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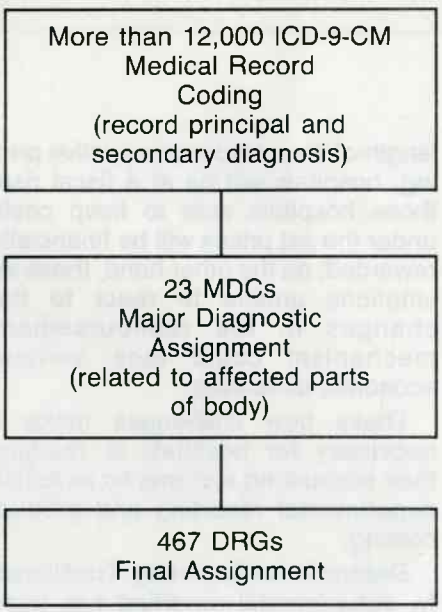
Medical Reimbursements Based on National and Regional Averages.

By Olga Quintana

During the past few years, costs for hospital care have risen at a faster rate than inflation for the general economy. These rapid increases can be attributed to a variety of factors, including increases in the proportion of the population sixty-five years and older (see Table 1), development of expensive new technologies, and greater accessibility of care. The retrospective payment system, which has reimbursed hospitals for all reasonable costs incurred in providing services to Medicare beneficiaries (as well as beneficiaries of Medicaid and Blue Cross) has come under attack lately as a major contributor to inflation of hospital costs. Since costs could not be determined until the end of the fiscal year, and would in most cases be reimbursed without much question, few incentives were provided for controlling hospital costs. In fact, the system in use up to now may have been more cost-provocative than cost-restraining. However, on September 3, 1982 the Tax Equity and Fiscal Responsibility Act (P.L. 97-248) was signed into law. The act aims at federal savings from the Medicare program, without any reduction in benefits, of $2.8 billion in 1983 and $5.9 billion by 1985. With the passage of the Social Security Amendments of 1983 (P.L. 98-21), the federal government expects to accomplish the TEFRA goal. This means moving from retrospective reimbursement to prospective pricing.

FIGURE 1
DRG Assignment



In essence, under prospective payment, Medicare will reimburse hospitals for inpatient care on the basis of average prices for diagnostic related groupings (DRGs). The law applies to all hospitals except those listed in Table 2.

Diagnosis Related Groups

The DRG concept was first developed at Yale University in the early 1970s, and then revised in 1981. Under the revised DRG system, those patients expected to utilize similar amounts and kinds of hospital resources — e.g., similar laboratory tests, similar therapeutic procedures, similar lengths-of-stay — are grouped into one of 467 categories. The DRG assignment process starts with the coding of the medical record according to the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM). The next step is the assignment to a "Major Diagnostic Category" (MDC) according to the principal diagnoses recorded on the medical record. Finally, the patients are classified into categories with similar resource utilization (see Figure 1). These categories are used as the basis for setting prices. The importance of the medical record cannot be overemphasized. For instance, for MDC 5 (Diseases of the Circulatory System) there are 43 DRGs, and each one carries a different weight. Consequently; the assignment to a given DRG will determine the amount of reimbursement. A comprehensive list of all MDCs, DRGs, and their respective weights appears on pages 39876-3886 of the September 1, 1983 Federal Register (see reference 7).

Besides the 467 basic DRGs, there are three additional categories in the federal DRG system. DRG #468 represents discharges with procedures unrelated to the principal diagnosis; these claims will be returned to the hospital by the intermediary for clarification, which will in turn delay cash collections. DRG #469 represents a valid diagnosis not acceptable as a discharge diagnosis, and DRG #470 represents a discharge with invalid data — for example, a DRG #359 ("Tubal Interruption for Non-Malignancy") with a sex entry of male. Since DRGs #469 and #470 represent cases that could not be assigned to a valid DRG, these claims will also be returned to the hospital by the intermediary. Thus, carelessness in the

TABLE 1

Population of the United States, 1970 - 1990 (In 000s)

Year	Total Population	66 and Over
1970	205,052	20,107
1975	215,973	22,696
1980	227,658	25,708
1985	237,000	28,203
1990	247,000	31,072

(Note that while the total population will increase 8.5 percent between 1980 and 1990, the percentage of the population 65 years and older will increase 20.9 percent).

