratory ailments or cardiopulmonary diseases.⁷⁶ Respiratory therapists perform any duties related to the evaluation, treatment, and management of patients, and they may be responsible for the coordination and supervision of respiratory therapy technicians.⁷⁷

Education and Training

To become a respiratory therapist, individuals must complete the minimum educational requirement of an associate degree in respiratory therapy from a program accredited through the Commission on Accreditation of Allied Health Education Programs or the Committee on Accreditation for Respiratory Care.⁷⁸ Additionally, all states, with the exception of Alaska and Hawaii require licensure of respiratory therapists.⁷⁹ State licensure requirements may include prior certification through the National Board of Respiratory Care as an Entry-Level Certified Respiratory Therapist (CRT) or as an Advanced Registered Respiratory Therapist (RRT).⁸⁰ Although the CRT credential is all that is required by most employers and state licensure boards, respiratory therapists who achieve the RRT credential, which is considered the "standard of excellence" in respiratory care, often may expand their scope of practice and gain more autonomy while still being required to work under the supervision of a qualified physician.⁸¹

INDUSTRY TRENDS

Characteristics and Distribution

Approximately three quarters of the radiation and respiratory therapist workforce practice in a hospital setting.⁸² Smaller subsets work in offices of physicians or other health practitioners or in other healthcare or social service settings.⁸³ Table 5-5 contains specific information related to paraprofessional therapist workforce characteristics.

Table 5-5: Paraprofessional Therapist Distribution, Characteristics, and Demand

Specialty	Workforce in 2006	Workforce in 2016	Percent Change 2006–2016	Primary Types of Work Settings	Additional Characteristics	Notes on Demand
Radiation Therapist	14,627	18,248	24.8%	Hospitals (73%) Offices of physicians (17.1%) Outpatient care centers (3.6%)	n/a	Increased demand for services due to the increasing number of elderly people in the population and expected technology advances that will increase the scope and need of radiation therapy for treatment of cancer.
Respiratory Therapist	102,406	125,563	22.6%	Hospitals (78%) Offices of various health practitioners (4.6%)	n/a	Increase in demand thought to be a result of the growth in middle-aged and elderly population, who are more susceptible to respiratory and cardiopulmonary ailments, requiring the services of respiratory care practitioners. Some of the largest increases in demand for radiation therapists are forecasted to occur in the areas of home health services (55%) and residential care facilities (42.4%).

Sources by Specialty:

1. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-1124 Radiation Therapists," by Bureau of Labor Statistics, 2006, p. 1; "Radiation Therapists," by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 2.
2. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-1126 Respiratory Therapists," by Bureau of Labor Statistics, 2006, p. 1; "Respiratory Therapists," by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 ed., p. 3.

Supply and Demand

Due to the aging demographic and projected growth in technology, the market demand for radiation and respiratory therapists is expected to grow (see table 5-6).⁸⁴ The manpower demand in oncology, namely due to the growing number of elderly patients and advances in the treatment of various types of cancer, will perpetuate expansion of the scope of radiation therapy practice.⁸⁵ In fact, the highest projected increases in demand for radiation therapists are forecasted to occur in the areas of home health care (55 percent) and residential care (42.4 percent).⁸⁶ Because respiratory and cardiopulmonary diseases are most common among the elderly demographic, a continued increase in demand is projected for respiratory therapists.⁸⁷

HIGHLIGHTS IN THE FOUR PILLARS

Regulatory

Regulation of Radiation Therapy Services

The regulation of both radiation and respiratory therapy is undergoing significant change. In an effort to provide safer and better quality care at lower costs, United States Representative John Barrow introduced the Consistency, Accuracy, Responsibility, and Excellence in Medical Imaging and Radiation Therapy Act of 2009 to the U.S. House of Representatives on September 25, 2009.⁸⁸ This bill would require a certain minimum standard of qualification or certification for any individual who performs any imaging procedure, including radiation therapy procedures, beginning January 1, 2013.⁸⁹ As of March 2010, the bill had not advanced out of the House Ways and Means Committee.⁹⁰

Regulation of Respiratory Therapy Services

The Medicare Respiratory Therapy Initiative Act of 2009 (HR 1077), introduced to the House of Representatives on February 13, 2009, and referred to the House Ways and Means Committee (without further advancement), would increase the autonomy of respiratory therapists by allowing them to provide respiratory services under general supervision, as opposed to direct supervision.⁹¹

Reimbursement

Reimbursement of Radiation Therapy Services

Billing for radiation therapy services provided in hospital-based facilities differs from office-based, freestanding, and radiation therapy facilities. Under Title XVIII of the Social Security Act, Medicare beneficiaries are entitled to supervised care for the provision of the following diagnostic and therapeutic radiation services:

1. Incident-to services in outpatient hospital settings
2. Radiation therapy services in an office or freestanding radiation therapy center
3. Diagnostic tests in an office or freestanding radiation therapy center
4. Diagnostic tests in an outpatient hospital setting
5. Incident-to services in an office or freestanding radiation therapy center⁹²

In hospital outpatient settings, there two types of radiology services exist that may be covered by Medicare: diagnostic services and therapeutic services.⁹³ Therapeutic services are those provided incident-to physician services and may include radiation therapy.⁹⁴ For the provision of both diagnostic and incident-to services in outpatient hospital settings, services must be ordered by a physician or authorized by *and* under the “direct supervision” of a physician or authorized nonphysician practitioner.⁹⁵ *Direct supervision* implies that supervising practitioners must be “immediately available” at the time of the procedure, that is, they must be present on the same hospital campus, and they must be close enough to intervene if necessary.⁹⁶ Services rendered in the absence of a supervising physician or qualified practitioner may not be billed for under Medicare.⁹⁷

Medicare covers three types of services in nonhospital facilities: the diagnostic and therapeutic (incident-to) categories previously discussed and radiation therapy services, which have their own Medicare benefit category.⁹⁸ These services are provided under “direct personal supervision,” which, much like

“direct supervision,” implies that the supervising practitioner need not be physically present for the procedure, but he or she must be “immediately available,” should assistance be necessary.⁹⁹ However, direct personal supervision is not billed under Part B due to the fact “the level of physician involvement does not represent a physician’s service and cannot be billed as a Part B service.”¹⁰⁰ Rather, radiation therapy services are billed as part of the technical component billed by the freestanding facility, with coverage subject to requirements under Section 1861(s)(2)(A) of the Social Security Act.¹⁰¹

Reimbursement of Respiratory Therapy Services

Respiratory therapists may not bill independently under Medicare, and passage of HR 1077 would not change the reimbursement practices of respiratory therapists.¹⁰²

Recent changes in reimbursement of respiratory therapists include a modification of Medicare reimbursement coverage in the comprehensive outpatient rehabilitation facilities. In the 2010 physician fee schedule proposed rules, the Centers for Medicare and Medicaid Services (CMS) proposed to include CRTs who are eligible for, but have not yet passed, the national registry examination among respiratory therapists (that is, registered respiratory therapists) who are eligible for reimbursement of services provided to Medicare beneficiaries.¹⁰³

Technology

The education and training requirements for radiation therapists, as well as the scope of services they provide, are dependent upon technological advancements in the field of radiation oncology. At the time of publication, approximately 90 percent of radiation therapy utilized external beam radiation therapy (or EBT, see chapter 5 of *An Era of Reform*).¹⁰⁴ Advances in recent decades, however, have provided patients with a growing number radiation therapy treatment options (for example, brachytherapy and stereotactic radiosurgery; see chapter 5 of *An Era of Reform*).¹⁰⁵ As alternative treatment options become increasingly popular, training programs may need to adapt to preserve the role of radiation therapists in radiation oncology.

Currently, approximately 90 percent of radiation therapy utilizes external beam radiation therapy.

“Recent Advances in Radiation Therapy,” by David E. Gerber, Timothy A. Chan, *American Family Physician*, Vol. 78, No. 11 (December 1, 2008), p. 1255.

TECHNOLOGISTS

DESCRIPTION AND SCOPE

Technologists practice in a variety of disciplines (for example, cardiology, clinical laboratory sciences, surgery, and so forth). Although technologists typically utilize more critical thinking skills and have more autonomy than assistants or aides, their role is still entirely aimed at enhancing the provision of *physician* services. As such, technologists are not directly responsible for any direct decision making in the diagnosis, management, or treatment of patients.¹⁰⁶ The role and involvement of technologists in patient care varies by discipline. See table 5-6 for more detail regarding the specific professions discussed in this section.

Scope

The scope of practice for technologists varies depending on discipline and subspecialty. However, most technologists are responsible for some manner of administrative tasks, as well as preparatory work for and administration of clinical procedures or tests ordered by the attending physician, with varying levels of patient interaction depending on specialty.¹⁰⁷ Additionally, for some specialties (for example, clinical laboratory sciences), technologists with an appropriate level of education and experience may perform managerial tasks as well.¹⁰⁸ However, technologists are not authorized to autonomously diagnose or treat patients; all procedures must be performed in accordance with an attending physician's orders.¹⁰⁹

Nuclear medicine technologists are not required to report exclusively to nuclear medicine physicians; according to data reported from a 2005 survey by the Center for Health Workforce Studies at the University at Albany, 35.1 percent of nuclear medicine technologists worked with other types of physicians.¹¹⁰ Further, in recent years, there has been a shift in nuclear medicine technologist services to outpatient facilities and mobile or temporary practices. Consequently, nuclear medical technologists have enjoyed an increased level of independence in practice.¹¹¹ These trends could indicate a diversification and expansion of nuclear medicine technologist duties and scope of practice and a general shift toward increased autonomy in practice.

Education and Training

The minimum training required of technologists is more extensive than the requirements for assistants or aides. Technologists typically are required to complete a formal, accredited training program that results in a certificate or an associate or bachelor's degree. Although certification is voluntary for all specialties, it is generally preferred by employers and for state licensure.¹¹²

Specialties

Most specialties, including cardiovascular, clinical laboratory, radiologic, and surgical technology, provide opportunities for advanced or specialty certification with additional training. See table 5-6 for a list of subspecialties and accreditation and certification agencies.¹¹³

Table 5-6: Paraprofessional Technologist Specialties and Educational and Training Requirements

Specialties	Alternate Job Titles	Subspecialties	Description
Medical and Clinical Laboratory Technologist	Medical laboratory technologist or clinical laboratory scientist	Microbiology, Virology, Hematology, Immunology, Transfusion medicine, Clinical chemistry, Endocrinology, Toxicology, Cytogenetics, Molecular diagnostics	Professionals in the field of clinical laboratory science who are primarily responsible for the design, practice, and reporting of clinical testing of bodily fluids and tissues as requested by the attending physician.
Cardiovascular Technologist	n/a	Invasive cardiovascular technologists, Noninvasive cardiovascular technologists, including (1) Noninvasive cardiology (echocardiography) and (2) Noninvasive peripheral vascular study (vascular ultrasound)	Works under the direction and supervision of a licensed physician to provide diagnostic and therapeutic cardiac and vascular procedures.
Radiologic Technologist	Radiographer	Subdisciplines include nuclear medicine technology, radiation therapy, and sonography, Additional certification is available in the following areas: mammography, computerized tomography, magnetic resonance imaging, quality management, bone densitometry, cardiac-interventional radiography, vascular-interventional radiography, sonography, vascular sonography, breast sonography, and radiologist assistant.	Administers diagnostic imaging services involving radiation (for example, x-rays) to patients under the direction of a physician for diagnostic and preventative purposes.
Nuclear Medicine Technologist	n/a	n/a	Administers radionuclide(s) and monitor patient progress in response to the drug.
Surgical Technologist	Scrub, surgical, or operating room technician	With additional training, surgical technologists may expand their role to surgical first assistant (circulator).	Provides surgical care under a surgeon as a part of the operating room team.

Notes:

- * NAACLS: National Accrediting Agency for Clinical Laboratory Sciences; AMT: American Medical Technologists; AAB: American Association of Bioanalysts; ASCP: American Society for Clinical Pathology; CAAHEP: The Commission on Accreditation of Allied Health Education Professionals; CCI: Cardiovascular Credentialing International; ARDMS: American Registry for Diagnostic Medical Sonography; JRCERT: Joint Review Committee on Education in Radiologic Technology; ARRT: The American Registry of Radiologic Technologists; JRCNMT: Joint Review Committee on Education Programs in Nuclear Medicine Technology; NMTCB: Nuclear Medicine Technology Certification Board; LCCST: Liaison Council on Certification for the Surgical Technologist; NCCT: National Center for Competency Testing
- ** Note that some estimates are current at the time of publication, whereas others are estimates from 2006 and 2007

Sources by Specialty:

1. "Clinical Laboratory Technologists and Technicians," by Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "Scope of Practice," by the American Society for Clinical Laboratory Science, August 2, 2001, www.ascls.org/position/scope_of_practice.asp (accessed October 15, 2009), p. 2-3; "NAACLS Accredited and Approved Program Search," by the National Accrediting Agency for Clinical Laboratory Sciences, 2009, www.naacls.org/search/programs.asp (accessed October 20, 2009), p. 1; "Qualifications," by American Medical Technologists, 2009, www.amt1.com/page.asp?i=168 (accessed October 20, 2009), p. 1; "MT(AAB)—Medical Technologist Disciplines and Qualifications," by the American Association of Bioanalysts, 2006, www.aab.org/mt.htm, (accessed October 20, 2009) p. 1-2; "Technologist Certification," by the American Society for Clinical Pathology, 2009, www.ascp.org/FunctionalNavigation/certification/GetCertified/TechnologistCertification.aspx (accessed October 20, 2009), p. 1-8; "Guide to Accreditation," by the National Accrediting Agency for Clinical Laboratory Sciences, 2008, p. 1 (for more information regarding standards for accreditation, please see "Standards of Accredited Educational Programs for the Clinical Laboratory Scientist/Medical Technologist," by the National Accrediting Agency for Clinical Laboratory Sciences, last revised October 1, 2005, www.naacls.org/PDFviewer.asp?mainUrl=/docs/Standards_cls-mt.pdf (accessed October 20, 2009).
2. "Cardiovascular Technologist," AMA, Health Care Careers Directory, 2008-2009, p. 1; "Cardiovascular Technologists and Technicians," by Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "Standards and Guidelines for the Accreditation of Educational Programs in Cardiovascular Technology," by CAAHEP, 2009, p. 1; "CAAHEP Accredited Program Search: [Cardiovascular Technologist]," CAAHEP, 2009, www.caahep.org/Find-An-Accredited-Program/, (accessed October 27, 2009); "CAAHEP Accredited Program Search: [Diagnostic Medical Sonographer]," CAAHEP, 2009, www.caahep.org/Find-An-Accredited-Program/ (accessed October 27, 2009).
3. "Radiation Therapy: Certification handbook and Application Materials," ARRT, 2009, p. 5, 23; "Alphabet Soup: A Guide to Organizations in Radiologic Technology," ASRT, 2007, p. 2; "Radiation Therapy: Certification handbook and Application Materials," ARRT, 2009, p. 23.
4. "Nuclear Medicine Technologists," by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "Essentials and Guidelines for an Accredited Educational Program for the Nuclear Medicine Technologist," JRCNMT, 2003, p. 1; "Technologist Certification and Licensure," Society of Nuclear Medicine Technologists, 2009, <http://interactive.snm.org/index.cfm?PageID=1091&RPID=924> (accessed October 15, 2009), p. 1.
5. "Surgical Technologists," by Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1; "Surgical Technologist," American Medical Association, Health Care Careers Directory, 2009-2010 edition, p. 112; "Guide to the Recertification Process," National Center for Competency Testing, October 2009, p. 1-2; "CAAHEP Accredited Program Search: [Surgical Technologist]," by CAAHEP, www.caahep.org/Find-An-Accredited-Program/ (accessed November 2, 2009), p. 1.

Educational and Training Requirements	Number of Accredited Programs**	Accreditation and Certification Organizations*
Bachelor's degree, plus certification (minimum)	192	NAACLS (accreditation) AMT (certification) AAB (certification) ASCP (certification)
Associate degree (minimum), plus additional education, plus certification, plus licensure	35 (cardiovascular technology) and 173 (diagnostic medical sonography)	CAAHEP (accreditation) CCI (certification) ARDMS (certification)
Formal training program (minimum), plus state licensure (forty states), plus certification, plus renewal	611	JRCERT (accreditation) ARRT (certification)
Formal training program in nuclear technology (minimum), plus certification, plus licensure	Approximately 100	JRCNMT (accreditation) NMTCB (certification) ARRT (certification)
Formal training program in surgical technology (minimum), plus certification, plus recertification	451	CAAHEP (accreditation) LCCST (certification) NCCT (certification)

INDUSTRY TRENDS

Characteristics and Distribution

As suggested in table 5-7, hospitals are the largest employer of technologists and provide the majority of jobs. The second-largest site of service employing technologists (excluding clinical laboratories) is physician offices. A number of technologists also work in diagnostic laboratories.¹¹⁴

Supply and Demand

Demand for technologist services is expected to grow in the coming years (see table 5-7).¹¹⁵ Much of this growth is attributed to the aging demographic, which will require an increased volume of medical services (many of which technologists will supply) because this population will become more susceptible to diseases and disorders requiring medical attention.¹¹⁶ Additionally, advancing technologies in treatment and screening techniques also will drive growth in many of these disciplines.¹¹⁷ Many of the new technologist jobs created by 2016 will remain in hospitals, indicating a stable employment market for paraprofessional technologists.¹¹⁸

Table 5-7: Paraprofessional Technologist Distribution, Characteristics, and Demand

Specialty	Workforce in 2006	Workforce in 2016	Percent Change 2006–2016	Primary Types of Work Settings
Medical and Clinical Laboratory Technologist	167,207	187,960	12.4%	General medical or surgical hospitals (59.0%) Medical and diagnostic laboratories (13.8%) Professional schools (5.2%) Governments (4.6%)
Cardiovascular Technologist	45,378	56,956	25.5%	Hospital (the majority in cardiology departments) (75.2%) Physician offices (15.3%)
Radiological Technologist	196,200	225,877	15.1%	Hospitals (60.6%) Physician offices (20.9%) Outpatient, laboratories or other ambulatory care services (11.2%) Diagnostic and medical laboratories (8.7%)
Nuclear Medicine Technologist	19,850	22,783	14.8%	Hospitals (66.8%) Physician offices (22.6%) Diagnostic laboratories (5.8%)
Surgical Technologist	86,197	107,274	24.5%	Hospitals (70.3%) Offices of physicians (10.2%) Outpatient care centers (6.8%) Dentist offices (5.4%)

Sources by Specialty:

1. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2011 Medical and clinical laboratory technologists," by the Bureau of Labor Statistics, 2006, p. 1; "Clinical Laboratory Technologists and Technicians," by Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 3.
2. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2031 Cardiovascular technologists and technicians," by the Bureau of Labor Statistics, 2006, p. 1; "Cardiovascular Technologists and Technicians," by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 3.
3. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2034 Radiologic technologists and technicians," by the Bureau of Labor Statistics, 2006, p. 1; "Radiologic Technologists and Technicians," by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 2.
4. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2033 Nuclear Medicine Technologists," by the Bureau of Labor Statistics, 2006, p. 1; "Nuclear Medicine Technologists," by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 2.
5. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2055 Surgical Technologists," by the Bureau of Labor Statistics, 2006, p. 1; "Surgical Technologists," by Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 2; "Use of a Robotic System as Surgical First Assistant in Advanced Laparoscopic Surgery," by Todd Drasin, Eri, Dutson, and Carlos Gracia, *Journal of the American College of Surgeons*, Vol. 199, No. 3 (September 2004), p. 371; "Competency Assessment and Competence Acquisition: The Advanced Practice Nurse as RN Surgical First Assistant," by Jane Rothrock, *Medscape Today*, March 21, 2005, www.medscape.com/viewarticle/499689_print (accessed November 2, 2009), p. 1.

HIGHLIGHTS IN THE FOUR PILLARS

Regulatory

Regulatory provisions vary for each type of technologist, because the scope of practice and the accrediting or certifying bodies vary by specialty. However, significant regulatory changes affecting clinical laboratory technologists have been seen during the past two decades. In an effort to ensure that medical laboratory testing adheres to a certain level of quality, CMS promulgated the Clinical Laboratory Improvement Act (CLIA), which sets forth a list of minimum federal requirements for clinical technologists who perform procedures of a certain level of complexity (see chapter 3 in *An Era of Reform*).¹¹⁹ Laboratories must be CLIA-certified in order to receive Medicare or Medicaid payments.¹²⁰ At the time of publication, there were approximately 200,000 laboratories certified under CLIA for human laboratory testing.¹²¹

Additional Characteristics	Notes on Demand
n/a	The settings in which much of this growth is expected include medical and diagnostic laboratories, ambulatory services, and consulting services. Despite the attribution of growth to the increasing number of clinical tests and advancing technology, both the technological additions and increasing complexity of tests will encourage technologists to pass simpler, routine procedures to laboratory technicians and nonlaboratory personnel, subsequently decreasing demand for technologists and warring with indications of job growth.
n/a	Almost all of the jobs created from 2006 to 2016 will be in hospitals or offices of physicians. Increases in demand are created by advances in screening techniques that allow earlier detection of cardiovascular issues requiring treatment and the increasing number of older individuals, as a part of the “baby boomer” generation, who are more susceptible to cardiovascular disease.
n/a	Demand for radiological technologist services will continue to grow due to the increasing demand of the aging population for imaging services, which are becoming more accessible by way of technological innovation and cost reduction. Hospitals will continue to supply the majority of jobs.
n/a	Demand is spurred by continuing technological advances (for example, positron emitted tomography and single photon emission computed tomography) despite the high costs of some imaging procedures and elderly individuals (that is, the baby boomer population) often make up a disproportionate number of patients who require imaging services, such as nuclear medicine tests.
n/a	Growth in demand is due to an increase in surgical case volume, in correlation with the growing elderly population and advances in technologies, will produce new procedures that will require surgical technologist services. However, potential competition from Advanced Practice Registered Nurses and robotics could reduce the need for surgical technologist services.

Reimbursement

The services of clinical laboratory technologists may only be billed by “physician offices, independent laboratories, or hospital outpatient laboratories.”¹²² Typically, these services are reimbursed under the Medicare clinical laboratory fee schedule, which outlines payment for outpatient clinical diagnostic laboratory tests covered under Medicare Part B.¹²³ The clinical laboratory fee schedule is composed of fee schedules determined by various regional carriers, given that they do not exceed the cap set by the national limit amount that was established by the Consolidated Omnibus Budget Reconciliation Act of 1985.¹²⁴

All other technologists, and many other physician extenders who may not bill Medicare independently for their services, are reimbursed through the practice expense of their employers.¹²⁵

Competition

Although several technologist specialties compete with technicians in their respective fields (for example, clinical laboratory, cardiovascular, and radiological technologists and technicians), the most significant competitive dynamic exists between surgical technologist and other providers, namely, mid-level providers. Surgical technologists may serve in both the scrub and surgical first assistant roles with appropriate education and credentialing. Because they are uniquely qualified to provide services in the intraoperative scrub role, they must compete with physicians, qualified physician assistants (PAs) [see chapter 4, *Physician Assistants (PAs) and Advanced Practice Registered Nurses (APRNs)*] for the position of surgical first assistant.¹²⁶

Table 5-8: Paraprofessional Technician Specialties and Educational and Training Requirements

Services Provided	Licensure Spectrum	Specialties	Alternate Job Titles	Subspecialties
Clinical	Licensed	Cardiovascular Technician [†]	n/a ^{††}	See <i>Table 5-7</i> for <i>Cardiovascular technologist, plus electrocardiograph (EKG) technicians</i>
		Radiologic Technician [†]	Radiographer	See <i>Table 5-7</i> for <i>Radiologic technologist</i>
		Respiratory Therapy Technician [†]	n/a	n/a
	Highly Educated, Registered, or Certified	Emergency Medical Technician (EMT)	n/a	First responder; EMT-Basic; Intermediate 1985; Intermediate 1999; Paramedic
		Pharmacy Technician	n/a	Several, for example, clinical pharmacy technician
Psychiatric Technician		n/a	May specialize in caring for patients with particular types of psychiatric disorders or of a particular demographic (for example, addictive disorders, geriatric care); the four levels of certification indicate qualification for different responsibilities.	
Dietetic Technician		Dietician	n/a	
Nonclinical	Unlicensed	Medical Records and Health Information Technician	n/a	Coding specialists (health information coders, medical record coders, coder, or abstractors)and cancer registry specialists (cancer registrars)
		Clinical Laboratory Technician	Medical laboratory technician or medical technician	May specialize in areas similar to clinical laboratory technologists (See <i>Table 5-7</i>)
		Orthotics and Prosthetics Technician	Medical appliance technicians	n/a

Notes:

- * NAACLS: National Accrediting Agency for Clinical Laboratory Sciences; AAB: American Association of Bioanalysts; AMT: American Medical Technologists; ASCP: American Society for Clinical Pathology; CAAHEP: The Committee on Accreditation for Allied Health Education Programs; CCI: Cardiovascular Credentialing International; JRCERT: Joint Review Committee on Education in Radiologic Technology; ARRT: The American Registry of Radiologic Technologists; NREMT: National Registry of Emergency Medical Technicians; CADE: Commission on Accreditation for Dietetics Education; CDR: Commission on Dietetic Registration; ASHP: American Society of Health-System Pharmacists; PTCB: Pharmacy Technician Certification Board; AAPT: American Association of Psychiatric Technicians; ICPT: Institute for the Certification of Pharmacy Technicians; CoARC: Committee on Accreditation for Respiratory Care; CAHIM: Commission on Accreditation for Health Informatics and Information Management Education; AHIMA: American Health Information Management Association; NCOPE: National Commission on Orthotic and Prosthetic Education; ABCOP: American Board for Certification in Orthotics and Prosthetics
- ** Note that not all estimates of accredited programs are for the same time period; also, accredited programs for cardiovascular and radiologic technicians are the same as those for cardiovascular technologists and radiographers (radiology technologists), respectively. Also, note that not all reported dietetic technician programs are accredited at the time of publication.
- † Note that the titles of cardiovascular and radiologic technologists and technicians are often interchanged and they often perform the same procedures in many cases, so they are not given much differentiation for the purpose of this *Guide*. Additionally, although respiratory therapists typically are given more responsibility, many of their duties overlap with those of respiratory therapist technicians and little distinction is made between educational requirements of each.
- †† n/a: not available or not applicable

Description	Educational and Training Requirements	Number of Accredited Programs**	Accreditation and Certification Organizations*
Works under the direction and supervision of a licensed physician to provide diagnostic and therapeutic cardiac and vascular procedures.	Varies by state and specialty; on-the-job training (<i>minimum for EKG technicians</i>), plus formal two- to four-year training program, plus certification or licensure (depends on state; <i>minimum</i>)	31	CAAHEP (accreditation) CCI (certification)
Administers diagnostic imaging services involving radiation (for example, x-rays) to patients under the direction of a physician for diagnostic and preventative purposes.	Formal one- to four-year training program (<i>minimum</i>), plus state licensure (forty states), plus certification, plus renewal	611	JRCERT (accreditation) ARRT (certification)
Under the supervision of a respiratory therapist, provides medical care for patients with respiratory ailments or cardiopulmonary diseases, including any duties related to the evaluation, treatment, and management of patients.	Associate degree from an accredited program, plus state licensure (except Alaska and Hawaii; <i>minimum</i>), plus certification (often required for state licensure)	369 (45 specifically for entry-level in 2006)	CAAHEP (accreditation) CoARC (accreditation)
Provides emergency on-site medical care and transport patients to a medical facility.	High school diploma or equivalent, plus EMT training program (length and curriculum varies by specialty or level), plus certification (all fifty states), plus recertification or continuing medical education	246	CAAHEP (accreditation) NREMT (certification)
Under the supervision of a pharmacist, provides administrative and preparatory duties in providing prescriptions and healthcare products to customers.	High school diploma or equivalent, plus on-the-job training (<i>minimum</i>), plus formal fifteen-week training program, plus certification (<i>preferred</i>)	153	ASHP (accreditation) PTCB (certification) ICPT (certification)
Under the direction of physicians, provides care for patients with mental and developmental disorders.	High school diploma or GED, plus on-the-job training (<i>minimum</i>), plus additional education and experience, plus certification (four levels are possible, depending upon education and experience)	n/a	State-level (accreditation) AAPT (certification)
Provides nutrition counseling and assessment to ill or injured patients under the direction of a dietitian.	High school diploma or equivalent, plus associate degree-level accredited program (includes a minimum of 450 hours supervised practice experience), plus registration	52	CADE (accreditation) CDR (certification)
Organizes and maintains patients' medical records.	Associate degree (<i>minimum</i>), plus attended an accredited program, plus registration	279	CAHIIM (accreditation) AHIMA (certification)
Performs various laboratory tests and procedures under the supervision of laboratory technologists or managers, primarily for detection and diagnostic purposes.	On-the-job training <i>or</i> an associate degree (<i>minimum</i>), plus certification	197	NAACLS (accreditation) AAB (certification) AMT (certification) ASCP (certification)
Make, repair, and provide custom surgical or medical devices for patients at the orders of podiatrists or orthotists.	On-the-job training (<i>minimum</i>), plus formal accredited training program	15	CAAHEP (accreditation) NCOPE (accreditation) ABCOP (certification)

Sources by Specialty:

1. "Cardiovascular Technologists and Technicians," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-2.
2. "Radiologic Technologists and Technicians," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-2.
3. "Respiratory Therapists," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "CAAHEP Accredited Program Search: Respiratory Therapy," CAAHEP, 2009, www.caahep.org/Find-An-Accredited-Program (accessed November 2, 2009).
4. "Emergency Medical Technicians and Paramedics," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "CAAHEP Accredited Program Search: Emergency Medical Technician-Paramedic," CAAHEP, 2009, www.caahep.org/Find-An-Accredited-Program (accessed November 12, 2009).
5. "Pharmacy Technician," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "Pharmacy Technician," American Medical Association, Health Care Careers Handbook, 37th edition, 2009-2010, p. 414; "Pharmacy Technician Training Program Directory," ASHP, 2008, <http://accred.ashp.org/aps/pages/directory/technicianProgramDirectory.aspx> (accessed November 12, 2009).
6. "What is a Psychiatric Technician?," by AAPT, 2007, www.psychtechs.org/about.shtml (accessed November 16, 2009), p. 1; "Summary Report for 29-2053.00 Psychiatric Technicians", O*NET OnLine, 2008, <http://online.onetcenter.org/link/summary/29-2053.00> (accessed November 16, 2009), p. 3; "The Certification Process", AAPT, 2007, www.psychtechs.org/cert.shtml (accessed November 25, 2009), p. 1.
7. "Dietetic Technician," American Medical Association, Health Care Careers Directory, 37th edition, 2009-2010, p. 239; "Dietetic Technician Programs," American Dietetic Association, November 2, 2009, www.eatright.org/cps/rde/xchg/ada/hs.xsl/career_1748_ENU_HTML.htm (accessed November 12, 2009).
8. "Medical Records and health Information Technicians," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "Accredited Program Directory," CAHIIM, 2009, www.cahiim.org/accredpgms.asp (accessed November 12, 2009).
9. "Clinical Laboratory Technologists and Technicians," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "NAACLS Accredited and Approved Program Search," NAACLS, 2009, www.naacls.org/search/programs.asp (accessed November 12, 2009), p. 1.
10. "Medical, Dental, and Ophthalmic Laboratory Technicians," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "List of Schools: Orthotic and Prosthetic Practitioner Programs," NCOPE, 2009, www.ncope.org/info_students/schools.asp (accessed November 12, 2009).

Technology

The diagnostic imaging market has been at the forefront of technological advancement in recent years. This has had tremendous impact on the scope and practice of both radiologic and nuclear medicine technologists. As discussed in chapter 5 of *An Era of Reform*, the implementation and rapid adoption of multimodality imaging using positron emission tomography computed tomography (PET-CT) and single-photon emission computed tomography (SPECT-CT) has revolutionized the medical imaging field and inspired research into other potential hybrid imaging techniques.¹²⁷ Some of these other technological innovations include positron emission tomography magnetic resonance imaging (PET-MRI), single-photon emission computed tomography magnetic resonance imaging (SPECT-MRI), hybrid nuclear medicine and optical imaging systems, hybrid x-ray-MRI systems, photoacoustic tomography (which combines optical and ultrasonic imaging), and hybrid optical-MRI systems.¹²⁸ As imaging technology evolves (see chapter 5 of *An Era of Reform* for an in depth discussion of current and projected trends in imaging), technologists will need to adapt to advances to remain marketable to employers.

CLINICAL TECHNICIANS

DESCRIPTION AND SCOPE

Technicians may provide support services in both clinical and nonclinical fields; licensure status, as well as the description and scope of each area of practice, vary accordingly (see table 5-8 for information on each licensed *and* unlicensed technician profession). In addition to performing basic administrative tasks, many clinical technicians are competent in a specific scope of clinical procedures and may follow through on a defined plan of care from an independent practitioner. Clinical technicians engage in a significant amount of patient contact and, as such, are either subject to licensure requirements or are moving in the direction of more stringent regulation of professional training standards.¹²⁹ As such, licensed *and* otherwise highly educated clinical technicians are covered in this section; a gradient of the various professions, from most to least educational (and licensure) requirements, may be found in table 5-8. Nonclinical technicians typically are not required to meet particularly stringent educational standards, and none discussed herein are licensed. As such, nonclinical technicians are discussed in *Nonclinical (Unlicensed) Technicians*.

Scope

Although the specific scopes of practice assigned to technicians vary by specialty, clinical technicians are trained to exhibit competence in a certain technical skill set. Often, the literature uses the titles of “technician” and “technologist” interchangeably, namely with regard to those paraprofessionals who practice in a clinical setting. Within the same clinical specialty area, technician and technologists roles may overlap significantly. All clinical technicians act as extenders for independent practitioners. Other than day-to-day duties, which vary by specialty, duties performed by clinical technicians include (1) basic administrative duties, for example, scheduling appointments, ordering tests, reviewing and updating patient files; (2) assisting practitioners with preparation for and administration of clinical procedures (when appropriate); (3) monitoring patient vitals; and (4) operating on, maintaining, or repairing equipment.¹³⁰ Additional duties may be limited to those tasks that may be safely performed under a certain level of medical oversight.¹³¹

Education and Training

Although educational requirements vary for each clinical specialty, clinical technicians are required to complete formal degree training through an accredited program and must at least be certified or

registered to practice in their particular field. However, other than professions that require licensure in most states (that is, cardiovascular technicians, radiologic technicians, and respiratory therapy technicians), technician certification or registration in other professions (that is, emergency medical technicians) may be state mandated or may be shifting toward increased regulatory stringency (the spectrum of educational expectations is demonstrated in table 5-8). Though some clinical positions are unlicensed (for example, pharmacy technicians), industry trends suggest their scopes of practice may need to be expanded, and, as such, they will need to be regulated more closely.¹³² It is for this reason that these unlicensed clinical technicians are being considered in this *Guide*, because trends toward more formal education, expanded scope of practice, and workforce strain meet demand suggest that, like many of their paraprofessional and mid-level counterparts, they will continue to see increases in educational standards. Accreditation committees that oversee the education and training programs are available for all clinical technician specialties (see table 5-8 for the number of accredited training programs available per specialty).

INDUSTRY TRENDS

Characteristics and Distribution

Four of the seven clinical technician specialties listed in tables 5-8 and 5-9 are predominantly based in the hospital setting. However, the various specialty roles filled by technicians (for example, pharmacy technicians and emergency medical technicians) afford them the option to practice in more specialized sites of services, if they so choose. Additionally, the number of technicians varies greatly by specialty, from slightly more than 12,000 orthotics and prosthetics technicians to more than 285,000 pharmacy technicians in 2006.¹³³ For more information on each technician population, see table 5-9.

Supply and Demand

Many of these professions are expected to experience a growth in demand for services from 2006 to 2016 due to (1) advances in technology, which may allow for better detection, treatment, or both and may result in an increased case load and (2) an increased demand for services from the growing elderly population, which suffers a disproportionate share of various medical conditions and, therefore, comprises a large portion of the demand for medical services provided by these professionals.¹³⁴

The only clinical technician specialties that are not expected to grow by 2016 are psychiatric technicians and respiratory therapy technicians, mostly due to workforce movement away from the hospital setting, which traditionally has been the major employer of these sectors of the healthcare workforce.¹³⁵

HIGHLIGHTS IN THE FOUR PILLARS

Regulatory

Like many other physician extenders, regulation of many clinical technician professions centers on refining the scope of practice or the amount of supervision required for the provision of services by these technicians. The roles and responsibilities of pharmacy technicians vary from state to state due to different regulatory standards.¹³⁶ The lack of uniformity in regulating pharmacy technicians may result in malpractice issues as well as legal scope-of-practice controversies.¹³⁷ Technician supervision requirements are also variable and, in some cases, relaxed. For example, although physician supervision of emergency medical technicians (EMTs) is recommended, regardless of their level of practice or competence, a study on physician oversight of EMTs found that a substantial number of emergency medical personnel had minimal direct contact with their qualified supervisor.¹³⁸

Table 5-9: Paraprofessional Technician Distribution, Characteristics, and Demand

Services Provided	Licensure Spectrum	Specialty	Workforce in 2006*	Workforce in 2016*	Percent Change 2006–2016*
Clinical	Licensed	Cardiovascular Technician	45,378	56,956	25.5%
		Radiological Technician	196,200	225,877	15.1%
		Respiratory Therapy Technician	19,167	19,334	0.9%
	Highly Educated, Registered, or Certified	Emergency Medical Technician (EMT)	201,099	239,762	19.2%
		Pharmacy Technician	285,035	376,364	32.0%
		Psychiatric Technician	62,098	60,073	–3.3%
		Dietetic Technician	25,083	28,789	14.8%
Nonclinical	Unlicensed	Medical Records and Health Information Technician	168,742	199,966	17.8%
		Clinical Laboratory Technician	151,366	174,060	15.0%
		Orthotics and Prosthetics Technician	12,323	13,488	9.5%

* Not all estimates are limited strictly to the position listed (for example, workforce estimate for cardiovascular technician is based on workforce estimates for cardiovascular technologists and technicians).

Sources by Specialty:

1. "National Employment Matrix: employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2031 Cardiovascular technologists and technicians," Bureau of Labor Statistics, National Employment Matrix, 2006, p. 1; "Cardiovascular Technologists and Technicians," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008–2009 edition, p. 3.
2. "National Employment Matrix: employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2034 Radiologic technologists and technicians," Bureau of Labor Statistics, National Employment Matrix, 2006, p. 1; "Radiologic Technologists and Technicians," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008–2009 edition, p. 2.
3. "National Employment Matrix: employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2054 Respiratory therapy technicians," Bureau of Labor Statistics, National Employment Matrix, 2006, p. 1.
4. "National Employment Matrix: employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2041 Emergency medical technicians and paramedics," Bureau of Labor Statistics, National Employment Matrix, 2006, p. 1; "Emergency Medical Technicians and Paramedics," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008–2009 edition, p. 2.
5. "National Employment Matrix: employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2052 Pharmacy technicians," Bureau of Labor Statistics, National Employment Matrix, 2006, p. 1; "Pharmacy Technicians," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008–2009 edition, p. 2.

Primary Types of Work Settings	Additional Characteristics	Notes on Demand
Hospitals (75.2%) Physician offices (15.3%)	n/a	The large increase in demand is spurred by the needs of a growing, aging population; advances in screening techniques, which allow earlier detection and treatment; and more a favorable reimbursement environment for vascular procedures.
Hospitals (60.7%) Physician offices (20.9%) Laboratories (8.7%)	n/a	The increasing demand for imaging procedures will continue growing with the aging baby boomer population, as well as with the increased access to higher quality imaging equipment, as technology advances and becomes more affordable.
Hospitals (87.5%)	n/a	Job prospects are not good with the largest employer of respiratory therapy technicians—hospitals—expecting a slight decrease in demand by 2016; increases in other areas (for example, home health) cannot make up for the lack of job vacancies in hospitals in coming years.
Ambulance services (42.9%) Local governments (30.9%) Hospitals (20.2%)	n/a	Additional EMTs will be needed to cope with the increased case load as the population ages and to fill in vacancies left by unpaid volunteers in the profession.
Retail trade (71.9%) Hospitals (18.2%)	n/a	Growth in demand will continue as the aging population, which utilizes a large share of prescription drugs, grows and as prescriptive drug use increases overall in the medical industry. However, the use of drug-dispensing machines could dampen this growth somewhat in the future.
Psychiatric or substance abuse hospitals (46.1%) State or local governments (19.3%) General hospitals (17.8%) Residential care facilities (5.2%)	n/a	The decrease in demand is due to the general movement of personal care from the hospital setting to a home or residential care setting. The psychiatric technician workforce in hospitals is slated to decrease by 21.4% (a total of 6,108 workers) by 2016, although growth in the relatively smaller residential care and social assistance settings will increase by 29.5% and 58.5%, respectively.
Hospitals (49.2%) Nursing and residential care facilities (27.1%) State or local governments (8.5%)	As of May 1, 2009, the workforce was 81.2% female and 39.7% white.	Although the greatest job growth will occur in the social assistance industry, the majority of new jobs will be created in hospitals and nursing or residential care facilities.
Hospitals (39.0%) Physician offices (25.9%) Nursing and residential care facilities (9.5%) Governments (5.4%) Outpatient care centers (3.8%)	n/a	Increasing government scrutiny of fraud and abuse, as well as compliance with federally mandated electronic medical records legislation, is responsible for the increase in demand.
Hospitals (43.3%) Physician offices (15.7%) Laboratories (13.7%) Educational services (9.6%)	n/a	Technological additions and increasing complexity of tests will increase the number of laboratory tests needed, but advances in technology will also allow simpler, routine procedures to be deferred to nonlaboratory personnel, decreasing demand for services.
Medical equipment or supplies manufacturing (50.8%) Self-employed (13.3%) Health retail stores (12%) Wholesale trade (5.4%) Hospitals (4.3%)	n/a	The greater need for prosthetics due to complications of diabetes and other cardiovascular diseases, as well as technological improvements to existing prosthetic capabilities, spurs the growth in this profession.

6. "National Employment Matrix: employment by industry, occupation, and percent distribution, 2006 and projected 2016:29-2053 Psychiatric Technicians," Bureau of Labor Statistics, National Employment Matrix, 2006, p. 1.
7. "National Employment Matrix: employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2051 Dietetic technicians," Bureau of Labor Statistics, National Employment Matrix, 2006, p. 1; "Dietetic Technicians, Registered: Demographics as of May 1, 2009," Commission on Dietetic Registration, May 1, 2009, www.cdnet.org/certifications/rddtr/dtrdemo.htm (accessed November 12, 2009), p. 1.
8. "National Employment Matrix: employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2071 Medical records and health information technicians," Bureau of Labor Statistics, National Employment Matrix, 2006, p. 1-2; "Medical Records and Health Information Technicians," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 2.
9. "National Employment Matrix: employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2012 Medical and clinical laboratory technicians," Bureau of Labor Statistics, National Employment Matrix, 2006, p. 1; "Clinical Laboratory Technologists and Technicians," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 3.
10. "National Employment Matrix: employment by industry, occupation, and percent distribution, 2006 and projected 2016: 51-9082 Medical appliance technicians," Bureau of Labor Statistics, National Employment Matrix, 2006, p. 1; "Medical, Dental, and Ophthalmic Laboratory Technicians," Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 4.

In addition to regulation of technician scope of practice, an increased emphasis on the certification and qualification of paraprofessionals and technicians exists. Although certification is voluntary for pharmacy technicians in most states, more are requiring it for state licensure.¹³⁹ Other professions, such as clinical laboratory technician, require achievement of a specified level of education to qualify to practice under CLIA (see *Technologists* under *Regulatory* in this chapter, for more detail regarding CLIA regulations).¹⁴⁰ Overall, it appears that regulatory initiatives related to technicians differ widely both by specialty and state.

CLINICAL ASSISTANTS

DESCRIPTION AND SCOPE

Similar to the technician workforce, the assistant workforce is comprised of clinical and nonclinical practitioners, with the most significant differences residing in the scope of services they provide and, therefore, the training they are required to complete. Tables 5-10 and 5-11 on the following pages, demonstrate the gradient of assistants, with those of high current and projected clinical utility being held to higher educational standards and, if not licensure, some level of certification (nonclinical assistants are discussed in *NonClinical (Unlicensed) Assistants*. These clinical assistants work under the direct control and supervision of autonomous healthcare professionals in their respective field (that is, physicians and authorized nonphysician practitioners) to provide administrative, clinical, and technical services, often as a part of a patient care team.¹⁴¹ In order to enhance the quality and efficiency of patient care, assistants provide support services as extenders of physicians and authorized nonphysician practitioners, as well as liaisons between these autonomous practitioners and their patients (table 5-10 includes specific information about each type of assistant, specifically related to their scope and educational requirements).¹⁴²

Scope

The scope of practice for assistants varies according to state legislation, the discipline, and educational and training prerequisites. However, common duties and responsibilities assigned to clinical assistants may include (1) obtaining health history and maintaining patient health records, (2) preparing patients for examination (specific related duties will vary according to specialty), (3) providing patient education, (4) conducting appropriate laboratory or clinical procedures as appropriate, and (5) monitoring patient care throughout treatment, all of which is completed within the scope of the attending care giver's orders.¹⁴³ Although assistants may contribute to the diagnosis or determination and modification of treatment or rehabilitation, they *must remain supervised and are not responsible* for providing any diagnostic, therapeutic, or management services requiring substantial medical knowledge or expertise.¹⁴⁴

Education and Training

The educational and training requirements for clinical assistants vary by type and often depend on the degree of difficulty or responsibility the specific profession entails (see table 5-10 for educational requirements by specialty). Regardless of any disparities in prerequisite training, most assistants receive some level of supplemental training at the time of employment. Employers are becoming increasingly preferential to applicants who have formal education or experience beyond high school.¹⁴⁵ Additionally, complementary and accredited certification programs exist for all clinical assistant professions.¹⁴⁶

INDUSTRY TRENDS

Characteristics and Distribution

Clinical assistants practice in a variety of settings, including general and specialty or surgical hospitals, offices of health practitioners (for example, physicians, occupational therapists, and dentists), and outpatient care centers.¹⁴⁷ State licensure and practice requirements influence the distribution of clinical assistants in some practice areas. Anesthesiology assistants, for example, are only recognized to practice in eighteen states,¹⁴⁸ and practice privileges differ by state for both anesthesiologist and dental assistants (that is, some states' legislation regulates the specific duties performed by assistants, whereas other states regulate practice by delegation of the supervising anesthesiologist or dentist).¹⁴⁹ Additionally, the number of practicing assistants varies by profession. For an estimate of the paraprofessional assistant workforce in 2006 and characteristics of personnel and work settings, see table 5-11.

