Pharmacy value-based incentive programs: an evaluation of health plan strategies, pharmacist attitudes, and financial impact on retail stores

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PHARMACY VALUE-BASED INCENTIVE PROGRAMS: AN EVALUATION OF HEALTH PLAN STRATEGIES, PHARMACIST ATTITUDES, AND FINANCIAL IMPACT ON RETAIL STORES

A Dissertation presented in partial fulfillment of requirements for the degree of Doctor of Philosophy in the Department of Pharmacy Administration The University of Mississippi

by

Tristen H. Jackson

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ABSTRACT

Since the Affordable Care Act (ACA) in 2012, health plans serving Medicare beneficiaries have begun receiving sizeable incentives (>1B) for demonstrating high ratings to quality performance scores in CMS’s Medicare star ratings program. Several of the quality measures can be directly impacted by retail pharmacists (e.g., medication adherence measures), resulting in health plans implementing programs designed to incentive retail pharmacies to work toward improving their own performance related to quality measures. While awareness of these value-based incentive (VBI) programs is growing, there is still a significant lack of research which elucidates the nature of these programs and the potential impact they are having on the field of retail pharmacy. This dissertation attempts to provide a better understanding of the impact of VBI programs on retail pharmacy through three parts. The first paper provides a categorization of the three primary strategies which are being employed through current VBI programs. Furthermore, the paper summarizes and provides anecdotal evidence of five distinct programs which are being considered or implemented. The second paper explores retail pharmacy’s perception of the impact of quality measures and VBI programs through quality research with retail pharmacy managers. The third paper evaluates the financial impact to retail pharmacies of three potential VBI programs. The results of this dissertation provide a step forward in exploring how retail pharmacy is being affected by healthcare’s shift toward achieving quality performance ratings.
DEDICATION

This dissertation is dedicated to the many people who helped encourage and support me during my graduate career. First and foremost, I want to dedicate this to my wife, Jessica Jackson. She has been a constant source of encouragement and a foundation of support throughout the entire process. She was always understanding of the many hours I spent working on the dissertation at the expense of time with her, she provided a patient, listening ear to the many long walks where I wrestled over different ideas for the research, and most importantly, she made sure to refocus my attention away from the dissertation from time to time to ensure I was still spending time where it truly matters: with family and friends. She also did all of this while burdened with a mountain of work associated with her pursuing her own educational goals, to which I am awed and humbled. I love you Jessica. I would also like to dedicate this to my parents, Harmon and Sherry Jackson, and my brother, Brenden Jackson. They have been a steady source of encouragement and support long before this dissertation and I owe them too much to ever fully repay.
LIST OF ABBREVIATIONS AND SYMBOLS

VBI  Value Based Incentive
P4P  Pay for Performance
QPO  Quality Payment Opportunity
VBC  Value Based Contracting
QBN  Quality Based Network
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CHAPTER 1: INTRODUCTION

Background

In 1965, proponents for public health reform passed amendments to the Social Security Act under President Johnson that effectively created Medicaid and Medicare (Hoffman, 2003). Medicare exists as a nationally funded and run program that provides health insurance primarily to the elderly population through payroll taxes on the rest of the population (CMS, 2015). United States citizens eligible for Medicare include those aged 65 or older, those under 65 with certain disabilities, and individuals of any age with End-Stage Renal Disease (ESRD). Medicare was further expanded in 2003 with the passage of the Medicare Prescription Drug Improvement and Modernization Act (MMA). The legislation allowed private health plans to also provide insurance to Medicare beneficiaries, called Part C or Medicare Advantage (MA) plans. Additionally, the legislation established an optional drug benefit that became available to beneficiaries in 2006 entitled “Part D” (CMS, 2015).

As the administrative agency of Medicare, the Centers for Medicaid and Medicare Services (CMS) attempts to ensure that its beneficiaries have access to and receive high-quality health care (APhA, 2013). Considering the increasing costs to Medicare, this mission is as important as ever. It is for this reason that in 2007, CMS developed a Medicare star rating system that measures and reports on quality measures associated with Medicare plans (APhA,
Plans are rated from 1 to 5 stars, with 5 stars representing the highest quality rating a plan can receive (Jacobson et al., 2011).