Source: Exhibit I; U.S. Bureau of the Census, *Current Population Reports*, Series P-25, No. 922, U.S. Government Printing Office, 1982.

TABLE 2

Hospitals Exempt from Prospective Payment Requirements

Psychiatric hospitals

Rehabilitation hospitals

Psychiatric and rehabilitation units of general acute care hospitals

Children's hospitals

Long-term care hospitals (with average length-of-stay of 25 days or more)

Hospitals in U.S. territories

Hospitals already under alternative reimbursement programs in Maryland, Massachusetts, New Jersey, and New York

Veterans Administration Hospitals

Risk-Basis Health Maintenance Organizations (HMOs) and Competitive Medical Plans (CMPs)

Source: *Federal Register*, Vol. 48, No. 171. September 1, 1983, pp. 39755-39759.

medical record will certainly affect the hospital's cash flows.

Management Implications

Prospective pricing will set Medicare revenues at predetermined rates; therefore the hospital accounting system must provide data capable of identifying the difference between selling price per unit of service and actual cost per unit. This will necessarily encourage hospitals to exercise a more efficient management of their resources through controlling the unit costs of services. Management will also be more concerned with monitoring both use of ancillary services, and length-of-stay. Under prospective pricing, hospitals will be at a fiscal risk: those hospitals able to keep costs under the set prices will be financially rewarded; on the other hand, those institutions unable to react to the changes in the reimbursement mechanism could face serious economic difficulties.

These new challenges make it necessary for hospitals to readjust their accounting systems so as to link departmental reporting and product costing.

Departmental Reporting. Traditionally, departmental reporting has used the concept of responsibility accounting, which traces costs and revenues to the various responsibility centers in the organization. This system has been used primarily to prepare Medicare Cost Reports, since Medicare has required that the costs of all nonrevenue producing departments be allocated in a reasonable way to the revenue departments. Under the DRG system, responsibility accounting will remain essential to the management process; in particular, efforts to identify those costs that are controllable will be increased. While some costs are inescapable, others stem directly from management choices. The degree of control depends, of course, on the responsibility level under consideration: costs uncontrollable at one responsibility level may be controllable at some other.

Product costing. Product costing deals with determining the unit manufacturing cost. This information is used for different purposes, such as cost control, budgets, pricing, specific decisions, and general planning and control of operations. The aim of product costing is to provide detailed cost information which can then be analyzed and combined in different ways. It is unlikely that an organization could operate efficiently without an understanding of its cost and their relationship to the aims which it is to serve. But since the methods used for cost collection depend on the types of products and processes under consideration, these methods vary among firms.

The forerunner of the prospective payment system is the New Jersey plan. This plan defines direct patient care costs, those readily associated with output, as variable with volume; and indirect costs, those allocated in order to achieve a total costs per unit, as fixed.

Generally, variable costs are those that change in direct proportion to volume, where fixed costs are those which remain constant over a relevant range. Administrative salaries and depreciation would be examples of costs that cannot be reduced simply because the volume of patient admissions drops. Salaries of temporary personnel and the cost of medical supplies, on the other hand, vary in direct proportion to changes in patient volume. Certain other costs — those

which do vary, but not in direct proportion to volume — are considered semivariable.

In the New Jersey DRG system, direct variable costs include those associated with routine nursing care and with the provision of ancillary services, such as laboratory and radiology. Indirect fixed costs include those related to the operations of the fiscal plant, as well as administration. Semivariable costs are those associated with general services such as housekeeping, dietary, linen, etc.; they are allocated to direct or indirect patient care cost centers on a predetermined basis.

Prospective Payment Mechanism[1]

Various factors will be utilized by the Health Care Financing Administration in determining prospective payment amounts. The final rate is a blend of a hospital-specific cost-based portion, and a federal portion with a three-year phase-in period. Moreover, the Federal portion is arrived at by using a mix of regional and national rates (see Table 3). Thus, a hospital with a fiscal year-end of June 30 will be paid for the fiscal year beginning July 1, 1984, a blend made of 75% hospital specific portion and 25% federal portion. The federal portion will be based on a 100% regional rate from 7/1/84 to 9/30/84. However, from 10/1/84 to 6/30/85 the 25% federal portion of the blend will be based on a 75% regional and 25% rate-mix.