Supply and Demand

In the coming years, the clinical assistant workforce will experience an increase in demand.¹⁵⁰ For many of these positions, growth in patient demand for services is due to one or more of the following: (1) growth in the aging baby boomer population and, as a result, an increase in age-related diseases and disabilities; (2) current and future healthcare workforce shortages (for example, the anesthesiologist workforce); (3) pressure to reduce healthcare spending by allowing assistants to provide more routine care, which allows independent healthcare practitioners to concentrate on more complex cases; and (4) advances in technology that have increased the standards for life expectancy, morbidity, and mortality, thereby increasing the need for rehabilitative services, dental services, medical services, or a combination of these.¹⁵¹

Table 5-10: Paraprofessional Assistant Specialties and Educational and Training Requirements

Services Provided	Licensure Status	Specialties	Alternate Job Titles	Subspecialties
Clinical	Licensed in some states	Anesthesiologist Assistant (AA)	n/a	n/a
		Occupational Therapist Assistant (OTA)	n/a	n/a
		Physical Therapist Assistant (PTA)	n/a	May specialize by specific patient group (for example, geriatric, pediatric) or by type of ailment (for example, sports injuries)
	Highly educated, registered, certified	Radiologist Assistant	n/a	n/a
		Dental Assistant (DA)	n/a	With advanced certification, DAs may perform radiological procedures (for example, x-rays)
		Medical Assistant (MA)	n/a	In larger offices, MAs may specialize (for example, ophthalmic MA, optometric assistant, podiatric MA)
Nonclinical	Unlicensed	Social and Human Service Assistant	Community Health Worker (CHW)	CHW is an umbrella title for dozens of positions that are classified under the 21-1093 Standard Occupational Classification Code. Specialty is often dependent upon the work setting.

Notes:

* CAAHEP: The Commission on Accreditation of Allied Health Educational Programs; NCCAA: National Commission for Certification of Anesthesiologist Assistants; ACOTE: Accreditation Council for Occupational Therapy Education; CAPTE: Commission on Accreditation in Physical Therapy Education; CODA: Commission on Dental Accreditation; DANB: Dental Assisting National Board, Inc.; ABHES: Accrediting Bureau of Health Education Schools; AMT: American Medical Technologists; AMAA: American Association of Medical Assistants; ARRT: The American Registry of Radiologic Technologists.

** Dependent on availability of data, estimates are from 2004, 2006, 2007, 2008 or current (2009).

Sources by Specialty:

1. "Statement on the Anesthesia Care Team," approved by the ASA House of Delegates on October 18, 2006, and last amended on October 22, 2008, p. 1; 42 CFR §410.69(b); "Basic Definitions & Information: Who are Anesthesiologist Assistants (AAs)?", American Society of Anesthesiologists, <http://www.asahq.org/providers/aadefinition.htm>, (Accessed October 2, 2009), p. 1; "Standards and Guidelines for the Accreditation of Educational Programs for the Anesthesiologist Assistant", adopted by the American Academy of Anesthesiologist Assistants, American Society of Anesthesiologists, and Commission on Accreditation of Allied Health Education Programs, past revision in 2009; "National Commission: History and Operations", National Commission for Certification of Anesthesiologist Assistants, <http://www.aa-nccaa.org/National-Commission.php>, (Accessed October 2, 2009), p. 1; "Education and Certification: Where are AA education programs located?", American Society of Anesthesiologists, <http://www.asahq.org/providers/eduandcertification.htm>, (Accessed October 4, 2009), p. 1.
2. "Occupational Therapist Assistants and Aides", Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1; "Standards of practice for Occupational Therapy", by the American Occupational Therapy Association, 2005, p. 1; "Accreditation Standards for an Educational Program for the Occupational Therapy Assistant", by the American Occupational Therapy Association, Inc., 2007, p. 85.

Description	Educational and Training Requirements	Number of Accredited Programs**	Accreditation and Certification Organizations*
Works under a physician and within a multidisciplinary team responsible for all aspects of anesthesiology care related to a patient's case.	Bachelor's degree, plus a two-year accredited AA master's-level educational program, plus certification, plus continuing education, plus licensure (eighteen states)	5	CAAHEP (accreditation) NCCAA (certification)
Works under a licensed occupational therapist to assist in rehabilitative treatment and restoration of a patient's mental, physical, emotional, or developmental wellbeing	Associate degree or accredited OTA education program, plus certification exam, plus licensure, registration, or continuing education (varies by state)	126	ACOTE (accreditation)
Works under the supervision of a physical therapist to aid patients in regaining mobility and physical function following trauma or to cope with a disabling condition.	Associate degree from accredited PTA education program, plus national certification exam, plus state licensure, registration, or certification (varies by state)	237	CAPTE (accreditation)
"Advanced-level radiologic technologist" who performs a variety of clinical imaging procedures under radiologist supervision for the purpose of extending the efficiency and care of the radiologist.	Accredited education program at baccalaureate level, plus certification (<i>minimum</i>)	13	ARRT (certification)
Works under the direction of a dentist to provide administrative, laboratory, or patient care tasks in the field of dentistry.	High school diploma, plus on-the-job training (<i>minimum</i> , dependent on state), plus a one-year or longer accredited DA training program, plus certification, plus recertification or continuing education	269	CDA (accreditation) DANB (certification)
Assists physicians in general administrative and clinical capacities and may work in a variety of clinical settings. Acts as "liaison" between patient and physician.	High school diploma (<i>minimum</i>), plus accredited MA education training program, plus certification	865	CAAHEP (accreditation) ABHES (accreditation) AMT (certification) AAMA (certification)
Assists professionals in various healthcare fields (for example, psychiatry, nursing, psychology, physical therapy, and social work) to provide a wide range of services to clients in order to increase their quality of life.	High school diploma, plus on-the-job training (<i>minimum, dependent on specialty</i>), plus a two- or four-year program in a human service, social, or behavioral science program, plus experience	n/a	n/a

3. "Physical Therapist Assistants and Aides", Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; 42 CFR §484.4, p. 66408; "Physical Therapist Assistants and Aides", Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1; "APTA Background Sheet 2009: The Physical Therapist Assistant", by American Physical Therapy Association, 2009, p. 1.
4. "The Radiologist Assistant: Improving Patient Care While Providing Work Force Solutions", Advanced Practice Advisory Panel, March 9-10, 2002, p. 2; "Radiologist Assistant Certification", Edward I. Bluth, Jerry B. Reid, Journal of American College of Radiology, Vol. 1, No. 6 (June 2004), p. 400.
5. "Dental Assistants", by Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "Measuring Dental Assisting Excellence: Recognition Through DANB Certification", Dental Assisting National Board, 2009, p. 1-2.
6. "Medical Assistants", by Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1; "Medical Assistant", by American Medical Technologists, 2009, <http://www.amt1.com/page.asp?i=159> (Accessed October 5, 2009), p. 1; "Standards and Guidelines for the Accreditation of Educational Programs in Medical Assisting", by the Commission on Accreditation of Allied Health Education Programs, 2008, p. 1; "Occupational Analysis of the CMA (AAMA)", American Association of Medical Assistants, 2007-2008, p. 1; "Certification and Licensure: Facts You Should Know", by Donald A. Balasa, American Association of Medical Assistants, February 2009, p. 2; "CAAHEP Accredited Program Search", Commission on Accreditation of Allied health Education Programs, 2009, <http://www.caahep.org/Find-An-Accredited-Program/>, (Accessed October 5, 2009), p. 1; "Directory of Institutions and Programs", by Accrediting Bureau of Health Education Schools, 2009, http://www.abhes.org/accredited_institutions?school_name=&program_name=medical+assisting&state=&credentials=&delivery=&x=0&y=0, (Accessed October 5, 2009), p. 1.
7. "Composition of the Frontline Health and Health Care Workforce", presented by Jennifer Schindel and Kim Solomon, Health Workforce Solutions LLC, The Robert Wood Johnson Foundation, September 2005, p. 11; "Social and Human Service Assistants", by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "Defining the Frontline Workforce", by Health Workforce Solutions, September 2005, p. 13-14, 45-46.

Table 5-11: Paraprofessional Assistant Distribution, Characteristics, and Demand

Services Provided	Licensure Status	Specialty	Workforce in 2006	Workforce in 2016	Percent Change 2006–2016
Clinical	Licensed in some states	Anesthesiologist Assistant (AA)*	Approximately 700	n/a	n/a
		Occupational Therapist Assistant (OTA)	24,981	31,332	25.4%
		Physical Therapist Assistant	60,296	79,821	32.3%
	Highly educated, registered/, or certified	Radiologist Assistant (RA)	n/a	n/a	n/a
		Dental Assistant	279,828	361,549	29.2%
		Medical Assistant	416,882	564,558	35.4%
Nonclinical	Unlicensed	Social and Human Services Assistant	338,743	452,619	33.6%

* Number of practicing AAs unavailable for 2006 and 2016; estimate is based on calculations from 2007.

Sources by Specialty:

1. "A Study of Anesthesiology Assistants", by Legislative Research Commission, February 2007, p. vii, 12; "Anesthesiologist Assistant", by AMA, Health Care Careers Directory 2008-2009, p. 1; "Facts about AAs", by The American Academy of Anesthesiologist Assistants, <http://www.anesthetist.org/factsaboutaas/>, (Accessed October 2, 2009), p. 3.
2. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-2011 Occupational therapist assistants", by Bureau of Labor Statistics, 2006, p. 1; "Occupational Therapy Named One of Nation's 150 Best Recession-Proof Jobs", by the American Occupational Therapy Association, October 21, 2008, p. 30; "Occupational Therapist Assistants and Aides", Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 2.
3. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-2021 Physical Therapist Assistants", by Bureau of Labor Statistics, 2006, p. 1; "PTA Demographics: Age", by American Physical Therapy Association, June 2007, p. 1; "PTA Demographics: Sex of Affiliate Members", by American Physical Therapy Association, June 2007, p. 1; "PTA Demographics: Race/Ethnic Origin", by American Physical Therapy Association, June 2007, p. 1; "PTA Demographics: Employment Status", by American Physical Therapy Association, June 2007, p. 1; "Physical Therapist Assistants and Aides", Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 2.
4. "ACR and ASRT Development of the Radiologist Assistant: Concept, Roles, and Responsibilities", by Charles D. Williams, Brad Short, Journal of American College of Radiology, Vol. 1, No. 6 (June 2004), p. 395; "Radiologist Assistant Certification", by Edward I. Bluth, Jerry B. Reid, Journal of American College of Radiology, Vol. 1, No. 6 (June 2004), p. 399; "ACR Intersociety Conference 2003: Radiologist Assistants and Other Radiologist Extenders", by N. Reed Dunnick, Journal of American College of Radiology, Vol. 1, No. 6 (June 2004), p. 386-387.
5. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-9091 Dental Assistants", by Bureau of Labor Statistics, 2006, p. 1; "Dental Assistants", by Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 2.
6. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-9092 Medical Assistants", by Bureau of Labor Statistics, 2006, p. 1; "Medical Assistant", by American Medical Technologists, 2009, <http://www.amt1.com/page.asp?i=159> (Accessed October 5, 2009), p. 1-2.
7. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 21-1093 Social and Human Service Assistants", by the Bureau of Labor Statistics, 2006, p. 1-2; "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 21-1093 Social and Human Service Assistants", by the Bureau of Labor Statistics, 2006, p. 1-2.

Primary Types of Work Settings	Additional Characteristics	Notes on Demand
Facilities performing various specialty surgeries and trauma care (at the time of publication, AAs are only licensed to work in eighteen states)	n/a	AAs may help fill gap produced by lack of anesthesia providers in the current and future healthcare market.
Hospitals (29.6%) Occupational therapist offices (22.9%) Nursing or residential care facilities (20.6%) OTAs may practice in all fifty states	Ages 55 or older (19%) Women (89.4%)	Expecting dramatic increase in demand due to the aging baby boomer population and to counteract effects of decreasing cost of services and increasing case load. OTAs are ranked seventy-second of the 150 best recession-proof jobs; ranked twenty-fourth as one of the fastest-growing recession-proof jobs.
Physical therapist offices (35.6%) Hospitals (33.2%) Nursing or residential care facilities (11.4%)	20–40 years old (54.3%), 40–55 years old (38.5%), and 55 or older (7.4%). Women (78.5%) Caucasian (87.9%) FTE salary (73.3%)	Increasing patient base requiring rehabilitative services due to advancing technology (for example, aging baby boomers will develop conditions due to age and trauma victims with increased chances of survival); OTAs will help to relieve increased case load of physical therapists and decrease cost of service.
Due to the similarity in function, RAs will most likely work in similar venues as radiological technologists (that is, hospitals, physician offices, ambulatory care services, and diagnostic or medical laboratories).	n/a	Increasing number of the elderly and advances in technology drive increase in demand for services, which remain unfilled as residency program graduates have remained stagnant during the years, increasing demand for RA services.
Dentist offices (92.8%)	n/a	Increasing number of aging baby boomers, correlated with longer retention of natural teeth by the older generation and increase in preventative dental care for the younger generation will counteract increasing case loads by dentists, who can spend time on more complex cases.
Physician offices (63.7%) Offices of other health practitioners (11.4%) Hospitals (12.3%) Outpatient care centers (4.4%)	n/a	Growth of supporting personnel for medical services spurred by aging the baby boomer population and advancing healthcare technology.
Hospitals (4.5%) Substance abuse or mental health centers (5.4%) Residential care facilities (14.8%) Social assistance programs (32.8%) State or local government programs (26.6%)	n/a	Growing demand from increasing elderly population needing geriatric and independent or assisted care services; disabled, homeless, other people in challenging social situations requiring public sector aid; private sector and government services to provide same services as social workers for lower cost.

As a result, the job outlook for assistants appears to be favorable. The occupational therapist assistant profession is considered among the most fruitful jobs during the recession; in 2008, this field was ranked seventy-second out of 150 “recession proof” jobs and, of these occupations, was the twenty-fourth fastest growing job.¹⁵² For additional statistics regarding the increase in demand for assistants, see table 5-12.

The career of occupational therapist assistant, in particular, is considered one of the best “recession-proof” jobs, and, in 2008, it was ranked seventy-second out of 150 “recession proof” jobs and, of these occupations, was the twenty-fourth fastest growing job.

“Occupational Therapy Named One of Nation’s 150 Best Recession-Proof Jobs”, by the American Occupational Therapy Association, October 21, 2008, p. 30.

Table 5-12: Other Licensed Paraprofessionals Distribution, Characteristics, and Demand

Services Provided	Licensure Status	Specialty	Workforce in 2006 [†]	Workforce in 2016	Percent Change 2006–2016
Clinical	Licensed	Athletic trainer	17,117	21,271	24.3%
	Highly educated, registered, or certified	Diagnostic medical sonographer	45,668	54,384	19.1%
		Medical dosimetrist	n/a [*]	n/a	n/a
Nonclinical	Unlicensed	Medical transcriptionist	98,454	111,747	13.5%
		Medical equipment preparer	45,247	51,655	14.2%

Notes:

* n/a: Not available

** Note that all statistics are from 2009 data, with the exception of those for Medical dosimetrists, which is based on a 2006 survey of certified medical dosimetrists

† Note that demographics are based on a 2006 survey of certified medical dosimetrists

Sources by Specialty:

1. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-9091 Athletic trainers", Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-2.
2. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 29-2032 Diagnostic medical sonographers", Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-3.
3. "AAMD 2006 Report on Salary and Workforce Survey", by Raymond Y. Chu, American Association of Medical Dosimetrists, June 2006, p. 14-15.
4. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-9094 Medical transcriptionists", Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-3.
5. "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-9093 Medical equipment preparers", Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1; "Service Occupations: [Medical Equipment Preparers]", Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, <http://www.bls.gov/oco/oco20055.htm> (Accessed Nov. 24, 2009), p. 3.

HIGHLIGHTS IN THE FOUR PILLARS

Regulatory

Much of the regulation of paraprofessional assistants is focused on ensuring compliance with supervision requirements. The restrictions placed on anesthesiology assistants are preserved by the maintained presence of certified registered nurse anesthetists (CRNAs), their mid-level counterparts (see chapter 4, *Certified Registered Nurse Anesthetists (CRNAs)*). Additionally, both physical therapist and occupational therapist assistants are regulated by state law to provide services only “. . . under the supervision of a qualified physical or occupational therapist.”¹⁵³ Further, paraprofessional assistants tend to be tightly regulated with regard to their diagnostic and prescriptive responsibilities, that is, they are not authorized to make decisions that directly affect the diagnosis or treatment of a patient.

Primary Types of Work Settings	Additional Characteristics**	Notes on Demand
Educational services (34.3%) Fitness or recreation centers (19.6%) Offices of health practitioners (17.7%) Hospitals (15%)	n/a	Demand will increase as providers seek a more cost-effective way of providing services to the growing number of elderly and the increasing popularity of sports medicine. Technological advancements and favorable third-party reimbursement will also encourage job growth.
Hospitals (58.9%) Physician offices (26.4%) Medical or diagnostic laboratories (8.7%)	n/a	Due to expected rapid growth in technology and demand for radiation-free therapy for the growing older population, demand will be high. Despite rapid growth in outpatient facilities, hospitals will remain the primary employer of sonographers.
Community medical centers (48%)	Physician offices or free-standing facilities (23%) University hospital centers (17%) Ages 35–49 (62%) Achieved associate or bachelor's degree (77%) Received on-the-job training (83%)	n/a
Hospitals (41.1%) Physician offices (29.2%)	n/a	With a rising need for healthcare, especially considering the growing elderly population, more transcriptionists will be needed to keep up with documentation requirements. Although outsourcing transcription work is becoming more popular, domestic transcriptionists often are still required to edit international work. Additionally, even with speech recognition systems being more widely used, transcriptionists are needed to review, edit, and format the information.
Hospitals (65.6%) Offices of physicians or dentists (10.8%) Outpatient care centers (5.8%)	n/a	The profession is expected to experience fast growth during the 2006–2016 period. Although the home health sector will experience the most growth (55% increase in workers), hospitals will still employ the majority of new hires (51.2%).

Reimbursement

Reimbursement for services provided by paraprofessional assistants is strictly regulated under Medicare. Again, paraprofessionals cannot bill independently for their services, but, rather, they are reimbursed from their employers' practice expenses. Radiology assistants face several issues related to reimbursement, including (1) lack of Current Procedural Terminology code differentiation between physician and extender provision of radiology services, (2) interdependence of collaborative physician and radiologist assistant services that calls for combined valuation, and (3) potential need for reallocation of practice and technical components for procedures that may be performed by physician extenders (instead of physicians) in the future.¹⁵⁴

Competition

Although many paraprofessional assistants do not face significant competition due to the specific responsibilities related to their field of practice (for example, occupational therapist assistants and physical therapist assistants), some specialties, such as anesthesiologist assistants and radiologist assistants, may face significant competition from other nonphysician practitioners.

Competition With Mid-Level Providers

In certain specialty areas, mid-level providers may compete with paraprofessional assistants due to overlapping scopes of services. For example, both anesthesiologist assistants and CRNAs may administer anesthesia.¹⁵⁵ However, anesthesiologist assistants must be supervised by an anesthesiologist, although CRNAs may administer anesthesia independently, regardless of specialty, with more autonomy and, therefore, more utility of services.¹⁵⁶

As the role of radiologist assistants continues to change, the degree of competition between these professionals and radiology practitioner assistants, nurse practitioners (NPs), and PAs may increase.¹⁵⁷ Radiology practitioner assistants, NPs, and PAs often are legally authorized to perform radiologic and imaging procedures.¹⁵⁸ Because the role of radiology assistants remains unclear, independent practitioners may be less hesitant to use their mid-level competitors who are regulated to a greater degree.¹⁵⁹

OTHER LICENSED TECHNICIANS AND PARAPROFESSIONALS

DESCRIPTION AND SCOPE

Three additional groups of healthcare professionals that may be classified as licensed technicians and paraprofessionals are (1) athletic trainers, (2) diagnostic medical sonographers, and (3) medical dosimetrists.

These professions differ greatly in their description and scope of practice, with sonographers and dosimetrists providing clinical services that are heavily weighted in technical support and athletic trainers providing clinical services in diverse specialty areas. Common to all of these professionals, like other technicians and paraprofessionals, is the contingency of their services on the presence of an independent practitioner. Although they provide healthcare services that may affect patient care on some level, they are not primary care providers, and, therefore, they are not authorized to provide (and bill for) diagnostic services or therapeutic services. Table 5-13 on the following pages contains detailed descriptions of each of these professions.

Scope

The scope of practice for each group of practitioners varies by profession and, in certain fields, by subspecialty. However, athletic trainers, diagnostic medical sonographers, and medical dosimetrists are all responsible for patient education; operation of equipment or medical devices relevant to their work; some level of critical thinking, analysis, and synthesis of medical information; and various administrative tasks (for example, maintaining patient records), as required.¹⁶⁰

Education and Training

The educational requirements for these nonphysician professions vary from general educational or training requirements to formal degree, licensure, and certification requirements. For example, athletic trainers are required by state law to receive bachelor's degree training through an accredited program before sitting for the national certification exam and fulfilling state licensure requirements; accredited programs in diagnostic medical sonography may be two or four years in length, with associate's degree training being more prevalent.¹⁶¹ A brief synopsis of educational and training requirements for each position may be found in table 5-13.

INDUSTRY TRENDS

Characteristics and Distribution

Sonographers and dosimetrists are predominantly based in hospitals and medical centers, respectively, with smaller subsets working in offices of various health practitioners or in outpatient care settings.¹⁶² Athletic trainers are found in a number of settings, practicing predominantly in educational institutions

(34.3 percent) and fitness or recreation centers (19.6 percent).¹⁶³ See table 5-12 for more specific statistics and information related to the distribution of these professions across various practice sites of service.

Supply and Demand

Substantial workforce growth is anticipated among licensed technicians and paraprofessionals (see table 5-12 for growth anticipated for each occupation).¹⁶⁴ Although hospitals will remain the primary employer of these practitioners in many cases, the number of employment opportunities in hospitals is expected to grow at a slower rate than in various outpatient settings (for example, offices of health practitioners, outpatient facilities, and home health care organizations) in the coming years.¹⁶⁵ Also, most of these professions partially attribute the expected growth in demand for their services to the growing population of elderly, technological advances in their field, or both, which is similar to many other paraprofessionals.¹⁶⁶

HIGHLIGHTS IN THE FOUR PILLARS

It can be expected that, as a result of increased demand for healthcare manpower in a multitude of specialty areas by proxy of an aging demographic and a delivery system of increasing technological sophistication, clinical practitioners (especially those already held to a fairly high educational standard) will need to broaden their skill set to meet the standards of increasingly stringent laws and regulations. The American Society of Radiologic Technologists (ASRT) conducted comparative analyses of healthcare practitioners (namely, “advanced” practitioners) in the United Kingdom, Canada, and the United States.¹⁶⁷ In the United Kingdom, which utilizes a four-tier skills model for clinical practitioners with varying degrees of competency, “advanced” practitioners are afforded autonomy in a defined scope of clinical practice and are required to receive post-graduate level training, for example, a master’s degree.¹⁶⁸ According to the ASRT, the technological and clinical utility of sonographers and dosimetrists may render them good candidates for broadened scopes of practice in the future, as “advanced” practitioners.¹⁶⁹ The result of heightened autonomy, as with many other nonphysician practitioners moving into broadened scopes of practice, will be heightened stringency in regulation and elevated educational expectations.

UNLICENSED TECHNICIANS AND PARAPROFESSIONALS

Unlicensed technicians and paraprofessionals provide services that do not require the same level of education, training, and regulation as their licensed counterparts. As such, these unlicensed physician extenders, with little to no practice autonomy, strictly provide manpower relief to supervising, licensed providers. In light of current and projected shortages, unlicensed technicians and paraprofessionals will continue to alleviate the manpower deficit by acting as extensions of their supervising entities who maintain direct control of the services they perform.

Table 5-13: Other Licensed Paraprofessional Specialties and Educational and Training Requirements

Services Provided	Licensure Status	Specialties	Alternate Job Titles	Subspecialties
Clinical	Licensed	Athletic trainer	n/a	n/a
	Highly educated, registered, or certified	Diagnostic medical sonographer	n/a	Obstetrics and gynecology, neurosonology, breast, abdomen, and fetal echocardiography
		Medical dosimetrist	n/a	n/a
Nonclinical	Unlicensed	Medical transcriptionist	n/a	May work for a medical specialty, but there are no subspecialties within the transcriptionist profession.
		Medical equipment preparer	Central sterile processing technician, sterile processing and distribution technician, or other title variations	n/a

Notes:

* n/a: Not Applicable or Not Available; CAATE: Commission on Accreditation of Athletic Training Education; BOC: Board of Certification; CAAHEP: The Commission on Accreditation of Allied Health Education Programs; JRC-DMS: Joint Review Committee on Education in Diagnostic Medical Sonography; ARDMS: American Registry for Diagnostic Medical Sonography; JRCERT: Joint Review Committee on Education in Radiologic Technology; MDCB: Medical Dosimetrist Certification Board; ACCP: Approval Committee for Certificate Programs; AHD: Association for Healthcare Documentation Integrity; NCCA: National Commission for Certifying Agencies

** Estimate as of 2009

Sources by Specialty:

1. "Athletic Trainers", Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "Accredited Programs", CAATE, 2009, p. 1.
2. "RDMS—Registered Diagnostic Medical Sonographer", ARDMS, 2009, <http://www.ardms.org/default.asp?ContentID=63>, (Accessed November 23, 2009); "Diagnostic Medical Sonographers", Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "Accredited Program Search: Diagnostic Medical Sonographer", CAAHEP, 2009, <http://www.caahep.org/Find-An-Accredited-Program/>, (Accessed November 23, 2009).
3. "Statement on the Scope and Standards of Medical Dosimetry Practice", AAMD, March 13, 2001, p. 7-8, 13; "Accredited Programs: [Medical Dosimetry]", JCERT, 2009, <http://www.jrcert.org/cert/results.jsp#>, (Accessed November 23, 2009); "Exam Info/Eligibility", MDCB, 2009, <http://www.mdc.org/examinfo/eligibility.htm>, (Accessed November 23, 2009).
4. "Medical Transcriptionists", Bureau of Labor Statistics, Occupational Outlook Handbook, 2008-2009 edition, p. 1-2.
5. "Summary Report for 31-9093.00—Medical Equipment Preparers", O*NET OnLine, 2008, <http://online.onetcenter.org/link/summary/31-9093.00>, (Accessed Nov. 24, 2009), p. 1, 3; "Occupational Employment and Wages, May 2008: 31-9093 Medical Equipment Preparers", Bureau of Labor Statistics, May 2008, <http://www.bls.gov/oes/current/oes319093.htm>, (Accessed Nov. 24, 2009), p. 1; "SPD Technician Certification Exam: C.S.P.D.T", by National Commission for Certifying Agencies, 2009, <http://www.sterileneprocessing.org/technician.htm>, (Accessed Nov. 24, 2009), p. 1-2.

NONCLINICAL (UNLICENSED) TECHNICIANS

DESCRIPTION AND SCOPE

Nonclinical technicians work within a specialized field to provide support to clinical service providers (for example, patient documentation, medical equipment, and filling prescriptions).¹⁷⁰ However, as previously stated, they may provide any level of patient care or support without the direction or supervision of an independent care practitioner, and, as such, they are not subject to licensure requirements or other stringent regulatory guidelines related to their training, autonomy, or scope of practice.

Description	Educational and Training Requirements	Number of Accredited Programs**	Accreditation and Certification Organizations*
Involved in the education, prevention, treatment, and rehabilitation of musculoskeletal injuries, under the supervision of a physician.	Bachelor's degree from an accredited educational program, plus state licensure or registration, plus certification (<i>minimum</i>), plus advanced degree	366	CAATE (accreditation) BOC (certification)
Operates equipment utilizing sound waves as a means of performing a diagnostic imaging procedure.	Varies (<i>no preferred educational attainment level</i>); typically a two- or four-year accredited program, plus professional registration is the most attractive to employers	174	CAAHEP (accreditation) JRCEDMS (accreditation) ARDMS (registration)
Part of the radiation oncology team, is responsible for various aspects of treatment planning, including dose distribution and calculations, as directed by a radiation oncologist, medical physicist, or both.	Accredited training program of one or more years, plus certification, plus continuing education (<i>minimum</i>)	15	JRCERT (accreditation) MDCB (certification)
Nonclinical worker who transcribes and accurately documents physician recordings into medical documents to add to patient records.	One-year certificate or two-year associate degree program (<i>preferred</i>) OR formal accredited program, plus registration or certification, plus continuing education	n/a	ACCP (accreditation) AHDl (certification or registration)
Nonclinical worker who is responsible for medical laboratory or other healthcare equipment.	High school diploma, plus informal training (<i>minimum; varies by employer and position</i>), plus formal training course or related allied health program, plus certification	n/a	NCCA (certification)

Scope

Unlike their clinical counterparts, nonclinical technicians perform a limited scope of duties based on their capabilities, as determined by supervising independent practitioners.

Education and Training

Educational requirements vary widely by specialty, but the majority of nonclinical technician specialties require only that technicians complete on-the-job training (See table 5-8). Though nonclinical technicians (for example, orthotics and prosthetics technicians) are held to minimal educational standards, employers are beginning to prefer more formally trained applicants.¹⁷¹ However, accredited education and training programs are available for all nonclinical technician specialties (see table 5-8 for the number of accredited training programs available per specialty).

INDUSTRY TRENDS

Characteristics and Distribution

Two of the three nonclinical technician specialties listed in tables 5-8 and 5-9 are predominantly based in the hospital setting. However, the various roles filled by nonclinical technicians afford them the option to practice in more specialized sites of services (for example, orthotics and prosthetics), if they so choose. Additionally, the number of nonclinical technicians varies greatly by specialty, from slightly more than 12,000 orthotics and prosthetics technicians to more than 168,742 medical records and health information technicians reported in 2006.¹⁷² For more information on the demographics of each nonclinical technician workforce population, see tables 5-11 and 5-12.

Supply and Demand

Many of these professions are expected to experience a growth in demand for services from 2006 to 2016, due to one or both of the following: (1) advances in technology, which may allow for better detection, treatment, or both, may result in an increased case load and (2) an increased demand for services from the growing elderly population, which suffers a disproportionate share of various medical conditions and consequently comprises a large portion of the demand for medical services provided by these professionals.¹⁷³

HIGHLIGHTS IN THE FOUR PILLARS

Regulatory

Like many other unlicensed physician extenders, regulation of nonclinical technician professions is limited, because their scope of practice remains under the control of supervising independent practitioners.

NONCLINICAL (UNLICENSED) ASSISTANTS

DESCRIPTION AND SCOPE

Nonclinical assistants (for example, social and human service assistants) work under the direct control and supervision of autonomous healthcare professionals (that is, physicians and authorized nonphysician practitioners) to provide administrative services, support services, or both (see table 5-10 for specific information related to the scope and educational requirements for social and human service assistants and clinical assistants).¹⁷⁴

Scope

Nonclinical assistants provide more social and emotional support, because their primary function is to improve patient quality of life.¹⁷⁵ The scope of services provided by social and human service assistants can vary, because they may practice in a number of subspecialties, fields, and collaborative, multispecialty settings. However, supervision requirements for these providers will remain fairly inflexible.¹⁷⁶

Education and Training

The educational and training requirements for nonclinical assistants are both minimal and inconsistent from state to state (see table 5-10 for educational requirements for social and human service assistants). Complementary and accredited certification programs do not exist for social and human service assistants.¹⁷⁷

INDUSTRY TRENDS

Characteristics and Distribution

Nonclinical assistants practice in a variety of settings, including general and specialty or surgical hospitals, substance abuse and mental health centers, social assistance programs, and state and local government programs (see table 5-11 for the statistical distribution of social and human service assistants).¹⁷⁸

Supply and Demand

In the coming years, the nonclinical assistant workforce will experience an increase in demand.¹⁷⁹ For many of these positions, growth in patient demand for services is due to one or more of the following: (1) growth in the aging baby boomer population and corresponding increase in age-related diseases and disabilities, (2) ongoing healthcare workforce shortages, (3) pressure to reduce healthcare spending by allowing assistants to provide more routine care and allowing independent healthcare practitioners to concentrate on more complex cases, and (4) advances in technology that have increased the standards for life expectancy, morbidity, and mortality, thereby increasing the need for support services.¹⁸⁰ For statistics regarding the increase in demand for nonclinical assistants, see table 5-11.

HIGHLIGHTS IN THE FOUR PILLARS

Reimbursement

Reimbursement for services provided by paraprofessional assistants is strictly regulated under Medicare. As stated previously, paraprofessionals cannot bill independently for their services, but, rather, they are reimbursed from their employers' practice expenses.

AIDES

DESCRIPTION AND SCOPE

Aides are entry-level healthcare professionals who possess few prerequisite qualifications.¹⁸¹ Aides can perform an assortment of clerical, personal care, or medical duties in a variety of healthcare settings (for example, homes, hospitals, and residential care facilities) to elderly, disabled, or otherwise handicapped patients.¹⁸² In many cases, aide positions are designed primarily to assist the supervising healthcare provider(s) to ensure more effective and efficient delivery of services.¹⁸³ See table 5-14 for a detailed description of each paraprofessional aide specialty.

Scope

The duties performed by aides vary by specialty profession. For example, home health aides and personal care aides both provide long-term direct care in homes or residential care facilities; however, home health aides provide both medical and personal care services, but personal care aides provide personal care exclusively.¹⁸⁴ Nursing aides, orderlies, and attendants perform medical and personal care duties as well, but they practice primarily in hospitals or nursing care facilities.¹⁸⁵

All aides must either work under the direct supervision of a qualified healthcare provider or follow a detailed plan prepared by nursing or medical staff.¹⁸⁶ Aides may be tasked certain medical care duties, such as checking vital signs, helping patients perform exercises, and providing general personal care, including mobility assistance, bathing, dressing, and grooming.¹⁸⁷ Aides also perform administrative and clerical tasks, such as updating patient records and documenting progress.¹⁸⁸

Table 5-14: Paraprofessional Aide Specialties and Educational and Training Requirements

Specialties	Alternate Job Titles	Subspecialties	Description
Home Health Aide	n/a	n/a	A subset of long-term care workers that typically works in patient homes or a residential care facility, providing care for individuals with a variety of disabilities, including physical or mental handicaps, injuries, or illnesses.
Nursing Aides, Orderlies and Attendants	Nurse aides, nursing assistants, certified nursing assistants, geriatric aides, or unlicensed assistive personnel	n/a	Provide personal and medically related assistance to elderly, disabled or otherwise ill persons; typically work in nursing care facilities, hospitals, or mental health service settings.
Personal Care Aide	Home care aides	n/a	Exclusively provide personal care services for a population consisting of the elderly, physically or mentally disabled persons, or otherwise incapacitated individuals who desire to live at home or in a residential care facility, but other informal workers or family members are unable to provide an adequate level of care to allow the individual to do so.
Psychiatric Aide	Mental health assistants or psychiatric nursing assistants	n/a	Responsible for the care and well-being of mentally impaired or emotionally disturbed patients.
Physical Therapist Aide	Physical therapy assistants	n/a	May provide a variety of services to assist physical therapists and physical therapist assistants for the primary purpose of increasing the efficiency of a physical therapy session.
Pharmacy Aide	Dispensary or pharmacy attendants, pharmacy clerks, or drug clerks	n/a	Entry-level pharmacy position, primarily required to contribute to the efficient operation of a pharmacy and mostly restricted to clerical tasks.

Notes:

* No central or national certification program exists for nursing aides, though several exist across the United States.

Sources by Specialty:

1. "Nursing, Psychiatric, and Home Health Aides", Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "Nursing Aides, Home Health Aides, and Related Health Care Occupations: National and Local Workforce Shortages and Associated Data Needs", Health Resources and Services Administration, February 2004, p. vi, 43, 79.
2. "Nursing, Psychiatric, and Home Health Aides", Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1-2.
3. "Personal and Home Care Aides", by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "Standard Occupational Classification: 39-9021 Personal and Home Care Aides", by the Bureau of Labor Statistics, October 16, 2001, http://www.bls.gov/soc/soc_o9c1.htm (Accessed October 6, 2009) p. 1; "Home Care Aide National Certification Program", by the National Association for Home Care and Hospice, <http://www.nahc.org/education/PDFs/HCAcert.pdf> (Accessed October 6, 2009), p. 1.
4. "Nursing, Psychiatric, and Home Health Aides", by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1-2; "Standard Occupational Classification: 31-1013 Psychiatric Aides", by the Bureau of Labor Statistics, October 16, 2001, http://www.bls.gov/soc/soc_k1b3.htm (Accessed October 6, 2009) p. 1.
5. "Physical Therapist Assistants and Aides", by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1; "Defining the Frontline Workforce", by Health Workforce Solutions, September 2005, p. 27, 52, 54.
6. "Defining the Frontline Workforce", by Health Workforce Solutions, September 2005, p. 52; "Pharmacy Aides", by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1.

Education and Training

Aides are expected to meet very few educational requirements, with the majority of the requirements being comprised of on-the-job training. Nursing aides, orderlies, and attendants, as well as psychiatric aides, generally are required to have a high school diploma or an equivalent.¹⁸⁹ In addition to informal training, home health aides must undergo a federal competency evaluation, and some states may require licensure or certification.¹⁹⁰ Optional training and certification programs also may be available for some professions (for example, nursing aides and home care aides), although they are not required for authorized practice.¹⁹¹ Accordingly, aide positions often are considered to be a stepping stone to more advanced healthcare occupations, but aides typically will require additional education, training, or both to advance to these positions.¹⁹²

Educational and Training Requirements	Number of Accredited Programs*	Accreditation and Certification Organizations
On-the-job training, plus competency evaluation (<i>minimum</i>), plus state licensure	n/a	n/a
High school diploma, previous work experience, or both (<i>minimum</i>), plus training, plus competency evaluation, plus certification	n/a	n/a
On-the-job training (<i>minimum</i>), plus voluntary national certification or other formal training	n/a	n/a
High school diploma or the equivalent, plus on-the-job training (<i>minimum, dependent on state</i>), plus formal education	n/a	n/a
On-the-job training (<i>minimum</i>), plus high school diploma or the equivalent (dependent upon employer), plus community college training program	n/a	n/a
On-the-job training (<i>minimum</i>), plus high school diploma or the equivalent and/or previous experience (dependent upon employer)	n/a	n/a

INDUSTRY TRENDS

Characteristics and Distribution

Of the **direct care workforce** (that is, home health aides, personal care aides, personal care assistants, and certified nursing assistants), 42 percent was comprised of home health aides,¹⁹³ with the majority either practicing in hospitals (28.9 percent), nursing care facilities (40.7 percent) or residential care facilities (11.3 percent).¹⁹⁴ Other paraprofessional aides practiced in home health organizations, facilities for the elderly and disabled persons, private households, psychiatric or substance abuse hospitals, government institutions, offices of physical therapists, and pharmacies or drug stores.¹⁹⁵

Of the direct care workforce in 2006 (that is, home health aides, personal care aides, personal care assistant, certified nursing assistant), 42 percent was comprised of home health aides.

"Caring for America's Aging Population: A Profile of the Direct-Care Workforce," by Kristin Smith and Reagan Baughman, Monthly Labor Review, September 2007, p. 20–21.

Occupational injury is common among certain paraprofessional aides. The incidence rate of injuries and illnesses that resulted in lost days of work for nursing aides, orderlies, and attendants was 526 per 10,000 workers, most of whom were women.¹⁹⁶ Additionally, in 2006, 1,067 of 10,000 (approximately one in ten) psychiatric aides suffered an injury or illness that kept them from work.¹⁹⁷ See table 5-15 for more information related to aide workforce characteristics.

Table 5-15: Paraprofessional Aide Distribution, Characteristics, and Demand

Specialties	Workforce in 2006	Workforce in 2016	Percent Change 2006–2016	Primary Types of Work Settings
Home Health Aide*	787,315	1,170,935	48.7%	Home health care services (30.7%) Residential care facilities (32.2%) Social assistance services for the elderly and persons with disabilities (12.6%)
Nursing Aides, Orderlies and Attendants	1,447,233	1,710,876	18.2%	Hospitals (28.9%) Nursing care facilities (40.7%) Residential care facilities (11.3%)
Personal Care Aide	767,257	1,155,795	50.6%	Home health care services (28.9%) Services for the elderly and disabled persons (23.3%) Private households (14.4%) Residential mental retardation facilities (5.7%) Vocational rehabilitation services (4.5%)
Psychiatric Aide	61,735	61,694	–0.1%	Psychiatric or substance abuse hospitals (38.1%) State or local government (26.7%) Hospitals (8%) Social assistance programs (2.5%)
Physical Therapist Aide	46,242	57,512	24.4%	Offices of physical therapists (46.14%) Hospitals (22.7%) Nursing and residential care facilities (10%) Specialty hospitals (4.2%)
Pharmacy Aide	50,394	44,807	–11.1%	Pharmacies or drug stores (65.5%) Hospitals (7.0%)

Notes:

* Characteristics for Home Health Aides are based on a study of all female direct care workers (Source: “Caring for America’s Aging Population: A Profile of the Direct-Care Workforce” By Kristin Smith and Reagan Baughman, Monthly Labor Review, September 2007).

Sources by Specialty:

1. “National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-1011 Home Health Aides”, Bureau of Labor Statistics, 2006, p. 1; “Caring for America’s Aging Population: A Profile of the Direct-Care Workforce”, by Kristin Smith and Reagan Baughman, Monthly Labor Review, September 2007, p. 20-22; “Nursing, Psychiatric, and Home Health Aides”, Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 2-3.
2. “National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-1012 Nursing aides, orderlies, and attendants”, by the Bureau of Labor Statistics, 2006, p. 1; “Nonfatal Occupational Injuries and Illnesses Requiring Days Away from Work, 2006”, by the Bureau of Labor Statistics, November 8, 2007, p. 5; “Nursing, Psychiatric, and Home Health Aides”, Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 3; “Nursing Aides, Home Health Aides, and Related Health Care Occupations: National and Local Workforce Shortages and Associated Data Needs”, Health Resources & Services Administration, February 2004, p. iv.
3. “National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 39-9021 Personal and Home Care Aides”, by the Bureau of Labor Statistics, 2006, p. 1-2; “Occupational Projections for Direct-Care Workers 2006-2016”, Paraprofessional Healthcare Institute, April 2008, p. 2; “Personal and Home Care Aides”, by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 2; “Statement of John W. Rowe before the Special Committee on Aging, U.S. Senate”, April 16, 2008, p. 3.
4. “National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-1013 Psychiatric Aides”, by the Bureau of Labor Statistics, 2006, p. 1; “Nonfatal Occupational Injuries and Illnesses Requiring Days Away from Work, 2006”, by the Bureau of Labor Statistics, November 8, 2007, p. 4; “Nursing, Psychiatric, and Home Health Aides”, by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 3.
5. “National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-2022 Physical Therapist Aides”, by the Bureau of Labor Statistics, 2006, p. 1; “Physical Therapist Assistants and Aides”, by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1-2.
6. “National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-9095 Pharmacy Aides”, by the Bureau of Labor Statistics, 2006, p. 1; “Defining the Frontline Workforce”, by Health Workforce Solutions, September 2005, p. 53; “Pharmacy Aides”, by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 2.

In 2006, approximately one in ten psychiatric aides suffered an injury or illness that kept them from work.

“Nonfatal Occupational Injuries and Illnesses Requiring Days Away from Work, 2006,” by the Bureau of Labor Statistics, November 8, 2007, p. 4.

Additional Characteristics	Notes on Demand
White, non-Hispanic (49%); Black, non-Hispanic (24%); Hispanic (21%); and Foreign-Born (22%). The average age is 45 years old. High school education or less (64%)	Expected demand from increasing needs of aging baby boomer population, high job turnover rates, increasing consumer preference for home care and advancing technologies that make home care more feasible.
Incidence rate of injuries and illnesses that resulted in lost days of work was 526 per 10,000 workers	Expected increase in demand due to growth in long-term needs of the elderly segment of the population and the rapid hospital discharge rates, which push patients into nursing home environments to recover, as well as higher turnover rates and incidence of nonfatal injury.
n/a	One of the top ten fastest-growing occupations from 2006 to 2016, due to the onset of old age for the baby boomer population, advances in technology and medical care resulting in elongated life spans for older Americans, who often require a disproportionate amount of healthcare, and preference for personal home care for older adults (due to comfort and cost).
1,067 of 10,000, (approximately one in ten) suffered an injury or illness that kept them from work. (2006 data)	Little or no growth is expected from 2006 to 2016 due to a trend of increased patient care moving from hospital settings to residential facilities.
n/a	Expected increase in demand due to the increasing elderly population, but positions will continue to be competitive due to the minimal qualifications required by most employers.
n/a	Expected to undergo a significant decline despite the growth in the aging population, due to the anticipation that pharmacy technician duties will expand to include many of the tasks that have traditionally been delegated to pharmacy aides.