The passage of the Affordable Care Act (ACA) in 2010 designated that MA-only plans and MA plans with Part D (MA-PD) would begin receiving bonus incentives based upon the star rating that the plan received (Jacobson et al., 2011). In 2012, these payment models went into effect, providing bonus payments to plans with 4 or more stars. CMS also launched a 3-year demonstration project in 2012 granting smaller bonuses to plans rated as average (3 or 3.5 stars) in the hopes of incentivizing more plans to strive for higher star ratings. Data shows that plans have continually progressed to higher star ratings since bonus payments were implemented (HLMedit, 2014).

Star ratings are currently comprised of 47 measures, with Part C plans evaluated with 32 measures and Part D plans evaluated with 15 measures (CMS Star Ratings Technical Notes, 2015). Of the 47 measures, 10 are triple-weighted, which translates into each of the measures accounting for a much higher impact on a plan’s overall star rating. Of these 10 measures, eight are considered to be able to be influenced either directly or indirectly by medication therapy (APhA, 2013). At one point, five of these measures were estimated to account for approximately 19% of Part C ratings and 54% of Part D star ratings. Since then, some measures have changed, with the current measures most directly linked with pharmacy practice including medication adherence for three chronic disease states (oral diabetes, hypertension, and cholesterol) and medication-therapy management (MTM) program completion rate for comprehensive medication review (CMR). (CMS Star Ratings, 2017)

Given the high degree of influence pharmacists can have on these measures, it is no wonder that community pharmacies’ influence on star ratings are being more closely considered.
In fact, payers have now started to utilize data assessing individual pharmacy quality measures to determine how their performance is impacting the plan’s star ratings (Stolpe, 2015, Smart Retailing, 2014).

Health Plan Value-Based Incentive Programs

Using plan and third-party data to evaluate individual pharmacy stores’ performance scores, many MA-PD plans have begun to implement incentive programs that encourage pharmacies to boost star rating scores (Stolpe, 2015; Deniger, 2015) (Bonner, 2016). These value-based incentive (VBI) programs include both punishing and rewarding pharmacies in response to various quality performance metrics. The most common store performance measures evaluated are the three patient medication adherence measures included in CMS star ratings: oral diabetes, hypertension, and cholesterol (Rawal et al., 2015; Moose & Logan, 2016). While the three patient medication adherence scores appear to be the primary focus (SilverScript, 2014; IEHP, 2016), other plans have utilized additional performance measures including how often the pharmacy dispenses generic products (when available) over brands, and how often 90 day supplies of medications are dispensed (Deniger, 2015).

The VBI programs used by healthcare plans to boost performance measures appear to vary widely. However, several reports on individual plans exist. One VBI program includes giving bonus payments to pharmacies in response to their performance measures (Logan & Logan, 2013). In these programs, bonus payments are awarded as lump sums in either regular intervals or annually to a pharmacy store. Bonus incentive programs appear to be structured in one of two different schemes: a tournament or threshold system (Rawal et al, 2015). In a tournament system, the plan allocates one lump sum to split between all pharmacies within their
network. Pharmacies with higher performance scores get a larger proportion of the bonus money, with those scoring lowest getting the lowest amount, if any at all. In a threshold system, pharmacies that meet certain threshold requirements (i.e. store-level adherence for patients taking oral anti-diabetics at 80%) are awarded with either a flat bonus payment or perhaps a bonus percentage of all medication transactions with network beneficiaries. In a threshold system, multiple thresholds can also exist where increasing pharmacy performance ratings constitutes higher bonus payments (Rawal et al., 2015; Maxwell, 2015).