Hospital-Specific Portion. The hospital-specific component is derived from the Medicare allowable costs during the base year (the hospital cost reporting year which precedes the year in which TEFRA applies — i.e., the first fiscal year beginning on or after October 1, 1981). These costs include inpatient operating costs, such as those incurred in providing ancillary and special care services, as well as routine operating services. In addition, malpractice costs, indirect medical education costs, FICA taxes (if not previously considered), and non-physician service costs are to be included. Other adjustments to the base year are listed in Table 4.

Once the base-year costs are obtained, three further adjustments are needed. First, a "case-mix index" is removed, in order to reduce differences between hospitals due to

TABLE 3
Prospective Blended Rate

Fiscal Year Beginning on or After October 1	Hospital Specific Portion	Federal Portion		
		Percentage of Total	Regional %	National %
October 1, 1983	75%	25%	100%	—
October 1, 1984	50%	50	75	25%
October 1, 1985	25%	75	50	50
October 1, 1986	0	100	—	100

Source: *Federal Register,* Vol. 48, No. 171, September 1, 1983, p. 39775.

TABLE 4
Adjustments to Base Year

Removal of capital-related costs

Removal of direct medical education costs

Removal of nursing care differential

Removal of routine costs in excess of the limits

Removal of kidney acquisition costs if hospital has a Renal Transplantation Center

Removal of higher costs due to changes in accounting practices in the base year.

Removal of other items that could have caused unusual increases in base year costs.

Source: *Federal Register,* p. 39773.

TABLE 5
Target Rates of Increases

If 12-month Base Year Cost Reporting Period Ends	And First Cost Reporting Period Under PPS-Ends	Updating Factor
September 30, 1982	September 30, 1984	1.13570
October 31, 1982	October 31, 1984	1.13265
November 30, 1982	November 30, 1984	1.12961
December 31, 1982	December 31, 1984	1.12658*
January 31, 1983	January 31, 1985	1.12658
February 28, 1983	February 28, 1985	1.12658
March 31, 1983	March 31, 1985	1.12658
April 30, 1983	April 30, 1985	1.12658
May 31, 1983	May 31, 1985	1.12658
June 30, 1983	June 30, 1985	1.12658
July 31, 1983	July 31, 1985	1.12658
August 31, 1983	August 31, 1985	1.12658

*These updating factors are subject to change depending on changes in the target rate percentages used to compute them. HCFA will publish a quarterly notice in the Federal Register setting forth the percentages and factors to be used for cost reporting periods beginning in the subsequent calendar quarter.

Source: Chart 2, *Federal Register,* p. 39774.

TABLE 6
Adjusted Standard Amounts

	Labor Related	Non-Labor Related
Region 1 (New England)		
Urban	$2,342.75	$638.28
Rural	$2,003.02	$484.24
Region 2 (Middle Atlantic)		
Urban	2,106.03	630.78
Rural	1,993.64	491.11
Region 3 (South Atlantic)		
Urban	2,192.95	584.52
Rural	1,803.89	408.07
Region 4 (East North Central)		
Urban	2,340.95	680.40
Rural	1,959.42	457.10
Region 5 (East South Central)		
Urban	1,990.97	520.25
Rural	1,819.64	381.83
Region 6 (West North Central)		
Urban	2,283.48	605.28
Rural	1,828.58	392.30
Region 7 (West South Central)		
Urban	2,146.37	572.51
Rural	1,762.03	380.42
Region 8 (Mountain)		
Urban	2,108.90	607.69
Rural	1,826.56	426.96
Region 9 (Pacific)		
Urban	2,219.82	711.58
Rural	1,908.93	497.87
National		
Urban	2,206.22	631.69
Rural	1,847.42	416.58

Source: *Federal Register*, p. 39844

case-mix complexities. (This variable was computed for each hospital using 1981 data; a comprehensive list of all providers and their respective case-mix indexes appears on pages 39847-39870 of the September 1, 1983 Federal Register). Second, the amount so obtained is adjusted for outliers — i.e., "cases that have an extremely long length of stay or extraordinary high costs when compared to most discharges classified in the same DRG."[2] The outlier adjustment factor is .943. Its purpose is to adjust the hospital specific portion to exclude additional payments for outliers that are likely to occur in the future. Health Care Financing Administration expects outlier payments of "approximately 6% of the estimated FY 84 total prospective payments."[3] Finally, base-year costs are multiplied by an updating factor, in order to account for inflation (see Table 5).