Supply and Demand

Most aide professions may face increased demand in the coming years, with personal and home care aides being among the top ten fastest growing occupations from 2006 to 2016.¹⁹⁸ Projected increases in demand for aides may be attributed, in part, to the growth in demand for long-term care services, specifically among the elderly population, and the accelerated rates of hospital discharge, which may push recovering patients into personal and nursing home environments.¹⁹⁹ Additionally, increased demand may be driven by consumer preference for home health options instead of hospitals and nursing facilities, which may prove to be more costly.²⁰⁰ As the scope of services available in the home continues to expand, primarily, due to advances in technology, affinity for home care will continue to grow.²⁰¹ The high turnover rate attributed to paraprofessional aides also contributes to projected growth in demand estimated for certain specialties.²⁰²

Unlike many other support professional workforces, both psychiatric and pharmacy aide populations are anticipated to decline from 2006 to 2016.²⁰³ The psychiatric aid workforce, predominantly employed in hospital settings, is projected to increase due to the increasing shift toward patient care in residential facilities.²⁰⁴ Additionally, residential care facilities projections suggest that, from 2006 to 2016, residential care facility demand for psychiatric aides will increase by 31.2 percent (an additional 2,680 practitioners).²⁰⁵ Further, projections suggest an increase in competition between pharmacy aides and technicians, because the scope of services for pharmacy technicians may expand to include many of the tasks that traditionally have been delegated to pharmacy aides.²⁰⁶ See table 5-15 for more detail regarding characteristics and demand of paraprofessional aide positions.

Table 5-16: Paraprofessional Aide Distribution, Characteristics, and Demand

Specialty	Workforce in 2006	Workforce in 2016	% Change 2006-2016	Primary Types of Work Settings
Home Health Aides	787,315	1,170,935	48.7%	Home health care services (30.7%), Residential care facilities (32.2%), social assistance services for the elderly and persons with disabilities (12.6%)
Nursing Aides, Orderlies & Attendants	1,447,233	1,710,876	18.2%	Hospitals (28.9%), nursing care facilities (40.7%), residential care facilities (11.3%)
Personal Care Aides	767,257	1,155,795	50.6%	Home health care services (28.9%), services for the elderly and disabled persons (23.3%), private households (14.4%), residential mental retardation facilities (5.7%), vocational rehabilitation services (4.5%)
Psychiatric Aides	61,735	61,694	-0.1%	Psychiatric or substance abuse hospitals (38.1%), state or local government (26.7%), hospitals (8.0%), social assistance programs (2.5%)
Physical Therapist Aides	46,242	57,512	24.4%	Offices of physical therapists (46.14%), hospitals (22.7%), nursing and residential care facilities (10.0%), specialty hospitals (4.2%)
Pharmacy Aides	50,394	44,807	-11.1%	Pharmacies or drug stores (65.5%), hospitals (7.0%)

Notes:

1 Characteristics for Home Health Aides are based on a study of all female direct care workers (Source: "Caring for America's Aging Population: A Profile of the Direct-Care Workforce", by Kristin Smith and Reagan Baughman, Monthly Labor Review, September 2007).

Sources by Specialty:

- "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-1011 Home Health Aides", Bureau of Labor Statistics, 2006, p. 1; "Caring for America's Aging Population: A Profile of the Direct-Care Workforce", by Kristin Smith and Reagan Baughman, Monthly Labor Review, September 2007, p. 20-22; "Nursing, Psychiatric, and Home Health Aides", Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 2-3.
- "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-1012 Nursing aides, orderlies, and attendants", by the Bureau of Labor Statistics, 2006, p. 1; "Nonfatal Occupational Injuries and Illnesses Requiring Days Away from Work, 2006", by the Bureau of Labor Statistics, November 8, 2007, p. 5; "Nursing, Psychiatric, and Home Health Aides", Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 3; "Nursing Aides, Home Health Aides, and Related Health Care Occupations: National and Local Workforce Shortages and Associated Data Needs", Health Resources & Services Administration, February 2004, p. iv.
- "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 39-9021 Personal and Home Care Aides", by the Bureau of Labor Statistics, 2006, p. 1-2; "Occupational Projections for Direct-Care Workers 2006-2016", Paraprofessional Healthcare Institute, April 2008, p. 2; "Personal and Home Care Aides", by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 2; "Statement of John W. Rowe before the Special Committee on Aging, U.S. Senate", April 16, 2008, p. 3.
- "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-1013 Psychiatric Aides", by the Bureau of Labor Statistics, 2006, p. 1; "Nonfatal Occupational Injuries and Illnesses Requiring Days Away from Work, 2006", by the Bureau of Labor Statistics, November 8, 2007, p. 4; "Nursing, Psychiatric, and Home Health Aides", by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 3.
- "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-2022 Physical Therapist Aides", by the Bureau of Labor Statistics, 2006, p. 1; "Physical Therapist Assistants and Aides", by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 1-2.
- "National Employment Matrix, employment by industry, occupation, and percent distribution, 2006 and projected 2016: 31-9095 Pharmacy Aides", by the Bureau of Labor Statistics, 2006, p. 1; "Defining the Frontline Workforce", by Health Workforce Solutions, September 2005, p. 53; "Pharmacy Aides", by the Bureau of Labor Statistics Occupational Outlook Handbook, 2008-2009 edition, p. 2.

HIGHLIGHTS IN THE FOUR PILLARS

Due to the minimal prerequisites for employment and their limited scope of practice, aides do not appear to be faced with significant regulatory concerns, reimbursement changes, competitive pressures, or technological demands, especially as when compared with mid-level providers and other technicians and paraprofessionals.

Additional Characteristics	Notes on Demand
White, non-Hispanic (49%) Black, non-Hispanic (24%); Hispanic (21%); Foreign Born (22%); Avg. Age = 45 years old; High school education or less (64%)	Expected demand from increasing needs of aging baby boomer population, high job turnover rates, increasing consumer preference for home care and advancing technologies which make home care more feasible
incidence rate of injuries and illnesses that resulted in lost days of work was 526 per 10,000 workers	Expected increase in demand due to growth in long-term needs of the elderly segment of the population and the rapid hospital discharge rates, which push patients into nursing home environments to recover, as well as higher turnover rates and incidence of nonfatal injury
N/A	One of the top ten fastest-growing occupations from 2006 to 2016, due to the onset of old age for the baby boomer population, advances in technology and medical care resulting in elongated life spans for older Americans, who often require a disproportionate amount of health care, and preference for personal home care for older adults (due to comfort and cost)
1,067 of 10,000, (approx. one in ten) suffered an injury or illness that kept them from work (2006 data)	little or no growth is expected from 2006 to 2016 due to a trend of increased patient care moving from hospital settings to residential facilities
N/A	Expected increase in demand over the coming years due to the increasing elderly population, but positions will continue to be competitive due to the minimal qualifications required by most employers
N/A	Expected to undergo a significant decline despite the growth in the aging population, due to the anticipation that pharmacy technician duties will expand to include many of the tasks that have traditionally been delegated to pharmacy aides

However, due to the minimal expectations and prerequisites they must meet, aides must abide by stringent legal restrictions restricting the amount of patient care they are authorized to provide. Physical therapist (PT) aides, for example, may not be the provider of patient services in any medical setting, under any circumstances, regardless of whether they are under supervision. Instead, PT aides may only assist a physical therapist or a therapist assistant in the provision of care.²⁰⁷ Other regulatory, reimbursement, competitive, and technological trends for paraprofessional aides are perceived as negligible and may vary by specialty. Variable demand trends for the diverse array of services provided by the range of aide professions are predicted for the coming years. These diverse trends will remain contingent upon changes in the regulatory, reimbursement, competitive, and technology environments as the definition and scope of services provided by aides and other physician extenders evolve.

OTHER UNLICENSED TECHNICIANS AND PARAPROFESSIONALS

DESCRIPTION AND SCOPE

Two additional groups of healthcare professionals may be classified unlicensed as technicians and paraprofessionals: (1) medical transcriptionists and (2) medical equipment preparers. These practitioners provide exclusively nonclinical services. Table 5-16 provides information on description, specialty areas, and educational requirements for medical transcriptionists and medical equipment preparers.²⁰⁸

Scope

As previously mentioned, the scope of practice for each of these professions varies by profession and subspecialty, if applicable. Medical transcriptionists are accountable for various types of health information or medical documentation (for example, patient records, physician reports, forms, and so forth). Medical equipment preparers are knowledgeable about medical equipment, including its preparation, operation, and maintenance.²⁰⁹

Education and Training

The educational requirements for these unlicensed professions vary; some medical transcriptionists graduate from accredited associate degree programs, but no accreditation entity exists for medical equipment preparer programs.²¹⁰ Details related to the various educational requirements and options that these practitioners have are listed in table 5-10.

INDUSTRY TRENDS

Characteristics and Distribution

Many professionals in these workforce sectors practice in hospitals or medical centers, with smaller subsets working in the offices of various health practitioners or in outpatient care settings.²¹¹ Workforce characteristics specific to medical transcriptionists and medical equipment preparers may be found in table 5-12.

Supply and Demand

Growth in the number of both medical transcriptionists (13.5 percent) and medical equipment preparers (14.2 percent) is anticipated from 2006 to 2016.²¹² Although hospitals will remain the primary employer in many cases, workforce growth in hospitals is expected to be consistently slower than in various outpatient settings (for example, offices of health practitioners, outpatient facilities, and home health services) in the coming years.²¹³ These professions partially attribute the expected growth in demand to the aging demographic and to technological advances.²¹⁴ (More information demand trends can be found in table 5-9).

HIGHLIGHTS IN THE FOUR PILLARS

Although these two areas of unlicensed practice vary significantly with regard to the regulatory and reimbursement, competitive, and technological environments related to the healthcare industry, certain key competition and technology considerations related to the medical transcription industry exist.

Competition

With the growing demand for medical transcription services, partly attributed to increased federal regulation of medical documentation practices and the aging U.S. population, the medical transcription industry is searching for ways to maintain pace with the current and impending increase in demand for the services it provides.²¹⁵ The outsourcing and off-shoring of transcription work have emerged and continue to increase in popularity as methods by which the industry compensates for increased demand.²¹⁶ In 2006, U.S. healthcare organizations handled 60 percent of the transcription work in-house, and 35 percent was outsourced to medical transcription service organizations.²¹⁷ In addition, 5 percent of transcription work was off-shored to countries such as India and the Philippines in an effort to decrease the

cost of transcription work, and this number is expected to grow in coming years, despite resistance by many U.S. healthcare providers.²¹⁸ However, due to the complexities of transcription work, namely, the absence of uniform and standard medical terminology among practitioners, providers, and organizations, international transcription work may need to be reviewed by domestic transcriptionists for clarity and accuracy, decreasing the efficiency of off-shoring.²¹⁹

In 2006, 60 percent of transcription work was handled in-house, 35 percent was outsourced to MTSOs, and 5 percent was off-shored.

"The US Medical Transcription Industry: Perspective on Outsourcing and Offshoring," ValueNotes Database, May 2006, p. 2.

Technology

The introduction of speech-recognition technology may have a significant affect on the medical transcriptionist workforce. This innovation has become increasingly commonplace, particularly in medical specialties with more standardized medical terminology (for example, radiology and pathology).²²⁰ Despite its utility, however, many other specialties lack a universal and uniform methodology, requiring medical transcriptionists to review electronically transcribed documents for accuracy.²²¹ Additional technology initiatives that may influence the medical transcription industry include the adoption of electronic health records (see chapter 5 in *An Era of Reform* for more details), as well as other nationwide documentation and best-practice standardization projects (for example, Healthcare Information Technology Standards and National Health Information Network initiatives).²²²

CONCLUSION

In an era of imminent healthcare reform, the role and utilization of technicians and paraprofessionals is on the brink of change. The healthcare industry is facing a drastic increase in demand for services as the baby boomer population reaches retirement age.²²³ Additionally, with trends suggesting increased rates of chronic diseases that disproportionately strike the elderly, home health services, many of which are provided by technicians and paraprofessionals, will likely come into greater demand.²²⁴ An increase in healthcare demand, met by workforce (primarily, physician) shortages, may result in increased utility of technicians and paraprofessionals as physician extenders in an effort to heighten the productivity of physician and nonphysician practitioners while filling any "gaps" in service.

Despite the expected increase in industry demand, the technician and paraprofessional workforce is faced with the challenges of inconsistent regulation of education, licensure, certification, scope of practice, and supervision requirements. This inconsistency, observed from state to state, creates barriers to the successful integration of technicians and paraprofessionals into the healthcare delivery system. With demand for technicians and paraprofessionals, as well as other nonphysician practitioners, on the rise, increased regulatory scrutiny may be anticipated. Paraprofessionals and technicians, like many other healthcare professionals, must be prepared for the impact that healthcare reform initiatives and shifting demographic trends may have on their roles in the delivery of healthcare services.

 **Key Sources**

Key Source	Description	Citation	Hyperlink
The Centers for Medicare and Medicaid Services (CMS)	Medicare and Medicaid, created in 1965, were joined together in 1977 to form CMS, which “ensures effective, up-to-date health care coverage and to promote quality care for beneficiaries.”	“Overview,” CMS, 11/13/2009, www.cms.hhs.gov/History/ (accessed November 30, 2009), p. 1; “Overview: CMS’ Mission,” CMS, 7/7/2009, www.cms.hhs.gov/MissionVisionGoals/ (accessed November 30, 2009), p. 1.	www.cms.hhs.gov
Occupational Outlook Handbook	Biennial publication by the Bureau of Labor Statistics, is a “recognized source of career information”, providing detailed information on several professions in many industries, including education and training, job prospects, earnings, and so forth	“Occupational Outlook Handbook, 2008-09 Edition,” Bureau of Labor Statistics, www.bls.gov/OCO/ (accessed November 30, 2009), p. 1.	www.bls.gov/OCO
National Employment Matrix	Publication by the Bureau of Labor Statistics providing statistical information on supply and demand for many professions by occupation or industry type.	“2006-16 National Employment Matrix, detailed industry by occupation,” Bureau of Labor Statistics, Last modified December 14, 2007, www.bls.gov/emp/emiols.htm (accessed November 30, 2009).	www.bls.gov/emp/emiols.htm
Health Care Careers Directory	Publication by the American Medical Association providing a detailed description and educational directory for dozens of healthcare careers.	“Health Care Careers Directory 2009-2010,” American Medical Association, 37th ed., 2010, p. iii-v.	n/a

 **Associations**

Type of Association	Professional Association	Description	Citation	Hyperlink	Contact Information
National	American Physical Therapy Association (APTA)	With more than 72,000 members nationwide, APTA is the leading national professional association representing the physical therapy profession in the United States.	“About APTA” American Physical Therapy Association, www.apta.org/AM/Template.cfm?Section=About_APT&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=41&ContentID=23725 (accessed November 24, 2009).	www.apta.org	American Physical Therapy Association 1111 North Fairfax Street Alexandria, VA 22314-1488 Phone: 800-999-APTA (2782) Fax: 703-684-7343
National	American Dental Assistants Association (ADAA)	ADAA is the largest and oldest national association for dental assisting professionals in the United States, providing more than eighty years of service.	“History” American Dental Assistants Association, www.dentalassistant.org/about_us.htm#history (accessed November 24, 2009).	www.dentalassistant.org/index.htm	American Dental Assistants Association 35 E Wacker Drive Suite 1730 Chicago, IL 60601 Phone: 312-541-1550/ 877-874-3785 Fax: 312-541-1496
National	American Dental Association (ADA)	Since its inception in 1859, the ADA has become the largest and longest-running national association representing the dental profession in the world.	“About the ADA” American Dental Association, www.ada.org/ada/about/index.asp (accessed November 24, 2009).	www.ada.org	American Dental Association 211 East Chicago Ave. Chicago, IL 60611-2678 Phone: 312-440-2500

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Type of Association	Professional Association	Description	Citation	Hyperlink	Contact Information
National	National Dental Assistants Association (NDAA)	An auxiliary arm of the National Dental Association (NDA), the NDAA specifically serves dental assistants.	"National Dental Assistants Association (NDAA)" National Dental Association, www.ndaonline.org/auxiliary.asp (accessed December 9, 2009).	www.ndaonline.org	National Dental Association 3517 16th Street, NW Washington, DC 20010 Phone: 202-588-1697 Fax: 202-588-1244 E-Mail: admin@ndaonline.org
National	American Association of Medical Assistants (AAMA)	Founded in 1955, AAMA is the only worldwide association representing the medical assistant profession.	"AAMA Services" American Association of Medical Assistants, www.aama-ntl.org/about/services.aspx (accessed November 24, 2009).	www.aama-ntl.org	American Association of Medical Assistants 20 N. Wacker Dr., Ste. 1575 Chicago, IL 60606 Phone: 312-899-1500 Fax: 312-899-1259
National	National Association for Home Care and Hospice (NAHC)	NAHC is the largest trade association in the United States that represents the interests of home care agencies, hospices, home care aide organizations, and medical equipment suppliers.	"About NAHC" National Association for Home Care and Hospice, www.nahc.org/about/homc.html (accessed November 24, 2009).	www.nahc.org	National Association for Home Care & Hospice 228 Seventh Street, SE Washington, DC 20003 Phone: 202-547-7424 Fax: 202-547-3540
National	American Society of Radiologic Technologists (ASRT)	ASRT was founded in 1920 with the purpose of facilitating the professional growth of radiologic technologists worldwide.	"History of the American Society of Radiologic Technologists" American Society of Radiologic Technologists, www.asrt.org/content/aboutasrt/history.aspx (accessed November 24, 2009).	www.asrt.org	American Society of Radiologic Technologists 15000 Central Ave. SE Albuquerque, NM 87123-3909 Phone: 800-444-2778 (Press 5) or 505-298-4500 (Press 5) Fax: 505-298-5063 E-mail: memberservices@asrt.org
National	American Association for Respiratory Care (AARC)	Founded in 1947, AARC is the leading professional society for respiratory therapists committed to providing training to respiratory therapists in the United States. It has more than 37,000 members nationwide.	"AARC at a Glance" American Association for Respiratory Care, www.aarc.org/member_services/at_a_glance.asp (accessed November 24, 2009).	www.aarc.org	American Association for Respiratory Care 9425 N. MacArthur Blvd. Suite 100 Irving, TX 75063-4706 Phone: 972-243-2272 Fax: 972-484-2720 E-mail: info@aarc.org
National	Association of Surgical Technologists (AST)	Established in 1969, AST is the most well-known professional organization in the United States that promotes superior knowledge, skills and quality care by surgical technologists and assistants.	"About AST" Association of Surgical Technologists, www.ast.org/aboutus/about_ast.aspx (accessed November 24, 2009).	www.ast.org/index.aspx	Association of Surgical Technologists 6 West Dry Creek Circle Littleton, CO 80120 Phone: 303-694-9130 Fax: 303-694-9169
National	American Society for Clinical Laboratory Science (ASCLS)	As the preeminent organization for practitioners of clinical laboratory science, ASCLS promotes a standard of excellence for providing the best quality of accessible and cost-effective clinical laboratory education, practice, and management.	"Voice, Value Vision" American Society for Clinical Laboratory Science, www.ascls.org/ (accessed November 24, 2009).	www.ascls.org	American Society for Clinical Laboratory Science 6701 Democracy Boulevard Suite 300 Bethesda, MD 20817 Phone: 301-657-2768 Fax: 301-657-2909
National	American Medical Technologists (AMT)	Established in 1939, AMT is a non-profit agency providing certification and membership programs for various allied health professionals.	"Welcome to AMT!" American Medical Technologists, www.amt1.com (accessed November 24, 2009).	www.amt1.com	American Medical Technologists 10700 West Higgins Suite 150 Rosemont, IL 60018 Phone: 847-823-5169 or 800-275-1268 Fax: 847-823-0458

(continued)

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Type of Association	Professional Association	Description	Citation	Hyperlink	Contact Information
National	American Society of Echocardiography (ASE)	ASE, founded in 1975, is a professional association committed to excellence in cardiovascular ultrasound, providing education, advocacy, and research to improve patient care.	"About ASE" American Society of Echocardiography, www.asecho.org/i4a/pages/index.cfm?pageid=3349 (accessed November 24, 2009).	www.asecho.org/i4a/pages/index.cfm?pageid=1	American Society of Echocardiography 2100 Gateway Centre Boulevard, Ste. 310 Morrisville, NC 27560 Phone: 919-861-5574 Fax: 919-882-9900
National	American Dietetic Association (ADA)	The largest organization for nutrition professionals with more than 70,000 members, the ADA uses research, education, and advocacy to improve the profession of dietetics.	"Welcome" American Dietetic Association, www.eatright.org/cps/rde/xchg/ada/hs.xsl/index.html (accessed November 24, 2009).	www.eatright.org/cps/rde/xchg/ada/hs.xsl/index.html	American Dietetic Association 120 South Riverside Plaza Suite 2000 Chicago, IL 60606-6995 Phone: 800-877-1600
National	American Health Information Management Association (AHIMA)	Established in 1928, AHIMA seeks to improve healthcare by promoting best practices in health information management.	"AHIMA History" American Health Information Management Association, www.ahima.org/about/history.asp (accessed November 24, 2009); "The Mission of the American Health Information Management Association" American Health Information Management Association, www.ahima.org/about/mission.asp (accessed November 24, 2009).	www.ahima.org	American Health Information Management Association 233 N. Michigan Avenue, 21st Floor Chicago, IL 60601-5809 Phone: 312-233-1100 Fax: 312-233-1090 E-mail: info@ahima.org
National	American Association of Bioanalysts (AAB)	Established in 1956, AAB is a national professional association representing the interests of clinical laboratory professionals nationwide.	"About AAB" American Association of Bioanalysts, www.aab.org/aab/About_AAB.asp?SnID=1115749315 (accessed November 24, 2009).	www.aab.org/aab/Default.asp	American Association of Bioanalysts 906 Olive Street Suite 1200 Saint Louis, MO 63101 Phone: 314-241-1445 Fax: 314-241-1449
National	American Association of Psychiatric Technicians (AAPT)	AAPT is the nonprofit organization responsible for national certification of psychiatric technicians and related healthcare positions in the United States.	"Home" American Association of Psychiatric Technicians, 2007, www.psychtechs.org/ (accessed November 24, 2009).	www.psychtechs.org	The American Association of Psychiatric Technicians 1220 S Street, Suite 100 Sacramento, CA 95811-7138 Phone: 800-391-7589 Fax: 916-329-9145 E-mail: loger@psychtechs.net
National	American Nurses Association (ANA)	ANA is "the only full-service professional organization representing the interests of the nation's 2.9 million registered nurses" through advocacy efforts.	"About ANA" American Nurses Association, 2009, www.nursingworld.org/FunctionalMenuCategories/AboutANA.aspx (accessed November 24, 2009).	www.nursingworld.org	American Nurses Association 8515 Georgia Avenue, Suite 400 Silver Spring, MD 20910-3492 Phone: 301-628-5000 or 1-800-274-4ANA (4262) Fax: 301-628-5001
National	American Association of Medical Dosimetrists (AAMD)	AAMD is "an international society established to promote and support the Medical Dosimetry profession."	"AAMD Mission Statement" American Association of Medical Dosimetrists, www.medicaldosimetry.org/about/mission.cfm (accessed November 24, 2009).	www.medicaldosimetry.org	American Association of Medical Dosimetrists 12100 Sunset Hills Road Suite 130 Reston, VA 20190 Phone: 703-234-4063 Fax: 703-435-4390 E-Mail: aamd@medicaldosimetry.org

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6

Allied Health Professionals

The natural force within each of us is that greatest healer of all.

Hippocrates

KEY TERMS

- Carve-Out
- Chiropractic
- Chiropractic Diplomate
- Clinical Psychology
- Computer-Aided Design and Computer-Aided Manufacturing (CAD/CAM)
- Dental Amalgam
- Dental Health Maintenance Organization (DHMO)
- Dental Hygienist
- Direct Reimbursement
- Doctor of Dental Surgery (D.D.S.) or Doctor of Dental Medicine (D.M.D.)
- Extracorporeal Shockwave Therapy (EST)
- Eye Refractions
- Glaucoma
- Heidelberg Retinal Tomograph (HRT) Device
- Ophthalmologists
- Optical Coherence Tomography
- Optometrist
- Orthotics
- Osseointegration
- Pachymeter
- Piezoelectric Sensor
- Podiatric Assistants
- Podiatry
- Preferred Provider Organization (PPO)
- Presbyopes
- Psychology
- Psychotechnology
- Scanning Laser Ophthalmoscope
- Spinal Manipulation
- Surface Electromyography (SEMG)
- The American Board of Professional Psychology
- Therapeutic Pharmaceutical Agent (TPA)
- Tigecycline



Key Concept	Definition	Source Location
Chiropractic and Alternative Medicine	Chiropractic care is often deemed complementary or alternative therapy. The profession “is also in some sense a ‘parallel’ profession to medicine,” particularly in cases when patients seek chiropractic care as primary care and respond favorably to treatments rendered. In addition, the profession has fought to distinguish itself from its alternative title through the use of evidence-based science.	“Chiropractic Care of the Orthopedic Patient,” by Stephen Bolles, <i>Techniques in Orthopaedics</i> , Vol. 18, No. 1, p. 87 (2003).
<i>Wilk v. American Medical Association</i>	The court in <i>Wilk</i> held that the American Medical Association (AMA) violated antitrust law by conducting an illegal boycott of chiropractors, granting an injunction against the AMA.	<i>Wilk v. American Medical Association</i> , 895 F.2d 352, 378 (7th Cir. 1990).
Expansion of the Chiropractic Practice	The expansion of chiropractic practice to include provision of nutrition services, as well as vitamin and food supplements, has been utilized as a means to strengthen patient bones, joints, and immune systems.	“Build a Nutrition Ancillary in 4 Basic Steps,” by Rich Smith, <i>ChiroEco</i> , May 2009, available at www.chiroeco.com/chiropractic/news/7896/1168/Build-a-nutrition-ancillary-in-4-basic-steps/ (accessed November 4, 2009); “Give Your Practice a Boost,” <i>Chiropractic Products</i> , p. 34, (Oct. 2007).
“Licensure by Credentials” (also known as “Licensure by Recognition”)	Licensure by credentials (also known as licensure by recognition) allows states to award dental licenses to individuals who hold a license in another state and have been in continuous practice for a specified period of time (generally five years), allowing seasoned practitioners to avoid state examinations.	“License Recognition: Dentists,” American Dental Association, April 6, 2009, www.ada.org/prof/prac/licensure/licensure_recognition.pdf (accessed October 5, 2009).
“Direct Access States”	As of February 2009, the American Dental Hygienists’ Association recognized twenty-nine states as “direct access states,” in which “the dental hygienist can initiate treatment based on his or her assessment of the patient’s needs without the specific authorization of a dentist, treat the patient without the presence of a dentist, and can maintain a provider-patient relationship.”	“Direct Access States,” American Dental Hygienists Association, Feb. 2009, www.adha.org/governmental_affairs/downloads/direct_access.pdf (accessed October 9, 2009).
Bloodborne Pathogen Standard	The Occupational Safety and Health Administration issued the bloodborne pathogen standard in 1991 to create policies to protect dental and other healthcare professionals from exposure Hepatitis B, Hepatitis C, and HIV/AIDS in the workplace. Although transmission is rare, the opportunity for transmission is greatest for the dental professional comes into contact with patient blood and blood-contaminated saliva during dental procedures.	29 CFR 1910.1030; “Guidelines for Infection Control in Dental Health-Care Settings—2003,” <i>Journal of American Dental Association</i> , Vol. 135, No. 1 (Jan. 2004) p. 33–34.
Early and Periodic Screening Diagnostic and Treatment (EPSDT)	EPSDT is Medicaid’s child health component that mandates dental health services for children under the age of twenty-one.	“Medicaid Dental Coverage: Overview,” Centers for Medicare and Medicaid Services, Aug. 7, 2009, www.cms.hhs.gov/MedicaidDentalCoverage/ (accessed October 9, 2009); EPSDT and Title V Collaboration to Improve Child Health, Health Resources & Services Administration, 2009.
Federally Qualified Health Centers (FQHC)	FQHCs are “‘safety net’ providers such as community health centers, public housing centers, outpatient health programs funded by the Indian Health Service, and programs serving migrants and the homeless.” FQHCs receive enhanced Medicaid reimbursement, which allows them to provide more extensive dental care.	“Federally Qualified Health Center: Fact Sheet,” Centers for Medicare and Medicaid Services, Apr. 2009, p. 1; “Community Efforts to Expand Dental Services for Low-Income People” by Laurie E. Felland, Johnanna R. Lauer, and Peter J. Cunningham, Center for Studying Health System Change, Issue Brief No. 122, July 2008, p. 3.
Children’s Health Insurance Program (CHIP)	CHIP is a joint state and federal program that provides health coverage (including dental care) to children in low-income families who are ineligible for Medicaid benefits.	Children’s Health Insurance Program Reauthorization Act of 2009 (CHIPRA), Kaiser Commission on Medicaid and the Uninsured, Feb. 2009, www.kff.org/medicaid/upload/7863.pdf (October 11, 2009).
Co-management	Co-management refers to the collaboration of healthcare professionals in an effort to provide a patient a full range of services and the highest possible quality of care. Optometrists and ophthalmologists often practice co-management with regard to LASIK surgery procedures, whereby optometrists provide pre and post-operative care.	“Comanagement Then & Now,” By Paul C. Ajamian, O.D., <i>Review of Optometry</i> , Jan. 15, 2006, p. 71.

Key Concept	Definition	Source Location
Licensure	“Licensure is a regulatory function designed to protect the public in the competent provision of health care.”	“President’s Message,” National Board of Examiners in Optometry, 2008, www.optometry.org/president.cfm (accessed September 11, 2009).
Licensure Mobility	Doctors of Optometry (O.D.s) who have graduated from an accredited O.D. program, have been in practice for three of the past four years, remain in good standing with their state boards, and have completed fifty hours of continuing education approved by the Council on Optometric Practitioner Education are eligible for practice in another state.	“O.D. Licensure Mobility Moves Closer to Reality,” Review of Optometry, Apr. 15, 2005, p. 10.
Joint Board Certification Project Team (JBCPT)	JBCPT was formed in 2007 in an effort to form policies and procedures to implement board certification for optometrists. The JBCPT has since established the American Board of Optometry and a board certification process.	“American Optometric Association Approves Optometric Board Certification At Annual Meeting,” American Optometric Association, Jun. 27, 2009, www.aoa.org/x12978.xml (accessed October 23, 2009).
The Corporate-Owned (or Corporate-Affiliated) Practice of Optometry	Optometrists in private practice have lost some of their market share to chain stores that offer full service eyecare at mass-purchasing prices. However, despite the decreased cost of care and easier access, surveys have shown that people feel they get a “better” examination from a private O.D. than from an O.D. practicing in a corporate-affiliated environment.	“What Do Consumers Think of Corporate O.D.s?” Corporate Optometry Reports, 4th Quarter 2008, p. 4, www.corporateod.com/docs/pubArchive/COR4Q08.pdf (accessed August 17, 2009); “Lending to Doctors of Optometry,” Christine Childress and Dev Strischeck, Journal of Commercial Lending, Feb. 1992, p. 38.
Doctor of Podiatric Medicine	To become a podiatric physician, an individual must complete at least three years (ninety credit hours) at an accredited college institution as well as complete four to six years of study at a podiatric medical school and received a passing score on the national and state licensing exams (National Board examinations).	“Podiatrists,” Occupational Outlook Handbook 2009-10, www.bls.gov/oco/pdf/ocos075.pdf (accessed October 21, 2009).
The Mental Health Parity Act	The Mental Health Parity Act states that annual or lifetime dollar limits allotted for mental health benefits will not be any lower than similar dollar limits for medical benefits under a group health plan.	“Fact Sheet: The Mental Health Parity Act,” by U.S. Department of Labor, October 2008, www.dol.gov/ebsa/newsroom/fsmhparity.html (accessed July 20, 2009).
Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008	The act’s purpose is to end health insurance benefits inequity between medical or surgical benefits and mental health or substance abuse for group health plans of fifty or more employees. The law is set to become effective on January 1, 2010, which means approximately 113 million people will have the right to nondiscriminatory mental health coverage.	“Summary of the Wellstone-Domenici Mental Health Parity and Addiction Equity Act of 2008” American Psychological Association Practice Organization, www.apapractice.org/apo/in_the_news.html# (accessed June 29, 2009).

OVERVIEW

As discussed in the *Introduction* to this book, the nonphysician healthcare workforce has evolved drastically, leading to ambiguity in the classification of various practitioners and professions. As a result of these inconsistencies, industry stakeholders continue to define the allied health profession differently. The taxonomy established herein defines “allied health professionals” as providers who practice *parallel* to physicians. That is, allied health practitioners often strive to meet demands that align (and sometimes compete) with those met by physicians, but they typically provide a scope of services that is distinctly different from the physician scope of practice.

DESCRIPTION AND SCOPE

SCOPE

Allied health professionals are state licensed and credentialed healthcare providers who receive formal academic and clinical training. Allied health practitioners often work with physicians and other health-care professionals to provide high quality patient care.

EDUCATION AND TRAINING

All allied health professionals are required to complete some level of undergraduate study prior to pursuing four to seven years of advanced training through an accredited allied health program. All allied health providers hold doctoral degrees specific to their practice. Degree designations and educational requirement are summarized in table 6-1.

Table 6-1: Allied Health Professional Degrees and Education

Professional	Education	Degree Awarded
Dentists	<ul style="list-style-type: none"> • Minimum of two years of college-level pre-dental education prior to admittance • Four years of dental school[†] 	Doctor of Dental Surgery (D.D.S.) or Doctor of Dental Medicine (D.M.D.) ^{**}
Optometrist	<ul style="list-style-type: none"> • At least three years of pre-optometric education • Four years of optometry school[†] 	Doctor of Optometry (O.D.) [†]
Chiropractor	<ul style="list-style-type: none"> • At least ninety semester hours of undergraduate education • Four years of chiropractic education in an accredited program^{††} 	Doctor of Chiropractic (D.C.) ^{††}
Psychologist	<ul style="list-style-type: none"> • Completion of undergraduate degree • Completion of doctorate (five to seven years of study)[‡] 	Psychologists may hold a doctoral degree (Ph.D.) or Doctorate of Psychology (Psy.D.) [‡]
Podiatrist	<ul style="list-style-type: none"> • At least three years (ninety credit hours) at an accredited college institution.^{‡‡} • Four to six years of study at a podiatric medical school[§] • Passing score on the national and state licensing exams (National Board examinations)^{§§} 	Doctor of Podiatric Medicine (D.P.M.) ^μ

* "Dentists" Occupational Outlook Handbook, 2008-09 Edition, Bureau of Labor Statistics, United States Department of Labor, December 18, 2007.

** Dentistry Definitions" American Dental Association, <http://www.ada.org/prof/ed/specialties/definitions.asp> (Accessed 9/8/09).

† "Optometrists," Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2008-09 Edition, <http://www.bls.gov/oco/pdf/ocos073.pdf> (Accessed 8/13/2009).

†† "The Chiropractic Profession" By David A. Chapman-Smith, NCMIC Group Inc., 2000, p. 1; "What is Chiropractic" American Chiropractic Association, http://www.acatoday.org/level2_css.cfm?T1ID=13&T2ID=61 (Accessed 6/22/09).

‡ Occupational Outlook Handbook, 2008-09 Edition" United States Department of Labor, <http://www.bls.gov/oco/ocos056.htm> (Accessed 7/13/2009).

‡‡ "Admission Requirements" By American Association of Colleges of Podiatric Medicine, 2009, <http://www.aacpm.org/html/careerzone/require.asp> (07/13/2009).

§ "Podiatric Education" By American Association of Colleges of Podiatric Medicine, 2009, http://www.aacpm.org/html/careerzone/career_podeducation.asp (07/13/2009).

§§ "The Examinations" By National Board of Podiatric Medical Examiners, National Board of Podiatric Medical Examiners, 2009, <http://www.nbpme.info/Exams.htm> (7/20/2009).

μ "About Podiatry" By American Podiatric Medical Association, American Podiatric Medical Association, 2009, <http://www.apma.org/MainMenu/AboutPodiatry.aspx> (7/20/2009).

SPECIALTIES

For the purposes of this *Guide*, allied health practitioners include dentists, optometrists, chiropractors, psychologists, and podiatrists. While many allied health professionals are general practitioners, others choose to specialize (see table 6-2).

Table 6-2: Professionals and Specialties

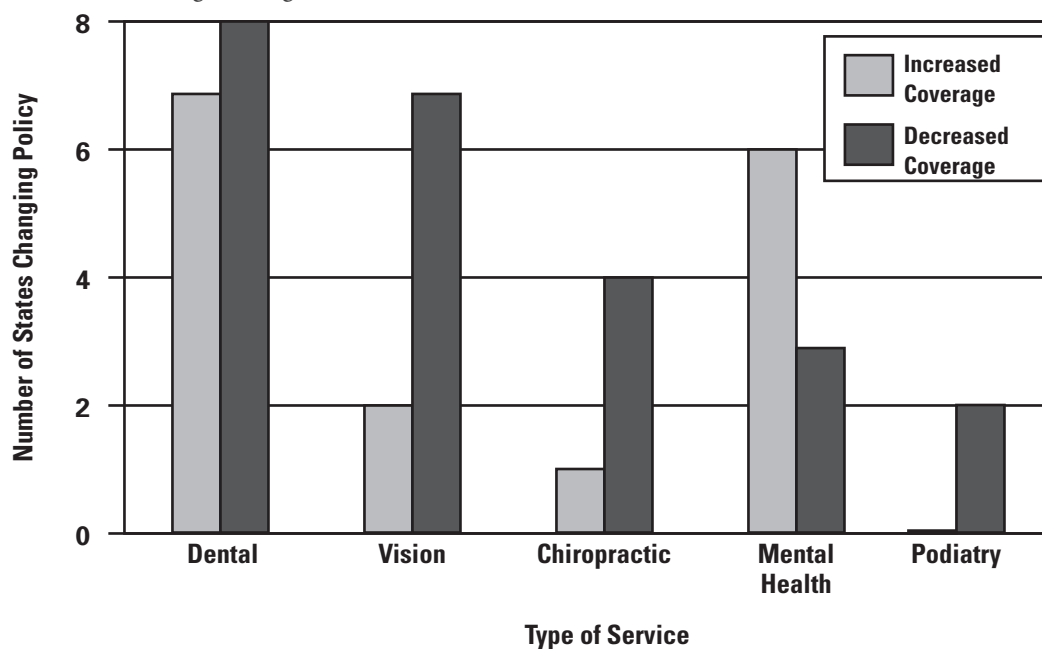
Professional	Specialties
Dentists	<ol style="list-style-type: none"> 1. Orthodontics and Dentofacial Orthopedics 2. Pediatric Dentistry 3. Periodontics 4. Prosthodontics 5. Oral and Maxillofacial Surgery 6. Oral and Maxillofacial Pathology 7. Endodontics 8. Oral and Maxillofacial Radiology 9. Public Health Dentistry
Optometrist	<ol style="list-style-type: none"> 1. Pediatric Eyecare 2. Geriatric Eyecare 3. Specialty Contact Lenses 4. Ocular Disease 5. Neuro-Optometry 6. Sports Vision 7. Vision Therapy
Chiropractor	<ol style="list-style-type: none"> 1. Sports Physician 2. Occupational Health 3. Orthopedics 4. Neurology 5. Diagnosis and Management of Internal Disorders 6. Clinical Nutrition 7. Chiropractic Physiological Therapeutics and Rehabilitation 8. Diagnostic Imaging (Radiology) 9. Acupuncture 10. Pediatrics
Psychologist	<ol style="list-style-type: none"> 1. Clinical Neuropsychology 2. Clinical Health Psychology 3. Psychoanalysis Psychology 4. School Psychology 5. Clinical Psychology 6. Clinical Child Psychology 7. Counseling Psychology 8. Industrial-Organizational Psychology 9. Behavioral Psychology 10. Forensic Psychology 11. Family Psychology
Podiatrist	<ol style="list-style-type: none"> 1. Podiatric Orthopedics 2. Podiatric Surgery 3. Podiatric Primary Care 4. Podiatric Sports Medicine 5. Podopediatrics 6. Wound Care and Management

INDUSTRY TRENDS AND HIGHLIGHTS IN THE FOUR PILLARS

All allied health professionals are regulated at both the state and federal level. At the state level, every allied health practitioner is subject to state licensing board requirements. At the federal level, every professional is subject to federal legislation and regulation. Each receives unique reimbursement from both public payors (for example, Medicare and Medicaid) and private payors.

In particular, Medicaid is an optional state–federal partnership program in which all states currently participate.¹ If a state chooses to participate in Medicaid, it must follow federal guidelines and must provide certain “mandatory” minimum covered services.² Additionally, each state may provide additional “optional” benefits to beneficiaries, which may vary from state to state.³ Unfortunately, when states have been cutting their budgets, allied health professions (with the exception of mental health services) have been losing their Medicaid funding.⁴ Figure 6-1 shows how Medicaid coverage has changed from 2009 to 2010.

Figure 6-1: Medicaid Coverage Changes for Allied Health Providers FY 2009 and FY 2010



Source: "The Crunch Continues: Medicaid Spending, Coverage and Policy in the Midst of a Recession," Kaiser Commission on Medicaid and the Uninsured, Sept. 2009, p. 72-75, <http://www.kff.org/medicaid/upload/7985.pdf> (Accessed 10/20/09).

Additionally, allied health providers face competition both within their professions and with physicians, yet they also form collaborative relationships with other healthcare professionals to increase quality of care. Finally, technological advancements drive changes in reimbursement and regulatory environments, and they increase efficiency in service delivery.

Dentistry

OVERVIEW

Humans have been looking for ways to identify and treat tooth pain since approximately 5000 BC and perhaps as far back as Neolithic times.⁵ Dental practices were first integrated into the U.S. healthcare delivery system in the 1700s.⁶ By the 1840s, U.S. practitioners had formed the first national dental organization (the American Society of Dental Surgeons), established the world's first dental school, and utilized drugs, including nitrous oxide and ether, during treatment.⁷ As the number and complexity of skills necessary to provide dental services increased with demand and new technology, dental colleges became more prevalent, and states began imposing regulations on the industry.⁸ As of 2010, dental treatment and care has become a vital facet of healthcare, and it accounts for approximately 4 percent of U.S. healthcare spending.⁹

Dental health has become a vital facet of healthcare, and accounts for approximately 4 percent of U.S. healthcare spending.

"Managed Care Participation Increasing—What Does the Future Hold?" The McGill Advisory, Vol. 24, Issue 6 (June 2009), p. 1.

DESCRIPTION AND SCOPE

SCOPE

Dentists provide a broad range of services to patients. The most common procedures performed by general practitioners include prophylaxis (that is, cleaning), periodic oral evaluation, and direct restoration.¹⁰ Insurance policies commonly recognize the following seven areas of dental care: (1) preventative (general maintenance), (2) restorative (fillings and crowns), (3) endodontics (tooth pulp care), (4) oral surgery (extractions), (5) orthodontics (braces and retainers), (6) periodontics (treatment for gums), and (7) prosthodontics (tooth replacements such as bridges and dentures).¹¹ Insurance providers generally do not cover cosmetic procedures, which include teeth whitening and veneers.¹²

The most common procedures performed by general practitioners include prophylaxis (e.g. cleaning), periodic oral evaluation, and single restoration crowns.

"2005-06 Survey of Dental Services Rendered," American Dental Association, Aug. 2007, p. 28.

EDUCATION AND TRAINING

As of 2010, there were fifty-nine accredited dental education programs in the United States.¹³ Programs must be accredited by the Commission on Dental Accreditation (CODA), which operates under the American Dental Association (ADA).¹⁴ Dental program graduates earn either a **Doctorate of Dental Surgery (DDS)** or a **Doctorate of Dental Medicine (DMD)**.¹⁵ DDS and DMD degrees are functionally identical; the scope of practice for DDS and DMD practitioners is the same, and both programs use identical curriculum requirements set by CODA.¹⁶

Generally, dentists must complete four years of study, a national examination, and licensure.¹⁷ However, dentists are required to complete additional training to restrict their scope of practice to a specialty area, and they must complete a separate competency exam administered by the national board for that specialty in order to become "board certified."¹⁸ Because dentists do not sit for this certification examination, they are considered to be "board eligible" instead.

SPECIALTIES

A dental specialty is an area that has been recognized by the ADA as meeting the Requirements for Recognition of Dental Specialties and National Certifying Boards for Dental Specialists.¹⁹ Most dentists (81 percent) become general dental practitioners, but with further training, a graduate from an accredited dental program can become a specialist in one of the fields listed in table 6-3.²⁰

Traditionally, orthodontics has been the most profitable dental specialty due to low expenditures and the high price of procedures.²¹ In addition, advances in “invisible” orthodontics, such as Invisalign have significantly boosted the amount of adult orthodontics performed.²² However, patients tend to postpone elective procedures (such as cosmetic treatments and orthodontia) in times of economic depression.²³

Table 6-3: Dental Specialties and Descriptions*

Specialty	Brief Description
Orthodontics and Dentofacial Orthopedics	Focuses on the correction of structural abnormalities of the teeth
Pediatric Dentistry	Specializes in the dental treatment of infants and children
Periodontics	Specializes in the treatment of gums and related structures
Prosthodontics	Specializes in replacing teeth and other missing oral structures
Oral and Maxillofacial Surgery	Specializes in oral surgery
Oral and Maxillofacial Pathology	Specializes in the nature of oral diseases
Endodontics	Specializes in root canals
Oral and Maxillofacial Radiology	Specializes in production and interpretation of images
Public Health Dentistry	Specializes in community dental efforts

* “Dentistry Definitions,” American Dental Association, <http://www.ada.org/prof/ed/specialties/definitions.asp>, (Accessed July 27, 2009).