A second type of VBI program is changing reimbursement fees in response to pharmacy performance ratings (Maxwell, 2015). In each transaction where the cost of a medication is reimbursed from a health insurance entity, a dispensing fee for the pharmacist is included in the total cost. Similar to the threshold system of bonus incentives, the increase to dispensing fee reimbursement can vary as higher levels of pharmacy performance are achieved.

Another VBI program includes the altering of direct and indirect remuneration (DIR) fees (Maxwell, 2015). This can refer to two distinct processes at a pharmacy: 1) the reconciliation of contractual terms between plans/ pharmacy benefit managers (PBMs) and pharmacies with actual reimbursement, and 2) a fee that pharmacies must pay to participate in a network (Maxwell, 2015). In the course of the many adjudications that occur between the pharmacy and plan/PBM when patients claim medications, the actual reimbursement owed to the pharmacy is often not fully realized until a reconciliation occurs after some period. At this time, any additional reimbursement owed by the plan/ PBM is awarded to the pharmacy. For the “pay-to-play” fees, reports suggest plans might try to incentive pharmacies by reducing the fee for pharmacies that have high performance scores. The fee is usually attached to each medication transaction, and reports suggest on average it is around 5% (Maxwell, 2015; Moose & Logan,
2016). Multiple thresholds of pharmacy performance may again be present in this strategy, where higher performance ratings a pharmacy achieves results in a lower fee the pharmacy may have to pay.

The final set of programs includes changes to the pharmacy’s place in a health plan’s network. Most simply this involves a plan or PBM simply excluding low-performing pharmacies from their network (Stople, 2015). This can cause potential gains or losses in pharmacies as pharmacies are included in a network or excluded from it, respectively. Another variation in network management can involve changes in the form of preferred and non-preferred network pharmacies (Gebhart, 2014; Fein, 2015). Patients are still allowed to get reimbursed at all pharmacies; however, patients will have lower co-pays at those are considered “preferred.” While this practice does not directly reward or punish pharmacies based upon performance scores, patients may naturally shift their business to pharmacies with lower co-pays, thereby resulting in more business for such pharmacies (Fein, 2015). In this way, a plan/PBM can indirectly reward those pharmacies with high performance scores while simultaneously punishing pharmacies with low scores. Additionally, the plan might also assume whatever factors that caused current patients to be more adherent at one pharmacy might improve adherence for those patients that shift to the “preferred” pharmacy, thereby increasing overall beneficiary adherence star ratings (Gebhart, 2014).

It should be noted while both sets of network practices existed prior to the advent of the CMS star rating bonus payments, most network decisions to this point have been based upon contractual agreements. For instance, employees of large chain pharmacy retail stores often are required by their insurance provider (i.e. the chain retail pharmacy) to obtain their medications at the same set of chain retail pharmacies, either by not covering other pharmacies or by providing
lower co-pays by using the same retail chain pharmacy (Gebhart, 2014). However, as MA-PD plans continue to strategize how to boost their own star ratings, network change programs are certainly a viable option that can and are being used. To the principal investigator’s knowledge, no research has been conducted to acquire a comprehensive understanding of all of the programs implemented and being considered to date.

Potential Financial Impact of Star Ratings on Pharmacy Stores

To date, there is no literature estimating the overall impact of health plans’ VBI programs on pharmacies. However, a few reports of how individual pharmacies have been impacted are available. One report listed a single pharmacy’s experience with a bonus payment incentive structure (Deniger, 2015). The pharmacy received a total of $1190 in bonus payments throughout the entire 2014 year. This amount is a reflection of the pharmacy performing highly on the RAAS agent adherence measure (90.48%) and statin therapy adherence measure (92.16%), well above the 5-star benchmarks for each group of 84% and 78%, respectively. The store found that 75% of its patients were adherent to oral diabetes medications, lower than the 5-star benchmark goal of 85%. The pharmacy was listed as a medium-load pharmacy, averaging 250-350 prescriptions per day.