Federal Portion. The federal component of the prospective payment rate is derived from the calendar year 1981 Medicare Cost Reports. During the phase-in period, this amount will be compounded from one of 18 regional rates — with each of the nine census regions divided into urban and rural areas — and one of two national rates — one urban, one rural. Further, these amounts are divided into labor and non-labor components (see Table 6). During the phase-in period the labor-related portion of the regional standards will be adjusted using the wage index published in the Federal Register. It should be re-emphasized that, in the fourth year, the DRG rate will be based solely on the national average.

Sample Computations

As an example, let us take the case of a patient over age 69 who is discharged from a hospital in Durham, NC, on January 1, 1984, with a principal diagnosis of kidney-urinary tract infections, with comorbidity and/or complications. This patient would fall into DRG #320 — based on his diagnosis, his age, and his complications — which has a weight of .8123. If the hospital's fiscal year ends on September 30, then the blended rate is that for the year beginning October 1, 1983: 75% hospital-specific, 25% federal (see Table 3). Assuming that the base-rate cost per Medicare discharge is $2,800 in North Carolina; the case-mix index for this particular hospital is .9671; and the updating factor is that for the cost-reporting period ending September 30, 1984 (see Table 5).

As can be seen from this simple illustration, the difference in payment ($2,772 vs. $2,459) is due in part to differences in the base-year cost and the case mix between the two hospitals. (It should be pointed out that, since the base year cost is divided by the case-mix index, those institutions with a case-mix index lower than 1.0 will be relatively better off than those with a more complex mix, i.e., greater than 1.0.) In addition, there are differences in the federal portion, due to regional adjustments caused by differences in prices and wages during the phase-in period.

New Challenges

The arrival of a DRG based prospective payment system poses new challenges for hospital management. It forces the merger of clinical and financial data; thus coordination of efforts between the medical/nursing staff, medical records personnel, and the administration becomes imperative. Since knowledge of the specific costs associated with treating a given DRG becomes a must, never before has product costing been so important in the hospital industry. Ω

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NOTES

[1]This section represents a summary of the final regulations which were published by the Department of Health and Human Services - Health Care Financing Administration in the *Federal Register*, September 1, 1983.

[2]See reference #7, p. 39776.

[3]Idem.

Illustration 1

Hospital Specific Portion

Durham, North Carolina

Base Year Cost =	$2,800
Case-mix Index =	.9671
Outlier Adjustment =	.943
Updating Factor =	1.13570
Transition Percentage =	75%
DRG Weight =	.8123

$$\frac{\$2{,}800 \times .943 \times 1.3750 \times .75 \times .8123}{.9671} = \$1{,}889.03$$

Federal Portion *(See Table 6, Region 3)*

Labor Related Portion =	$2,192.95
Non-labor related =	584.52
Wage Index =	1.0139 (Federal Register, p. 39874).

[($2,192.95 x 1.0139) + 584.52] x .25 x .8123 = $570.23

Payment Rate for DRG #320 Durham, North Carolina

Hospital Portion	$1,889.03
Federal Portion	570.23
Total Payment	$2,459.26

For comparison, let us look at a similar patient released on the same date the same reporting year, but located in Los Angeles, California:

Illustration 2

Hospital Specific Rate

Los Angeles, California (Additional Assumptions)

Base Year Cost =	$3,200
Case-mix Index =	1.0235

BY Cost x outlier x updating x transition x DRG = Hospital Portion
CMI adjustment factor percentage weight

$$\frac{\$3{,}200 \times .943 \times 1.13570 \times .75 \times .8123}{1.0235} = \$2{,}039.94$$

Federal Portion *(See Table 5, Region 9)*

Labor Related Portion =	$2,219.82
Non-labor Related =	711.58
Wage-Index =	1.3037 (Federal Register, p. 39873)

[($2,219.83 x 1.3037) + 711.58] x .25 x .8123 = $732.20

Payment for DRG #320, Los Angeles, California

Hospital Portion	$2,039.94
Federal Portion	732.20
Total	$2,772.14

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