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

In 2006, 91.8 percent of all active dental practitioners were in private practice.²⁴ Additionally, most (64.8 percent) dentists work in private practice and are the sole owners of their practices.²⁵ While oral and maxillofacial surgeons are commonly affiliated with hospitals, very few dentists work in hospitals.²⁶ Hospital-based dentists treat patients with complex medical conditions, abnormalities, and orofacial injuries, receiving referrals from general dental practitioners or physicians.²⁷

In 2006, 91.8 percent of all active dental practitioners were in private practice.

“2007 Survey of Dental Practice: Income from the Private Practice of Dentistry,” American Dental Association, April 2009, p. 2.

Although U.S. dentists are predominantly men, the gender composition is slowly changing. In 2008, 80.3 percent of dentists in the United States were men.²⁸ However, with increases in the percentages of women graduating from dental school, women are projected to make up 29.2 percent of the dental workforce by 2020.²⁹ Most dental practitioners (58.9 percent) are older than fifty years of age.³⁰

SUPPLY AND DEMAND

Despite an aging workforce, a declining number of dental school graduates, and widening gaps in the dentist-to-population ratio, the workforce is sufficient to handle the demand existing at the time of publication.³¹ In 2008, the Bureau of Labor Statics (BLS) reported approximately 142,000 dental practitioners in the United States, with an expected increase to approximately 164,000 dental practitioners by 2018. The modest projected increase in practitioners may be partially due to the declining economic market, which has prompted dentists to retire five to ten years later than they did in the 1990s, meaning that they are working well into their mid-seventies.³²

The average demand for dental services has declined in most segments of dentistry, with only 17 percent of dentists claiming to be as busy as they would like to be.³³ Although the BLS projected that demand for dental services will increase with the growing population, a slowing economy has stunted demand for dental services and reduced consumer spending on dental care.³⁴

The poor economic market has prompted dentists to retire five to ten years later than they did in the 1990s, working well into their mid-70s.

"Current Trends in Dentistry," The McGill Advisory, Vol. 23, Issue 1 (Jan. 2008), p. 1.

A slowing economy has stunted demand for dental services and reduced consumer spending on dental care.

"Current Trends in Dentistry," The McGill Advisory, Vol. 23, Issue 1 (Jan. 2008), p. 2.

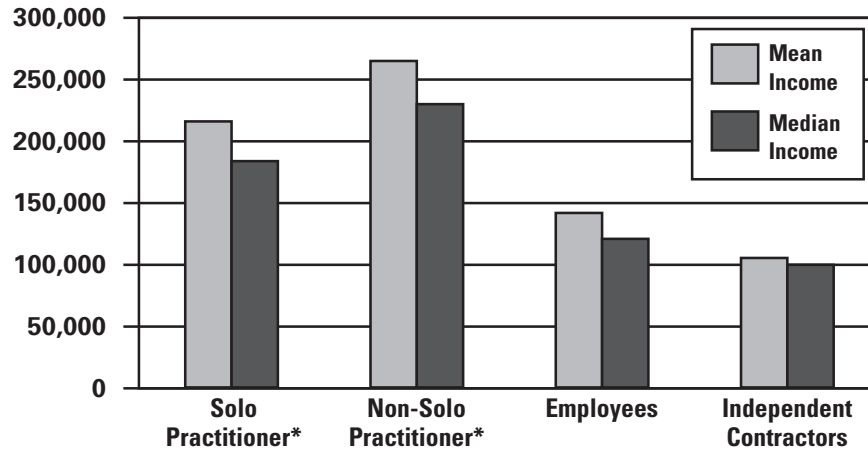
Dental practices in areas with largest real estate gains in recent years (i.e., California, Florida, Utah, Arizona), and areas experiencing other economic problems (i.e., Michigan's auto industry) are seeing the greatest declines in consumer spending on dental services.

"Current Trends in Dentistry," The McGill Advisory, Vol. 23, Issue 1 (Jan. 2008), p. 3.

The average income for primary practice general practitioners was \$202,930 in 2006 up 2.3% from \$198,350 in 2005 and 14.1% from \$174,350 in 2002. Similar earning increases were seen for specialists who work in private practice, they earned 329,980 in 2006 up 13.3% from 291,250 in 2002, although the total amount of income is larger for specialists. When inflation is considered income increases from 2002 to 2006 were closer to 3.9% for general practitioners and 1.1% for specialists.

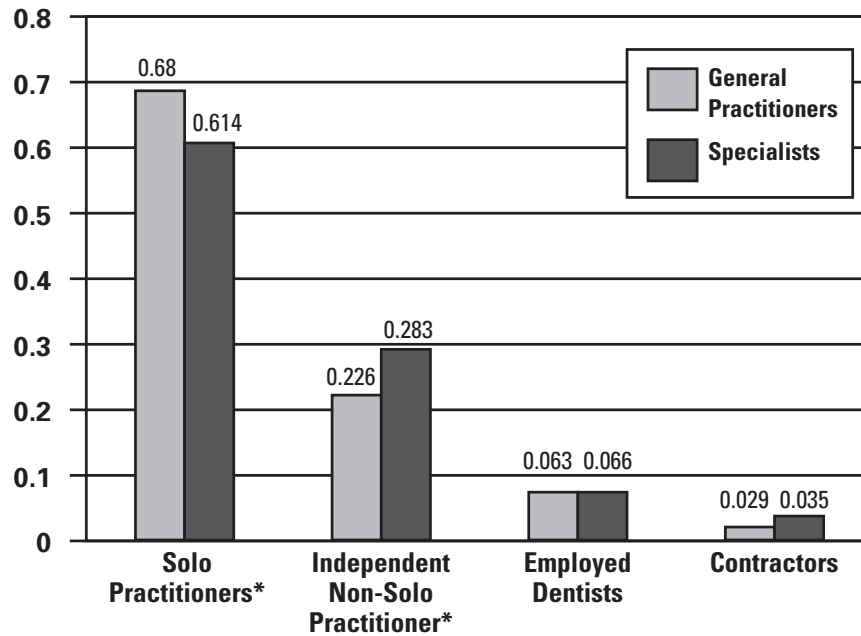
"2007 Survey of Dental Practice: Income from the Private Practice of Dentistry," American Dental Association, April 2009, pg. 7-8.

2006 Breakdown of Mean and Median Income based on Employment Situation



"2007 Survey of Dental Practice: Income from the Private Practice of Dentistry," American Dental Association, April 2009, p. 25, 44, 60, 67.

2006 Percent of General Practitioners and Specialists based on Type of Private Practice



"2007 Survey of Dental Practice: Income from the Private Practice of Dentistry," American Dental Association, April 2009, p. 5.

Employed adults lose more than 64 million hours of work each year due to dental disease or dental visits.

"Chipped Teeth: Long Believed to be Immune to Economic Swings, the Current Recession may be Chipping Away at Dental Offerings," by Lydell C. Brideford, *Employee Benefit News*, Feb. 1, 2009, <http://ebn.benefitnews.com/news/chipped-teeth-2663161-1.html>. (accessed May 27, 2009), p. 1–2.

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

STATE REGULATION OF DENTISTRY

Licensing

Each state has a board of dentistry created by its state legislature, which establishes qualifications for and issues dental licenses.³⁵ Nearly all states require that dentists hold a professional degree from an accredited school and be licensed in the state in which they plan to practice.³⁶ Licensure requires a D.D.S. or D.M.D. degree from a program accredited by the ADA CODA.³⁷ Additionally, candidates must complete a written and clinical examination.³⁸ The written requirement is the National Board Dental Examinations (NBDE), which is administered through the Joint Commission on National Dental Examinations.³⁹ A clinical examination, administered by individual state boards or regional testing agencies, is required for licensure in most states.⁴⁰ State boards also play an active role in establishing standards of professional conduct, regulating licensure on the basis of these standards, typically by way of a jurisprudence examination, and ensuring compliance through disciplinary action.⁴¹

Licensure requires a DDS or DMD degree from an accredited program, and completion of both a written and a clinical exam.

"State Dental Licensure Requirements for U.S. Dentists," American Dental Association, July 2009, http://www.ada.org/prof/prac/licensure/state_dent_licensure_requirement.pdf (Accessed Oct. 6, 2009).

In an effort to make dental practitioners more mobile, state boards of dentistry in forty-six states, the District of Columbia, and Puerto Rico grant licenses by credentials (known as licensure by recognition).⁴² These licenses are granted to individuals who already hold a license in another state and have been in continuous practice for a specified period of time (generally five years), allowing seasoned practitioners to avoid taking additional state examinations.⁴³

Anesthesia Regulations

Since the 1840s, dental professionals have used sedation and general anesthesia to provide safer and more comfortable care to patients and to increase access to care for children and the disabled.⁴⁴ The ADA has adopted educational and clinical guidelines for the use of anesthesia and sedation in dental offices.⁴⁵ Guidelines for administering anesthesia and sedation are regulated on a state by state basis, with state boards of dentistry charged with setting appropriate safety and delivery standards.⁴⁶

Dental advancements in anesthesia and sedation have expanded access to care for children and individuals with disabilities by easing patient anxiety and ensuring a safer and more comfortable care.

"Policy Statement: The Use of Sedation and General Anesthesia by Dentists," American Dental Association, Oct. 2007, http://www.ada.org/prof/resources/positions/statements/statements_anesthesia.pdf (Accessed 10/8/09).

Sedation and anesthesia work together to make dental care pain and anxiety free: sedation eases fear and anxiety (but does not eliminate pain) while anesthesia serves to block pain.

"Policy Statement: The Use of Sedation and General Anesthesia by Dentists," American Dental Association, Oct. 2007, http://www.ada.org/prof/resources/positions/statements/statements_anesthesia.pdf (Accessed 10/8/09).

Hygienist Supervision

State laws vary in regard to the amount of independence granted to dental hygienists.⁴⁷ In an attempt to increase patient access to preventative dental care, some states have begun to allow dental hygienists to work without the supervision of a dentist.⁴⁸ State supervision laws generally restrict dental hygienists' practices to private dental offices.⁴⁹ However, as of February 2009, the American Dental Hygienists Association recognized twenty-nine states as "direct access states," or states in which ". . . the dental hygienist can initiate treatment based on his or her assessment of the patient's needs without the specific authorization of a dentist, treat the patient without the presence of a dentist, and can maintain a provider-patient relationship."⁵⁰ See *Competition Between Dentists and Other Healthcare Providers* for more information regarding competition between dentists and dental hygienists and chapter 5, *Dental Hygienists* for more information on these mid-level providers.

FEDERAL REGULATION OF DENTISTRY

The Occupational Safety and Health Administration (OSHA) and the Food and Drug Administration (FDA) are among the many federal agencies that regulate the delivery of care in dentistry.⁵¹ See chapter 3 of *An Era of Reform* for more details about federal healthcare regulations.

Occupational Safety and Health Administration

Dental professionals may be subject to various workplace hazards, including bloodborne pathogens, and may be exposed to biological and chemical dangers.⁵² OSHA enforces regulations designed to protect dental professionals at work.⁵³ Although OSHA has not established any standards specifically relating to dentistry, various general industry standards apply to dental professionals.⁵⁴ For example, in 1991, OSHA released the bloodborne pathogen standard, mandating use of protective equipment and employee vaccinations for Hepatitis B.⁵⁵ Additionally, OSHA maintains standards regarding the maintenance and confidentiality of employee medical records, requiring that employers have express written consent to disclose medical information and maintain said information for at least thirty years after an employee ceases to work for the practice.⁵⁶

Food and Drug Administration

The mission of the FDA is to protect the public health and assure the safety of food, drugs, devices, cosmetics, and products that emit radiation.⁵⁷ Within the dental industry, the FDA monitors dental devices,

including the **dental amalgam** (elemental mercury and a powder silver alloy) used in some dental fillings.⁵⁸ The high toxicity of mercury vapor found in dental amalgams has led to concern regarding the safety of its use in dental fillings.⁵⁹ However, in a July 2009 final regulation, the FDA stated: “[W]hile elemental mercury has been associated with adverse health effects at high exposures, the levels released by dental amalgam fillings are not enough to cause harm in patients.”⁶⁰

Additionally, the FDA’s Center for Devices and Radiological Health regulates the manufacturing of electronic radiation-emitting products, such as those used in performing dental x-rays.⁶¹ Although the FDA has not passed any specific regulation regarding the speed of x-ray film, the agency encourages dentists to switch to “faster” E- and F-speed film (instead of the commonly used slower D-speed film), both of which require shorter exposure times, in an effort to reduce patient exposure to radiation.⁶² It should be noted that x-ray film is increasingly becoming obsolete in the dental practice and is being replaced by digital radiography, as will be discussed further in *Technology*.⁶³

REIMBURSEMENT

Dental care visits are paid for primarily through public sources, such as Medicaid and Children’s Health Insurance Program (CHIP), as well as through private sources, out-of-pocket payment, and charitable care.⁶⁴ Until the early 1970s, more than 95 percent of dental care was paid for by patients.⁶⁵ Employer-based private pre-payment grew in popularity in the 1970s and 1980s, and, by 2006, only 40.6 percent of patients were paying for services out of pocket.⁶⁶ Despite better insurance coverage of dental procedures, approximately 40 percent of people living in poverty lacked dental coverage in 2008.⁶⁷ However, thanks to thousands of practitioners who routinely provide free or discounted care, low-income individuals, children, and rural communities are receiving increased access to dental services through charitable care.⁶⁸ Because out-of-pocket payments and charitable care are not reimbursed by third-party payors, however, only public and private reimbursement methods are subsequently discussed in this *Guide*.

Until the early 1970s, more than 95 percent of dental care was paid for by patients, but by 2006, only 40.6 percent of patients were paying out-of-pocket.

“Financing of and Access to Dental Services,” in “The Future of Dentistry,” American Dental Association, 2001, p. 57; “2007 Survey of Dental Practice: Income from the Private Practice of Dentistry” American Dental Association, April 2009, p. 84.

PUBLIC PAYORS

Medicare

Medicare coverage for dental services is statutorily restricted to a very limited set of circumstances under the Social Security Act. Medicare will provide coverage under Medicare Part A (that is, hospital inpatient services) if the dental service is in connection with the inpatient hospital service and if the patient, because of his or her underlying medical condition and clinical status or because of the severity of the dental procedure, requires inpatient hospitalization in connection with provision of the dental service.⁶⁹ Medicare will provide coverage under Medicare Part B (that is, physician office services) only if the dental service is an “integral part of either a covered procedure (e.g., reconstruction of the jaw following accidental injury), or for extractions done in preparation for radiation treatment for neoplastic

diseases involving the jaw. Medicare will also make payment for oral examinations, but not treatment, preceding kidney transplantation or heart valve replacement, under certain circumstances.⁷⁰ The following two categories of service are excluded from coverage under Medicare Part B: (1) “[a] primary service (regardless of cause or complexity) provided for the care, treatment, removal, or replacement of teeth or structures directly supporting teeth, e.g., preparation of the mouth for dentures, removal of diseased teeth in an infected jaw” and (2) “[a] secondary service that is related to the teeth or structures directly supporting the teeth unless it is incident to and an integral part of a covered primary service that is necessary to treat a non-dental condition (e.g., tumor removal) and it is performed at the same time as the covered primary service and by the same physician/dentist . . .”⁷¹

Medicaid

Dental coverage must be made available to eligible individuals age twenty and younger as part of the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) benefit, although dental benefits are optional for adults (see *Industry Trends and Highlights in the Four Pillars* for a brief overview of “mandated” versus “optional” Medicaid services).⁷² EPSDT requires coverage of medically necessary dental services for eligible children, including screening, diagnostic services, and follow-up care.⁷³ The scope of adult coverage provided is often directly related to the health of state budgets.⁷⁴ Nonetheless, in 2008, forty-four states and the District of Columbia offered some form of dental coverage for adults, but only fifteen states and the District of Columbia included all service categories.⁷⁵

Federally Qualified Health Centers (FQHC) are “‘safety net’ providers such as community health centers, public housing centers, outpatient health programs funded by the Indian Health Service, and programs serving migrants and the homeless.”⁷⁶ In 2006, 75 percent of FQHCs were providing preventative dental care.⁷⁷ Because FQHCs receive enhanced Medicaid reimbursement, they are able to fund expansions, such as new FQHC dental clinics and staff, providing increased access to dental care.⁷⁸ Unfortunately, these sites are limited because they generally cannot offer competitive compensation.⁷⁹

Children’s Health Insurance Program

The Children’s Health Insurance Program Reauthorization Act of 2009, signed into law by President Barack Obama in February 2009, reauthorized the Children’s Health Insurance Program (CHIP).⁸⁰ Formerly known as the State Children’s Health Insurance Program, CHIP originally was created by the federal government to provide healthcare coverage to children in low-income families who were ineligible for Medicaid benefits.⁸¹ The program provides benefits to eligible children under nineteen years of age, and the Congressional Budget Office estimates that CHIP and Medicaid will provide care to approximately 6.5 million more children in 2013.⁸²

CHIP requires states to provide dental benefits in their health plans.⁸³ However, if an eligible child has general health insurance coverage but no dental benefits, CHIP allows states to provide dental-only supplemental coverage.⁸⁴ In 2006, 69 percent of children received dental care through Medicaid or SCHIP, up from 50 percent in 1999.⁸⁵ Unfortunately, workforce shortages and low practitioner participation in Medicaid and CHIP still affects access to care for children in low-income families.⁸⁶

PRIVATE PAYORS

Dental plans are often either managed care plans or fee-for-service plans.⁸⁷ Although managed care has not affected the dental profession the same way that it has the medical profession, during the past decade, managed care has become a more popular option in the dental industry.⁸⁸ Dental managed care

plans are typically a **preferred provider organization (PPO)** or a **dental health maintenance organization (DHMO)**.⁸⁹ PPOs allow patients to choose a dentist from a network of providers who offer services to patients at a discounted rate.⁹⁰ Dental HMOs, popular in California but losing market share to other types of dental pre-payment, are capitation plans under which a provider is paid a fixed amount per patient, regardless of how many or how few services are actually provided for that patient.⁹¹ Utilization of employer-based private pre-payment dental plans is increasing, with approximately 105 million people enrolled.⁹² These plans encourage people to utilize preventative care and result in early detection of serious dental problems.⁹³

Direct reimbursement is an employer-funded dental fee-for-service group plan that reimburses patients based on the amount spent on dental care, as opposed to the type of treatment they receive.⁹⁴ The ADA recommends the direct reimbursement method for financing dental care.⁹⁵

COMPETITION

COMPETITION BETWEEN DENTISTS

As education and technology become more sophisticated, procedures that previously were reserved for dental specialists are being performed by general practitioners.⁹⁶ Further, because most dentists are general practitioners and the supply of accessible and affordable specialists is insufficient to meet the demand for specialized care in most areas, general practitioners are learning to perform what traditionally were specialist procedures.⁹⁷ For example, in 2005, of the estimated 22 million root canals done in the United States, 75 percent were performed by general dental practitioners. This procedure traditionally was performed by endodontists.⁹⁸

The line between general dental practitioners and specialty dental practitioners also has been blurred by commercial campaigns pitching products and services to both groups.⁹⁹ Technology companies and advanced education seminars touting new procedures and devices no longer focus their advertising efforts on specialists, but, instead, they advertise to general and specialty dentists, giving both groups the opportunity to learn of new developments in the field.¹⁰⁰ Additionally, because most dental care is routine and not life-threatening, patients have time to seek out the best value in dental care.¹⁰¹ When patients compare costs and benefits of providers, they create competition in the dental marketplace.¹⁰²

Because most dental conditions are not life-threatening, patients compare costs and benefits of providers, creating competition in the dental marketplace.

"The Difference Between Dental and Medical Care: Implications for Dental Benefit Plan Design," By Albert H. Guay, Journal of the American Dental Association, Vol. 137, June 2006, p. 803.

COMPETITION BETWEEN DENTISTS AND OTHER HEALTHCARE PROVIDERS

Dental hygienists generally work in a dental practice under the supervision of a licensed dentist and perform dental prophylaxis, or preventative care, by examining and cleaning a patient's teeth and gums.¹⁰³ As of 2010, legislation in some states allows dental hygienists to work outside of dental practices with limited or no supervision.¹⁰⁴ In states in which dentist supervision is not required, some hygienists are establishing their own practices.¹⁰⁵ A study by the ADA reports that unsupervised hygienist

practices tend to be located in areas that are also served by dental offices and, therefore, have the potential to become direct competitors to dentists.¹⁰⁶

COLLABORATION

Due to the blurred boundaries between general dental practitioners and specialists, some worry that a turf war is imminent.¹⁰⁷ Despite threats of increasing overlap in the scope of general and specialist practices, dentists have begun to collaborate.¹⁰⁸ Although most dental practitioners work alone, some practices have begun to include both specialists and generalists in order to increase patient demand and find a niche in an unstable economy.¹⁰⁹ Additionally, dentists collaborate with physicians and other providers due to an increasing awareness of the relationship between oral infection and systemic health.¹¹⁰ Finally, hygienists assist dentists in the provision of preventative patient care.¹¹¹

TECHNOLOGY

A primary factor in boosting dental productivity is the practitioner's use of new technology. Three significant technological advancements in dentistry are discussed in subsequent sections: Digital Radiography, **Computer-Aided Design and Computer-Aided Manufacturing (CAD/CAM)**, and Nanotechnology. For more general information on medical technological advances and their effect on the healthcare industry, see chapter 5 of *An Era of Reform*.

The Center for Disease Control has touted fluoridation as one of the ten greatest public health achievements of the 20th century and as the "most equitable and cost effective method of delivering fluoride to all members of communities, regardless of age, educational attainment, or income level."

"Achievements in Public Health, 1900-1999: Fluoridation of Drinking Water to Prevent Dental Caries," Morbidity and Mortality Weekly Report, Vol. 48, Issue 41 [Oct. 22, 1999], Center for Disease Control, p. 933.

DIGITAL RADIOGRAPHY

The development of intra-oral and extra-oral digital technology, together with the increased computerization of dental practice, has led to the increased utilization of digital radiography instead of conventional x-ray film imaging. Advantages of digital radiography include the ability for a dental practitioner to gain cephalometric analysis and superimposition quickly at a chair-side computer, manipulate images to aid in diagnosis, reduce a patient's radiation dose, and ease data storage constraints.¹¹² It is estimated that approximately 10 to 20 percent of dental practitioners employed digital radiography in their dental practices in 2002, with a steady increase in the expected utilization of digital radiography estimated during the next five to ten years.¹¹³

COMPUTER-AIDED DESIGN AND COMPUTER-AIDED MANUFACTURING

Although only a limited number of dental practitioners (approximately 9,000 users in the United States and more than 23,000 users worldwide in 2010) utilize CAD/CAM in their practices, CAD/CAM appears to be growing in popularity.¹¹⁴ CAD/CAM devices allow dentists to both make images of tooth preparations and to mill restorations on the same day.¹¹⁵ CAD/CAM technology provides quick solutions for patients, however, it does not necessarily ensure quality; a practitioner still must maintain control

over the technology to ensure acceptability of fit for the patient.¹¹⁶ Patients prefer a single appointment (that is, a 45- to 60-minute procedure) instead of traditional handmade laboratory restorations.¹¹⁷ However, in many dental practices, chair-side computer use is limited to select areas of clinical documentation, such as charting, treatment planning, and progress notes, because practitioners maintain concerns related to costs associated with integrating clinical computer technology with the rest of their clinical practice.¹¹⁸

NANOTECHNOLOGY

Utilizing the physical properties of materials and devices with structures of one hundred nanometers or less has allowed new innovations in the field of dental implants.¹¹⁹ Despite implants comprising a limited number of tooth replacements, this new technology is purported to cut healing times in half and improve **osseointegration**. Despite the premium costs associated with these implants, it remains unclear whether dentists are passing these costs on to their patients.¹²⁰

CONCLUSION

The dental industry has been affected by the current economy. Compared to 2007, dental services were less in demand in 2008, and 42 percent of practices reported a decline in new patients.¹²¹ Nonetheless, 58 percent of dentists reported an increase in production, with an average increase of 9 percent. However, only pediatric and endodontic practices reported increased profits for 2008, while general dentistry, orthodontics, periodontics, and oral surgery all reported lower profit percentages.¹²²

Before the economic downturn, many dentists were exploring practice expansion to include cosmetic dentistry, because aesthetic dentistry is often more profitable than other dental procedures.¹²³ However, in the current economic environment, patients are considering cosmetic treatment to be nonessential, and practices offering a high proportion of cosmetic services are faring worse than other segments of the dentistry field.¹²⁴

It can be expected that as long as the economy continues to suffer, so too will many portions of dentistry, with orthodontics suffering the most.¹²⁵ General dentistry, however, is likely to recover quickly, because it has a broader base of patients than do many dentistry specialties.¹²⁶ Similarly, pediatric dentistry will continue to do well in the future due to low cost of procedures, high volume, and low competition from other specialties.¹²⁷ By contrast, oral surgery is likely to be affected the most from the transition to managed care, and, if the trend continues, practitioners will be threatened with increasing production expectations for less compensation.¹²⁸

As many recent oral surgery graduates have earned dual MD/DDS degrees, many are electing to pursue careers in medically related fields.¹²⁹ Competition within periodontics is steadily increasing as dentists retire at older ages, periodontal disease decreases with the decline in tobacco use, and general dental practices implement soft tissue management programs.¹³⁰ Despite this, periodontal specialists continue to benefit from the growing number of aging baby boomers.¹³¹ Similarly, demand for endodontic services remains strong with a rapidly growing elderly population with a desire to retain their teeth.¹³² Future problems for endodontic specialists include increased competition from a saturated marketplace as dentists begin to retire later, and residency programs produce specialists at much higher rates than anticipated.¹³³

Optometry

OVERVIEW

Americans have been developing and using eyecare for hundreds of years. The American Optometric Association (AOA) formed in 1900 and was known originally as the American Optical Association.¹³⁴ Prior to the formation of the AOA, no laws existed to regulate the prescription of eyewear.¹³⁵ Minnesota was the first state to license optometrists in 1901; by 1924, optometry was recognized in the remaining forty-nine states.¹³⁶ Until the mid 1970s, “optometrists primarily checked visual acuity and prescribed glasses and contact lenses, and they were unable to administer drugs of any kind.”¹³⁷ However, since then, legislation has broadened the scope of practice to allow Doctors of Optometry to use **therapeutic pharmaceutical agents (TPA)** and, in most states, to treat sight-threatening eye diseases, such as **glaucoma**.¹³⁸

“Glaucoma is the second leading cause of blindness in the world, according to the World Health Organization.”

“Glaucoma Facts and Stats,” Glaucoma Research Foundation, Jan. 2009, http://www.glaucoma.org/learn/glaucoma_facts.php (Accessed Sept. 11, 2009).

DESCRIPTION AND SCOPE

SCOPE

Optometrists, or Doctors of Optometry (O.D.), are the primary providers of vision care and compose the nation’s largest eyecare profession, serving patients in nearly 6,500 communities across the country.¹³⁹ They provide primary eyecare to two thirds of U.S. patients.¹⁴⁰

A Doctor of Optometry is licensed to practice optometry,
not to practice medicine.

“Optometrists,” Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2008-09 Edition, <http://www.bls.gov/oco/ocos073.htm> (Accessed 12/12/2006).

Doctors of optometry provide two-thirds of all primary eye care in the
United States.

“About the AOA,” American Optometric Association, 2009 <http://aoa.org/x4670.xml> (Accessed Sept. 10, 2009).

An optometrist is licensed to practice optometry, not to practice medicine.¹⁴¹ Optometrists are trained to examine, diagnose, treat, and manage diseases, injuries, and disorders of the visual system, the eye, and associated structures, as well as identify related systemic conditions affecting the eye, and may prescribe medications, low vision rehabilitation, vision therapy, glasses, contact lenses, and perform certain surgical procedures.¹⁴² Optometrists examine patients' eyes to "determine [the] nature and degree of vision problem[s] or eye disease" and to "prescribe eyeglasses, corrective lenses and other vision aids or therapeutic procedures to correct or conserve vision."¹⁴³ Optometric practitioners perform a variety of tests to "determine visual acuity and perception and to diagnose diseases and other abnormalities, such as glaucoma and color blindness."¹⁴⁴ If additional medical treatment is deemed necessary, optometrists commonly consult with other healthcare professionals, including family practitioners, pediatricians, neurologists, and ophthalmologists.¹⁴⁵

EDUCATION AND TRAINING

To become an O.D., an individual must complete at least three years of undergraduate pre-optometric education and four years in an accredited optometry program.¹⁴⁶ In 2007, the AOA and five other optometric organizations formed the Joint Board Certification Project Team to explore the idea of implementing optometric board certification.¹⁴⁷ In June 2009, AOA members established the American Board of Optometry (ABO) to "develop and implement the framework for board certification and maintenance of certification."¹⁴⁸ The new organization will work to employ a board certification process in an effort to solidify optometry's value and competency within the medical community.¹⁴⁹ ABO requirements will include, among others, graduation from an Accreditation Council on Optometric Education accredited college of optometry; three years of active licensure accumulation of ¹⁵⁰ post-graduation points through participation in a residency, fellowship, or related program; and successful completion of a board certification examination.¹⁵⁰ The ABO will designate those who successfully complete these requirements with "Board Certified" status for ten years.¹⁵¹

SPECIALTIES

The majority of optometrists are general practitioners.¹⁵² However, some optometrists participate in residency programs following optometry school, which offer training in subspecialties such as family practice optometry, pediatric optometry, geriatric optometry, vision therapy and rehabilitation, low-vision rehabilitation, cornea and contact lenses, refractive and ocular surgery, primary eyecare optometry, ocular disease, and community health optometry (see table 6-4).¹⁵³ Specialty residency programs are generally one-year programs.¹⁵⁴

Table 6-4: Optometry Specialties and Description*

Specialty	Description
Family Practice Optometry	Specialists treat a broad population of patients ranging from pediatric to geriatric.*
Pediatric Optometry	Specialists treat children's visual needs.**
Geriatric Optometry	Specialists treat the elderly population's visual needs.**
Vision Therapy and Rehabilitation	Specialists work to overcome vision deficiencies related to how patients use their eyes (for example, aiming, focusing, fixating, and so forth), how patients process visual information (for example, perception, retention, and so forth), or both.**
Low-Vision Rehabilitation	Specialists work with patients with low vision.†
Cornea and Contact Lenses	Specialists work to treat patients in areas related to corneas and contact lenses.†
Refractive and Ocular Surgery	Specialists focus on patients needing refractive and ocular surgery.†
Ocular Disease	Specialists work to treat and manage ocular diseases, and often collaborate with physicians for "systemic management of related diseases."††
Community Health	Specialists "emphasize public health and cultural issues that impact care."††

* "Optometric Residencies Titles and Descriptions," Association of Schools & Colleges of Optometry, 2009, http://www.opted.org/files/public/Optometric_Residency_Titles_Descriptions_2009.pdf (Accessed 10/23/09).
 ** "Optometry: A Career Guide," Association of Schools and Colleges of Optometry, Apr. 2008, p.8, http://www.opted.org/files/public/Optometry_Career_Guide_April2008.pdf (Accessed 8/14/2009).
 † "Optometric Residencies Titles and Descriptions," Association of Schools & Colleges of Optometry, 2009, http://www.opted.org/files/public/Optometric_Residency_Titles_Descriptions_2009.pdf (Accessed 10/23/09).
 †† "Optometry: A Career Guide," Association of Schools and Colleges of Optometry, Apr. 2008, p. 9, http://www.opted.org/files/public/Optometry_Career_Guide_April2008.pdf (Accessed 8/14/2009).

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

With nearly one quarter of optometrists reaching retirement age, many are searching for younger optometrists to take over their practices.¹⁵⁵ Not only is the age composition of optometrists changing, but the gender composition in the profession is also shifting. At the time of publication, more than half of the new optometry graduates were female, as compared to only 3 percent in 1973.¹⁵⁶ However, AOA data suggests that the prevalence of women in the field is underestimated as a result of low survey response rates from female practitioners.¹⁵⁷

Today, over 50% of new optometry graduates are women as compared to only 3% in 1973.

"Caring for the Eyes of America: A Profile of the Optometric Profession," American Optometric Association, 2008, p. 8.

More than 35 percent of optometric graduates are Asian American, African American, or Latino.¹⁵⁸ Additionally, according to the AOA in 2007, three fourths of optometrists identified themselves as self-employed (75.3 percent), most of whom were in solo practice (36.1 percent) or two-member partnerships or groups (30.1 percent).¹⁵⁹

Three-fourths of optometrists are self employed (75.3%).

Caring for the Eyes of America: A Profile of the Optometric Profession," American Optometric Association, 2008, p. 7.

SUPPLY AND DEMAND

Diabetes is a leading cause of blindness.¹⁶⁰ In the United States, 21 million people suffer from diabetes, with 6 million of those cases remaining undiagnosed. Additionally, about 54 million Americans have pre-diabetes or exhibit characteristics that are considered risk factors for the disease.¹⁶¹ Cataracts generally affect the older population, including more than 20.5 million people over the age of sixty in the United States.¹⁶² This number is estimated to rise to 30.1 million people during the next twenty years, an increase of almost 50 percent.¹⁶³ Macular degeneration is another leading cause of vision loss among adults over the age of sixty, its prevalence also increasing with age.¹⁶⁴ This disease causes loss of acuity in sharp, central vision, and can occur slowly or very quickly.¹⁶⁵ Another common condition that develops with age is chronic dry eye disease, an under-diagnosed and undertreated condition.¹⁶⁶ The National Eye Institute (NEI) estimates that approximately 15 percent of the U.S. population suffers from this disease, with the number increasing among postmenopausal women.¹⁶⁷ Additionally, patients with chronic dry eyes need continual monitoring and follow-up in order to ensure effective treatment.¹⁶⁸

In 2007, the AOA estimated a U.S. workforce of 37,083 full-time optometrists.¹⁶⁹ According to the AOA, as the number of new **presbyopes** (persons age 40–49) and the elderly population (age sixty-five and older) grows, the demand on the optometric services also grows.¹⁷⁰ Age-related eye diseases, such as diabetes, cataracts, macular degeneration, and chronic dry eye disease, all of which were mentioned previously, often result in vision loss and blindness and are the leading causes of vision impairment and blindness in the United States, affecting an age group of more than 119 million people.¹⁷¹ Analysts project that the aging population will cause age-related eye disease to rise 65 percent by 2020.¹⁷²

Analysts project that the aging population will cause age-related eye disease to rise 65 percent by the year 2020.

“The High Cost of Poor Vision,” By John Murphy, Review of Optometry, Jan. 15, 2008 p. 42.

With 71 percent of consumers receiving at least one eye exam annually and the number of Americans older than forty years of age expected to double within the next three decades, demand for optometric professionals is projected to grow.¹⁷³ In effect, optometrist workloads are projected to grow 11 percent between 2006 and 2016.¹⁷⁴ Various factors contribute to this increase in demand, including longer life expectancy, the diabetes and obesity “epidemics,” and technological advancements leading to increased access to care.¹⁷⁵ Unfortunately, with nearly one quarter of optometrists reaching retirement age, analysts project that the optometric workforce will be insufficient to meet growing demand by 2015.¹⁷⁶

Optometrists’ work loads are projected to grow 11% between 2006 and 2016.

“Optometrists,” Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2008-09 Edition, <http://www.bls.gov/oco/ocos073.htm> (Accessed 12/12/2006).

With nearly one quarter of optometrists reaching retirement age, analysts project that the optometric workforce will be insufficient to meet growing demand by 2015.

“Optometry: A Career Guide,” Association of Schools and Colleges of Optometry, Apr. 2008, http://www.opted.org/files/public/Optomtery_Career_Guide_April2008.pdf (Accessed 8/14/2009); “The High Cost of Poor Vision,” By John Murphy, Review of Optometry, Jan. 15, 2008 p. 42.

Not only is demand increasing, but the cost of care is rapidly increasing, as well.¹⁷⁷ Although little data is available to predict future eyecare costs, healthcare spending generally is on the rise.¹⁷⁸ The Centers for Medicare and Medicaid Services (CMS) has reported that spending has increased at a rate 2.4 percent more than the U.S. gross domestic product every year since 1970.¹⁷⁹ In addition to research and treatment, analysts recommend increasing prevention measures to keep eyecare costs low, because prevention of developing problems drastically reduces long term costs.¹⁸⁰

Optometrists serve patients in nearly 6,500 communities in the United States.¹⁸¹ Demand is projected to reach an all-time high as the baby boomer population ages due, in part, to the increasing number of patients with age-related eye diseases. Conversely, supply is declining with the graying of the optometric professional workforce. Trends suggest that the number of optometrists will likely be insufficient to meet demand by 2015.¹⁸²

Analysts project that the optometric workforce will be insufficient to meet growing demand by 2015.

"The High Cost of Poor Vision," By John Murphy, Review of Optometry, Jan. 15, 2008 p. 42.

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

Although the practice of optometry is primarily state-governed, this section discusses optometry-specific regulation at both the state and federal levels.¹⁸³ For more information about the general healthcare regulatory environment, see chapter 3 of *An Era of Reform*.

STATE REGULATION OF OPTOMETRY

Licensing

The Association of Regulatory Boards of Optometry (ARBO) is "a federation of state, provincial, and territorial boards of optometry throughout North America. Boards of optometry serve as the licensing and regulatory arm of the optometric profession by formulating rules, or regulations, that govern and enforce laws that grant the privilege to practice optometry, which are enacted by state legislatures."¹⁸⁴ The ARBO has been involved in initiatives to maintain high educational quality and uniformity among state optometry programs.¹⁸⁵ In 1949, the ARBO created the National Board of Examiners in Optometry (NBEO) for the purpose of developing a uniform national licensure examination known as the "National Boards."¹⁸⁶ The NBEO administered its first uniform examination in 1952.¹⁸⁷

Today, every state and the District of Columbia require *licensure* of optometric professionals.¹⁸⁸ Licensure requires that an applicant earn an optometry degree from an accredited optometry school and pass both a uniform National Board written examination and a national, regional, or state clinical examination.¹⁸⁹ Applicants in many states must also pass a state law examination.¹⁹⁰ All states require optometrists to complete continuing education in order to renew their licenses (which may be required every one to three years).¹⁹¹

Forty-eight states and the District of Columbia include some optometric services in their optional programs.

"Medicaid At-A-Glance 2005," By Centers for Medicare and Medicaid Services, 2005, p.7, <http://www.cms.hhs.gov/MedicaidDataSourcesGenInfo/downloads/maag2005.pdf> (accessed August 24, 2009).

In recent years, the ARBO has taken steps toward allowing licensure mobility among optometrists by creating the Council on Endorsed Licensure Mobility for Optometrists (CELMO).¹⁹² The CELMO credential is available only to optometrists who have graduated from an accredited optometry program, have been in practice for three of the past four years, remain in good standing with their state boards, and have completed fifty hours of continuing education approved by the Council on Optometric Practitioner Education.¹⁹³ Participation in the CELMO program is voluntary both for state boards and licensees, and it aims to increase mobility among practitioners and ease state administrative burden involved with endorsement of licensure.¹⁹⁴

FEDERAL REGULATION OF OPTOMETRY

National Eye Institute

The NEI was created by the United States Congress in 1968 as part of National Institutes of Health.¹⁹⁵ NEI's mission is to "conduct and support research, training, health information dissemination, and other programs with respect to blinding eye diseases, visual disorders, mechanisms of visual function, preservation of sight, and the special health problems and requirements of the blind."¹⁹⁶ NEI has awarded approximately 1,600 grants to researchers around the world in an effort to protect and improve vision in the United States.¹⁹⁷ NEI-funded research has produced significant advancements in vision research in areas including laser technology and glaucoma research.¹⁹⁸

Food and Drug Administration

The FDA, part of the U.S. Department of Health and Human Services (HHS), is responsible for "protecting the public health by assuring the safety, efficacy, and security of . . . drugs, biological products, [and] medical devices . . ." ¹⁹⁹ The FDA states that, "[b]efore a medical device can be legally sold in the U.S., the person or company that wants to sell the device must seek approval from the FDA. To gain approval, they must present evidence that the device is reasonably safe and effective for a particular use."²⁰⁰ Primary areas in which the FDA regulates vision care are through the regulation of medical device sales [for example, lasers used in Laser-Assisted *In Situ* Keratomileus (LASIK) eye surgery] and consumer products (for example, contact lenses).²⁰¹ To monitor compliance with safety measures, the FDA utilizes reporting systems such as MedWatch to allow for the reporting of adverse events.²⁰²

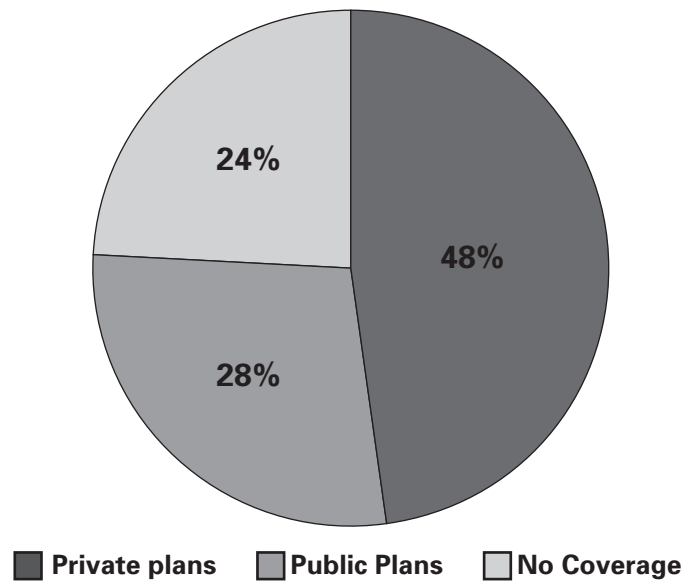
Federal Healthcare Reform

A primary goal of President Obama's administration includes taking significant steps toward healthcare reform, most likely in the form of new legislation. However, according to the AOA, "federal government policies and programs often do not fully recognize optometrists or place sufficient emphasis on the importance of preventative eye and vision care."²⁰³ Optometric associations, such as the AOA, claim that without federal expansion of preventative vision care, vision disorders will continue to needlessly harm millions of Americans.²⁰⁴ However, with debate about healthcare reform still brewing, the impact of healthcare reform on optometrists and their patients remains uncertain.

REIMBURSEMENT

Optometrists receive revenue from both public and private payors. In 2005, the typical optometric payor mix consisted of nearly half (47 percent) of all patients covered by private plans; more than one fourth (29 percent) covered by public health plans, such as Medicare or Medicaid; and the remaining patients (24 percent) with no third-party coverage (see figure 6-2).²⁰⁵ Revenue from private health plans accounted for 41.8 percent of total practice revenue, and 24.5 percent was from public coverage plans; out-of-pocket payments (including cost-sharing amounts from patients covered by third parties) accounted for 33.7 percent of total revenue.²⁰⁶ Revenue from all managed care plans represented approximately 39.3 percent of total practice revenues.²⁰⁷

Figure 6-2: Types of Reimbursement in Optometry



Source: "Caring for the Eyes of America: A Profile of the Optometric Profession," American Optometric Association, 2008, p. 9.

PUBLIC PAYORS

Medicare

CMS limits the covered services of an optometrist to, "services . . . which he or she is legally authorized to perform in the State in which he or she performs them, if the services are among those described in section 1861(s) of the Act and §410.10 of this part."²⁰⁸ Medicare covers some preventative eyecare (for example, an annual glaucoma screening), but it does not cover routine **eye refractions**.²⁰⁹

Medicaid

Eyecare services are not mandatory covered services under Medicaid; however, forty-eight states and the District of Columbia include some optometric services in their optional programs.²¹⁰ See *Industry Trends and Highlights in the Four Pillars* for a brief overview of "mandated" versus "optional" Medicaid services, and see chapter 2 of *An Era of Reform* for more discussion on Medicaid.

PRIVATE PAYORS

To compete in the healthcare environment, providers must be able to effectively navigate the intricacies of managed care networks. Optometry has been influenced greatly by managed care. In 2003, some regions of the country reported that more than half of all optometric patients were enrolled in managed care plans, with the typical optometrist participating in up to six managed care networks in a year.²¹¹ In 2005, optometrists continued to increase their participation in various managed care plans.²¹² The impact of managed care plans on the practice of optometry in the United States will continue to be significant.

The typical optometrist participates in up to six managed care networks in a year.

A Survey of Managed Care Education at Optometry Schools," M. Soroka & L. Reis, Optometric Education, Vol. 28, No. 4, Summer 2003 p. 119.

COMPETITION

COMPETITION BETWEEN OPTOMETRISTS

The availability of optometric services is increasing because optometrists are leaving private or solo practices to provide care in corporate-owned franchises or hospitals.

Private or Solo Practice

Although the proportion of optometrists in private practice has declined during the past ten years, the majority of the optometric workforce remains in private practice.²¹³ According to the AOA in 2007, three fourths of optometrists identified themselves as self-employed (75.3 percent), most of whom were in solo practice (36.1 percent) or two-member partnerships or groups (30.1 percent).²¹⁴

The majority of the optometric workforce is in private practice.

"Caring for the Eyes of America: A Profile of the Optometric Profession," American Optometric Association, 2008, p. 7.

Corporate-Owned Locations

Corporate-affiliated eyewear stores, such as Wal-Mart, Sears Optical, Lens Crafters, Pearl Vision, and so forth, have changed the face of optometry by providing increased access to care. Optometrists in private practice have lost some of their market share to chain stores that offer full-service eyecare at mass-purchasing prices.²¹⁵ However, despite the decreased cost of care and easier access to care, surveys have shown that people feel they get a "better" examination from a private optometrist than from an optometrist practicing in a corporate-affiliated environment.²¹⁶ "[F]or the past several years, almost twice as many eye care consumers selected an independent O.D. rather than a corporate-affiliated practitioner."²¹⁷ Nonetheless, the growth of corporate-affiliated optometry indicates that consumers do value chain store options and that corporate optometry is a recognizable competitive force in the optometry marketplace.

Hospitals

As the scope of service provided by optometrists expands, optometrists are becoming increasingly involved hospital-based practices.²¹⁸ These services include not only optometric specialty areas, such as contact lenses, vision conditions (for example, nearsightedness, farsightedness, and astigmatism), and vision rehabilitation but also pre- and post-operative eyecare for glaucoma; laser, refractive, and cataract patients; emergency eyecare services; and the use of pharmaceuticals in the diagnosis and treatment of eye disease.²¹⁹

COMPETITION BETWEEN OPTOMETRISTS AND OTHER HEALTHCARE PROVIDERS

Competition With Physicians

In many medical specialties a range of providers exists who have varying degrees of education, training, licensure, and experience. Many of these providers actively compete over the range of procedures that they can legally provide. Specifically, optometrists and ophthalmologists often clash over scope-of-practice issues.²²⁰ During the 1980s, many states began passing legislation allowing optometrists to treat disease, which expanded the optometric market and allowed optometrists to more actively compete with ophthalmologists.²²¹

Ophthalmologists (see chapter 3, *Ophthalmic Surgery*) are medical doctors (M.D.) who “specialize in all aspects of eye care including diagnosis, management, and surgery of ocular diseases and disorders.”²²² The primary distinction between an optometrist and ophthalmologist is that an ophthalmologist is a medical doctor and an optometrist is not.²²³ Consequently, ophthalmologists are required to complete extensive post-graduate education (see *Ophthalmic Surgery* under *Education and Training* for more details regarding ophthalmologist education and training requirements), and they are able to provide a more comprehensive range of services to their patients than an optometrist. Perhaps also as a result of the rigorous training required for ophthalmologists, optometrists outnumber ophthalmologists two to one in the United States.²²⁴ Despite the differences in educational requirements, a 2006 study from the *British Journal of Ophthalmology* reported that optometrists and ophthalmologists generally agree on primary diagnoses of patients (89.3 percent) and on management plans for patients (79.3 percent).²²⁵

Optometrists and ophthalmologists often clash over scope-of-practice issues, as ophthalmologists want to limit the range of procedures optometrists can legally provide.

“The Optometrist’s Rise to Power in the Health Care Market, or ‘It’s Optometric Physician to You,’”
By Scott Warnock, *Science Communication*, Vol. 27, No. 1, Sept. 2005, p. 100.

The size of the ophthalmic market in 2007 was approximately \$29.25 billion, up 7.5 percent from 2005 estimates.²²⁶ Although this is slightly lower than the market growth experienced in the late 1990s, the growth in the market from 2005 to 2007 can be attributed to economic changes, such as “increases in the range and volume of services provided by optometrists, expansion in private third-party and governmental coverage of vision and eye care services, growth in population needing eye care, and the public’s enhanced awareness of the importance of good eye health care.”²²⁷ The AOA estimates that approximately \$7.68 billion of the optometric market represents expenditures for routine comprehensive eye examinations, follow-up eyecare visits, and the treatment of anterior-segment conditions.²²⁸ The AOA

further estimates that private optometry accounted for the largest share of the ophthalmic market in 2007 (approximately 44.4 percent, as compared with 39.1 percent in 2005).²²⁹

In 2007, prescription writing by optometrists increased 12 percent, while prescriptions from ophthalmologists increased only 3 percent.

"O.D.s Gain Ground in Prescribing Therapeutics," Corporate Optometry Reports, 2nd Quarter, 2008, p. 9, <http://www.corporateod.com/docs/pubArchive/COR2Q08.pdf> (Accessed August 17, 2009).

Prescribing Pharmaceuticals

Optometrists who aim to prescribe pharmaceuticals continue to garner resistance from ophthalmologists, who contend that optometrists have not been trained to handle the treatment of systemic disease.²³⁰ Historically, optometrists have prescribed far fewer therapeutics than ophthalmologists, but this gap is decreasing. Statistics from 2007 show that prescription writing by optometrists increased 12 percent, while prescriptions from ophthalmologists increased only 3 percent.²³¹ Despite the resistance against the expansion of optometric services, a recent study of emergency room optometrists and ophthalmologists at an eye hospital reports that optometrists are as competent as ophthalmologists in diagnosing and developing treatment plans for patients.²³²

LASIK Surgery

Advances in optometric technology, such as laser eye surgery, have sparked new “financial turf wars” between ophthalmologists and optometrists.²³³ LASIK surgery is an FDA-approved refractive surgery during which a laser is used to reshape corneal tissue to improve the ability of the eye to focus.²³⁴ Generally, ophthalmologists must perform the surgery, but optometrists can handle pre- and post-operative patient care.²³⁵ Therefore, co-management has become increasingly popular—optometrists handle the initial evaluation and post-operative care in exchange for part of the fee.²³⁶

Optical Dispensing

Recent trends have shown that optometrists are moving away from traditional practice, including optical dispensing, and are shifting their focus to disease management.²³⁷ Ophthalmologists, on the other hand (who traditionally have not dealt in optics), have begun to embrace optics as a valuable source of revenue and a way to offer more comprehensive service to their patients.²³⁸ Experts suggest that while optometrists may believe that disease management is a more lucrative practice, failing to offer optics would result in a major loss of revenue.²³⁹ While optometrists remain the primary distributors of optics (in direct competition with opticians), ophthalmology practices are fighting to increase their market share.²⁴⁰ If optometrists fail to place proper emphasis on optical dispensing in their practices, they risk losing a significant source of income to their competition.²⁴¹

While optometrists still are the primary distributors of optics (in direct competition with opticians), ophthalmology practices are fighting to increase their market share.

"Disease Management vs. Dispensary," By Jane Cole, Review of Optometry, Mar. 14, 2007, p. 60.

Competition With Mid-Level Providers

Opticians (see chapter 4, *Opticians*) are “technicians trained to design, verify, and fit eyeglass lenses and frames, contact lenses, and other devices to correct eyesight.”²⁴² Opticians are not licensed to diagnose or treat eye disease, write prescriptions for eyeglasses or contact lenses, or test patient vision.²⁴³ Instead, opticians simply fill prescriptions supplied by optometrists or ophthalmologists.²⁴⁴ Therefore, the only area in which optometrists compete with opticians is optical dispensing. Opticians must complete an accredited optician program after high school (college education is unnecessary), and many states require certification by the ABO, the National Contact Lens Examiners (NCLE), or both. The ABO certifies opticians who dispense and work with eyeglasses, whereas the NCLE certifies those who fit and work with contact lenses.²⁴⁵

COLLABORATION

In order to provide the widest range of services and highest quality of care to their patients, optometrists often co-manage their patients (collaborate with other medical professionals) on various issues including specialty contact lenses, low-vision rehabilitation, glaucoma, eye and vision care for infants, and vision therapy.²⁴⁶ According to a 2008 survey by the AOA, half of optometrists reported referral relationships with two or more refractive surgery centers and two or more refractive surgeons.²⁴⁷

Because some ophthalmologists do not support the expansion of optometric practice, some co-management relationships have deteriorated.²⁴⁸ Some ophthalmologists criticize the medical care provided by optometrists, causing patient concerns regarding quality of care provided by an optometrist.²⁴⁹ Nonetheless, an AOA survey found that 76.3 percent of patients first seen and diagnosed by optometrists who are referred to ophthalmologists for refractive surgery return to the optometrist for routine care, down from 87 percent in 2001.²⁵⁰ Further, in post-operative refractive surgery patients, the referring optometrist observed patients returning for routine care 73.2 percent of the time.²⁵¹

TECHNOLOGY

Advancements in clinical and practice management technologies are changing the way optometrists provide quality care. The AOA “2009 New Technology Survey” found that the following were the most common clinical technologies used by clinical optometrists in 2009: automated perimeter (91.8 percent), autorefractor and autokeratometer (80.8 percent), and **pachymeter** (75.2 percent).²⁵² The introduction of opto-electronic imaging devices and digital record keeping are two ways in which the standard of eyecare is being influenced by technological change.²⁵³ Some of the new options in noninvasive, no-contact imaging technology include: the retinal thickness analyzer (RTA), laser diagnostic technologies (glaucoma diagnosis and variable corneal compensatory), the **Heidelberg Retinal Tomograph device, optical coherence tomography, scanning laser ophthalmoscope**, and *automated retinal imaging systems*.²⁵⁴ Additionally, the implementation of electronic health records (EHRs) systems is anticipated to increase quality of care for optometric patients.²⁵⁵ For more information regarding the impact of EHR systems on healthcare practices, see chapter 5 of *An Era of Reform*.

CONCLUSION

Blindness or impaired vision affects 3.3 million Americans aged forty and older, or one in every twenty-eight people.²⁵⁶ This figure is projected to reach 5.5 million by 2020 due to projected growth estimates of the elderly population.²⁵⁷ Age-related conditions, including diabetes, cataracts, macular degeneration, and chronic dry eye disease, often result in vision loss and blindness. Due to these dramatic increases in age-related eye conditions in the growing elderly population, the outlook for optometric professionals in coming years appears favorable.

Blindness or low vision affects 3.3 million Americans age 40 and over, or one in 28 people.

"Vision Loss from Eye Diseases Will Increase as Americans Age," National Eye Institute, Press Release, Apr. 12, 2004, <http://www.nei.nih.gov/news/pressreleases/041204.asp> (Accessed August 13, 2009).

"More than 150 million Americans use corrective eyewear, spending more than \$15 billion on eyewear each year."

"Fact Sheet: Refractive Errors," National Eye Institute, Healthy Vision 2010, http://www.healthyvision2010.org/hvm/pdfs/HVM09_Fact_Sheet_Final_tagged.pdf (Accessed Sept. 11, 2009).

"More than 10 million Americans of every age and race suffer vision loss from blinding diseases."

"About Us," Foundation Fighting Blindness, Spring 2008 http://www.blindness.org/index.php?option=com_content&view=article&id=65&Itemid=147 (Accessed Sept. 11, 2009).

Chiropractic

OVERVIEW

Chiropractic is a health profession concerned with the diagnosis, treatment, and prevention of musculoskeletal disorders and the effects of these disorders on the nervous system and general health.²⁵⁸ Chiropractic was founded in 1895 by Daniel Palmer, a practitioner of magnetic healing and spinal manipulation.²⁵⁹ Although he had no formal training, Palmer was well versed in anatomy and physiology.²⁶⁰ In 1897, Palmer founded the Palmer School of Chiropractic in Davenport, Iowa, which has maintained a chiropractic program since its establishment.²⁶¹

Chiropractic was founded in 1895, by Daniel Palmer, a practitioner of magnetic healing and spinal manipulation, when, in 1897 he founded the Palmer School of Chiropractic in Davenport, which is still around today.

"The Chiropractic Profession," By David A. Chapman-Smith, NCMIC Group Inc., 2000, p. 11.

Only 60 percent of practicing chiropractors have a bachelors degree.

"Job Analysis of Chiropractic 2005: A Project Report, Survey Analysis, and Summary of the Practice of Chiropractic Within the United States," The National Board of Chiropractic Examiners, January 2005, p. 80.

Chiropractic come from the greek words praxis and cheir, meaning practice or treatment by hand.

"The Chiropractic Profession," By David A. Chapman-Smith, NCMIC Group Inc., 2000, p. 1.

For many years it was not unusual for chiropractic to be labeled as an "unscientific cult" by organized medicine.²⁶² In 1963, the American Medical Association (AMA) formed the Committee on Quackery, which declared it unethical for medical physicians to professionally associate with unscientific practitioners like chiropractors.²⁶³ The committee's primary mission was to contain and ultimately eliminate chiropractic practice.²⁶⁴ The AMA's fierce opposition to chiropractic led to a highly publicized court battle in the 1990s, *Wilk v. American Medical Association*.²⁶⁵ The court ultimately held that the AMA violated the Sherman Antitrust Act by conducting an illegal boycott of chiropractors, and it granted an injunction against the AMA.²⁶⁶

Although *Wilk* alleviated attacks on chiropractic from the AMA, the profession still struggled to gain respect and acceptance from healthcare practitioners and patients.²⁶⁷ Polls show that healthcare professionals ranked doctors of chiropractic last in terms of ethics and honesty.²⁶⁸ Furthermore, the profession as a whole is experiencing a decline in patient utilization, down from 10 percent to 7.5 percent in recent years.²⁶⁹

Most American felt neutral about chiropractors as honest and ethical, with only 36% giving them a high ethical rating.

"Gallup Poll: Americans Have Low Opinion of Chiropractors' Honesty and Ethics," Dynamic Chiropractic, Vol. 25, Issue 03 [January 29, 2009], p. 2.

Although chiropractic care is often deemed as complementary or alternative therapy, the profession "is also in some sense a 'parallel' profession to medicine," particularly in cases in which patients seek chiropractic care as their source of primary care and respond favorably to treatments rendered.²⁷⁰ As discussed in the *Introduction*, for purposes of this *Guide*, chiropractors are considered an allied health profession.

DESCRIPTION AND SCOPE

SCOPE

Chiropractic treatment focuses on **spinal manipulation** (referred to as spinal adjustment) and the body's natural power to heal itself without relying on drugs or surgery.²⁷¹ Chiropractors use various forms of therapy, including massage, ultrasound, electric, acupuncture, and heat, and various supports (for example, braces) when providing patient care.²⁷² Treatments can include natural and noninvasive physical therapy modalities, exercise programs, nutritional advice, orthotics, lifestyle modifications, and other patient education.²⁷³ Surveys report that approximately 80 percent of chiropractors used some form of nutritional counseling in their practices.²⁷⁴ The expansion of chiropractic practice to include provision of nutrition services, as well as vitamin and food supplements, has been utilized as a means to strengthen patient bones, joints, and immune systems.²⁷⁵ Chiropractors assess patients through clinical examinations, laboratory testing, diagnostic imaging, and other diagnostic interventions.²⁷⁶ If chiropractic treatment is not appropriate, a chiropractor typically will refer patients to the appropriate healthcare provider.²⁷⁷

Surveys report that approximately 80% of chiropractors used some form of nutritional counseling in their practices.

"A Survey of Chiropractors' Use of Nutrition in Private Practice," By Dean L. Smith & Diana M. Spillman, Journal of Chiropractic Humanities, p. 4 (2001) (reporting based on a sample size of 74 across the U.S.); "Nutritional Counseling in the Chiropractic Practice: A Survey of New York Practitioners," By Denise Holtzman & Jeanmarie Burke, Journal of Chiropractic Medicine, Vol. 6, p. 30 (2007) (based on 125 respondents in New York).

Nationally, the direct annual costs of care for low back pain range from \$25 to \$33 billion.²⁷⁸ Most (95 percent) of chiropractic patients seek treatment for musculoskeletal pain (for example, back pain, neck pain, headache, and pain in shoulders, arms, or legs).²⁷⁹ The remaining 5 percent of patients have a wide variety of conditions which are caused, aggravated, or mimicked by restricted range of movements in the spinal vertebrae and muscles, termed spinal dysfunction or subluxation, and the pain and other reflex effects of this are expressed through the nervous system.²⁸⁰ These conditions can be due to dysmenorrheal, asthma, and other respiratory dysfunctions and colic, constipation, and other digestive dysfunctions.²⁸¹

Nationally, the direct annual costs of care for lower back pain range form \$25 to \$33 billion.

"Economic Evaluation of Four Treatments for Low-Back Pain: Results From a Randomized Controlled Trial," By Gerald F. Kominski et al., Medical Care, Vol. 43, No 5 (May 2005), p. 428.

While there is a small fraction of chiropractors who believe chiropractors should be allowed to prescribe medication, the World Federation of Chiropractic stated that it was against the chiropractic principal to use prescription drugs and those patients that need that kind of treatment should be referred to a different practioner.

"Use of Prescription Drugs," WFC Policy Statement, World Federation of Chiropractic, April 30, 2003.

EDUCATION AND TRAINING

As of 2010, sixteen chiropractic colleges in the United States are accredited by the Council on Chiropractic Education.²⁸² To earn a chiropractic degree, candidates must complete at least ninety semester hours of undergraduate education and four years of chiropractic education in an accredited program.²⁸³ Although some chiropractic colleges require a bachelor's degree as a threshold requirement for admission, others do not.²⁸⁴ In 2003, only 60 percent of chiropractors held a bachelor's degree, but this number is increasing.²⁸⁵

The U.S Council on Chiropractic Education (CCE) has been recognized by the Department of Education since 1971.

"Doctor of Chiropractic Degree Programs and Solitary Purpose Institutions Holding Accredited Status with the Council on Chiropractic Education," Federation fo Chiropractic Licensing Boards, Official Directory, <http://directory.felb.org/Colleges/tabid/125/Default.aspx> (Accessed 7/13/09).

Of the 16 CCE accredited chiropractic college, 14 are also accredited by regional accrediting bodies, which focus on the whole institution, unlike the CCE, which only focuses on the chiropractic program.

"Doctor of Chiropractic Degree Programs and Solitary Purpose Institutions Holding Accredited Status with the Council on Chiropractic Education," Federation fo Chiropractic Licensing Boards, Official Directory, <http://directory.felb.org/Colleges/tabid/125/Default.aspx> (Accessed 7/13/09).

Only 60 percent of practicing chiropractors have a bachelors degree.

"About NRMP," by the National Residency Matching Program, 2009.

Chiropractic curriculums generally require a minimum of 4,200 hours of clinical, laboratory, and classroom study, although the average graduate will reach 4,820 hours of study.²⁸⁶ The last two years of training focus exclusively on clinical experience and spinal manipulation.²⁸⁷ Licensure requires a chiropractic degree and passage of both state and national examinations.²⁸⁸ For more information on licensure, see *Licensing* in this section.

Chiropractic colleges also offer post-doctoral training in chiropractic specialties consisting of 300 to 400 hours of continued education and a passing score on specialty exams administered through specialty chiropractic associations that are branches of the American Chiropractic Association (ACA).²⁸⁹ Chiropractic physicians who pursue advance degrees and pass the required exams obtain "**diplomate**" status in the specialized field.²⁹⁰ See *Specialties* in this section for more information on chiropractic specialties.

SPECIALTIES

Specialization is a growing trend within the chiropractic profession.²⁹¹ Even though a diplomate cannot charge more for his or her services than an unspecialized chiropractor, the title qualifies him or her as an expert, which creates a competitive edge.²⁹² In addition, specialization generates more referrals from patients and professionals who focus in different chiropractic specialties. The ACA has nine councils that offer ten separate diplomate programs. See table 6-5 for a list of these programs.²⁹³

Within the ACA, there are nine councils for the ten chiropractic specializations, each of which is linked to a professional association which administers the certifications for its particular specialty. These diplomate associations/boards are laid out in the Specialties section. Within specialty associations, if sub-specialties are recognized, each sub-specialty will maintain a national association of fellows.

"Approved Chiropractic Specialty Programs," American Chiropractic Association, <http://www.acatoday.org/pdf/ApprovedChiropracticSpecialtyPrograms.pdf> (Accessed 11/16/09).

Table 6-5: Chiropractic Specialties and Descriptions

Title	Description
Sports Physician	Specialists use chiropractic and exercise science to treat sports injuries and enhance athletic performance and physical fitness.*
Occupational Health	Specialists work to both prevent and treat workplace neuromusculoskeletal injuries and illnesses.**
Orthopedics	Specialists diagnose and treat patients based on knowledge of "bones, joints, capsules, discs, muscles, ligaments, tendons, and complete neurological components."†
Neurology	Specialists focus treatment around neurological principles and functioning.* Subspecialties include electrodiagnostic specialties, vestibular rehabilitation, childhood development disorders, and functional neurology.††
Diagnosis and Management of Internal Disorders	These specialists, generally considered primary care Doctors of Chiropractic, treat conditions from allergies to thyroid problems and provide a wider array of services than typical spinal adjustments, such as blood chemistries and hormone testing. Doctors of Chiropractic internists are limited by the specific scope of practice laws of the state in which they practice.‡
Clinical Nutrition	Specialists use nutrition in the treatment of disease within the practice of chiropractic.‡‡
Chiropractic Physiological Therapeutics and Rehabilitation	Specialists combine chiropractic techniques with rehabilitation and physiotherapy.§
Diagnostic Imaging (Radiology)	Specialists "recommend, supervise, and interpret radiologic studies as well as advanced imaging procedures. They advise referring physicians on the necessity and appropriateness of radiologic services and whether to select or to avoid certain diagnostic or clinical procedures."§§
Acupuncture	Specialists employ the principles and practice of acupuncture to further chiropractic treatment.*
Pediatrics	Specialists provide chiropractic care for children.*

* "Specialty Councils" American Chiropractic Association" http://www.acatoday.org/level2_css.cfm?TID=10&T2ID=116 (Accessed 10/9/09).

** "Council on Occupational Health Homepage" American Chiropractic Association Council on Occupational Health, <http://www.acacoh.com/> (Accessed 10/12/09).

† "Definition of Chiropractic Orthopedics" American Chiropractic Association Council on Chiropractic Orthopedics, <http://www.ccodc.org/page2.html> (Accessed 10/12/09).

†† Sub-Specialty Certification, By the American College of Functional Neurology, [acfn.org](http://www.acfn.org/subspecialtycertification.php?pg=4), 2009, <http://www.acfn.org/subspecialtycertification.php?pg=4>.

‡ "Chiropractic Specialties on the Rise" By Gina Shaw, American Chiropractic Association, July 9, 2009, <http://www.acatoday.org/print.cfm?CID=2323> (Accessed 7/9/09), p. 1.

‡‡ "Council on Nutrition Homepage" American Chiropractic Association Council on Nutrition, <http://www.councilonnutrition.com/home.php> (Accessed 10/12/09).

§ "The ACRB IS For Patients" American Chiropractic Rehabilitation Board" <http://www.acrb.org/for-patients.html> (Accessed 10/16/09).

§§ "Definition of a Chiropractic Radiologist," American Chiropractic Board of Radiology, 2009, <http://www.acbr.org/index.html> (Accessed 11/9/09).

Chiropractic specializations are still relatively unheard of outside of the chiropractic field.²⁹⁴ In an effort to raise awareness and acceptance of diplomate certification, the specialty boards for neurology and nutrition have earned accreditation by the National Commission for Certifying Agencies, a branch of the National Organization for Competency Assurance.²⁹⁵ In addition, some diplomate councils, most notably the councils for sports physicians and orthopedists, are converting their curriculums to ones that grant master's degrees.²⁹⁶

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

Chiropractic has historically been a male-dominated profession. Today, 18 percent of practicing chiropractors are female, up 5 percent from 1999.²⁹⁷ In addition, 91.5 percent of working chiropractors describe themselves as Caucasian, with a mean age of 40.6 years.²⁹⁸

Chiropractic has historically been a male-dominated profession. Today, 18 percent of practicing chiropractors are women, up five percent from 1999.

"Women Leaping to the Forefront: As Their Numbers and Opportunities Increase, Female DCs Search for Ways to Balance Family, Practice and more Participation in Chiropractic Leadership," By Angela Kargus, American Chiropractic Association, Jul 9, 2009, <http://acatoday.org/print.cfm?CID=1783> (Accessed 7/9/09).

An ACA survey of five national chiropractic associations determined that 17% of all board members combined are women, which is a higher percent than most Fortune 500 companies (14.7%).

"Women Leaping to the Forefront: As Their Numbers and Opportunities Increase, Female DCs Search for Ways to Balance Family, Practice and more Participation in Chiropractic Leadership," By Angela Kargus, American Chiropractic Association, Jul 9, 2009, <http://acatoday.org/print.cfm?CID=1783> (Accessed 7/9/09).

Self-employed chiropractors make up 52 percent of practitioners. Many chiropractors practice in small communities, but they are not uniformly distributed, because many will open practices in close proximity to one of the few chiropractic educational institutions.²⁹⁹ Because most chiropractors remain in the field until they retire, replacement needs for new chiropractic practices arise almost completely from retirements.³⁰⁰ The majority of chiropractors are independent practitioners, though a small percentage of professionals practice in hospital or clinical settings.³⁰¹

52% of Chiropractors are self employed and many are solo or group practitioners.

"Chiropractors," Occupation Outlook Handbook, Occupational Information Network, Bureau of Labor Statistics, 2008-09 Edition, p. 1.

Chiropractors, as with most healthcare providers, are shifting away from solo medicine into specialized and integrated care.³⁰² Chiropractors define their practices as either specialty (23 percent), general (28 percent), or both (47 percent).³⁰³ Of those chiropractors who are not solo practitioners, 30.6 percent work in a two-person office, 6.4 percent work in multidisciplinary practice, and 6 percent maintain staff positions at a medical or osteopathic hospital.³⁰⁴ In addition, 12.5 percent of chiropractors report that they work in more than one office location.³⁰⁵

SUPPLY AND DEMAND

The chiropractic profession has seen slowed professional growth in recent years.³⁰⁶ Projections from 1998 envisioned chiropractic professionals increasing from 55,000 to 103,000 by 2010.³⁰⁷ However, in 2008, there were only 60,000 active licensed chiropractors.³⁰⁸ Although the number of practicing

chiropractors has increased since the 1990s, both the number of practitioners and patients decreased around 2002.³⁰⁹ Nonetheless, the amount of outpatient healthcare expenditures on chiropractic care increased from \$2.8 to \$7.3 billion between 1996 and 2005.³¹⁰

Sixty to 80 percent of the U.S. population is plagued with back pain, totalling an estimated \$50 billion each year in healthcare costs.³¹¹ Overall, demand for chiropractic services is expected to grow 14 percent between 2006 and 2016 as a result of an aging population and increased patient acceptance of alternative forms of care.³¹²

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

STATE REGULATION OF CHIROPRACTIC

Licensing

All fifty states and the District of Columbia regulate chiropractors through licensure.³¹³ To obtain a license, a chiropractor must have completed two years of undergraduate education (nine states currently require completion of a bachelor's degree, and four more states will require a bachelor's degree beginning between 2010 and 2011; two states also require completion of a pre-chiropractic program), a four-year program at an accredited chiropractic college, and the National Board of Chiropractic Examiners (NBCE) test, as well as any supplemental exams for a specific state.³¹⁴ A chiropractor may only practice in a state he or she is licensed in, although some states will allow a licensed chiropractor to become licensed in that state without any additional examinations.³¹⁵

To maintain a license to practice, all states (except New Jersey) require chiropractors to complete a specified number of hours of continuing education each year. Chiropractic associations and accredited chiropractic programs and institutions often offer these continuing education classes.³¹⁶

Some state licensing boards contain additional legislation regarding specialization, which prohibits a chiropractor from promoting any advanced education credentials in his or her advertising. These regulations reflect the scope of practice laws, which state that a diplomate performs the same services as an unspecialized chiropractor.³¹⁷

Colorado has the greatest ratio of chiropractor licenses to population (1/1,734), followed by Minnesota (1/1,919) and Iowa (1/1,925). Mississippi currently has the lowest ratio of chiropractic licenses to population (1/8,518).

"Ratio of Licenses to Population by U.S. State," Federation of Chiropractic Licensing Boards, Official Directory, 2008, <http://directory.fclb.org/Statistics/RatioofLicensesToPopulationUS/tabid/153/Default.aspx>. (Accessed 7/13/09).

Some state licensing boards contain advertising legislation, which prohibits a chiropractor from promoting their advanced education credentials.

"How do You Become a Diplomate?" Chiropractic Economics, Issue 8, 2005.

Workers' Compensation

Every state has a workers' compensation law.³¹⁸ With the exception of two states (Texas and New Jersey), workers' compensation insurance coverage is mandated in order to cover injuries or illnesses resulting from one's job.³¹⁹ State laws allowing injured parties to choose a physician of their choice for treatment has increased the quality of care for patients seeking chiropractic services.³²⁰ Not only do "right to choose" laws allow more patients to see chiropractors, but they also allow for earlier chiropractic intervention, which decreases patient pain and speeds recovery.³²¹ A 2005 study reported that workers' compensation paid for 5.9 percent of chronic patients and 6.7 percent of acute patients to seek chiropractic care for low back pain (as compared to 9.7 percent of chronic patients and 6.8 percent of acute patients who saw physicians).³²²

Passage of the Medicare Improvement for Patients and Providers Act of 2008 resulted in an approximate 2 percent increase in Medicare reimbursement rates for chiropractors.

FEDERAL REGULATION OF CHIROPRACTIC

Occupational Safety and Health Administration

OSHA mandates that employers furnish employees with a workplace free from threats that cause physical harm.³²³ Chiropractors collaborate with employers, providing businesses with ergonomic consulting and onsite chiropractic services in order to avoid on-the-job employee injuries.³²⁴ Additionally, chiropractic technology, such as surface electromyography (see *Surface Electromyography (SEMG)* for a discussion), serves an important role in providing organizations with objective data and documentation demonstrating the presence or absence of injury claimed by an employee.³²⁵

Food and Drug Administration

The FDA's mission is to protect the public's health and assure the safety of food, drugs, devices, cosmetics, and products that emit radiation.³²⁶ Medical x-ray products are medical devices regulated by the FDA, and, as a result, products used by chiropractors must comply with FDA regulations.³²⁷ To ensure compliance with FDA standards, the agency follows established procedures for routine testing of diagnostic x-ray systems used by chiropractors.³²⁸ Although the FDA does not directly regulate chiropractic practitioners' use of x-ray products, professionals must use FDA-approved devices in their practice.³²⁹

Chiropractic Services for Veterans

More than 49 percent of veterans returning from tours in the Middle East and Southwest Asia seek treatment for symptoms associated with musculoskeletal ailments, and, as a result, members of the U.S. Congress are taking steps to ensure provision of chiropractic services in U.S. Veterans Affairs (VA) facilities.³³⁰ As of 2010, only thirty-two VA facilities employ a chiropractor, with more than 120 facilities lacking chiropractic care.³³¹ Increased access to chiropractic services could help alleviate the chronic and disabling pain that many veterans endure as a result of their military service.³³²

REIMBURSEMENT

Chiropractic services generally are paid for out of pocket or through private insurance and managed care.³³³ As chiropractic is becoming a more accepted form of medical care, insurance providers are covering more chiropractic services.³³⁴ In 1994, Medicare paid for \$225 million in chiropractic services, which, as of 2004, has increased to \$683 million.³³⁵

The combined annual revenue of all licensed U.S. chiropractors is approximately \$10 billion with the top 50 offices generating only seven percent of the total revenue.

"Chiropractor Offices," MarketResearch.com, First Research Inc., May 4, 2009, abstract.

The legitimization of chiropractic treatment as a healthcare service is demonstrated by its continued inclusion as a covered service in most private insurance and government third-party payment programs. Individuals with chiropractic insurance sustain total annual healthcare costs that are 1.6 percent lower than their uninsured counterparts, suggesting that managed chiropractic care may reduce overall healthcare expenditures.³³⁶ However, as of 2010, the downturn in the economy and increases in health insurance premiums have dampened the growth in practice for chiropractic professionals.³³⁷

PUBLIC PAYORS

Medicare

Section 1861(r)(5) of the Social Security Act determines which services are paid for by Medicare and defines physicians to include chiropractors-but only for treatment by manual manipulation of the spine to correct subluxations.³³⁸ Covered services also are limited to those that are medically necessary and supported by documentation.³³⁹ Medicare will not pay for maintenance care, as it is deemed not "medically reasonable or necessary."³⁴⁰ As with other providers, Medicare will not pay for x-rays or other diagnostic services furnished or ordered by a chiropractor.³⁴¹ In 2003, approximately 10.8 percent of total chiropractic services rendered were paid for by Medicare.³⁴²

Medicare will reimburse chiropractors, but only for treatment by manual manipulation of the spine to correct subluxations.

"Definitions of Services, Institutions, ETC," Social Security Act §1861(r)(5), 42 U.S.C.1395x.

Medicaid

Chiropractic services are optional benefits under Medicaid in some states (see *Industry Trends and Highlights in the Four Pillars* for a brief overview of "mandated" versus "optional" Medicaid services).³⁴³

A 1998 report from HHS stated that thirty states had Medicaid plans that included chiropractic coverage.³⁴⁴ Some limit coverage by frequency of use, but others limit to treatment by manual manipulation of the spine or to allow treatment for nerve damage; some allow for all treatment that is medically necessary.³⁴⁵ Unfortunately, budget decreases have led several states to discontinue Medicaid coverage of chiropractic services, with five states dropping coverage in fiscal years 2009 and 2010.³⁴⁶

PRIVATE PAYORS

In 2003, out-of-pocket expenditures accounted for more than one fifth of total chiropractic payments.³⁴⁷ Some chiropractic practices have elected to become purely cash-based practices, only treating uninsured patients, or treating insured patients for care that is not covered by their plans.³⁴⁸ Other chiropractic practices are becoming solely out-of-network practices, providing care to insured patients as

an out-of-network provider.³⁴⁹ However, all chiropractors—regardless of whether they have opted to be purely cash-based or solely out-of-network—must bill Medicare for patients without an alternative insurance plan.³⁵⁰

A 2003 NBCE survey of more than 2,500 full-time chiropractors from all fifty states and the District of Columbia revealed that 73 percent of practitioners participated in managed care programs, accounting for 19.4 percent of total chiropractic payors.³⁵¹ Additionally, all fifty states covered chiropractic service under workers' compensation, and twelve states mandated that private plans cover varying degrees of chiropractic care.³⁵²

Additionally, the increasing popularity of Health Savings Accounts (HSAs) has allowed patients more flexibility and increased control of their healthcare spending.³⁵³ HSA-qualified health plans allow employers to contribute to tax-deductible accounts and to use the saved money for qualified medical expenses, such as chiropractic care.³⁵⁴ See chapter 2 of *An Era of Reform* for more information on HSAs.

COMPETITION

COMPETITION BETWEEN CHIROPRACTORS

Competition between chiropractors can be traced back to the schism that followed the founding of the chiropractic profession and continues to present day.³⁵⁵ Shortly after the founding of the field, two ideologies began to vie for preeminence.³⁵⁶ Followers of the first ideology, identified as “straights,” believe that all issues of illness are due to subluxations of the spine.³⁵⁷ As a result, individuals in this paradigm believe that illnesses can be treated solely through manipulations of the spine.³⁵⁸ Followers of the second ideology, the “mixers,” take a more holistic approach to chiropractic practice by incorporating other types of treatments (for example, massage therapy, yoga, herbal medicine, and osteopathic methods) into their practice.³⁵⁹ The “mixer” approach, comparable to that practiced by osteopathic physicians (see chapter 1, *Schools of Medicine: Allopathic Versus Osteopathic Professionals*), recognizes that in order to provide the best care for patients, one must treat the whole person.³⁶⁰ As a result, “mixers” have a broader base of patients, because they offer a wider array of services than those that are available from “straight” chiropractors.³⁶¹ This has led to continuing discord between the two groups, because both groups contend that the other is made up of “pseudomedical doctors.”³⁶²

COMPETITION BETWEEN CHIROPRACTORS AND OTHER HEALTHCARE PROVIDERS

Chiropractors Versus Physicians

Physicians and chiropractors often see many patients complaining of musculoskeletal ailments.³⁶³ However, physicians have been perceived as significantly more uncomfortable sharing care with chiropractors than the converse, though “neither group is particularly oriented toward wanting to share care.”³⁶⁴ Unfortunately, poor communication between physicians and chiropractors can result in lower quality care.³⁶⁵ Chiropractors may compete with *physiatrists* (physicians specializing in physical medicine and rehabilitation, see chapter 3, *Physical Medicine and Rehabilitation*) who evaluate, diagnose, and treat patients with health conditions of the musculoskeletal system and may provide similar pain alleviating services as chiropractors.³⁶⁶ Lastly, because various orthopedic problems are responsive to chiropractic treatments, competition may exist between chiropractors and physicians specializing in orthopedic care (see chapter 3, *Orthopedic Surgery*).³⁶⁷ However, many physicians collaborate with chiropractors in the

provision of care to offer a “comprehensive set of conservative strategies that can potentially improve clinical outcomes and enhance patient compliance.”³⁶⁸

Studies have shown conflicting results regarding whether chiropractic care is more expensive than medical care. For example, a 1996 cost comparison study reported that medical treatment resulted in anywhere from 30 percent to 217 percent higher total expenditures than chiropractic treatment. However, a 2005 study reported that chiropractic care was 51.9 percent more expensive than medical care, largely because of the greater number of patient visits required for chiropractic care.³⁶⁹ However, the study found that there was little to no difference in effectiveness of care between physicians and chiropractors, though patients reported higher satisfaction with chiropractic care due to more satisfactory levels of communication.³⁷⁰ On average, treatment for low back pain costs a total of \$369 for medical care by a physician and \$560 for chiropractic care.³⁷¹

Chiropractors Versus Physical Therapists (PTs)

Physical therapists (PTs) (see chapter 4, *Rehabilitation Therapists*) work to help patients improve or restore mobility and function and alleviate pain through exercise, movement, massage, and the use of assistive and adaptive devices.³⁷² As chiropractic services become more accepted by the medical community, chiropractors and PTs are coming into direct competition for provision of services, including spinal manipulation.³⁷³ However, PTs maintain the competitive edge, because they have an established relationship with the medical community (a primary source of patient referrals), and PT services are more acceptable to many insurance providers than are chiropractic services.³⁷⁴ Nonetheless, chiropractors have more experience and success with spinal manipulation than have PTs.³⁷⁵

Although PT programs have begun to implement spinal manipulation into their curriculums, PT training in this area remains inconsistent.³⁷⁶ As such, physical therapists are excluded from Medicare reimbursement for spinal manipulation to correct a subluxation.³⁷⁷

Note, however, that the American Physical Therapy Association has declared that by 2020, physical therapy will be offered by individuals licensed as Doctors of Physical Therapy, which will likely increase competition between chiropractors and physical therapy practices.³⁷⁸

Chiropractors Versus Massage Therapists

Massage therapy (see chapter 7, *Massage Therapy*) has been shown to be an effective treatment for back pain, neck pain, and headaches.³⁷⁹ In addition to the open access that patients have to massage and routine referrals from orthopedic surgeons, cardiologists, and physicians, this result puts massage therapists and chiropractors in direct competition.³⁸⁰ Approximately 30 percent of people who have had a least one massage in the past five years did so for health reasons, and 88 percent agreed it was an effective means of reducing pain.³⁸¹ However, although insurance coverage of massage is increasing, most patients must pay out of pocket for treatment. Additionally, many massage therapists lack rigorous training, and they are unable to diagnose more severe conditions beyond the scope of massage treatments.³⁸² Note, however, that some chiropractors collaborate with massage therapists offering massage treatment in their offices.³⁸³

COLLABORATION

Through the application of evidence-based medicine, there has been a surge in cooperation among chiropractors, allopathic physicians, allied healthcare providers, ancillary therapists, and support staff.³⁸⁴ Despite any expense differences, in 2002, more than 97 percent of chiropractors referred their patients for

medical care, and slightly more than 50 percent of family practitioners returned the referral.³⁸⁵ Although controversial, multidisciplinary practices between physicians and chiropractors have become more popular in the past decade, opening up new patient bases for chiropractors and resulting in increased acceptance of chiropractic treatments.³⁸⁶

More than 97% of chiropractors reported that they refer their patients for medical care as needed and slightly more than 50% of family practitioners returned the referral.

"Chiropractic Health Care in Health Professional Shortage Areas in the United States," By Monica Smith, American Journal of Public Health, Vol. 92, No. 12 [December 2002], p. 2001.

Due to the overlap in services provided by chiropractic and PT practices, chiropractors often collaborate with PTs.³⁸⁷ As a result, chiropractors may join a multidisciplinary practice with an authorized professional, such as a physician, who can refer patients to the PT, in order to avoid violations of Stark law regarding patient referrals.³⁸⁸ See chapter 3 of *An Era of Reform* for more information on the impermissibility of patient referrals under federal regulations.

Because many orthopedic problems respond to chiropractic techniques, medical orthopedists often collaborate with chiropractors to provide enhanced interdisciplinary care to patients experiencing musculoskeletal conditions.³⁸⁹ Creating a continuum of care between the two professionals helps to improve patient outcomes.³⁹⁰

TECHNOLOGY

Chiropractors use more “hands on” treatment techniques than physicians, and, as a result, typically utilize technology differently than many other medical practitioners.³⁹¹ Chiropractors use technology to increase efficiency in adjustment procedures, muscle relaxation techniques, and diagnostics. They also use technology automated manipulation, radiology, and laser technology.³⁹² The primary concern with technology in the chiropractic profession is that most of the procedures do not have much documented scientific evidence of their superiority to other techniques and are, therefore, not covered by many insurance companies or Medicare.³⁹³ However, some of the more commonly used technological developments, such as the activator, “a mechanical spring-loaded tool” that is 800 times faster and gentler than a manipulative thrust done by hand, are accepted.³⁹⁴

While chiropractors are observing advances in both clinical and management technologies, (discussed generally in chapter 5 of *An Era of Reform*), surface electromyography (SEMG), radiology, and piezoelectric sensors are three examples of areas in which chiropractors are seeing change.

SURFACE ELECTROMYOGRAPHY

Surface electromyography (SEMG) is a noninvasive procedure used to measure muscle activity as the muscles contract.³⁹⁵ SEMG is used for the rehabilitation of skeletal muscles, and it allows practitioners to assess muscle function.³⁹⁶ Various SEMG measures also can be used to assess low back pain (LBP).³⁹⁷ Although some research questions the utility of SEMG technology, certain SEMG measures (for example, flexion-relaxation ration) “hold promise of being an objective marker of LBP.”³⁹⁸

RADIOLOGY

Many chiropractic practices use x-rays as a diagnostic tool (diagnostic imaging discussed in chapter 5 of *An Era of Reform*). However, a growing concern exists that an unreasonable reliance on radiology equipment delays and potentially prevents the use of more appropriate procedures.³⁹⁹ Additionally, without obvious symptoms indicating certain pathology for a particular patient ailment, the use of radiography as a diagnostic tool has a low success rate.⁴⁰⁰ Partially in response to concerns, the National Clearinghouse, a division of the Agency for Health Care Policy and Research, recently released a comprehensive database of clinical practice guidelines for the appropriate use of diagnostic imaging in specific clinical presentations.⁴⁰¹ The guidelines are meant for chiropractors and other primary care providers so that they may reduce variations in practice and provide more rational basis for referrals through a scientific, evidence-based approach.⁴⁰²

A list of “red flag” symptoms of serious disease that mean an x-ray may be required as described by Craig Liebenson: being at an age younger than 20 or older than 50, trauma, history of cancer, night pain, fever, weight loss, pain at rest, significant corticosteroid use, recent infection, generalized systemic disease (diabetes), failure of four weeks of conservative care, cauda equina, saddle anesthesia, sphincter disturbance, and motor weakness in lower limbs.

“Was that X-ray Necessary,” By Warren Hammer, *Dynamic Chiropractic*, Vol. 25, Issue 05 [February 26, 2007];
“Rehabilitation of the Spine: A Practitioners Manual,” By Craig Liebenson, Lippincott, Williams, and Wilkins, 2007, pg. 72-90.

PIEZOELECTRIC SENSOR

The **piezoelectric sensor** “collects data in response to applied mechanical stress, registers information faster than the body can react to the pressure, thus giving an accurate measurement of the position of the vertebra in the spine.”⁴⁰³ This NASA-developed instrument instantaneously compiles data into a graph, and it allows the chiropractor to allow more precise adjustments.⁴⁰⁴ The device is handheld, may be used on patients of all ages, and allows chiropractors and their patients to focus on spinal corrections, rather than simply alleviating symptoms.⁴⁰⁵

CONCLUSION

The aging baby boomer generation has reported more pain when performing everyday physical tasks than any other age group.⁴⁰⁶ The demands of an aging population for therapies that improve quality of life, alternative therapies, and new patient markets (that is, ergonomic consulting) are driving the chiropractic profession.⁴⁰⁷ Nonetheless, chiropractors are working harder and earning less than in past years.⁴⁰⁸ Since 2004, salaries for chiropractors have steadily declined, while school tuition and advertising costs have increased.⁴⁰⁹ Reductions in managed care reimbursements are forcing chiropractors to see more patients or to switch to cash-only practices.⁴¹⁰ Additionally, although more than one third of Americans reported using alternative therapies for neck and back pain, chiropractic has the largest decline in use for alternative treatments, namely, a decrease of 2.5 percent in recent years.⁴¹¹

Chiropractic has the largest decline in use for alternative treatments, seeing drops of 2.5% in recent years.

"Chiropractic's Current State: Impact for the Future," By Robert D. Mootz, Journal of Manipulation and Physiological Therapeutics, Vol. 30, 2007, p. 1.

Demand for chiropractic services is projected to increase, but chiropractors have done very little to take advantage of their position.⁴¹² Chiropractors historically have advertised themselves as specializing in wellness and prevention, but only 9.3 percent of patients reported using chiropractors as a source of preventative care.⁴¹³ In addition, literature suggests that the majority of research validating chiropractic care focuses on its effectiveness in the treatment of back and neck pain, promoting faulty perceptions of chiropractic practice, and potentially affecting its future niche in the healthcare industry.⁴¹⁴

Only 9.3% of patients use chiropractors as a source of preventative care.

"The Future of Chiropractic Revisited: 2005 to 2015," The Institute for Alternative Futures, January 2005.

Psychology

OVERVIEW

The study of **psychology**, dating back to ancient Greece, has evolved into a highly specialized area of medical practice related to the understanding of human behavior.⁴¹⁵ "The discipline embraces all aspects of the human experience . . . in every conceivable setting."⁴¹⁶ Psychologists can practice in a variety of locations, including hospitals, clinics, schools, and private practices.⁴¹⁷

DESCRIPTION AND SCOPE

SCOPE

Research psychologists study the physical, emotional, cognitive, and social aspects of human behavior.⁴¹⁸ Psychologists conduct psychological and neuropsychological testing, make clinical diagnoses, and design treatment plans for patients.⁴¹⁹ Psychologists may not prescribe medication by law in forty-eight states, the exceptions being Louisiana and New Mexico.⁴²⁰ Psychologists who practice in health-related fields provide care in clinics, hospitals, schools, and private settings.⁴²¹ Those who choose to work in applied settings, such as businesses, industries, governments, and nonprofit organizations, provide training, conduct research, and design organizational systems.⁴²²

EDUCATION AND TRAINING

Generally, a doctoral degree is required in order for a psychologist to practice independently.⁴²³ Psychologists with a doctoral degree (PhD) or a Doctorate of Psychology (PsyD) complete five to seven years of graduate study.⁴²⁴ Additionally, PhD degrees require completion of a dissertation based on independent research.⁴²⁵ Course work for PhD candidates focuses primarily on research methods, and a PsyD degree emphasizes clinical training.⁴²⁶ Psychologists with a doctoral degree can work in private practices or clinical settings.⁴²⁷

Stanley Hall introduced the first psychology lab at Johns Hopkins University.

"What is Psychology? What Are The Branches of Psychology," By Nordqvist, Christian, Medial News Today, 06/22/2009, <http://www.medicalnewstoday.com/article/articles/154874.php> (Accessed 7/13/2009).

SPECIALTIES

In 1995, the American Psychological Association established the Commission for the Recognition of Specialties and Proficiencies in Professional Psychology (CRSPPP), a governing body that "coordinate[s] policies and procedures to improve quality and process in recognition of specialties and proficiencies in professional psychology . . ." ⁴²⁸ CRSPPP recognizes "eleven specialties, including (1) clinical neuropsychology, (2) clinical health psychology, (3) psychoanalysis psychology, (4) school psychology, (5) **clinical psychology**, (6) clinical child psychology, (7) counseling psychology, (8) industrial-organizational psychology, (9) behavioral psychology, (10) forensic psychology, and (11) family psychology.⁴²⁹ Additionally, the CRSPPP recognizes proficiencies including police psychology, biofeedback, clinical geropsychology, psychopharmacology, treatment of alcohol and other psychoactive substance use disorders, sport psychology, and assessment and treatment of serious mental illness.⁴³⁰ Recognition of psychologist specialties and proficiencies serves to inform the public about the practitioner's background and area(s) of expertise.⁴³¹

The **American Board of Professional Psychology (ABPP)** is the governing body that oversees accrediting specialty boards.⁴³² To become board certified in a specialty, a candidate must have a doctorate degree from an accredited program, be licensed in his or her state, and pass a specialty-specific examination administered by one of the thirteen specialty boards recognized by the ABPP.⁴³³

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

A majority (90 percent) of professionals working in the mental health field are non-Hispanic Caucasians.⁴³⁴ The median age of the doctoral workforce in is 54.5 years old.⁴³⁵ Because many mental health professionals are part of the aging baby boomer population, younger mental health workers are needed to ensure adequate supply of practitioners in the future.

Statistics show that more women are entering the psychology field than ever before, dramatically changing the gender composition of the profession. In 2005, women made up nearly three quarters of enrolled students in psychology graduate programs.⁴³⁶ Today, women comprise 72 percent of psychologists with a PhD or PsyD, a 52 percent increase from 20 percent in 1970.⁴³⁷

According to the American Psychological Association, in 2005, approximately 85,000 individuals earned their bachelor's degree in psychology, 18,000 individuals graduated with a master's level education and 5,000 doctoral degrees were awarded.

"Graduate Education in Psychology," By American Psychological Association. <http://www.apa.org/ed/graduate/considering.html> (Accessed 7/13/2009).

A significant portion of the psychology workforce practices in urban areas, leaving rural populations underserved, with more than 85 percent of the 1,669 federally designated mental health shortage areas located in rural settings.⁴³⁸ In fact, approximately half of the counties in the United States are not serviced by mental health professionals at all.⁴³⁹

More than 85% of the 1,669 federally designated mental health shortage areas are rural in nature.

"An Action Plan for Behavioral Health Workforce Development," By The United States Department of Health and Human Services Substance Abuse and Mental Health Services Administration, 06/22/2007, p. 7, <http://www.samhsa.gov/Workforce/Annapolis/WorkforceActionPlan.pdf> (Accessed 6/30/2009).

SUPPLY AND DEMAND

Researchers estimate that more than 500,000 mental health professionals practiced in the United States in 2002.⁴⁴⁰ Although the mental health field as a whole has experienced a decline in growth, the doctorate-level psychologist workforce has doubled in size during the past twenty-five years.⁴⁴¹ In 2006, 166,000 psychologists were practicing in the United States, and analysts project that the workforce will increase by 15 percent by 2016.⁴⁴²

Due to developing awareness of mental health issues and advancements in the field, demand for psychologists is projected to grow.⁴⁴³ Growth will vary by specialty and may stem from increases in prevention and treatment of addiction, increases in employment-based mental health programs, and awareness of students' mental health problems.⁴⁴⁴ However, as with most professions, the large number of retirement-aged practitioners raises concerns that supply in coming years will be insufficient to meet demand for healthcare services.⁴⁴⁵

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

STATE LICENSING

Practicing psychologists must be licensed in the jurisdiction in which they practice.⁴⁴⁶ Although psychology licensure requirements vary from state to state, most state boards require a doctoral degree from an accredited program, at least 3,000 hours of supervised experience, and passage of an objective examination.⁴⁴⁷ Because licensure requirements create challenges for psychologists who wish to relocate, the Association of State and Provincial Psychology Boards has created programs to facilitate mobility for practitioners.⁴⁴⁸

Some states may allow exemptions from licensure requirements for those who practice in government agencies, educational institutions, or research laboratories.⁴⁴⁹ However, in order to ensure that both public and private patrons are receiving quality care, states are tending toward the implementation licensing requirements for government agency employees.⁴⁵⁰

FEDERAL REGULATION OF PSYCHOLOGY

The importance of mental health service coverage has historically been ignored by U.S. insurance providers.⁴⁵¹ In an effort to put mental health on the same footing as medical health, the U.S. Congress passed the 1996 Mental Health Parity Act.⁴⁵² The act ensures that annual or lifetime dollar limits allotted for mental health benefits cannot be any lower than similar dollar limits for medical benefits under a group health plan.⁴⁵³

In 2008, Congress amended the Mental Health Parity Act, enacting the Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA).⁴⁵⁴ The act aims to end inequity in health insurance benefits between medical or surgical benefits and mental health or substance abuse for group health plans of fifty or more employees.⁴⁵⁵ It is more comprehensive than the 1996 act, and, effective January 1, 2010, it will ensure that approximately 113 million people will have access to “non-discriminatory mental health coverage.”⁴⁵⁶

REIMBURSEMENT

Access to mental health care is primarily contingent upon an individual’s health insurance coverage. In 2007, 67.5 percent of individuals were covered by private health insurance generally, with 59.3 percent of individuals covered by an employment-based plan.⁴⁵⁷ Government insurance plans accounted for 27.8 percent of the insured population, and 15.3 percent of individuals were uninsured.⁴⁵⁸

The MHPAEA expanded the rights of mentally ill patients, who were untreated due to a lack of insurance.⁴⁵⁹ On January 29, 2010, the Obama administration released new rules clarifying the 2008 federal law.⁴⁶⁰ Under these new rules, large employers and group health plans cannot provide less mental health coverage than for physical ailments. In addition, insurers cannot set higher deductibles for mental health care nor establish a deductible separate from physical treatment.⁴⁶¹ Insurers may, however, still review claims regarding medical necessity and require prior approval of services.⁴⁶² Proponents of the new rules claim that combined deductibles will make insurance reimbursement more efficient, because many patients with mental disorders also have a covered physical condition.⁴⁶³ Critics point out the likely

increase in costs, although premiums are only predicted to rise 0.4 percent.⁴⁶⁴ In addition, businesses with fewer than fifty-one employees are exempt due to cost considerations.⁴⁶⁵

PUBLIC PAYORS

Medicare

The government, including both state and local levels, is the major payor for public mental health services.

"Organizing and Financing Mental Health Services," By Surgeon General U.S. Public Health Service, Mental Health: A Report of the Surgeon General, 1999, p. 407, <http://www.surgeongeneral.gov/library/mentalhealth/home.html> (Accessed 6/30/2009).

Medicare reimbursement varies for psychological services depending on whether the services are performed by a clinical psychologist or an independently practicing psychologist. With regard to the former, Medicare reimburses both inpatient and outpatient care, including diagnostic and therapeutic services.⁴⁶⁶ Medicare covers "services furnished by a clinical psychologist . . . that are within the scope of his or her State license, if the services would be covered if furnished by a physician or as an incident to a physician's services."⁴⁶⁷ However, independently practicing psychologists may only receive reimbursement for diagnostic services (not therapeutic services).⁴⁶⁸

Although other allied health providers, such as dentists, optometrists, chiropractors, and podiatrists, are included in the hospital definition of "physicians," as defined by the CMS, but psychologists are not.⁴⁶⁹ Nonetheless, psychologists are authorized by Medicare to furnish mental health treatment, including the performance and supervision of any hospital outpatient therapeutic services that they are qualified to provide.⁴⁷⁰ However, because psychologists are excluded from the limited hospital definition of physician, in hospital settings, psychologists providing treatment under Medicare often are required to have physician supervision when rendering services.⁴⁷¹ Additionally, hospitals are *not* reimbursed for psychology training programs, despite the fact that professionals from nineteen other allied health professions receive Medicare training reimbursement.⁴⁷²

Medicaid

Because mental health services are not delineated as a separate "mandated" or "optional" service (see *Industry Trends and Highlights in the Four Pillars* for a brief overview of "mandated" versus "optional" Medicaid services), states may deliver psychological services through either method.⁴⁷³ However, state Medicaid plans, which include psychological coverage, generally provide mental health services through optional clinic or rehabilitative services.⁴⁷⁴

Today, approximately twenty-five state Medicaid programs offer services by a psychologist in independent practice for adults.⁴⁷⁵ However, because psychological benefits are not mandatory under Medicaid, several state plans have cut psychological benefits in response to state cutbacks in Medicaid expenditures.⁴⁷⁶

TRICARE

TRICARE is a family of health plans for the Military Health System.⁴⁷⁷ Among the host of benefits that TRICARE provides, it covers mental health services for members of the military and their families.⁴⁷⁸

TRICARE recently has expanded reimbursement for mental health care; in 2008, mental health reimbursement rates increased by 5 percent for twenty-four services.⁴⁷⁹ See chapter 2 of *An Era of Reform* for more detail regarding billing and reimbursement practices under TRICARE.

PRIVATE PAYORS

Historically, insurance companies have discriminated against individuals seeking mental health treatment by placing limits on visits, increasing co-payments, and instituting higher deductibles and increased out-of-pocket expenditures.⁴⁸⁰ Although 97 percent of plans provide some sort of mental health benefits, mental health conditions have not been covered to the same extent as physical conditions.⁴⁸¹ In 2004, 87 percent of Americans cited lack of insurance coverage as a top reason for not seeking mental health services,⁴⁸² and, in 2005, 5.7 million adults in need of mental health services did not seek treatment due to cost of care or insurance issues.⁴⁸³ However, the 2008 passage of the MHPAEA ensures that group plans with more than fifty employees (whether self-funded or fully insured) provide equal coverage for mental health and physical health conditions.⁴⁸⁴ Although the act is a huge step away from arbitrary limits on mental health coverage, it is not applicable to the individual insurance market, leaving much room for improvement.⁴⁸⁵

CARVE-OUTS

“**Carve-out**” refers to a service that is separated from all insurance risk and is covered by a separate contract between the insurer and the carve-out vendor.⁴⁸⁶ Carve-out strategies commonly are used by insurance companies for mental health services, such that “mental health and substance abuse services are separated from other types of health care services and managed by a specialty vendor who may assume some level of financial risk.”⁴⁸⁷ Research shows that mental health carve-outs can decrease the cost of mental health services, even when the total number of users increases.⁴⁸⁸

COMPETITION

COMPETITION BETWEEN PSYCHOLOGISTS AND OTHER HEALTHCARE PROVIDERS

Psychologists and psychiatrists (see *Psychiatry*) have a long history of competition in the United States, despite significant differences in their educational requirements and scope of practice.⁴⁸⁹ The primary distinction between the two professions is the education required: psychologists earn a doctoral degree (that is, Ph.D. or Psy.D.), whereas a psychiatrists earn a medical degree (M.D.).⁴⁹⁰ Additionally, both psychologists and psychiatrists make clinical diagnoses based on the *Diagnostic and Statistical Manual of Mental Disorders*,⁴⁹¹ but psychologists in most states do not have legal authority to prescribe medications, whereas psychiatrists do.⁴⁹²

In 1952, the American Psychiatric Association Committee on Nomenclature and Statistics developed an alternative to the ICD-6, and was published as the first edition of the *Diagnostic and Statistical Manual: Mental Disorders (DSM-I)*.

“Diagnostic and Statistical Manual of Mental Disorders, Forth Edition,” By American Psychiatric Association, 1994, p. xvii.

The dwindling population of psychiatrists has fueled debate regarding psychologists' prescribing rights.⁴⁹³ However, since 1990, twelve states have rejected legislation that would allow psychologists to have prescribing privileges.⁴⁹⁴ As of 2010, New Mexico and Louisiana are the only two states that grant licensed doctoral-level psychologists prescribing rights.⁴⁹⁵ Oregon, which is currently suffering a shortage of psychiatrists, is also considering granting prescribing rights to certain licensed psychologists upon passage of Senate Bill 1046, pending in Oregon legislature at the time of publication.⁴⁹⁶

New Mexico and Louisiana are the only two states that allow licensed, doctoral level psychologists to have prescribing rights.

"Louisiana Grants Psychologists Prescriptive Authority," By Holloway, Jennifer D., American Psychological Association, 5/5/2004, <http://www.apa.org/monitor/louisianarx.html> (Accessed 7/14/2009).

The most significant overlap of care between psychologists and psychiatrists is found in the field of psychotherapy. However, studies show that competition is waning.⁴⁹⁷ Reimbursement policies favoring brief medication management visits rather than psychotherapy have led office-based psychiatrists to provide more pharmacotherapy and less psychotherapy services.⁴⁹⁸

COLLABORATION

Collaboration With Other Psychologists

Individuals who have earned a Bachelor of Science in psychology or a master's degree in psychology often work side by side with doctoral-level psychologists. A bachelor's degree in psychology qualifies an individual to assist psychologists and other related professionals in community mental health centers, rehabilitation centers, and correctional programs.⁴⁹⁹ Areas of practice for this degree also may include research, administrative, or technical services.⁵⁰⁰

Individuals who earn a master's degree in psychology may work as industrial-organizational psychologists or psychological assistants to conduct research under the supervision of doctoral psychologists.⁵⁰¹ Training for the master's of psychology degree requires approximately two years of post-graduate work.⁵⁰² Requirements can include practical application in an applied setting and completion of an independent thesis.⁵⁰³ Generally a graduate degree is required for positions in academics, research, or in applied settings.⁵⁰⁴

Collaboration With Primary Care Providers

Primary care providers play a significant role in mental health care, furnishing more than 50 percent of total treatment.⁵⁰⁵ Mental health organizations are lobbying for an integration of mental health into primary care on the theory that higher quality care results from collaboration between primary care physicians and psychologists.⁵⁰⁶ Unfortunately, reimbursement barriers have prevented widespread adoption of this collaborative care model.⁵⁰⁷

According to the American Psychological Association, approximately 70 percent of psychiatric medications are prescribed by general practitioners.

"Prescribing Privileges for Psychologists: An Overview," By National Alliance on Mental Illness, http://www.nami.org/Template.cfm?Section=Issue_Spotlights&template=/ContentManagement/ContentDisplay.cfm&ContentID=8375 (Accessed 6/30/2009).

TECHNOLOGY

Technological developments not only have served to increase access and quality of care for physical health services, but they also have dramatically improved access and quality of mental health care services. **Psychotechnology** describes technologies designed specifically for delivery of mental health services and may include channels (for example, telephone lines) or devices (for example, computers, modems, and so forth).⁵⁰⁸ *Behavioral telehealth* is the use of psychotechnologies to provide behavioral health care services and provides a way for practitioners to intervene and assess patients at distant locations by use of the Internet or other technology.⁵⁰⁹ Provision of mental health services is among the fastest growing trends in telehealth.⁵¹⁰ Online treatment programs, self-help chat rooms, adherence-enhancing strategies (for example, e-mail reminders of appointments), and consultation services are common methods utilized to provide mental health services to distant populations.⁵¹¹ For more information on telehealth, see chapter 5 of *An Era of Reform*.

CONCLUSION

The importance of mental health care services, such as psychology, historically has been ignored. The MHPAEA was an important step toward equating coverage between mental and physical health care needs. However, with healthcare reform on the horizon, psychologists are calling for even more change. Practitioners are “urg[ing] policymakers to integrate psychology services into primary care, preventative services, and benefit packages.”⁵¹² Mental health professionals stress that integration of psychological services into primary care and preventative care would likely result in improved outcomes, functioning, and quality of life for patients.⁵¹³ Psychologists are also asking to be included in Medicare’s definition of “physician” in order to increase access to care.⁵¹⁴ Additionally, the rising supply of doctoral-level psychologists, the declining levels of psychiatrists, and the general increasing awareness of mental health issues has spurred psychologists to lobby for expansion of their professional services to include prescribing rights.⁵¹⁵ However, trends indicate that lawmakers are generally resisting such expansion, with only two states expanding the scope of services psychologists may provide.⁵¹⁶ Nonetheless, psychologists continue to push lawmakers toward psychologist-friendly policies to increase both access and quality of care for patients requiring mental health services.

Podiatry Practices

OVERVIEW

The recognition of podiatry as a healthcare profession is relatively recent, but podiatry itself is as old as medicine.⁵¹⁷ The demand for foot care has existed for millennia and can be traced back to ancient Egyptian and Greek civilizations.⁵¹⁸ However, modern podiatry (or as it was then called, chiropody) can be traced back to 1845 when Lewis Durlacher of Germany authored a book on the general management of the feet.⁵¹⁹

The founder of podiatry is considered to be Lewis Durlacher in 1845.

"Podiatric Medicine: The Evolution of Practice and Formal Education," In "Principles and Practice of Podiatric Medicine," By Leonard A Levy, Churchill Livingstone, 1990, p. 5.

In 1846, the first U.S. chiropodist office was opened by Nehemiah Kenison in Boston.⁵²⁰ Prior to 1912, podiatrists trained by serving under a preceptor.⁵²¹ In 1917, the first charter was obtained for an institute of podiatry in New York.⁵²² By 1937, the formal training period to become a podiatrist was raised to four years.⁵²³ Finally, in 1939, the AMA gave formal recognition to the practice of podiatry.⁵²⁴

The American Medical Association gave formal recognition to podiatry in 1939.

"Podiatric Medicine: The Evolution of Practice and Formal Education," In "Principles and Practice of Podiatric Medicine," By Leonard A Levy, Churchill Livingstone, 1990, p. 3.

DESCRIPTION AND SCOPE

SCOPE

Podiatry is a health profession concerned with medical and surgical diagnoses and treatment of disorders of the foot, ankle, and related structure of the leg.⁵²⁵ Podiatrists are the only medical professionals "trained exclusively to provide total care of the foot."⁵²⁶

Podiatrists are the only medical professionals "trained exclusively to provide care of the foot."

"Career As a Podiatrist," In "Career As A Podiatrist" By the Institute for Career Research, the Institute for Career Research, 2002, p. 5.

Podiatric treatment can include a multitude of invasive and noninvasive therapies. Treatments can include the prescription of medication, **orthotics**, or both; surgical procedures; the establishment of the therapeutic programs; and the application of appliances to feet or footwear.⁵²⁷ Podiatrists assess patients through studies of case histories, physical examinations, laboratory testing, diagnostic imaging, and other diagnostic procedures.⁵²⁸ If a condition is outside the scope of podiatric practice, the podiatrist will refer patients to the appropriate healthcare provider.⁵²⁹

EDUCATION AND TRAINING

A podiatrist is a Doctor of Podiatric Medicine (DPM) and also is referred to as a podiatric physician or a podiatric surgeon.⁵³⁰ Initially, schools conferred as many as three different degrees upon graduates.⁵³¹ However, by 1964, all podiatric medical schools began conferring the standardized degree of DPM.⁵³²

To become a podiatrist, an individual must complete at least three years (ninety credit hours) at an accredited college institution and an additional four to six years of study at a podiatric medical school, as well as receive a passing score on the national and state licensing exams (National Board examinations).⁵³³ The podiatric medical school must be accredited by the Council on Podiatric Medical Education, which is recognized by the Council for Higher Education Accreditation and the U.S. Department of Education.⁵³⁴

The first two years of podiatric education focus on classroom instruction and laboratory work in the basic sciences.⁵³⁵ The last two years focus on clinical sciences and patient care judgment.⁵³⁶ After the completion of the four-year academic curriculum, candidates are required to complete a minimum of two years of residency training at an approved healthcare institution.⁵³⁷ Upon completion of an approved residency program, podiatrists may take specialty certifying boards.⁵³⁸

SPECIALTIES

As of 2010, specialty certifying boards exist in the recognized areas of podiatric orthopedics, podiatric surgery, and primary podiatric medicine.⁵³⁹ However, in preparation to become a podiatrist through a residency program, students can develop specializations in one or more areas of podiatric medicine (see table 6-6).⁵⁴⁰

There are only three recognized areas of specialty in podiatry: Surgery, Primary Care, and Orthopedics.

"Specialty Certifying Boards," By Council on Podiatric Medical Education, Council on Podiatric Medical Education, 2009, <http://www.apma.org/Members/Education/CPMEAccreditation/SpecialtyCertifyingBoards.aspx> (07/20/2009).

Table 6-6: Podiatric Specialties*

Specialty	Description
Podiatric Orthopedics	Podiatric orthopedics is the treatment of foot and leg structures and functions through the use of orthotics, prosthetics, and special footwear.
Podiatric Surgery	Podiatric surgery is the treatment of foot and ankle problems through the use of operative procedures.
Podiatric Primary Care	Podiatric primary care is the diagnosis, treatment, and prevention in the family healthcare environment of podiatric conditions.
Podiatric Sports Medicine	Podiatric sports medicine is the diagnosis, treatment, and prevention of podiatric disorders in athletes.
Podopediatrics	Podopediatrics is the diagnosis, treatment, and prevention of children's foot podiatric problems.
Wound Care and Management	Wound care and management is the treatment and prevention of wounds to the foot and legs, including those related to chronic disease, such as diabetes.

* "Specialty Areas in Podiatric Medicine" By Barry University School of Podiatric Medicine, Barry University, 2009, <http://barry.edu/podiatry/SpecialtyAreas.htm> (7/13/2009).

INDUSTRY TRENDS

CHARACTERISTICS AND DISTRIBUTION

Historically, the podiatrist population has been comprised by Caucasian (non-Hispanic) men. In 1970, approximately 95 percent of all active podiatrists were men.⁵⁴¹ However, as of 2000, women comprised 26 percent of all active podiatrists.⁵⁴² The shift in the gender composition of the podiatry field is likely to

continue, because 48 percent of those being conferred a D.P.M. in 2008 were women.⁵⁴³ Conversely, the ethnic makeup of the field has remained relatively homogenous; in 2007, 89 percent of podiatrists were white (non-Hispanic), which was a decrease from 91 percent reported in 1996.⁵⁴⁴

The gender composition of the podiatric profession is shifting. In 1970, men comprised 95% of all podiatric professionals, compared to 74% in 2007.

"Podiatry Manpower: Characteristics of Clinical Practice United States-1970," By U.S. Department of Health, Education, & Welfare, DHEW, 1974, p. 60; *"Podiatry Medicine Workforce Study"* By Center for Workforce Studies, University of Albany, 2007, p. 7.

In addition to shifts in gender and race, there also have been changes to the age composition of the podiatry workforce. In 1970, the median age of active podiatrists was fifty-one years old, as compared to a median of forty-five years old in 2000.⁵⁴⁵ There is also a noticeable disparity between the median age of active podiatrists (forty-five years old) and the median age of the civilian workforce (thirty-nine years old), indicating the potential for a younger, replacement workforce to meet demand.⁵⁴⁶

Podiatrists can work in a wide array of settings, and may practice solo, in hospitals, offices of other health professionals, podiatry groups, for the federal government, or in academia.⁵⁴⁷ Few podiatrists practice in a solo setting (3 percent) or for the federal government (1 percent).⁵⁴⁸ The lack of solo podiatrist practices may be due to the tendency toward reduced compensation for practices with few or one practitioner (see *Competition Between Podiatrists*). Of the remaining podiatrists, 23 percent work in the offices of other health professionals, and 21 percent are employed by hospitals.⁵⁴⁹

SUPPLY AND DEMAND

In 2006, approximately 12,000 podiatrists practiced in the United States, with a projected employment of 13,000 by 2016.⁵⁵⁰ Estimates by the U.S. Bureau of Labor Statistics (BLS) indicate that the field will grow about as fast as the average for all occupations (9 percent).⁵⁵¹ However, trends in graduation rates of podiatrists will have a significant effect on the supply of podiatrists. The number of graduates from D.M.P. programs in the United States has waned from 680 in 1995–96 to 444 in 2007–08.⁵⁵²

The number of graduates from DMP programs in the U.S. is decreasing, dropping from 680 in 1995-96 to 444 in 2007-08.

"Podiatry Medicine Workforce Study," By Center for Workforce Studies, University of Albany, 2007, p. 1; *"DPM Degrees Conferred by College, Ethnic ID, and Gender Class of 2008,"* By Office of Graduate Services, American Association of Colleges of Podiatric Medicine, July 2008.

The demand for podiatrists is driven by three components: (1) the aging population, (2) the prevalence of obesity, and (3) an increase in the prevalence of diabetes.⁵⁵³ According to projections, approximately 60 percent of the U.S. population growth from 2010 to 2030 will be in the sixty-five and older age group.⁵⁵⁴ Obesity rates have climbed from 10 percent in 1990 to 25 percent in 2007 and are expected to further increase to 40 percent in 2020.⁵⁵⁵ Additionally, the Centers for Disease Control and Prevention estimates that the prevalence of individuals with diabetes will increase from 16.2 million in 2005 to 48.3 million in 2050.⁵⁵⁶ As three components are increasing faster than the U.S. population during the next twenty-five years, it will "almost certainly result in accelerated increases in demand for podiatric

medicine services.”⁵⁵⁷ If current trends continue, experts project that by 2010 there will be the need for approximately 14,916 podiatrists, and, by 2020, an additional 2,114 podiatrists will be needed to meet the demand for services.⁵⁵⁸

The drop in supply of podiatrists, coupled with the increased demand for their services has created a situation in which demand has outstripped supply. The Health Resources and Service Administration forecasts a need for 15,910 podiatrists by 2015, yet predictions by the BLS estimate that there will be roughly 13,000 active podiatrists.⁵⁵⁹ If the anticipated demand for podiatrist remains the same, graduate schools of podiatric medicine would have to triple the production of graduates in order to meet the growing demand.⁵⁶⁰

HIGHLIGHTS IN THE FOUR PILLARS

REGULATION

STATE REGULATION OF PODIATRY

Licensing

Every state requires podiatrists to be licensed, though licensing requirements and scope of practice vary by state.⁵⁶¹ Licensure requires applicants to both graduate from an accredited podiatric program and pass examinations, which can be written or oral.⁵⁶² Note, however, that some states allow examinations given by the National Board of Podiatric Medical Examiners, during podiatry school, to serve as a substitute for some or all of the state’s written examination requirements.⁵⁶³ In addition to any examinations, many states require some form of post-graduate training or completion of a residency program to achieve full licensure.⁵⁶⁴ Most states mandate continuing education for podiatrists in order to maintain and renew licensure.⁵⁶⁵

All 50 States and the District of Columbia require licensure to practice podiatry.

“Podiatrist,” By American Medical Association, American Medical Association, 2009, <http://www.ama-assn.org/ama1/pub/upload/mm/40/podiatrist.pdf>, (7/21/2009).

To promote mobility among practitioners, many states grant reciprocity to licensed podiatrists who provide services in another state.⁵⁶⁶ For more information on licensing and regulatory requirements by state, visit the Federation of Podiatric Medical Boards’ website at www.fpmb.org.⁵⁶⁷

FEDERAL REGULATION OF PODIATRY

OSHA and the FDA, in conjunction with a multitude of federal agencies, regulate the care provided by podiatrists. See chapter 3 of *An Era of Reform* for more details about federal healthcare regulations.

Occupational Safety and Health Administration

Podiatrists face several occupational health risks, including potential injury from “sharps,” such as scalpels, blades, needles, or syringes; exposure to infections, including Methicillin Resistant *Staphylococcus aureus* (MRSA); aerosolizing procedures that transmit pathogens causing environmental contamination; and exposure to fungi, bacteria, mold, and so forth through the use of sanders or burrs used to trim nails.⁵⁶⁸ As a result, OSHA requires that all medical practices (including podiatrist practices) adhere to OSHA regulations to reduce the number of workplace injuries, illnesses, and deaths.⁵⁶⁹ Although OSHA has not established any regulations specifically related to podiatry, various general industry standards apply to podiatrists. Other OSHA regulations that are generic to all industries may also apply (for example, the requirement to keep material safety data sheets on hand for all chemical hazards encountered on the job).⁵⁷⁰

Food and Drug Administration

The FDA is an agency within the HHS that is responsible for assuring the safety and security of food, biological products and therapies, devices, cosmetics, and products that emit radiation.⁵⁷¹ The FDA is also responsible for ensuring the effectiveness of such products.⁵⁷² As a result, any device or product used by a podiatrists or other medical provider is regulated by FDA guidelines and regulations. Additionally, the FDA monitors adverse events associated with these products to ensure the proper use and safety of patients and healthcare providers.⁵⁷³

REIMBURSEMENT

PUBLIC PAYORS

Medicare

Medicare covers only podiatry services that are considered “medically necessary and reasonable foot care.”⁵⁷⁴ CMS regulation section 410.25, which determines what services are paid for by Medicare, limits the covered services of podiatrists to those services that are “acting within the scope of his or her license, if the services would be covered as physicians’ services when performed by a doctor of medicine or osteopathy.”⁵⁷⁵ CMS regulation section 411.15(I)(2) states that foot care covered by Medicare must be “medically necessary” and an “integral part of a primary covered procedure performed on the foot; or a initial diagnostic service (regardless of the resulting diagnosis) in connection with a specific symptom or complaint that might arise from a condition whose treatment would be covered.”⁵⁷⁶ Pursuant to section 1862 of the Social Security Act, Medicare does not cover routine foot care including but not limited to “the cutting or removal of corns or calluses, the trimming of nails, and other routine hygienic care.”⁵⁷⁷ Medicare also does not cover expenses for orthopedic shoes or other supportive devices, with the exception of shoe inserts for diabetic patients.⁵⁷⁸

CMS only covers podiatric services that are “medically necessary” and an “integral part of a primary covered procedure performed on the foot; or a initial diagnostic service (regardless of the resulting diagnosis) in connection with a specific symptom or complaint that might arise from a condition whose treatment would be covered.” Routine foot care like corn removal, nail trimming, etc., and orthopedic shoes are not a covered expenses.

“Medicare Provides Limited Coverage for Footcare,” By Center for Medicare Advocacy, Inc, Center for Medicare Advocacy, Inc., 2009, http://www.medicareadvocacy.org/PartB_08_03.13.Footcare.htm (10/19/2009).

Medicaid

Podiatric services are optional under Medicaid, and the inclusion of podiatrists under Medicaid, as physicians, is left to the discretion of each states.⁵⁷⁹ The coverage guidelines for states may vary depending on whether the patient is living in a nursing facility or in their home, or may limit coverage to those with systemic conditions (for example, diabetes).⁵⁸⁰ As of October 2008, forty-five state Medicaid programs covered some form of podiatric services.⁵⁸¹

PRIVATE PAYORS

Podiatry is included in virtually all state and national benefit plans due to antimonopoly legislation.⁵⁸² Currently, thirty-eight states require the inclusion of podiatry services in health benefit plans.⁵⁸³ However, there is disparity in fee scheduling between podiatrists and allopathic and osteopathic physicians.⁵⁸⁴ Some PPOs offer podiatrist fee schedules that reimburse at levels 30 percent lower than what is offered to physicians, with some plans offering a fee schedule that is 60 percent of the resource-based relative value scale used by CMS.⁵⁸⁵

38 states mandate podiatric services be included in health plans.

“State Mandated Benefits and Providers—Part 2,” By Office of Policy and Representation, BlueCross BlueShield Association, 2007, <http://www.cahc.net/documents/Acr17.pdf> (7/22/2009).

COMPETITION

The human foot contains 26 bones, 33 joints, 107 ligaments, and 19 muscles, so it is no surprise that 52 million Americans experience foot trouble every year.⁵⁸⁶ In 2002, the majority of all foot care in the United States was provided by podiatrists (39 percent).⁵⁸⁷ The remainder of foot care services was conducted by orthopedic doctors (13 percent), primary care physicians and specialists (37 percent), and other healthcare workers (11 percent).⁵⁸⁸ Podiatrists treat 5 percent of the U.S. population annually for foot-related problems.⁵⁸⁹

COMPETITION BETWEEN PODIATRISTS

Competition is a hot topic among podiatrists. Some individuals in the field argue that the market for podiatry is oversaturated with podiatrists and that fewer practicing podiatrists in the marketplace would be a boon for the field.⁵⁹⁰ However, the “2007 Podiatric Practice Survey” conducted by the American

Podiatric Medical Association appears to challenge this supposition.⁵⁹¹ The survey found that podiatrists who practice in groups are compensated at a rate that is substantially higher than solo practitioners.⁵⁹² Specifically, the median gross income for solo practitioners was \$305,000, as compared to \$825,000 for podiatrists in group practices of six or more.⁵⁹³ Additionally, practitioners who practiced with just one partner had significantly elevated gross incomes in comparison to solo practitioners (median income \$600,000 and \$305,000, respectively).⁵⁹⁴

Podiatrists in group practice earn significantly more money than practitioners in solo practice. In 2007 the median gross income for solo practitioners was \$305,000, compared to \$825,000 for podiatrist in group practices of six or more.

"2007 Podiatric Practice Survey: Statistical Results," By Al Fisher Associates, Inc, Journal of the American Podiatric Medical Association, Vol. 97, no. 3, p. 512.

COMPETITION BETWEEN PODIATRISTS AND OTHER HEALTHCARE PROVIDERS

Competition With Physicians

Both podiatrists and orthopedic surgeons perform surgical procedures on the foot in inpatient and outpatient settings.⁵⁹⁵ As a result, contention regarding the roles and scope of podiatry has arisen between the two professions.⁵⁹⁶ In 2005, the Texas Orthopaedic Association filed suit against the Texas State Board of Podiatric Medical Examiners claiming that the board had overstepped its authority when adopting a new rule "that expanded the definition of the foot to include the bones in the ankle."⁵⁹⁷ The initial ruling in August 2005 sided with the podiatry board.⁵⁹⁸ However, in 2008 the Texas Court of Appeals ruled that "ankle was not within the scope of podiatry."⁵⁹⁹

Orthopedic surgeons also have attempted to pass legislation to limit the scope of practice for podiatrists.⁶⁰⁰ For example, the Florida Orthopaedic Society (FOS) has been attempting to pass legislation since 2006 to "address the expanded scope of practice of podiatrists that poses a severe risk to our patients."⁶⁰¹ In the proposed legislation, the FOS asked to have the scope of podiatrist practice limited to the foot and ankle.⁶⁰²

Cost differentials between podiatric and orthopedic physician care also are the cause of some contention between the two professions. Studies conducted in 1987 and 1997 consistently indicated that the cost per procedure was less expensive for podiatrists, but the total charges were higher for podiatrists.⁶⁰³ One study, focusing on managed care plans in California, stated that podiatrists' charges were 12 percent less per procedure than those of orthopedic surgeons.⁶⁰⁴ However, the study found that podiatrists performed more procedures per visit and spent more time per visit with patients, resulting in 43 percent higher charges per episode of care.⁶⁰⁵

COLLABORATION

Podiatry Assistants

To provide medical services to patients, podiatrists may work in conjunction with a podiatric assistant.⁶⁰⁶

Podiatric assistants are medical assistants who have obtained additional education in the field of podiatry and can aid podiatrists by recording medical histories, taking vital signs, explaining procedures,

and assisting during examinations (for more information on medical assistants, see chapter 5, *Clinical Assistants*).⁶⁰⁷ Additional responsibilities may include developing x-rays and helping prepare patients for procedures.⁶⁰⁸

TECHNOLOGY

Advancements in clinical and practice management technologies are changing the way podiatrists provide quality care. Procedures, such as extracorporeal shockwave therapy (ESWT) and TOPAZ microdebrider; the introduction of antibiotics, such as Tigecycline; and implementation of EHR systems, are propelling change in podiatry practices.⁶⁰⁹ For more information on technological advancements and information related specifically to EHRs, see chapter 5 of *An Era of Reform*.

EXTRACORPOREAL SHOCKWAVE THERAPY

Extracorporeal shockwave therapy is a noninvasive procedure used to treat chronic heel pain.⁶¹⁰ The device generates a short energy wave that is directed at the problematic area.⁶¹¹ The generated shockwaves are used to stimulate and start the healing process by increasing microscopic blood flow.⁶¹² Additionally, the use of ESWT aids in the breakdown of calcification deposits in soft tissue.⁶¹³

TOPAZ MICRODEBRIDER

TOPAZ microdebrider is a minimally invasive procedure used to treat chronic heel pain.⁶¹⁴ The device, which gained FDA approval, was hailed by *Podiatry Today* as one of the top ten new innovations in 2005.⁶¹⁵ The treatment works by making a small incision (approximately one inch in length) in the problematic area.⁶¹⁶ The podiatrist then applies the device to the tendon for multiple intervals of treatment.⁶¹⁷ The microdebrider uses radiofrequency and saline to create plasma at the tip of the device, which is applied to the damaged tissue.⁶¹⁸ The procedure promotes healing and cellular changes in the damaged tissue in a manner similar to ESWT.⁶¹⁹

TIGECYCLINE

Tigecycline is a first in a new class of antibiotics called glycylicyclines.⁶²⁰ Tigecycline is administered intravenously and is used to treat complicated skin and skin structure infections.⁶²¹ Given the increasing prevalence of drug resistant bacteria, such as MRSA, in lower extremity infections, podiatrists are beginning to add this drug to their arsenal of pharmaceuticals.⁶²²

CONCLUSION

It is unclear how healthcare reform will affect podiatric services. As of 2010, podiatrists are listed as “optional” providers under Title XIX of the Social Security Act.⁶²³ As a result of reduced budgets, reduced money for Medicaid, and an increased demand for Medicaid services, it is likely that states will continue to lower reimbursement to “optional” providers to meet budget constraints.⁶²⁴ Additionally, many in the podiatric community view the practice of podiatry as a medical specialty.⁶²⁵ If lawmakers view podiatry as a specialty field, an increased demand for podiatrists may exist, though podiatric services may receive a cut in reimbursement fees (with the difference given to primary care providers).⁶²⁶ Conversely, podiatrists may find themselves classified with other allied health professionals, who may

have the opportunity to expand their scope of practice, particularly in rural areas and areas of underserved populations.⁶²⁷ At this juncture, however, it is difficult to determine the manner by which the profession will be following changes enacted as a part of healthcare reform initiatives.

 **Key Sources**

Key Source	Description	Citation	Hyperlink
National Board of Chiropractic Examiners	"The National Board of Chiropractic Examiners (NBCE) is the principal testing agency for the chiropractic profession." Additionally, "[a]pproximately every five years, the NBCE conducts a practice analysis of the chiropractic profession, the results of which are compiled in a job analysis."	"About Us," National Board of Chiropractic Examiners, 2009, available at www.nbce.org/about.html (accessed November 16, 2009); "NBCE Publications," National Board of Chiropractic Examiners, 2009, available at www.nbce.org/publication/overview.html (accessed November 16, 2009).	www.nbce.org/publication/job-analysis.html
"Marketing Chiropractic to Medical Practices" by Christina L. Acamproa	A book describing the need for the chiropractic profession to begin redefining itself and integrating with the medical field.	"Marketing Chiropractic to Medical Practices," by Christina L. Acamproa, Jones and Bartlett Publishers, 2009.	n/a
Chiropractors Occupational Handbook 2008-2009 Edition	Statistics from the U.S. Bureau of Labor Statistics regarding the state of the chiropractic profession at the time of its publication.	"Chiropractors," Occupation Outlook Handbook, Occupational Information Network, Bureau of Labor Statistics, 2008-09 Edition, available at www.bls.gov/oco/ocos071.htm (accessed November 16, 2009).	www.bls.gov
Journal of the American Dental Association (JADA)	JADA is the "nation's premier dental journal—a reliable, peer-reviewed source of information on dentistry and dental science" whose primary audience is dentists in clinical practice.	"About JADA," American Dental Association, 2009, www.ada.org/prof/resources/pubs/jada/about.asp (accessed November 14, 2009).	http://jada.ada.org
The McGill Advisory	The McGill Advisory is written and published exclusively for the dental profession, providing the latest in-depth, state-of-the-art information on raising fees, controlling overhead, managing investments, tax and financial planning, estate planning, marketing practices, and managing staff.	"The McGill Advisory Newsletter," The McGill & Hill Group, LLC, www.blairmcgillhillgroup.com/advisory.php (accessed November 14, 2009).	www.blairmcgillhillgroup.com/advisory.php
General Dentistry	"General Dentistry is the premier peer-reviewed journal of the Academy of General Dentistry (AGD)." Published bimonthly, it presents the latest advances in science, pharmacology, dental materials, and technology.	"General Dentistry," Academy of General Dentistry, 2009, www.agd.org/publications/?pubID=17 (accessed November 14, 2009).	www.agd.org/publications/?pubID=17
The Henry J. Kaiser Family Foundation	The Kaiser Family Foundation is "a non-partisan source of facts, information, and analysis for policymakers, the media, the health care community, and the public."	"About the Kaiser Family Foundation," The Henry J. Kaiser Family Foundation, 2009, www.kff.org/about/index2.cfm (accessed November 14, 2009).	www.kff.org
American Optometric Association (AOA)	The AOA provides manuals, guides, and survey data to the public and its members.	American Optometric Association, 2009, www.aoa.org (accessed September 11, 2009).	www.aoa.org

Key Source	Description	Citation	Hyperlink
Centers for Medicare and Medicaid Services (CMS)	CMS is responsible for administering the publicly funded Medicare and Medicaid programs. The CMS website contains a significant amount of information relating to reimbursement and regulatory issues.	"Centers for Medicare and Medicaid Services," U.S. Department of Health and Human Services, 2009, www.cms.hhs.gov/ (accessed September 11, 2009).	www.cms.hhs.gov
Foundation Fighting Blindness (FFB)	The FFB raises money to fund research to find cures for vision disorders. FFB "provides information and outreach programs for patients, families, and professionals."	"About Us," Foundation Fighting Blindness, Spring 2008 www.blindness.org/index.php?option=com_content&view=article&id=65&Itemid=147 (accessed September 11, 2009).	www.blindness.org
National Eye Institute (NEI)	"As part of the federal government's National Institutes of Health (NIH), the National Eye Institute's mission is to 'conduct and support research, training, health information dissemination, and other programs with respect to blinding eye diseases, visual disorders, mechanisms of visual function, preservation of sight, and the special health problems and requirements of the blind.'" NEI funds and conducts groundbreaking research on visual disorders.	"Mission Statement," National Eye Institute, 2009, www.nei.nih.gov/about/mission.asp (accessed September 11, 2009).	www.nei.nih.gov
Optometry: Journal of the American Optometric Association	<i>Optometry</i> publishes peer reviewed articles on a range of topics, offering "historical perspectives, current and topical case reports and clinical investigation, and timely and pertinent information of relevance to and for consideration and potential application by optometrists, professionals in related fields of health care, and the members of the Association."	"Optometry: Journal of the American Optometric Association," American Optometric Association, 2009, www.aoa.org/x7334.xml (accessed September 11, 2009).	www.optometryjaoa.com
Vision: Public Information Network	"The National Eye Institute (NEI) created the VISION Public Information Network for the purpose of communicating vision research results to the public through its grantee institutions. Public Information Officers from NEI grantee institutions work with the NEI to develop ongoing programs to educate the public about the benefits of vision research. The Network's primary mission is to work with the NEI in disseminating research results to the national and local media."	"Our Mission," VISION Public Information Network, National Eye Institute, National Institutes of Health, www.visionnetwork.nei.nih.gov/our_mission/index.asp (accessed September 11, 2009).	www.visionnetwork.nei.nih.gov
American Podiatric Medical Association	The largest association of podiatric physicians, it is dedicated to increasing awareness of foot and ankle health through education and legislative action.	"About Podiatry," by American Podiatric Medical Association, American Podiatric Medical Association, 2009, www.apma.org/MainMenu/AboutPodiatry.aspx (accessed July 20, 2009).	www.apma.org

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Key Source	Description	Citation	Hyperlink
National Board of Podiatric Medical Examiners	Develops and administers examinations for licensure in podiatric medicine.	"The Examination," by National Board of Podiatric Medical Examiners, National Board of Podiatric Medical Examiners, 2009, www.nbpme.info/Exams.htm (accessed July 20, 2009).	www.nbpme.info
Podiatry Management Online	A national practice and business magazine. Publishes articles and news of interest to podiatric physicians.	"Welcome to Podiatry Management Online," by Podiatry Management Online, Podiatry Management, 2009, www.podiatrym.com (accessed July 20, 2009).	www.podiatrym.com
Podiatry Today	Considered the premiere clinical news magazine for podiatric physicians.	"ArthroCare's TOPAZ Named Among Podiatry Today's Annual Top Ten Innovations' List," by Business Wire, Business Wire, 2005, findarticles.com/p/articles/mi_m0EIN/is_2005_August_3/ai_n14861115/ (accessed July 27, 2009).	www.podiatrytoday.com
Medline Plus	Medical dictionary and encyclopedia service of the U.S. National Library of Medicine and National Institutes of Health.	"About MedlinePlus," by Medline Plus, Medline Plus, 2009, nlm.nih.gov/medlineplus/aboutmedlineplus.html .	www.nlm.nih.gov/medlineplus
American Psychological Association	Addresses the organization and field.	"About APA," by American Psychological Association, www.apa.org/about/ (accessed July 13, 2009).	www.apa.org
Surgeon General U.S. Public Health Service	Addresses financing of mental health services.	"Organizing and Financing Mental Health Services," by Surgeon General U.S. Public Health Service, Mental Health: A Report of the Surgeon General, 1999, p. 421, www.surgeongeneral.gov/library/mentalhealth/home.html (accessed June 30, 2009).	www.surgeongeneral.gov/library/mentalhealth/home.html
Occupational Outlook Handbook, 2008-09 Edition	Addresses workforce trends in the field.	"Occupational Outlook Handbook, 2008-09 Edition," by United States Department of Labor, www.bls.gov/oco/ocos056.htm (accessed July 13, 2009).	www.bls.gov/oco/ocos056.htm
An Action Plan for Behavioral Health Workforce Development	Addresses trends in the psychology workforce.	"An Action Plan for Behavioral Health Workforce Development," by The United States Department of Health and Human Services Substance Abuse and Mental Health Services Administration, 06/22/2007, p. 7, www.samhsa.gov/Workforce/Annapolis/WorkforceActionPlan.pdf (accessed June 30, 2009).	www.samhsa.gov/Workforce/Annapolis/WorkforceActionPlan.pdf
Diagnostic and Statistical Manual of Mental Disorders (DSM)	Addresses the diagnosing of mental illnesses.	"Diagnostic and Statistical Manual of Mental Disorders, Forth Edition," by American Psychiatric Association, 1994, p. xvii.	n/a

Associations

Type of Association	Professional Association	Description	Citation	Hyperlink	Contact Information
Global	World Federation of Chiropractic	“The original World Federation of Chiropractic was established at the World Chiropractic Congress in Sydney, Australia in 1988. The voting members of the World Federation of Chiropractic (WFC) are national associations of chiropractors in 88 countries. The WFC represents them and the chiropractic profession in the international community.”	“About WFC,” World Federation of Chiropractic, www.wfc.org/website/index.php?option=com_content&view=section&id=6&Itemid=53&lang=en, (accessed October 10, 2009).	www.wfc.org	World Federation of Chiropractic David A Chapman-Smith LLB Secretary-General 1246 Yonge Street, Suite 203 Toronto, Ontario, Canada Phone: 1-416-484-9978 Fax: 1-416-484-9665 E-mail: info@wfc.org
Global/Professional	International Chiropractor's Association	Established in 1926 in Davenport, Iowa, by Dr. B. J. Palmer, ICA has approximately 8,000 members and is the oldest international chiropractic association. ICA's mission is “[t]o advance chiropractic throughout the world as a distinct health care profession predicated upon its unique philosophy, science, and art.”	“Historical Background,” International Chiropractor's Association, www.chiropractic.org/index.php?p=ica/historical (accessed February 10, 2009).	www.chiropractic.org	International Chiropractors Association 1110 N Glebe Rd, Suite 650 Arlington, VA 22201 Phone: 703-528-5000 E-mail: chiro@chiropractic.org
National/Professional	American Chiropractic Association	“Based in Arlington, Va., is the largest professional association in the world representing doctors of chiropractic. The ACA provides lobbying, public relations, professional and educational opportunities for doctors of chiropractic, funds research regarding chiropractic and health issues, and offers leadership for the advancement of the profession. With approximately 15,000 members, the ACA promotes the highest standards of ethics and patient care, contributing to the health and well-being of millions of chiropractic patients.”	“Welcome,” American Chiropractic Association, www.acatoday.org/level1_css.cfm?T1ID=10 (accessed November 16, 2009).	www.acatoday.org	American Chiropractic Association 1701 Claredon Blvd. Arlington, VA 22209 Phone: 703-276-8800
National/Professional	Congress of Chiropractic State Associations	The Congress of Chiropractic State Associations was formed in the late 1960s and is a nonprofit organization consisting of state chiropractic associations. The mission of the congress is to provide an open, nonpartisan forum for the promotion and advancement of the chiropractic profession through service to member state associations.	“About COCSA,” Congress of Chiropractic State Associations, www.cocsa.org/index.php?option=com_content&view=article&id=44&Itemid=54 (accessed February 10, 2009).	www.cocsa.org	Congress of Chiropractic State Associations 12531 Meadow Drive Wichita, KS 67206 Phone: 316-613-2286 Fax: 775-703-0118 E-mail: cocsa@cocsa.org
State/Professional	Various State Associations	Each state has a chiropractic association that oversees the licensure of Doctors of Chiropractic within its jurisdiction. A complete list of state associations can be found on the Chiropractic Diplomatic Corps website.	“USA—State Associations,” Chiropractic Diplomatic Corps, www.chiropracticdiplomatic.com/usa-assoc.html (accessed June 22, 2009).	n/a	n/a

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Type of Association	Professional Association	Description	Citation	Hyperlink	Contact Information
National / Academic	The Association of Chiropractic Colleges	Comprised of accredited chiropractic programs. Membership is available in the United States and around the world. Its mission is to enhance chiropractic education research and the profession. Each institution has a vote of the board of directors of the association.	"About ACC," The Association of Chiropractic Colleges, www.chirocolleges.org/about.html (accessed February 10, 2009).	www.chirocolleges.org	Association of Chiropractic Colleges 4424 Montgomery Avenue, Suite 202, Bethesda, MD 20814 Phone: 800-284-1062 E-mail: Info@ChiroColleges.org
National	American Dental Association (ADA)	"The ADA is the professional association of dentists committed to the public's oral health, ethics, science and professional advancement; leading a unified profession through initiatives in advocacy, education, research and the development of standards."	"ADA Mission & Vision," American Dental Association, www.ada.org/ada/about/mission/index.asp (accessed October 12, 2009).	www.ada.org	American Dental Association 211 East Chicago Ave. Chicago, IL 60611-2678 Phone: 312-440-2500
National	Commission on Dental Accreditation (CODA)	"The mission of the Commission on Dental Accreditation is to serve the public by establishing, maintaining and applying standards that ensure the quality and continuous improvement of dental and dental-related education and reflect the evolving practice of dentistry. The scope of the Commission on Dental Accreditation encompasses dental, advanced dental and allied dental education programs."	"Commission on Dental Accreditation (CODA)," American Dental Association, www.ada.org/prof/ed/accred/commission/index.asp (accessed October 12, 2009).	www.ada.org	American Dental Association Commission on Dental Accreditation 211 East Chicago Avenue Suite 1900 Chicago, IL 60611 Phone: 312-440-4653
National	American Dental Hygienists' Association (ADHA)	"ADHA is the largest professional organization representing the interests of dental hygienists," and providing professional support and educational programs.	"About ADHA," American Dental Hygienists' Association," www.adha.org/aboutadha/index.html (accessed October 13, 2009).	www.adha.org	American Dental Hygienists' Association 444 North Michigan Avenue, Suite 3400 Chicago, IL 60611 Phone: 312-440-8900 E-mail: mail@adha.net
National	Academy of General Dentistry (AGD)	"AGD is the only organization exclusively dedicated to serving the needs and interests of the general dentist. Founded in 1952, the AGD has grown to become the world's second largest dental association."	"About the AGD," The Academy of General Dentistry, 2009, www.agd.org/about/ (accessed October 14, 2009).	www.agd.org	Academy of General Dentistry 211 East Chicago Ave., Ste 900 Chicago IL 60611-1999 Phone: 888-AGD-DENT Fax: 312-440-0559 E-mail: membership@agd.org
National	American Association of Public Health Dentistry (AAPHD)	"Founded in 1937, the AAPHD provides a focus for meeting the challenge to improve oral health. AAPHD membership is open to all individuals concerned with improving the oral health of the public."	"About the AAPHD," American Association of Public Health Dentistry, 2009, www.aaphd.org/default.asp?page=about.htm (accessed October 13, 2009).	www.aaphd.org	American Association of Public Health Dentistry National Office 3085 Stevenson Drive, Suite 200 Springfield, IL 62703 Phone: 217-529-6941 Fax: 217-529-9120 E-mail: natoff@aaphd.org

Type of Association	Professional Association	Description	Citation	Hyperlink	Contact Information
National	American Association of Endodontists (AAE)	“The American Association of Endodontists, founded in 1943, is a not-for-profit organization of endodontists and other professionals worldwide with an interest in endodontics. . . . The AAE currently has more than 7,000 members worldwide, including approximately 95 percent of all eligible endodontists in the United States. The AAE serves as the primary source of continuing education in endodontics for its members, the dental profession, the public and others.”	“About the AAE,” American Association of Endodontists,” 2009, www.aae.org/welcome (accessed October 14, 2009).	www.aae.org	American Association of Endodontists 211 E. Chicago Ave., Suite 1100 Chicago, IL 60611-2691 Phone: 800-872-3636 Fax: 866-451-9020 E-mail: info@aae.org
National	American Academy of Oral and Maxillofacial Pathology (AAOMP)	“The AAOMP represents the dental specialty that identifies and manages diseases affecting the oral and maxillofacial regions and investigates the causes, processes and effects of these diseases. Our clinical practitioners, researchers, educators and microscopic diagnosticians collaborate with other dental and medical professionals to advance oral health care.”	“American Academy of Oral & Maxillofacial Pathology,” 2009, www.aaomp.org/ (accessed October 14, 2009).	www.aaomp.org	American Academy of Oral & Maxillofacial Pathology 214 North Hale Street Wheaton, IL 60187 Phone: 1-888-552-2667 Fax: 630-510-4501 E-mail: aaomp@b-online.com
National	American Academy of Oral and Maxillofacial Radiology (AAOMR)	“The purpose of the Academy is to promote and advance the art and science of radiology in dentistry, and to provide a forum for communication among and professional advancement of its members. To that end the Academy conducts annual scientific meetings and other educational programs, sponsors a scientific journal, publishes a newsletter, issues position statements, and pursues additional activities consistent with the purpose of the Academy.”	“Purpose,” The American Academy of Oral & Maxillofacial Radiology, 2009, www.aaomr.org/history.php (accessed October 14, 2009).	www.aaomr.org	The American Academy of Oral and Maxillofacial Radiology P.O. Box 1010 Evans, GA 30809-1010 Phone: 706-721-2883 Fax: 502-852-1626 E-mail: exec-dir@aaomr.org
National	American Association of Oral and Maxillofacial Surgeons (AAOMS)	“The AAOMS, the professional organization representing more than 8,500 oral and maxillofacial surgeons in the United States, supports its members’ ability to practice their specialty through education, research, and advocacy. AAOMS members comply with rigorous continuing education requirements and submit to periodic office examinations, ensuring the public that all office procedures and personnel meet stringent national standards.”	“About AAOMS,” The American Association of Oral and Maxillofacial Surgeons, 2009 www.aaoms.org/about.php (accessed October 14, 2009).	www.aaoms.org	American Association of Oral and Maxillofacial Surgeons 9700 West Bryn Mawr Avenue Rosemont, IL 60018-5701 Phone: 800-822-6637

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Type of Association	Professional Association	Description	Citation	Hyperlink	Contact Information
National	American Association of Orthodontists	The American Association of Orthodontists is an organization dedicated to the dental specialty of orthodontics.	www.aaomembers.org/	www.aaomembers.org/	American Association of Orthodontists 401 North Lindbergh Boulevard St. Louis, MO 63141-7816 Phone: 314-993-1700 or 800-424-2841 Fax: 314-997-1745 E-mail: info@aaortho.org
National	American Academy of Pediatric Dentistry	"The AAPD is the membership organization representing the specialty of pediatric dentistry. Our 7,000 members work in private offices, clinics and hospital settings and serve as primary care providers for millions of infants, children, adolescents and patients with special health care needs. In addition, AAPD members serve as the primary contributors to professional education programs and scholarly works concerning dental care for children."	"About AAPD: Mission and Vision," American Academy of Pediatric Dentistry, 2009, www.aapd.org/about/mission.asp (accessed October 14, 2009).	www.aapd.org	American Academy of Pediatric Dentistry 211 East Chicago Avenue, Suite 1700 Chicago, IL 60611-2637 Phone: 312-337-2169 Fax: 312-337-6329
National	American Academy of Periodontology	"The Academy's purpose is to advance the periodontal and general health of the public and promote excellence in the practice of periodontics. Periodontics is one of nine dental specialties recognized by the American Dental Association."	"About the AAP," American Academy of Periodontology, 2009, www.perio.org/about/about.html (accessed October 14, 2009).	www.perio.org	American Academy of Periodontology 737 N. Michigan Avenue, Suite 800 Chicago, IL 60611-6660 Phone: 312-787-5518 Fax: 312-787-3670
National	American College of Prosthodontists	"Founded in 1970, the American College of Prosthodontists is an educational and scientific association created to represent the needs and interests of prosthodontists within organized dentistry, and to the public, by providing a means for stimulating awareness and interest in the field of prosthodontics. The ACP's goal is to be the global resource for all aspects of the specialty."	"About Us," American College of Prosthodontists, 2009, www.prosthodontics.org/aboutus/ (accessed October 14, 2009).	www.prosthodontics.org	American College of Prosthodontists 211 E. Chicago Ave., Suite 1000 Chicago, IL 60611 Phone: 312-573-1260 Fax: 312-573-1257 E-mail: acp@prosthodontics.org
National	American Optometric Association (AOA)	"Founded in 1898, the AOA is a federation of state, student and armed forces optometric associations. Through these affiliations, the AOA serves members consisting of optometrists, students of optometry, paraoptometric assistants and technicians. Together, the AOA and its affiliates work to provide the public with quality vision and eye care."	"About the AOA," American Optometric Association, 2009 aoa.org/x4670.xml (accessed September 10, 2009).	www.aoa.org	American Optometric Association 243 N. Lindbergh Blvd. St. Louis, MO 63141 Phone: 800-365-2219

Type of Association	Professional Association	Description	Citation	Hyperlink	Contact Information
National	American Board of Optometry	Created by the Joint Board Certification Project Team to “develop and implement the framework for board certification and maintenance of certification.”	“American Optometric Association Approves Optometric Board Certification At Annual Meeting,” American Optometric Association, Jun. 27, 2009, www.aoa.org/x12978.xml (accessed October 23, 2009).	americanboardofoptometry.org	American Board of Optometry Phone: 314-983-4244 E-mail: JLWeaver@ABOpt.org
National	Association of Regulatory Boards of Optometry (ARBO)	“The Association of Regulatory Boards of Optometry (ARBO) is the federation of state, provincial, and territorial boards of optometry throughout North America. Boards of optometry serve as the licensing and regulatory arm of the optometric profession by formulating rules, or regulations, that govern and enforce the laws that grant the privilege to practice optometry, which are enacted by state legislatures.”	“About ARBO,” Association of Regulatory Boards of Optometry, 2008, www.arbo.org/index.php?action=about (accessed September 10, 2009).	www.arbo.org	Association of Regulatory Boards of Optometry 200 South College St. Suite 1630 Charlotte, NC 28202 Phone: 704-970-2710 Fax: 704-970-2720 E-mail: ARBO@arbo.org
National	Association of Schools and Colleges of Optometry (ASCO)	“Founded in 1941, the Association of Schools and Colleges of Optometry (ASCO) is a non-profit education association representing the interests of optometric education. ASCO’s membership encompasses the schools and colleges of optometry in the United States and Puerto Rico... ASCO is committed to achieving excellence in optometric education and to helping its member schools prepare well-qualified graduates for entrance into the profession of optometry.”	“About ASCO—Background and Mission,” Association of Schools and Colleges of Optometry, 2009, www.opted.org/i4a/pages/index.cfm?pageid=3330 (accessed September 10, 2009).	www.opted.org	Association of Schools and Colleges of Optometry 6110 Executive Blvd, Suite 420 Rockville, MD 20852 Phone: 301-231-5944 Fax: 301-770-1828
National	Council on Endorsed Licensure Mobility for Optometrists (CELMO)	CELMO was created by the ABRO to assist state optometry boards in reviewing applications for licensure from established practitioners in other jurisdictions in an effort to provide license mobility.	“CELMO Concept—An ARBO Committee,” Council on Endorsed Licensure Mobility for Optometrists, 2008, www.arbo.org/index.php?action=celmo (accessed September 11, 2009).	www.arbo.org/index.php?action=celmo	Association of Regulatory Boards of Optometry 200 South College St. Suite 1630 Charlotte, NC 28202 Phone: 704-970-2710 Fax: 704-970-2720 E-mail: ARBO@arbo.org
National	Council on Optometric Practitioner Education (COPE)	COPE is a committee of the ARBO and serves as a “national clearinghouse for all CE courses of a state-wide, regional, or national scope, [and] was created to remove these duplicative efforts by state boards, instructors, and program administrators.”	“COPE Introduction,” Association of Regulatory Boards of Optometry, 2008, www.arbo.org/cope_about.php (accessed September 11, 2009).	www.arbo.org/index.php?action=cope	Association of Regulatory Boards of Optometry 200 South College St. Suite 1630 Charlotte, NC 28202 Phone: 704-970-2710 Fax: 704-970-2720 E-mail: ARBO@arbo.org

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Type of Association	Professional Association	Description	Citation	Hyperlink	Contact Information
National	National Board of Examiners in Optometry (NBE0)	NBE0 "develops, administers, and scores examinations, and reports the results that state regulatory boards utilize in licensing optometrists to practice eye care."	"President's Message," National Board of Examiners in Optometry, 2008, www.optometry.org/president.cfm (accessed September 11, 2009).	www.optometry.org	National Board of Examiners in Optometry 200 S. College Street, #1920 Charlotte, NC 28202 Phone: 704-332-9565 Fax: 704-332-9568 E-mail: nbeo@optometry.org
National	American Academy of Optometry (AAO)	"Since 1922, the American Academy of Optometry (AAO) has been enhancing excellence in optometric practice by fostering research and disseminating knowledge in vision science through the continuing education presented at its annual meeting."	"About," American Academy of Optometry, 2009, www.aaopt.org/about/index.asp (accessed October 23, 2009).	www.aaopt.org/	The American Academy of Optometry 6110 Executive Blvd. Suite 506 Rockville, MD 20852 Phone: 301-984-1441 Fax: 301-984-4737 E-mail: aaoptom@aaoptom.org
National	American Optometric Student Association (AOSA)	"The AOSA represents over 5,700 students attending the 22 schools and colleges of optometry throughout the U.S., Canada, and Puerto Rico," and is "committed to promoting the optometric profession, enhancing the education and welfare of optometry students, as well as enhancing the vision and ocular health of the public."	"About the AOSA," Tyson Allard, AOSA, 2009, www.theaosa.org/letter-from-president.asp (accessed October 23, 2009).	www.theaosa.org/	American Optometric Student Association 243 N. Lindbergh Blvd. St. Louis, MO 63141 Phone: 314-983-4231
National	American Podiatric Medical Association (APMA)	The largest association of podiatric physicians, it is dedicated to increasing awareness of foot and ankle health through education and legislative action.	"About Podiatry," by American Podiatric Medical Association, American Podiatric Medical Association, 2009, www.apma.org/MainMenu/AboutPodiatry.aspx (accessed July 20, 2009).	www.apma.org	American Podiatric Medical Association 9312 Old Georgetown Road Bethesda, MD 20814-1621 Phone: 301-571-9200 Fax: 301-530-2752
National	National Board of Podiatric Medical Examiners	Develops and administers examinations for licensure in podiatric medicine	"The Examination," by National Board of Podiatric Medical Examiners, National Board of Podiatric Medical Examiners, 2009, www.nbpme.info/Exams.htm (accessed July 20, 2009).	www.nbpme.info/Contact.htm	National Board of Podiatric Medical Examiners P. O. Box 510 Bellefonte, PA 16823 Phone: 814-357-0487 E-mail: NBPME0fc@aol.com
National	Council on Podiatric Medical Education (CPME)	CPME, empowered through the APMA, is an "autonomous accrediting agency for podiatric medical education." The CPME "has final authority for: [t]he accreditation of colleges of podiatric medicine, the approval of fellowships and residency programs, and sponsors of continuing education," and "[t]he recognition of specialty certifying boards for podiatric medical practice."	"Accreditation: The Council on Podiatric Medical Education," American Podiatric Medical Association, Inc., 2009, www.apma.org/Members/Education/CPMEAccreditation.aspx (accessed October 27, 2009).	www.apma.org/Members/Education/CPMEAccreditation.aspx	Council on Podiatric Medical Education 9312 Old Georgetown Road Bethesda, MD 20814-1621 Phone: 301-581-9200 Fax: 301-571-4903

Type of Association	Professional Association	Description	Citation	Hyperlink	Contact Information
National	Council for Higher Education Accreditation (CHEA)	"A national advocate and institutional voice for self-regulation of academic quality through accreditation, CHEA is an association of 3,000 degree-granting colleges and universities and recognizes 60 institutional and programmatic accrediting organizations."	"Counsel for Higher Education Accreditation," 2006, www.chea.org/pdf/chea_glance_2006.pdf (accessed October 21, 2009).	www.chea.org	Council for Higher Education Accreditation One Dupont Circle NW, Suite 510 Washington, DC 20036 Phone: 202-955-6126 Fax: 202-955-6129 E-mail: chea@chea.org
National	American Association of Colleges of Podiatric Medicine (AACPM)	AACPM is a "national educational organization that represents the eight accredited U.S. colleges of podiatric medicine as well as over 200 hospitals and organizations that conduct graduate training in podiatric medicine. The Association serves as a national forum for the exchange of ideas, issues information and concerns relating to podiatric medical education."	"About AACPM," American Association of Colleges of Podiatric Medicine, 2009, www.aacpm.org/html/about/index.asp (accessed October 27, 2009).	www.aacpm.org/html/about/index.asp	American Association of Colleges of Podiatric Medicine 15850 Crabbs Branch Way, Suite 320 Rockville, MD 20855 Phone: 1-301-948-9760 E-mail: info@aacpm.org
National	The American Psychological Association (APA)	The APA is one of the largest associations representing psychologists across the world. The association is both professional and scientific-based with approximately 150,000 members.	"About APA," American Psychological Association, www.apa.org/about/ (accessed July 13, 2009).	www.apa.org	American Psychological Association 750 First Street, NE Washington, DC 20002 Phone: 800-374-2721 or 202-336-5500
National	The Association for Psychological Science	The Association for Psychological Science was founded in 1988 and has approximately 20,000 members. The organization focuses "on the advancement of scientific psychology and its representation at the national and international level."	"Directory of National Psychology Associations," American Psychological Association, April 2009, www.apa.org/international/natlorgs.html (accessed July 14, 2009); "About APS," Association for Psychological Science, www.psychologicalscience.org/about/ (accessed July 14, 2009).	www.psychologicalscience.org	Association for Psychological Science 1133 15th Street, NW, Suite 1000 Washington, DC 20005 Phone: 202-293-9300 Fax: 202-293-9350
State	The Association of State and Provincial Psychology Board	The Association of State and Provincial Psychology Board is the association for psychology licensing boards in the United States and Canada. The organization founded the Examination for Professional Practice in Psychology, which is used for certification and licensure. The Association also offers mobility programs to assist with licensure for psychologists who are licensed in multiple states.	"State and Provincial Psychological Associations," American Psychological Association, www.apa.org/practice/refer.html (accessed July 14, 2009).	www.asppb.org	The Association of State and Provincial Psychology Board P.O. Box 241245 Montgomery, AL 36124 Phone: 334-832-4580 Fax: 334-269-6379
State	State Associations	Each state offers an individual state and local chapter.	"State and Provincial Psychological Associations," American Psychological Association, www.apa.org/practice/refer.html (accessed July 14, 2009).	www.asppb.org	The Association of State and Provincial Psychology Board P.O. Box 241245 Montgomery, AL 36124 Phone: 334-832-4580 Fax: 334-269-6379

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Type of Association	Professional Association	Description	Citation	Hyperlink	Contact Information
National	American Academy of Counseling Psychology	An association for individuals who are board certified in counseling psychology.	"Academy for Counseling Psychology," www.aacop.net/ (accessed August 25, 2009).	www.aacop.net	American Academy of Counseling Psychology President: Ted Stachowiak, Ph.D., ABPP Phone: 979-845-4470 ext. 112 Fax: 409-862-4383 E-mail: ted@scs.tamu.edu
National	American Academy of Clinical Neuropsychology	An association for individuals who are board certified in clinical neuropsychology.	"American Academy of Clinical Neuropsychology," www.aacap.org/ (accessed August 25, 2009).	www.aacpsy.org	Department of Psychiatry (F6248, MCHC-6) University of Michigan Health System 1500 East Medical Center Drive, SPC 5295 Ann Arbor, MI 48109-5295 Phone: 734-936-8269
National	National Alliance on Mental Illness	Provides information on mental health issues.	"National Alliance for the Mentally Ill," www.nami.org .	www.nami.org	National Alliance on Mental Illness 2107 Wilson Blvd., Suite 300 Arlington, VA 22201-3042
National	Substance Abuse and Mental Health Services Administration	Provides information on mental health issues and is associated with the U.S. Department of Health and Human Services.	"Substance Abuse and Mental Health Services Administration," www.samhsa.gov/ (accessed August 25, 2009).	www.samhsa.gov	Substance Abuse and Mental Health Services Administration 1 Choke Cherry Rd. Rockville, MD 20857

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7

Alternative Medicine Practices

A bodily disease, which we look upon as whole and entire within itself, may after all, be but a symptom of some ailment in the spiritual part.

Nathaniel Hawthorne, 1850

KEY TERMS

- Acupuncture
- Alternative Medicine
- Aromatherapy
- Ayurveda
- Biofield Therapies
- Cognitive-Behavior Therapy
- Complementary and Alternative Medicine (CAM)
- Complementary Medicine
- Integrative Medicine
- Massage Therapy
- Naturopathic Physicians Licensing Examination (NPLEX)
- Policy Rider
- Qi
- Qi Gong
- Reiki
- Therapeutic Touch



Key Concept	Definition	Citation
CAM Practice Types	(1) whole medical systems, (2) mind-body medicine, (3) biologically based practices, (4) manipulative and body-based practices, and (5) energy medicine	"What is CAM?" by the National Center for Complementary and Alternative Medicine, National Institute of Health, U.S. Department of Health and Human Services, p. 2, December 4, 2008, http://nihseniorhealth.gov/cam/campractices/01.html (accessed October 16, 2009).
Whole Medical Systems	It fully developed in both theory and practice, either independent of, or complementary to, allopathic and osteopathic medicine. The development of whole medical systems independent of mainstream, Western medicine can usually be attributed to geographic, cultural, and, often, tradition.	"What is CAM?" by the National Center for Complementary and Alternative Medicine, National Institute of Health, U.S. Department of Health and Human Services, p. 2, December 4, 2008, http://nihseniorhealth.gov/cam/campractices/01.html (accessed October 16, 2009).
Traditional Whole Medical Systems	Several commonly known Eastern medical systems include Traditional Chinese Medicine and Ayurvedic Medicine; others have been developed by African, Middle Eastern, Central American, South American, and Native American cultures.	"What is CAM?" by the National Center for Complementary and Alternative Medicine, National Institute of Health, U.S. Department of Health and Human Services, p. 2, December 4, 2008, http://nihseniorhealth.gov/cam/campractices/01.html (accessed October 16, 2009); "Whole Medical Systems," National Institutes of Health, revolutionhealth.com , 2007, www.revolutionhealth.com/healthy-living/natural-health/natural-health-101/complementary-alternative-medicine/whole-medical-systems .
Traditional Chinese Medicine	The modern name for the ancient medical practices of China, built around the concept of balanced vital energy.	"What is CAM?" by the National Center for Complementary and Alternative Medicine, National Institute of Health, U.S. Department of Health and Human Services, p. 4, December 4, 2008, http://nihseniorhealth.gov/cam/campractices/01.html (accessed October 16, 2009).
Western Whole Medical Systems	Naturopathic and homeopathic medicine	"What is CAM?" by the National Center for Complementary and Alternative Medicine, National Institute of Health, U.S. Department of Health and Human Services, p. 2, December 4, 2008, http://nihseniorhealth.gov/cam/campractices/01.html (accessed October 16, 2009).
Expressive/Creative Art Therapists	Dance, art, music, and other forms of therapy.	"What is CAM?" by the National Center for Complementary and Alternative Medicine, National Institute of Health, U.S. Department of Health and Human Services, p. 2, December 4, 2008, http://nihseniorhealth.gov/cam/campractices/01.html (accessed October 16, 2009).
Mind-Body Medicine	Employs techniques that strengthen mental ability to impact physical health.	"What is CAM?" by the National Center for Complementary and Alternative Medicine, National Institute of Health, U.S. Department of Health and Human Services, p. 2, December 4, 2008, http://nihseniorhealth.gov/cam/campractices/01.html (accessed October 16, 2009).
Biologically Based Practices	Employs natural sources, such as herbs, vitamins, and food, in various products, including dietary supplements and herbal remedies. The efficacy of such products does not rely on scientific evidence.	"What is CAM?" by the National Center for Complementary and Alternative Medicine, National Institute of Health, U.S. Department of Health and Human Services, p. 2, December 4, 2008, http://nihseniorhealth.gov/cam/campractices/01.html (accessed October 16, 2009).
Manipulative and Body-Based Practices	Involves controlled or trained movement of one or more parts of the body.	"What is CAM?" by the National Center for Complementary and Alternative Medicine, National Institute of Health, U.S. Department of Health and Human Services, p. 2, December 4, 2008, http://nihseniorhealth.gov/cam/campractices/01.html (accessed October 16, 2009).
Energy Therapies	It implements energy fields and fall under one of two categories: biofield therapies and bioelectromagnetic-based therapies.	"What is CAM?" by the National Center for Complementary and Alternative Medicine, National Institute of Health, U.S. Department of Health and Human Services, p. 2, December 4, 2008, http://nihseniorhealth.gov/cam/campractices/01.html (accessed October 16, 2009).
Homeopathic Medicine	A CAM whole medical system centered around the belief that "like cures like."	"What is CAM?" by the National Center for Complementary and Alternative Medicine, National Institute of Health, U.S. Department of Health and Human Services, p. 3, December 4, 2008, http://nihseniorhealth.gov/cam/campractices/01.html (accessed October 16, 2009).
Naturopathic Medicine	A CAM whole medical system centered around the belief that the body's healing power is responsible for sustaining, maintaining, and restoring health.	"What is CAM?" by the National Center for Complementary and Alternative Medicine, National Institute of Health, U.S. Department of Health and Human Services, p. 4, December 4, 2008, http://nihseniorhealth.gov/cam/campractices/01.html (accessed October 16, 2009).

DESCRIPTION AND SCOPE

Healthcare services that fall outside the scope of conventional allopathic and osteopathic medical practice belong to a genre commonly recognized as **alternative medicine**.¹ However, these medical practices are recognized by the National Institutes of Health as **complementary and alternative medicine (CAM)**, an important distinction which is not as commonly understood.²

SCOPE

Alternative medicine serves as a replacement for conventional services, while **complementary medicine** is utilized in conjunction with traditional practice.³ **Integrative** (or **integrated**) **medicine** applies aspects of conventional medicine and CAM that have been shown to be safe and effective.⁴

EDUCATION AND TRAINING

The education and training requirements vary tremendously for the different types of CAM. However, naturopathic physicians, acupuncturists, and massage therapists are licensed in approximately 85 percent of states in the United States.⁵

Approximately 85 percent of states in the United States license naturopathic physicians, acupuncturists, and massage therapists.

“Insurance Coverage and Subsequent Utilization of Complementary and Alternative Medicine Providers,” by William E. Lafferty, MD; Patrick T. Tyree, AA; Allen S. Bellas, PhD; Carolyn A. Watts, PhD; et al., the American Journal of Managed Care, Vol. 12, No. 7, p. 397. (July 2006).

PRACTICE TYPES

There are several major types of CAM: whole medical systems, mind-body medicine, biologically based practices, manipulative and body-based practices, and energy medicine.⁶ Each of these categories embodies a variety of techniques and services, with some more commonly adopted and implemented than others.⁷

WHOLE MEDICAL SYSTEMS

Whole medical systems are fully developed in both theory and practice, either independent of, or complementary to, allopathic and osteopathic medicine.⁸ The development of whole medical systems independent of mainstream, Western medicine often can be attributed to geography, culture, and long-lived tradition.⁹

Traditional Whole Medical Systems

Two commonly known whole medical systems developed out of Eastern traditions: Ayurvedic medicine and traditional Chinese medicine.¹⁰ Other forms of whole medical systems have been developed by African, Middle Eastern, Central American, South American, and Native American cultures.¹¹

Ayurveda

Ayurveda is an Indian medical system that dates back 5,000 years.¹² Ayurvedic medicine implements diet and herbal therapies, as well as channeling of the mind, body, and spirit, to prevent and treat disease.¹³ Ayurvedic medicine has become increasingly popular among Westerners, particularly with the recent growth in medical tourism. Medical tourism has caught the attention of patients and insurers alike, because outsourcing care could potentially result in 80 percent savings in healthcare expenditures.¹⁴ From 2009 to 2012, the medical tourism industry is expected to grow 27 percent annually, representing approximately \$2.4 billion in net revenue.¹⁵ India offers modern medical treatment for the lowest rates seen in the medical tourism market, and it has a higher growth rate than any other sector of the entire tourism industry.¹⁶ In addition to this range of options in modern medicine, as of 2010, 3,000 hospitals and 726,000 registered practitioners provide traditional Indian, or Ayurvedic, medical care.¹⁷

Traditional Chinese Medicine (TCM)

Traditional Chinese medicine (TCM) is the modern name for the ancient medical practices developed in China that are built around the concept of balanced vital energy. According to TCM tradition, vital energy, called **qi**, circulates throughout the body to regulate an individual's spiritual, emotional, mental, and physical states and is influenced by negative and positive energies, yin and yang.¹⁸ TCM theorizes that disease is a consequence of the disruption in the flow of virtual energy and an imbalance of these opposing energies. Disease is treated by herbal and nutritional therapies, physical exercise, meditation, acupuncture, and massage.¹⁹

One area of TCM that emphasizes the enhancement of virtual energy flow is **Qi gong**, a technique that combines meditation, regulated breathing techniques, and physical motion to improve blood and qi circulation and strengthen immunity.²⁰

An area of TCM that has evolved during the last two millennia is **acupuncture**.²¹ As it is implemented in American practice, acupuncture incorporates Chinese, Japanese, Korean, and other Eastern traditions in modernized, technical, anatomic stimulation of various corporal points.²² Further solidifying its place in Western medicine, acupunctural procedures have been assigned a series of Current Procedural Terminology codes (97810-97814).²³

The National Certification Commission for Acupuncture and Oriental Medicine grants certification in Oriental medicine, acupuncture, Chinese herbology, and Asian bodywork therapy.²⁴ Those seeking certification must complete formal education, an apprenticeship, or both.²⁵ Regardless of the education and training path pursued, all candidates must submit an application, as well as successfully complete examinations on the foundations of Oriental medicine, acupuncture with point location, and biomedicine.²⁶ Additionally, they must provide proof that they have completed a clean needle technique course.²⁷ Those who choose to pursue formal education must graduate from a program approved by the Accreditation Commission for Acupuncture and Oriental Medicine and must have proof of a minimum number of hours employing acupuncture with point location, foundations of Oriental medicine, biomedicine, and Chinese herbology (resembling the residency program requirements of physicians).²⁸ Should the practitioner choose to pursue an apprenticeship, he or she must provide evidence of 4,000 contact hours through the program, obtain proficiency and experience in all aspects of the trade (through to diagnosis and treatment) in the first year of the program, and be under the supervision of a "qualified preceptor."²⁹ Qualified preceptors must possess federal or state approval or have treated 500 patients prior to assuming the role of preceptor.³⁰

Western Whole Medical Systems

Whole medical systems that stem from conventional Western medicine include naturopathic and homeopathic medicine.³¹ These are two of the most commonly employed whole medical systems and will be discussed separately in *Homeopathic Medicine* and *Naturopathic Medicine*.

MIND-BODY MEDICINE

Mind-body medicine employs techniques that strengthen mental ability to affect physical health. Mind-body CAM techniques include meditation and prayer, mental healing, aromatherapy, and “expressive/creative arts therapies.”³² Some techniques, such as support groups and cognitive-behavioral therapy, which were once considered CAM, are becoming a larger part of conventional practice.³³

Aromatherapy

Aromatherapy involves the use of flower, herb, and tree extracts to enhance and maintain health and wellness.³⁴ Currently, no state licensure requirements exist for aromatherapy, however, the National Association for Holistic Aromatherapy recognizes that most aromatherapists are trained in another profession for which licensure requirements *do* exist (for example, licensed massage therapists, Registered Nurses, licensed acupuncturists, medical doctors, and naturopathic physicians).³⁵ As such, these professionals must be licensed in their primary profession in order to employ aromatherapy in their practice.³⁶ Additionally, some states have special licensure requirements for the topical application of oils and ointments.³⁷

Cognitive-Behavioral Theory (CBT)

Cognitive-behavioral therapy (CBT) is a type of psychotherapy that centers around the influence of thought on feelings and actions.³⁸ CBT certification is available in rational emotive behavior therapy, rational behavior therapy, rational living therapy, cognitive therapy, and dialective behavior therapy.³⁹ In order to be qualified for certification through the National Association of Cognitive-Behavioral Therapists (NACBT), candidates must achieve a master’s or doctoral degree in psychology, counseling, social work, psychiatry, or a related field; complete six-years of verified experience in the clinical field of cognitive-behavioral therapy; provide three letters of recommendation; and complete of a NACBT-approved primary certification program.⁴⁰

BIOLOGICALLY BASED PRACTICES

Biologically based CAM therapies employ natural sources, such as herbs, vitamins, and food, in various products, including dietary supplements and herbal remedies.⁴¹ The efficacy of such products does not rely on traditional scientific-based evidence.⁴²

MANIPULATIVE AND BODY-BASED PRACTICES

Manipulative and body-based CAM practices involve controlled or trained movement of one or more parts of the body.⁴³ Chiropractic and osteopathic manipulation therapies are recognized by both the National Center for Complementary and Alternative Medicine (NCCAM) and the American Medical Association as CAM services.⁴⁴ However, due to the broad scope and overall nature of services provided within chiropractic and osteopathic practice, professionals in these fields are classified as allied health professionals and physicians, respectively, within the context of the taxonomy employed within this *Guide* (see *Introduction*).

Massage Therapy

Massage therapists enhance muscle and tissue function by manipulating tissues while promoting relaxation.⁴⁵ According to the American Massage Therapy Association, most states regulate massage therapy, requiring licensure, registration, certification, or a combination of these in order for therapists to practice.⁴⁶ Licensure is considered the strictest form of regulation, because it is legally impermissible for therapists to practice without licensure should their state require it. The National Certification Board for Therapeutic Massage and Bodywork (NCBTMB) requires that candidates for certification complete 500 hours of instructional training, demonstrate proficiency in the core skills and knowledge of the trade, and pass the NCBTMB standardized examination.⁴⁷

ENERGY MEDICINE

Energy therapies implement energy fields and fall under one of two categories: biofield therapies and bioelectromagnetic-based therapies.⁴⁸ **Biofield therapies** involve the application of pressure and manipulation by placing the hands in or through energy fields that are believed to surround the human body, enter the human body, or both. Such therapies include qi gong (discussed in **Traditional Chinese Medicine (TCM)**), Reiki, and therapeutic touch.⁴⁹

Reiki is based on a Japanese belief that physical healing results from spiritual healing, which is procured by spiritual energies that channel through the Reiki practitioner.⁵⁰

Therapeutic touch derives from the concept that a therapist's therapeutic forces can promote patient recovery as they pass their hands over their patients, identifying and rectifying any energy imbalances.⁵¹

INDUSTRY TRENDS

In 2007, two fifths of all adults had received CAM therapy in some capacity during the past twelve months, up from 36 percent in 2002.⁵² Growth in acupuncture, chiropractic, massage therapy, naturopathy, and vitamin therapy has contributed to a \$40 billion industry, with consumer demand being the primary driver of that growth.⁵³ Additionally, 11.8 percent of children were treated using homeopathic techniques in 2007.⁵⁴ The U.S. population spends approximately \$27 billion on CAM procedures annually.⁵⁵ The ten most commonly used CAM therapies among U.S. adults are: natural products (17.7 percent), deep breathing (12.7 percent), meditation (9.4 percent), chiropractic and osteopathic CAM procedures (8.6 percent), massage (8.3 percent), yoga (6.1 percent), diet-based therapies (3.6 percent), progressive relaxation (2.9 percent), guided imagery (2.2 percent), and homeopathic treatments (1.8 percent).⁵⁶

The industry surrounding services in acupuncture, chiropractic, massage therapy, naturopathy, and vitamin therapy has become \$40 billion in value, with consumer demand being the primary driver of growth.

*"Complementary Health Care: No Longer Just an Alternative," by America's Health Insurance Plans, September/October 2004, www.ahip.org/content/default.aspx?bc=311301361573315735&pf=true (accessed October 19, 2009); "Can complementary and conventional medicine learn to get along?" by Helen Lippman, *Business and Health*, Vol. 19, No. 9, (October 2001).*

The ten diseases and conditions in adults that are most commonly treated using CAM techniques are: back pain (17.1 percent), neck pain (5.9 percent), joint pain (5.2 percent), arthritis (3.5 percent), anxiety (2.8 percent), cholesterol (2.1 percent), head or chest cold (2 percent), other musculoskeletal conditions (1.8 percent), migraines (1.6 percent), and insomnia (1.4 percent).⁵⁷ Of the children who received CAM care, 16.9 percent of parents delayed conventional care because of cost.⁵⁸

Of the children who received CAM care, 16.9 percent of their parents delayed their conventional care because of cost.

"The use of complementary and alternative medicine in the United States," by the National Center for Complementary and Alternative Medicine, 2009, http://nccam.nih.gov/news/camstats/2007/camsurvey_fs1.htm (accessed October 19, 2009).

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

In recent years, demand for CAM services has increased significantly, with the United States having seen a growth in CAM import volumes.⁵⁹ At the same time, there has been increased confusion regarding whether CAM products are regulated under the Federal Food, Drug, and Cosmetic Act (FDCA) or the Public Health Service Act (PHSA).⁶⁰ In December 2006, the Food and Drug Administration (FDA) issued a draft guidance, "Complementary and Alternative Medicine Products and Their Regulation by the Food and Drug Administration," to address the regulation of these products.⁶¹ The guidance details two overarching points:

1. Depending on the therapy or service and the statutory definitions outlined in both pieces of legislation, an implemented product may be regulated under the PHSA as a biological substance or under the FDCA as a cosmetic, device, dietary, supplement, drug, food, or food additive.
2. CAM products are not exempt from regulation under the FDCA or the PHSA.⁶²

REIMBURSEMENT

Research suggests that more than 76 percent of Fortune 200 companies included complementary health-care in their benefits packages, with 63 percent of managers recognizing complementary healthcare as cost effective.⁶³ Although some CAM treatments and services are paid for out of pocket, the following others are sometimes covered by insurance: chiropractic services, acupuncture, massage therapy, bio-feedback, and naturopathic services.⁶⁴ Due to increased demand for these services, with the number of CAM providers expected to double from 2006 to 2016, more insurance companies and Managed Care Organizations are being encouraged to offer CAM coverage.⁶⁵ In fact, 67 percent of health maintenance organizations (HMOs) reportedly offer at least one type of alternative medical therapy.⁶⁶ Employers that offer CAM coverage may do so in a number of ways: through deductibles that are more expensive than conventional medicine deductibles, through purchase of a **policy rider** for CAM coverage, or through contracts with a network of CAM providers who provide members with lower out-of-pocket rates than nonmembers.⁶⁷ Additionally, employers may offer consumer-driven health plan (CDHP) benefits,

through which employees may utilize the money in their flexible spending account (FSA) or health savings account (HSA) to pay for CAM services.⁶⁸ For more information about CDHPs, FSAs, and HSAs, see chapter 1, *Organizational Structure*.

Due to increased demand for CAM services more insurance companies and MCOs are being encouraged to offer CAM coverage.

"Insurance Coverage and Subsequent Utilization of Complementary and Alternative Medicine Providers,"
by William E. Lafferty, MD; et al., *the American Journal of Managed Care*, Vol. 12, No. 7, (July 2006).

Regulation of CAM coverage is managed at the state level. Each state government regulates the insurance market within its jurisdiction, which ensures that regulation is abided by and provides assistance to consumers.⁶⁹

COMPETITION

From 1990 to 1997, the number of visits to complementary healthcare practitioners grew 47 percent, surpassing the total number of visits to U.S. primary care physicians.⁷⁰ Although evidence-based support exists for some CAM therapies, critics cast doubt as to the efficacy of a majority of CAM services.⁷¹ Despite the benefits and risks that arise as a consequence, alternative medicine is believed to provide Americans with "at least the promise of affectionate care, unhurried service, freedom from prescription drug side effects, and the potential for feeling not just better but also spiritually charged."⁷²

HOMEOPATHIC MEDICINE

DESCRIPTION AND SCOPE

Homeopathic medicine is a CAM whole medical system centered on the belief that "like cures like."⁷³ In other words, small, diluted medicinal remedies are given to patients to cure symptoms that, in high concentrations, these substances would actually induce.⁷⁴ The practice is rooted in nineteenth-century European medicine.⁷⁵

SCOPE

Two principles serve as the foundation for homeopathy: (1) the "principle of similar," and (2) the "principle of dilutions."⁷⁶ According to the principle of similars, conditions and diseases can be treated by using substances that would cause the observed symptoms in otherwise healthy patients.⁷⁷ The principle of dilution, also known as the "law of minimum dose," claims that the lower the dose, the more effective the therapy will be.⁷⁸

Homeopathic practitioners consistently take genetic and individual health, as well as physical, emotional, and mental symptoms, into consideration when providing care.⁷⁹ As such, treatments are refined to meet the needs of each patient.⁸⁰ Commonly employed remedy substances include red onion, arnica (a mountain herb), and stinging nettle plant.⁸¹

Homeopathy is used to treat a variety of conditions and diseases, including allergies, asthma chronic fatigue, depression, digestive conditions, ear infections, migraines, and skin rashes.⁸²

EDUCATION AND TRAINING

In order to qualify to take the Council for Homeopathic Certification (CHC) examinations, candidates must provide proof of training by way of attendance certificates, transcripts, or proof of mentorship.⁸³ Also, they must provide proof of training in anatomy and physiology, as well as in cardiopulmonary resuscitation.⁸⁴ Should they qualify, candidates must first pass a theoretical exam and then pass a practical exam in order to obtain a Certification in Classical Homeopathy.⁸⁵ CHC certification also can be achieved from other organizations, including the diplomate of the homeopathic academy of naturopathic physicians through the Homeopathic Academy of Naturopathic Physicians, diplomate of homeotherapeutics through the American Board of Homeotherapeutics, and registered with the society of homeopaths through the Society of Homeopaths.⁸⁶

Homeopathic licensure is only available to allopathic and osteopathic physicians in three states (Connecticut, Arizona, and Nevada).⁸⁷ In states that license naturopathic physicians, homeopathy is factored into their scope of practice.⁸⁸

INDUSTRY TRENDS

In 2007, a reported 3.9 million adults and 900,000 children in the United States were treated using homeopathy.⁸⁹ In fact, homeopathy was one of the top ten most common CAM therapies among both adults (1.8 percent of all CAM procedures) and children (1.3 percent) in 2007.⁹⁰

In 2007, a reported 3.9 million adults and 900,000 children in the United States were treated using homeopathy.

"Homeopathy: An Introduction," by the National Center for Complementary and Alternative Medicine, p. 2, October 13, 2009, <http://nccam.nih.gov/health/homeopathy/#top> (accessed October 19, 2009).

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

In 1938, the Homeopathic Pharmacopeia of the United States (HPUS) was added to the FDCA.⁹¹ Homeopathic production of remedies must be in compliance with HPUS guidelines, under which homeopathic products are regulated in the same way that nonprescription, over-the-counter drugs are but without the same level of stringent safety and efficacy testing.⁹²

Additionally, the FDA regulates the strength, purity, and packaging of homeopathic remedies. Labeling must consist of at least one major indication, a list of ingredients, the dilution of the remedy, and any necessary safety instructions.⁹³ Remedies can only be sold without a prescription if they claim to treat minor health problems; any treatment for serious conditions must be classified as a prescription drug.⁹⁴

The level of alcohol permitted by the FDA in conventional medication is lower than the FDA-allowed alcohol level for homeopathic liquid products. Although this is a precautionary point raised by the NCCAM, the FDA has not reported any adverse effects due to the alcohol levels in homeopathic remedies.⁹⁵

The level of alcohol permitted by the FDA in conventional medication is lower than the FDA alcohol level for homeopathic liquid products.

"Homeopathy: An Introduction," by the National Center for Complementary and Alternative Medicine, p. 3, October 13, 2009, <http://nccam.nih.gov/health/homeopathy/#top> (accessed October 19, 2009).

NATUROPATHIC MEDICINE

DESCRIPTION AND SCOPE

Naturopathic medicine, known as naturopathy, is a CAM whole medical system centered on the belief that the body's healing power is responsible for sustaining, maintaining, and restoring health.⁹⁶ Like homeopathic medicine, naturopathy emerged from nineteenth-century European, especially German, medicine.⁹⁷

SCOPE

The framework for the practice of naturopathy is comprised of six underlying principles:

1. Promote the healing power of nature.
2. First do no harm.
3. Treat the whole person.
4. Treat the cause.
5. Prevention is the best cure.
6. The physician is a teacher.⁹⁸

Practitioners may deliver naturopathic treatments, such as hydrotherapy or manipulation, in their offices; they also provide services to help patients with diet, vitamins, minerals, and other dietary supplements; herbal medical treatments; counseling in lifestyle improvements; homeopathy; hydrotherapy; manual and body-based therapies; exercise therapies; and mind-based therapies.⁹⁹

EDUCATION AND TRAINING

Naturopathic physicians, traditional naturopaths, and conventional providers trained in naturopathy all have different education and training requirements.¹⁰⁰ Naturopathic physicians (doctors of naturopathic medicine) and doctors of naturopathy are regulated in fifteen states (Alaska, Arizona, California, Connecticut, Hawaii, Idaho, Kansas, Maine, Minnesota, Montana, New Hampshire, Oregon, Utah, Vermont, and Washington), as well as in the District of Columbia and the U.S. territories of Puerto Rico and the Virgin Islands.¹⁰¹ Prerequisites for pursuing licensure in these states and territories include completion of a four-year program through a naturopathic medical school, as well as the successful completion of a thorough post-doctoral examination through the **Naturopathic Physicians Licensing Examination Board** and the North American Board of Naturopathic Examiners.¹⁰² In order to maintain licensure, naturopathic physicians also are required to fulfill continuing medical education requirements.¹⁰³

Training as a traditional naturopath is comprised of coursework, apprenticeship, self-education, or a combination of these.¹⁰⁴ Training programs vary in length and are not accredited by a governing agency

approved by the U.S. Department of Education.¹⁰⁵ Finally, conventional healthcare professionals (for example, doctors of medicine and osteopathy, nurses, and dentists) may be trained in naturopathic or other holistic therapies; however, the training requirements in these areas vary.¹⁰⁶

INDUSTRY TRENDS

In a 2004 CAM survey, 1 percent of 31,000 participants had used naturopathic medicine, with 62 percent of these individuals believing that naturopathy used in combination with conventional medicine would be very beneficial, 53 percent believing that conventional treatment alone would not be helpful, 44 percent believing that naturopathy would be interesting to try, 28 percent claiming that conventional medicine was too expensive, and 17 percent turning to naturopathy as a consequence of conventional physician referral.¹⁰⁷

HIGHLIGHTS IN THE FOUR PILLARS

REGULATORY

The Council of Naturopathic Medical Education (CNME) has struggled to maintain accreditation since it first achieved status in 1987.¹⁰⁸ In 2001, Secretary of Education Richard W. Riley decided to accept the National Advisory Committee on Institutional Quality and Integrity's recommendation to deny renewal of CNME recognition as an accrediting agency.¹⁰⁹ Riley believed that CNME had not demonstrated consistent implementation and enforcement of accreditation guidelines and expectations.¹¹⁰ Recognition was restored in 2003, however, when CNME demonstrated that its accreditation standards had been revised.¹¹¹

CONCLUSION

In a constantly changing environment of healthcare reform and demographic transformation, NCCAM and the American College for Advancement in Medicine hypothesize an increased emphasis on integrative medicine.¹¹² Specifically, they believe that in order for healthcare reform to be effective, primary care physicians must be provided with more resources and time for every patient, integrative medical services that have evidence-based support should be covered through government-sponsored healthcare programs, and the general public should be provided with the information and resources necessary to sustain wellness and prevent disease and disability.¹¹³ NCCAM's research capabilities were broadened when President Barack Obama signed the American Recovery and Reinvestment Act of 2009, making evidence-based CAM an area of growing potential.¹¹⁴ In fact, in light of imminent movement toward healthcare reform, NCCAM recognizes that "facilitating integration of proven CAM approaches and conventional medicine is a key goal of the Center."¹¹⁵

The increasing demand for CAM also suggests that there is potential for continued growth in this area of medicine. This forecast is further bolstered by the expectation that integrative and credible medical practices, which incorporate evidence-based CAM, will continue to be a significant presence in the U.S. healthcare market.¹¹⁶

 **Key Sources**

Key Source	Description	Citation	Hyperlink
Current Procedural Coding Expert	A "Medicare coding and reimbursement tool and definitive procedure coding source that combines the work of the Centers for Medicare and Medicaid Services, American Medical Association, and Ingenix experts with the technical components you need for proper reimbursement and coding accuracy."	"Current Procedural Coding Expert," by Ingenix, 2009, p. 1.	n/a
National Center for Complementary and Alternative Medicine (NCCAM)	"The Federal Government's lead agency for scientific research on the diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine."	"About NCCAM?" by the National Center for Complementary and Alternative Medicine, National Institute of Health, U.S. Department of Health and Human Services, http://nihseniorhealth.gov/cam/campractices/01.html (accessed November 20, 2009).	http://nccam.nih.gov
Federal Food, Drug and Cosmetic Act	"The Federal Food, Drug, and Cosmetic Act of 1938 was passed after a legally marketed toxic elixir killed 107 people, including many children. The FD&C Act completely overhauled the public health system. Among other provisions, the law authorized the FDA to demand evidence of safety for new drugs, issue standards for food, and conduct factory inspections."	"Regulatory Information: Legislation," by the Food and Drug Administration, September 15, 2009, www.fda.gov/RegulatoryInformation/Legislation/default.htm (accessed October 20, 2009).	www.fda.gov/RegulatoryInformation/Legislation/FederalFoodDrugandCosmeticActFDCA/default.htm
Public Health Service Act	"The Public Health Service Act of July 1, 1944 (42 U.S.C. 201), consolidated and revised substantially all existing legislation relating to the Public Health Service. The basic Public Health Service legal responsibilities have been broadened and expanded many times since 1944. Major organizational changes have occurred within the Public Health Service to support its mission to promote the protection and advancement of the Nation's physical and mental health."	"Public Health Service," by the United States Department of Health and Human Services, March 29, 2005, www.hhs.gov/about/opdivs/phs.html (accessed October 20, 2009).	www.fda.gov/RegulatoryInformation/Legislation/ucm148717.htm
Complementary and Alternative Medicine Products and Their Regulation by the Food and Drug Administration	A guidance for industry issued by the U.S. Department of Health and Human Services Food and Drug Administration: Center for Biologics Evaluation and Research (CBER), Center for Drug Evaluation and Research (CDER), Center for Devices and Radiological Health (CDRH), Center for Food Safety and Applied Nutrition (CFSAN).	"Complementary and Alternative Medicine Products and Their Regulation by the Food and Drug Administration," by the U.S. Department of Health and Human Services, Food and Drug Administration, December 2006, www.healthfreedom.net/storage/aahf/documents/cam_guideline.pdf (accessed October 20, 2009).	www.fda.gov/OHRMS/DOCKETS/98fr/06d-0480-gld0001.pdf

Associations

Type of Organization	Association	Description	Citation	Hyperlink	Contact Information
Federal	National Certification Commission for Acupuncture and Oriental Medicine (NCCAOM)	“NCCAOM, established in 1982 as a non-profit organization, currently operates under Section 501(c)(6) of the Internal Revenue Code. The mission of the NCCAOM is to establish, assess, and promote recognized standards of competence and safety in acupuncture and Oriental medicine for the protection and benefit of the public.”	“About NCCAOM: A Historical Perspective,” National Certification Commission for Acupuncture and Oriental Medicine, www.nccaom.org/about/index.html (accessed January 29, 2010).	www.nccaom.org	National Certification Commission for Acupuncture and Oriental Medicine 76 South Laura Street, Suite 1290 Jacksonville, FL 32202 Phone: 904-598-1005 Fax: 904-598-5001 E-mail: applications@nccaom.org
Federal	Accreditation Commission for Acupuncture and Oriental Medicine (ACAOM)	ACAOM is “the national accrediting agency recognized by the U.S. Department of Education to accredit Master’s-level programs in the acupuncture and Oriental medicine profession.”	“ACAOM,” Accreditation Commission for Acupuncture and Oriental Medicine, www.acaom.org/ (accessed January 29, 2010).	www.acaom.org	Accreditation Commission for Acupuncture and Oriental Medicine Maryland Trade Center #3 7501 Greenway Center Drive, Suite 760 Greenbelt, MD 20770 Phone: 301-313-0855 Fax: 301-313-0912 E-mail: coordinator@acaom.org
Federal	National Association for Holistic Aromatherapy (NAHA)	“The National Association for Holistic Aromatherapy is an educational, non-profit organization dedicated to enhancing public awareness of the benefits of true aromatherapy. NAHA is actively involved with promoting and elevating academic standards in aromatherapy education and practice for the profession.”	“NAHA Information,” National Association for Holistic Aromatherapy, www.naha.org/naha.htm (accessed January 29, 2010).	www.naha.org	National Association for Holistic Aromatherapy PO BOX 1868 Banner Elk, NC 28604 Phone: 828-898-6161 Fax: 828-898-1965 Email: info@naha.org
Federal	National Association of Cognitive and Behavioral Therapists (NACBT)	“The NACBT is the leading organization dedicated exclusively to supporting, promoting, teaching, and developing cognitive-behavioral therapy and those who practice it.”	“NACBT Online Headquarters,” National Association of Cognitive and Behavioral Therapists” www.nacbt.org (accessed January 29, 2010).	www.nacbt.org	National Association of Cognitive and Behavioral Therapists 203 Three Springs Drive, Suite 4 Weirton, WV 26062 Phone: 1-800-853-1135 E-mail: nacbt@nacbt.org
Federal	American Massage Therapy Association (AMTA)	AMTA “works to establish massage therapy as integral to the maintenance of good health and complementary to other therapeutic processes; to advance the profession through ethics and standards, continuing education, professional publications, legislative efforts, public education, and fostering the development of members.”	“About AMTA,” American Massage Therapy Association, www.amtamassage.org/about/about.html (accessed January 29, 2010).	www.amtamassage.org	American Massage Therapy Association 500 Davis St. Evanston, IL 60201 Phone: 847-864-0123 Fax: 847-864-5196 Email: info@amtamassage.org
Federal	National Certification Board for Therapeutic Massage and Bodywork (NCBTMB)	“NCBTMB is an independent, private, nonprofit organization that was founded in 1992 to establish a certification program and uphold a national standard of excellence.”	“About NCBTMB,” National Certification Board for Therapeutic Massage and Bodywork, www.ncbtmb.org/about.php (accessed January 29, 2010).	www.ncbtmb.org	National Certification Board for Therapeutic Massage and Bodywork 1901 S. Meyers Rd. Ste. 240 Oakbrook Terrace, IL 60181-5243 Phone: 630-627-8000 E-mail: info@ncbtmb.org

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Type of Organization	Association	Description	Citation	Hyperlink	Contact Information
Federal	Council for Homeopathic Certification (CHC)	"In 1991 the Council for Homeopathic Certification was formed in response to a new vision for the future of homeopathy as a unified profession of highly trained and certified practitioners."	"About the CHC," Council for Homeopathic Certification, www.homeopathicdirectory.com/index.php?option=com_content&view=article&id=45&Itemid=58 (accessed January 29, 2010).	www.homeopathicdirectory.com	Council for Homeopathic Certification PMB 187 16915 SE 272nd Street Suite #100 Covington, WA 98042 Phone: 866-242-3399 Fax: 815-366-7622
Federal	Homeopathic Academy of Naturopathic Physicians (HANP)	"The HANP is a specialty society within the profession of naturopathic medicine, and is affiliated with the American Association of Naturopathic Physicians"	"Welcome to the HANP," Homeopathic Academy of Naturopathic Physicians, www.hanp.net/ (accessed January 29, 2010).	www.hanp.net	Homeopathic Academy of Naturopathic Physicians Kristine Honda, ND Office Manager P.O. Box 15508 Seattle, WA 98115 Phone: 206-941-4217 Fax: 815-301-6595 E-mail: info@hanp.net
Federal	North American Board of Naturopathic Examiners (NABNE)	The NABNE is "responsible for qualifying applicants to take the NPLEX Examinations, administering the examinations to examinees, and preparing and sending exam results and transcripts to licensing/regulatory authorities."	"About NPLEX," North American Board of Naturopathic Examiners, www.nabne.org/nabne_page_23.php (accessed January 29, 2010).	www.nabne.org	North American Board of Naturopathic Examiners Suite 119, 3321 9220 S.W. Barbur Blvd. Portland, OR 97219-5434 Phone: 503-778-7990 Fax: 503-452-3943 E-mail: info@NABNE.org
Federal	Council for Naturopathic Medical Education (CNME)	"Accredit(s) naturopathic medical education programs that voluntarily seek recognition that they meet or exceed CNME's standards."	"About the Council on Naturopathic Medical Education," Council on Naturopathic Medical Education, www.cnme.org/ (accessed January 29, 2010).	www.cnme.org	Council for Naturopathic Medical Education PO Box 178 Great Barrington, MA 01230 Phone: 413-528-8877
Federal	American College for Advancement in Medicine (ACAM)	"The American College for Advancement in Medicine is a not-for-profit association dedicated to educating physicians and other health care professionals on the latest findings and emerging procedures in complementary, alternative and integrative (CAIM) medicine."	About the American College for Advancement in Medicine," American College for Advancement in Medicine, www.acamnet.org/site/c.ltJWJ4MPIwE/b.5457257/k.DB3C/About_the_American_College_for_Advancement_in_Medicine.htm (accessed January 29, 2010).	www.acam.org	American College for Advancement in Medicine 8001 Irvine Center Drive Ste 825 Irvine, CA 92618 Phone: 800-532-3688 Fax: 949-309-3535

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8

A New Paradigm for Professional Practices

**For time and the world do not stand still. Change is the law of life.
And those who look only to the past or the present are certain to
miss the future.**

John F. Kennedy, 1963



Medicine historically has been viewed as a learned profession. Healthcare providers were perceived as professionals who applied significant training and knowledge to provide quality patient care from within their independent practices. However, the recent shift from small, physician- or provider-owned, independent private practices to captive practices within larger integrated health systems may be viewed as the “corporatization” of healthcare professional practices, which some believe may result in a weakening of the independent physician- or provider-patient relationship, a characteristic of the “cottage industry” healthcare delivery system of old.¹ As the healthcare industry and the fields of medicine, science, and technology evolved, influenced by changes in the four pillars (the reimbursement, regulatory, competitive, and technological environments of the healthcare industry), the paradigm by which healthcare professionals and professional practices operate has continued to change as well.

The U.S. healthcare industry is governed by a network of evolving state and federal regulations, relating to both physician and nonphysician professionals, and it faces continuous changes related to the regulatory and reimbursement environments. For example, state and federal legislative and regulatory agendas have acted to restrict physician ownership of, or investment in, ancillary services and technical component (ASTC) revenue stream enterprises, effectively limiting private practice physicians to receiving revenues only from their professional fees as physicians and not from the related activities of their practice (for example, diagnostic imaging services). As revenue streams available to physicians continue to be more restricted, there has been a corresponding rise in the number of hospital acquisitions of physician practices, with the concurrent direct employment of physicians by hospitals. This is especially true for specialties with significant ASTC revenue, because they are perceived to be more profitable and well-suited to provide services in a hospital-based setting (for example, cardiology, orthopedics, radiology, and so forth.). As shrinking reimbursement and increasing regulatory edicts compel physicians to acquiesce to an untenable profitability squeeze and accept employee status under the substantial control of hospital systems or large corporate players, some have viewed this circumstance as relegating physicians to the status of “sharecroppers” or “hired help,” ultimately signaling the twilight of what was perceived to be the golden era of medical practices in the United States.

Also, within the uncertainties of the reimbursement environment and the well-publicized challenges of physicians dealing with insurance companies as advocates for their patients, young physicians, saddled with enormous training debt, are more readily than in the past opting out of private, independent practice to pursue more risk-averse salaried positions with hospitals and health systems to obtain a more “comfortable” lifestyle (that is, more regular hours and less entrepreneurial aspirations). This trend has made it increasingly difficult for older independent practitioners to recruit junior partners, a struggle which, paired with the burden of diminishing reimbursement and rising regulatory scrutiny in recent years, has led many physician-owners to abandon their independent practices to hospitals.

As discussed in several other sections in this *Guide*, the United States is likely facing a growing physician manpower shortage in coming years, especially in primary care. This trend is driven by several factors, including an aging baby boomer population, who typically utilize a greater proportion of health services than the nonelderly population.² As the United States faces the potential for a growing

1 “More Doctors Giving Up Private Practices” By Gardiner Harris, New York Times, March 25, 2010, <http://www.nytimes.com/2010/03/26/health/policy/26docs.html> (Accessed 5/25/10); “The Social Transformation of American Medicine,” by Paul Starr, Basic Books Inc. 1982, p. ix.

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physician shortage in coming years, physicians may come to rely on nonphysician practitioners (for example, physician assistants, nurse practitioners, and other physician extenders) to triage more routine services that historically may have been provided by physicians.

These significant changes have prompted new organizational structures for the delivery of healthcare services, which portend an unsteady and uncertain future for the independent professional physician practice.



Glossary

Accountable Care Organization: An entity that has physician leadership and internal structures, methods, and systems for measuring, assessing, and advancing the effectiveness and efficiency of patient care and provides a longitudinal, coordinated continuum of healthcare services. It crosses provider settings and is willing to be held accountable for the clinical results to the communities served.

Acupuncture: It incorporates Chinese, Japanese, Korean, and other Eastern traditions in anatomic stimulation of various corporal points. Current Procedural Terminology codes have been assigned to acupunctural procedures (97810-97814).

Acute Care: Provision of diagnostic and therapeutic services for relatively short periods of time due to often unexpected injuries or illnesses.

Advanced Dental Hygiene Practitioners (ADHPs): ADHPs possess a heightened degree of knowledge of the relationship between oral and systemic health and of preventive medicine, health education, and wellness.

Advanced Practice Registered Nurses (APRNs): APRNs are Registered Nurses with advanced education and training, which allows them to provide primary care services at a higher level either independently or in conjunction with physicians.

Age-Related Macular Degeneration (AMD): Disease that impairs retinal function and takes predominantly two forms: “wet” AMD and “dry” AMD.

Allopathic Medicine: “Traditional” medicine. Allopathic physicians are medical doctors (M.D.s).

Alternative Medicine: Serves as a replacement for conventional services.

Ambulatory Surgery Centers: Facilities at which surgeries not requiring inpatient hospital admission are performed.

Aromotherapy: It involves the use of flower, herb, and tree extracts to enhance and maintain health and wellness.

Assisted Living Facilities: Long-term care facilities that combine permanent housing with personal support services.

Audiologists: Audiologists provide services in the management of auditory and balance related conditions.

Ayurveda: An Indian medical system that dates back 5,000 years. Ayurvedic medicine implements diet and herbal therapies, as well as channeling of the mind, body, and spirit, to prevent and treat disease.

Biofield Therapies: It involves the application of pressure and manipulation by placing the hands in or through energy fields that are believed to surround and enter the human body. Such therapies include qi gong, Reiki, and therapeutic touch.

Boutique Medicine: Also known as “concierge medicine,” the delivery of care to a limited amount of patients and for an annual retainer fee.

C Corporations: Corporations with three tiers of authority: owners (shareholders), a board of directors, and officers. Through issuance of stocks, physicians can become shareholders or sell their shares without disrupting the corporate infrastructure.

Carve-Out: A service that is separated from all insurance risk and is covered by a separate contract between the insurer and the carve-out vendor.

Certified Nurse-Midwives (CNMs): Nurse-midwives and CNMs provide primary healthcare services to women (before, during, and after pregnancy) and medical care to newborns for a month after their birth. Once a NM passes the certification exam, he or she becomes a CNM and joins the professional group.

Certified Registered Nurse Anesthetists (CRNAs): CRNAs are APRNs trained in the provision of anesthesia services as it relates to surgical, labor and delivery, and pain management.

Chiropractic Diplomate: Chiropractic physicians who pursue advance degrees and pass the required exams obtain “diplomate” status in the specialized field.

Chiropractic: Chiropractic is a health profession concerned with the diagnosis, treatment, and prevention of musculoskeletal disorders and the effects of these disorders on the nervous system and general health. Through completion of a chiropractic education, a professional is generally known as a Doctor of Chiropractic (D.C.).

Chronic Care: Provision of diagnostic and therapeutic services for long-lasting or recurring illnesses and diseases.

Civil Liability: Liability that allocates accountability for potential lawsuits.

Clinical Nurse Specialists (CNSs): CNSs are APRNs who demonstrate expertise in the provision of highly specialized patient care and consult.

Clinical Psychology: The scientific study and application of psychology in order to understand, prevent, and alleviate psychologically caused distress or dysfunction (disability) and promote a patient's well being and personal development.

Cognitive-Behavior Therapy: A type of psychotherapy focused on the influence of thought on feelings and actions.

Commercially Directed Health Plans: Lets beneficiaries pay for regular healthcare services using health savings accounts or health reimbursement accounts. Implementing these pre-tax savings accounts into healthcare plans allow patients (or rather, consumers) to evaluate and make decisions regarding their healthcare.

Community Orientation: The criteria for classifying healthcare organizations comprised of a company's mission statement, health status indicators, and methods of assessment.

Complementary and Alternative Medicine (CAM): The umbrella term used to describe all services that fall outside the scope of traditional medicine.

Comprehensive or “Turnkey” Model: This type of MSO provides a comprehensive array of services including all of the nonclinical aspects of a practice's operations.

Computer-Aided Design and Computer-Aided Manufacturing (CAD/CAM): The use of CAD/CAM has become increasingly popular with dental practitioners, because it allows dentists to both make images of tooth preparations and to mill restorations the same day.

Continuing Medical Education or Maintenance of Certification: Annual requirements vary by state, profession, and medical staff requirements.

Coronary Artery Bypass Grafting: A procedure that “uses a piece of a vein from the leg or artery from the chest or wrist. The surgeon attaches this to the coronary artery above and below the narrowed area or blockage. This allows blood to bypass the blockage. Some people need more than one bypass.”

Cost Containers: Organizations capable of controlling healthcare costs through economies of scale. However, the ability of cost containers to contract effectively with MCOs and systematically reduce utilization of services is limited. Physician

practice management companies and MSOs are classified as cost-container EHOs.

Dental Amalgam: Dental amalgam is a dental filling material that is used to fill cavities caused by tooth decay. Its use as a dental device is regulated by the Federal Drug Administration, and it has been deemed safe for use.

Dental Health Maintenance Organization (DHMO): A dental HMO is a managed care capitation plan in which a provider is paid a fixed amount, regardless of how much or how little the patient utilizes services.

Dental Hygienist: Dental hygienists perform dental prophylaxis, or preventative care, by examining and cleaning a patient's teeth and gums using dental instruments. Dental hygienists most often work alongside dentists, but some states are relaxing supervision laws.

Diabetic Retinopathy: A common eye complication of diabetes in which leakage, blockage, or deterioration of retinal blood vessels causes vision impairment over time.

Direct Care Workforce: Also referred to as the frontline workforce, they provide personal long-term care services to the elderly and disabled populations (for example, home health aides, personal care aides, and certified nurse aides).

Direct Reimbursement: Direct reimbursement is a dental fee-for-service self-funded group plan that reimburses patients based on the amount spent on dental care, as opposed to the type of treatment the patient receives. "Instead of paying monthly insurance premiums, even for employees who don't use the dentist, employers pay a percentage of actual treatments received."

Direct-to-Consumer Medicine: Medical services that are driven solely by consumer demand; because almost all of these types of procedures are not covered or reimbursed by either private

or governmental insurance, their demand level is more affected by cultural acceptance and discretionary income levels.

Doctor of Dental Surgery (D.D.S.) or Doctor of Dental Medicine (D.M.D.): D.D.S. and D.M.D. degrees are awarded to candidates after completion of a dental program. D.D.S. and D.M.D. degrees are functionally identical: the scope of practice for D.D.S. and D.M.D. practitioners is the same, and both programs use identical curriculum requirements set by the Commission on Dental Accreditation.

"Dry" AMD: The buildup of fatty deposits under light-sensitive retinal cells.

Durable Medical Equipment: Equipment that serves a medical purpose, can withstand repeated use, is not particularly useful in the absence of injury and illness, and is appropriate for home use. Includes specialized beds, wheelchairs, and prosthetics for home use.

Emergency Care Physicians: Physicians involved in the practice of emergency medicine, which involves treating patients on an unscheduled basis with episodic or acute conditions.

Emerging Healthcare Organization (EHO): Hospitals, physicians, or payors that are merging, affiliating, or integrating in response to changes in the healthcare environment.

Emerging Healthcare Organization: Healthcare organizations that develop in response to changes in market, regulation, and reimbursement.

Endoscopic Sinus Surgery: The traditional procedure used to treat chronic rhinosinusitis, uses surgery to re-establish maxillary sinus ventilation and mucociliary clearance through ventilation of the natural ostia. Although the procedure is unstandardized, proponents of the procedure cite that it is safer than the alternatives.

Extracorporeal Shockwave Therapy (EST):

EST is a noninvasive procedure used to treat chronic heel pain by increasing bloodflow and breaking down calcification deposits in soft tissue.

Eye Refractions: “The refraction test is an eye exam that measures a person’s prescription for eyeglasses or contact lenses. . . .A refractor or phoropter holds a variety of lens strengths to test your vision.”

Facilities and Services: The criteria for classifying healthcare organizations comprised of descriptors attributed to a company’s specialty area.

Facility Metrics: Healthcare organizations are classified by the following criteria: total number of facility beds, utilization, finances, and staffing.

Financial Liability: Liability that assigns responsibility for any debt accrued by the practice.

Fully Integrated Medical Group (FIMG)

Model: The most integrated type of physician organization, it has the greatest contracting and market leverage. Information systems, management, and other administrative functions may be centralized so that the organization can efficiently act as a single entity.

General Partnership: Practices that share the structural simplicity of sole proprietorships; however, multiple partners require more paperwork and result in more complicated liability implications.

Glaucoma: A disease that gradually causes degeneration of the cells that comprise the optic nerve, resulting in cell death and eventual loss of vision.

Glaucoma: Glaucoma is a disease of the eye marked by increased pressure within the eyeball that can result in damage to the optic disk and gradual loss of vision.

Group Model HMO: An HMO that contracts with physician practices on an exclusive basis so that the practices see patients primarily from that plan.

Health Maintenance Organization (HMO): An organization that, through an organized system of healthcare, provides or ensures the delivery of an agreed-upon set of comprehensive health maintenance and treatment services for an enrolled group of persons commonly under a capitation or prepaid fixed sum arrangement.

Heidelberg Retinal Tomograph (HRT) Device:

“In recent years, new techniques of optic nerve imaging have become widely available, including confocal laser ophthalmoscopy (Heidelberg Retinal Tomography or HRT). . . .The HRT scans the retinal surface and optic nerve with a laser. It then constructs a topographic (3-D) image of the optic nerve including a contour outline of the optic cup. The nerve fiber layer thickness is also measured . . . Over time the machine can detect loss of optic nerve fibers.”

Horizontal Integration: “The acquisition and consolidation of like organizations or business ventures under a single corporate management, in order to produce synergy, reduce redundancies and duplication of efforts or products, and achieve economies of scale while increasing market share.”

Hospitalists: Physicians who work exclusively in the hospital setting.

Hospitalists: Physicians who, traditionally, worked solely within the hospital setting. Also known as “inpatient physicians.”

Incident-To Billing (Medicare): Services provided by a professional other than a physician that are integral and significantly entwined with care provided by the primary physician.

Incorporated Practices: More expensive and formal practices, involving copious amounts of paperwork in exchange for protection from personal liability for the professional misdemeanors of other practitioners in the corporation.

Independent Diagnostic Testing Facilities: Facilities that are independent both of an attending or consulting physician’s office and of a hospital.

Independent Practice Association (IPA) Model:

A practice established by physicians who intend to maintain their independent practices but seek to offer their services to HMOs or other risk-sharing MCOs on a collective basis.

Independent Practice Associations (IPAs): Legal entities of independent physicians that contract with health insurance companies to provide medical services.

Integrated Delivery System (IDS) Model: A group of legally affiliated organizations in which hospitals and physicians combine their assets, efforts, risks, and rewards in order to deliver comprehensive healthcare services to the community. The legally affiliated entities perform all strategic planning and payor contracting for the various interests.

Integrated Delivery Systems: Vertically integrated organizations that are frequently comprised of insurers alongside physician practices, hospitals, and other entities that provide medical care to a specific population.

Integration: “A coherent set of methods and models on the funding, administrative, organizational, service delivery, and clinical levels designed to create connectivity, alignment, and collaboration within and between the cure and care sectors.”

Integrative Medicine: Also known as integrated medicine, it is the combined application conventional and CAM services that have shown to be safe and effective.

Intensivists: Physicians trained in the practice of critical care medicine.

Joint-Venture, Hospital, or Physician-Owned MSOs: An MSO organization structure chosen to shield participants from individual liability.

Jumbo Employers: 20,000 or more employees.

Large Employers: 500 or more employees.

Limited Liability Corporations: Corporations that offer the liability protection of a corporation but the taxation simplicity of a sole proprietorship or general partnership.

Limited Liability Partnerships: The only unincorporated businesses that offer protection from personal liability for the actions of other partners or physicians; each partner's personal assets and investments are protected.

Locum Tenens: To hold the place of, to substitute for. A Latin phrase used to describe healthcare professionals that travel from practice to practice serving as temporary practitioners.

Long Term Acute Care Hospitals: Hospitals that target patients who do not require intensive care but who do need more medical attention than other long-term post-acute care settings can provide.

Managed Care Organization (MCO): An organization that provides managed healthcare services.

Management Services Bureau or “Low-Tech” Model: In this model, physicians remain separate as independent legal entities who contract for services from the bureau at fair market value.

Management Services Organization (MSO) Model: The MSO typically establishes a separate legal entity that equally shares responsibility for establishing and operating the entity between physicians and the hospital. Typically, an MSO is not licensed to practice medicine.

Management Services Organization (MSO): A legal entity owned by physicians, hospitals, or lay investors that provides an array of practice management services.

Massage Therapy: It enhances muscle and tissue function by manipulating these tissues while promoting relaxation.

Medical College Admissions Test: “[A] standardized, multiple-choice examination designed

to assess the examinee's problem solving, critical thinking, writing skills, and knowledge of science concepts and principles prerequisite to the study of medicine."

Medicare Advantage: Originally known as Medicare+Choice, a federally developed managed care model for Medicare, refined under the Medicare Prescription Drug, Improvement, and Modernization Act of 2003. "Medicare Advantage is a system for delivering Medicare benefits to beneficiaries who enroll in plans offered by private health insurance organizations."

Mid-Level Providers: A subset of licensed non-physician practitioners that generally practices under the supervision of physicians but is allowed some autonomy in practice, whether in regard to prescriptive authority or the ability to provide some level of independent care.

Naturopathic Physicians Licensing Examination (NPLEX): NPLEX "is the examination graduates of one of the approved naturopathic medical colleges must pass to be eligible for licensure in any of the 16 states or 5 provinces that license/register naturopathic physicians."

Network Model HMO: An HMO that contracts with many independent physician practices that may also treat other patients who are not enrolled in the plan.

Nurse Practitioners (NPs): NPs are licensed APRNs who provide primary care services, specialty care services, or both to a variety of patients in ambulatory, acute, primary, and long-term care settings.

Occupational Therapist, Registered: The designation assigned to a practitioner who has achieved licensure.

Occupational Therapists: Occupational therapists care for patients with mental, physical, developmental, and emotional conditions that impair their ability to undertake daily tasks, occupational tasks, or both.

Ophthalmologists: Ophthalmologists are medical doctors (M.D.) who specialize in all aspects of eyecare including diagnosis, management, and surgery of ocular diseases and disorders. The primary distinction between an optometrist and ophthalmologist is that an ophthalmologist is a medical doctor and an optometrist is not.

Optical Coherence Tomography: Optical coherence tomography is a technique that "creates images by use of special beams of light. . . . The OCT machine can create a contour map of the optic nerve, optic cup and measure the retinal nerve fiber thickness."

Opticians: Opticians are trained in designing, measuring, fitting, and adjusting optical lenses and frames according to a patient's prescribed needs, specified needs, or both.

Optometrist: Optometrists are allied health professionals trained to "examine, diagnose, treat, and manage disease that affect the eye or vision." They also treat injuries and disorders of the visual system, the eye, and associated structures, as well as identify related systemic conditions affecting the eye.

Orthotics: "Orthotics are shoe inserts that are intended to correct an abnormal, or irregular, walking pattern . . . to make standing, walking, and running more comfortable and efficient by altering slightly the angles at which the foot strikes a walking or running surface." Podiatrists may prescribe orthotics to control foot movement post-surgery or as a "conservative approach" to minor foot problems.

Orthotists: Orthotists fit patients who have disabilities of the spine, limbs, or both with devices called orthoses.

Osseointegration: Osseointegration is "the firm anchoring of a surgical implant (as in dentistry or in bone surgery) by the growth of bone around it without fibrous tissue formation at the interface."

Osteopathic Manipulative Treatment (OMT):

The use of the hands to diagnose illness and injury and to encourage the body's natural tendency toward good health. Specifically, the manual manipulation of joints, muscles, and fasciae is used to correct mechanical disorders. Additionally, OMT may be used in therapies related to circulation, lymphatic draining, and the nervous system.

Osteopathic Medicine: "Holistic" medicine.

Osteopathic physicians are doctors of osteopathy (D.O.s)

Pachymeter: "The pachymeter measures central corneal thickness (CCT) . . . Measuring your central corneal thickness is also important since recent studies have found that thin CCT is a strong predictor of developing glaucoma in patients with high intraocular pressure (IOP)."

Pharmacists: Pharmacists are authorized to dispense prescription drugs and advise patients, as well as practitioners, on matters of drug dosage, chemical and biological interactions, and potential adverse reactions.

Physiatrists: Also referred to as "rehabilitation physicians," are experts at diagnosing and treating pain.

Physical Therapists (PTs): PTs provide rehabilitative services intended to aid in the recuperation of functionality and mobility, the remediation of pain, and the maintenance of restored strength to minimize or eliminate any permanent effects of a patient's condition.

Physician Assistants (PAs): PAs are licensed health professionals who practice medicine under the supervision of physicians, surgeons, or both.

Physician Extender: A very broad term also commonly referred to as "mid-level provider," "mid-level practitioner" and "non-physician practitioner" includes many mid-level providers, paraprofessionals, and allied health professionals (as defined in this book) who provide healthcare

services under the supervision of a qualified physician.

Physician Hospital Organization (PHO) Model:

A legal entity formed by a hospital and a group of physicians that combines both parties into a single organization for the purpose of gaining greater negotiating leverage in obtaining managed care contracts.

Physician Hospital Organizations: An enterprise that unites a hospital or group of hospitals with a physician organization through a contractual relationship.

Physician Investor-Owned MSOs: MSOs are formed and governed by physicians.

Physician Practice Management Companies: Firms that specialize in the management of large group practices or IPAs through ownership, management agreement, or both.

Piezoelectric Sensor: The piezoelectric sensor "collects data in response to applied mechanical stress, registers information faster than the body can react to the pressure, thus giving an accurate measurement of the position of the vertebra in the spine."

Podiatric Assistants: Podiatric assistants aide Doctors of Podiatric Medicine by recording medical histories, taking vital signs, explaining procedures, and assisting during examinations. Additional jobs may include developing x-rays and helping prepare patients for procedures.

Podiatry: Podiatry is a health profession concerned with medical and surgical diagnosis and treatment of disorders of the foot, ankle, and related structure of the leg.

Point of Service Plans (POS Plans): Combines aspects of both an HMO and a PPO. It allows pre-paid enrollees to receive services from providers outside of their network.

Policy Rider: “An amendment that modifies the policy’s coverage in some way (for example, by increasing or decreasing benefits).” Employees may be afforded the option of purchasing a policy rider in order to have CAM coverage.

Preferred Provider Organization (PPO): An entity that contracts with healthcare purchasers to provide medical services from a select group of providers.

Presbyopes: Presbyopes are individuals affected with presbyopia, a visual condition that becomes apparent especially in middle age and in which loss of elasticity of the lens of the eye causes defective accommodation and inability to focus sharply for near vision.

Primary Care Practitioners: “Physicians specifically trained for and skilled in comprehensive first contact and continuing care for persons with any undiagnosed sign, symptom, or health concern (the ‘undifferentiated’ patient) not limited by problem origin (biological, behavioral, or social), organ system, or diagnosis.”

Prosthetists: Prosthetists fit patients who are missing limbs in part or entirely with devices called prostheses.

Psychiatric Hospitals: Hospitals that administer specialized services to patients with psychiatric illnesses.

Psychology: Study of the mind and human behavior.

Psychotechnology: Technologies to deliver mental health services.

Qi Gong: A technique that combines meditation, regulated breathing techniques, and physical motion to improve blood and qi circulation and strengthen immunity.

Qi: Vital energy.

Registered Dieticians (RD): RDs promote healthy dietary habits and consult on matters of nutritional

modification in order to prevent, treat, and manage illnesses and conditions by creating dietary programs and overseeing a patient’s meal preparation and distribution.

Registered Nurses (RNs): RNs graduated from an accredited nursing education program, successfully passed the NCLEX-RN national licensing examination, and provide a variety of preventative and medical care services, with some amount of independence, but usually in collaboration with other health professionals, including the assessment, diagnosis, and, in some cases, treatment of patients.

Registered Pharmacist (RPhs): A pharmacist who has been licensed by his or her state.

Rehabilitation Therapists: Rehabilitation therapists are mid-level therapists who trained in a specific type of rehabilitative and maintenance therapy; they provide an array of services intended to restore or enhance a patient’s function and to recover, as much as possible, the patient’s health and well-being.

Rehabilitative and Chronic Disease Hospitals: Hospitals that provide services that promote restoring health, maximizing quality of life, and recovery; rehabilitation and chronic disease hospitals can effectively service disabled patients.

Reiki: Based on the Japanese belief that physical healing results from spiritual healing, which is procured by spiritual energies that channel through the Reiki practitioner.

Research Facility: Facilities that employ physicians and practitioners in activities (funded or nonfunded) “to develop new medical knowledge, potentially leading to publication.”

Residents: “Any physicians in supervised practice of medicine among patients in a hospital or in its outpatient department, with continued instruction in the science and art of medicine by the staff of the facility.” Clinical fellows in advanced training

in medicine, surgery, and other specialty fields also are classified as residents.

Resistors: Organizations designed to maintain the status quo, repel managed care, or gradually develop the knowledge necessary for successful operation within a managed care environment.

S Corporations: Corporations that can issue stock, but are limited to seventy-five stakeholders and can only issue one class of stock: common or preferred.

Scanning Laser Ophthalmoscope: “A laser scans your eyes in seconds, and then produces digital images of your retinas. Your doctor can use the images to check for abnormalities.”

Self-Designated Practice Specialty: “The specialty which (a physician) has chosen to designate for himself/herself.”

Short Term Acute Care Hospitals: Hospitals whose patient base has an anticipated length of stay which is less than twenty-five days.

Skilled Nursing Facilities: Also known as nursing homes, these facilities provide predominantly inpatient skilled nursing care and rehabilitative services and can be part of a hospital or hospital system. These facilities focus their attention on rehabilitating patients through specialty care and therapies, including physical, occupational, speech, and respiratory therapy. They also house patients who have recently been discharged from a hospital and are in a transitional period before returning home.

Small Employers: 10–499 employees

Sole Proprietorship: Practices owned and operated by only one healthcare practitioner.

Specialty Hospital: An acute care hospital where at least 45 percent of its Medicare discharges correspond to procedures specific to that particular specialty area (for example, cardiac or orthopedic).

Speech-Language Pathologists: Speech-language pathologists assess patients in order to diagnose a variety of speech, language, cognitive, and swallowing conditions.

Spinal Manipulation: Also known as chiropractic adjustment, this is the main treatment technique used by chiropractors and involves manually applying controlled force into joints to restore mobility.

Staff Model HMO: An HMO that employs physicians and other providers who treat only the particular HMOs enrollees.

Supervision: There are three defined “levels” of supervision for nonphysician practitioners, listed in order of increasing requirements: (1) general: physician not required to be present, (2) direct: physician is immediately available, and (3) personal: physician is in the room.

Surface Electromyography (SEMG): “As muscles contract, microvolt level electrical signals are created within the muscle that may be measured from the surface of the body. A procedure that measures muscle activity from the skin is referred to as surface electromyography (SEMG)”

Surgical Hospital: An acute care hospital with at least 45 percent of its Medicare discharges involving a surgical procedure.

System-Owned MSOs: MSOs created, funded, and essentially governed by hospitals.

Tax Liability: Liability that establishes whether practice finances are filed on personal or corporate tax returns.

Teaching Facility: Facilities that employ physicians and practitioners with teaching appointments.

The American Board of Professional Psychology: Candidates must have a doctorate in psychology, postdoctoral training, experience within the field, and a professional endorsement, and they must pass the specialty board examination.

Continuing education is essential in achieving advancement within the field.

Therapeutic Pharmaceutical Agent (TPA):

“Only a TPA-certified optometrist is authorized to write prescriptions and/or dispense samples . . . [of] drugs . . . for the exclusive diagnosis or treatment of disease or conditions of the human eye, adnexa or eyelids.”

Therapeutic Touch: Derives from the concept that a therapist's therapeutic forces can promote patient recovery as they pass their hands over their patients, identifying and rectifying any energy imbalances.

Tigecycline: Tigecycline is often used to podiatrists to treat complicated skin infections.

True Integrators: Organizations that are so financially integrated through risk contracting or ownership that true integration of care processes is feasible. Although very few systems in the United States operate as true integrators, many EHOs aspire to this level of assimilation. FMIGs and IDSs are classified as true integrators.

Unincorporated Practices: Practices that the liability protection afforded to corporations (incorporated practices) in exchange for easier setup at a lower cost.

United States Medical Licensing Examination: “[A]ssesses a physician's ability to apply knowledge, concepts, and principles, and to demonstrate fundamental patient-centered skills, that are important in health and disease and that constitute the basis of safe and effective patient care.”

Vertical Integration: “The aggregation of dissimilar but related business units, companies, or organizations under a single ownership or management in order to provide a full range of related products and services.”

“Wet” AMD: The less common but more damaging form of AMD, in which tiny blood vessels form and then break under the retina.