Additional reports suggest similar overall payment incentives for pharmacists through VBI programs (Maxwell, 2015, IEHP, 2016), weighted on the number of beneficiaries the pharmacy serves. Although the number may seem small at first, a consideration must be made that there may be as many types of VBI programs as there are unique Medicare programs represented through patients. Thus, while the impact of individual VBI programs may seem small, the total impact of all programs may be much larger for pharmacies with high
performance scores. Further research is necessary to understand the amount pharmacies can stand to gain or lose based upon their own performance ratings.

Previous Literature on Provider Performance Programs

Considering the limited literature on pharmacy VBI programs, a look at previous literature surrounding pay-for-performance incentive programs for other providers is warranted. The types of physician performance incentive structures include performance bonuses, fee schedules, and network lockouts. Physician performance bonuses are synonymous with pharmacy bonus payments, where performance scores can dictate whether and how large financial bonuses occur (Rosenthal et al., 2004). Fee schedules refer to increases in reimbursements to fee-for-services models of healthcare, wherein the physician is reimbursed a specific fee for services rendered. As healthcare shifts to value-based models of reimbursement, one way to accomplish this is simply applying a value-based “adjustment” to traditional reimbursements (CMS, 2016). Like this practice for physicians, the dispensing fee adjustment or DIR fee adjustments based upon performance ratings apply a simple way to incorporate value adjustments to pharmacy practice as a way to incentivize higher performance ratings.

Unlike the previously outlined VBI programs, “physician tiering” provides an example of a potential future VBI program for pharmacists (Stone & Sullivan, 2007). Physician tiering refers using claims data to assess the quality of performance of providers, as well as their cost-efficiency relative to respective peers. This is differentiated from previous “economic credentialing”, wherein high-cost physicians were terminated from the network. Physician tiering places physicians on at least 2 tiers of “preference” for the patient to use the physician. The most basic form this can take for physicians to be placed on either a “preferred” tier or a “non-
preferred” tier. Tier placement is commonly based upon cost and quality ratings. The tiers and ratings are made known to patients, whom are generally steered to higher-performing physicians (i.e. more “preferred” tiers) through lower copayments. Additionally, physicians on higher tiers may receive performance bonuses, effectively receiving both direct (bonus payments) and indirect (more patients) incentives to increase performance scores.

There are several reasons why limited-network benefit designs are more popular than tiered benefit designs for physicians (Ginsburg & Pawlson, 2014). The first recognizes the overall complexity of attempting to provide tiering for many different types of physicians. Furthermore, providing a way for beneficiaries to access and adequately comprehend the differences between differently tiered entities would be cumbersome. The second reason limited network benefit structures are more popular is that the access of only a limited amount of providers, albeit likely more cost-efficient to the plan, allows for a smaller premium to be paid for by the patient. Finally, many prominent hospitals are resistant to contracting with payers under a tiered benefit design unless the entire hospital and all of its services/employees are placed in the preferred tier. This implies a nationally recognized oncologist and a cardiologist with terrible patient outcomes who work under the same hospital system would fall under the same tier. Given many physicians today are employed under a large health system, this presents a problem.

A tiering design for retail pharmacies might be much more applicable, given performance ratings, for the time being, appear to be applied to the store-level rather than the individual-level (Rawal et al., 2015; Moose & Logan, 2016). It is uncertain whether patients might fully comprehend differential performance ratings a plan might present. However, it is certainly suggested lower copayments for patients increases patient adherence (Taira et al., 2006), thereby
increasing pharmacy performance ratings (Chernow et al., 2008). One criticism of physician tiering is physicians might not always be able to handle higher patient loads as an outcome of lower payments through a high tier placement (Stone & Sullivan, 2007). Pharmacies are potentially better equipped to handle higher patient loads in this regard, since an increased frequency of 10-20 patients per day (300-600 patients per month) might not push pharmacy resources as much as it might physician office resources. Issues might still arise for large chain pharmacies in regard to applying a single tier structure to a single entity of the chain.

In conclusion, while most reports of pharmacy VBI programs closely reflect previously established practices for physician incentive strategies, pharmacists may also need to consider the possibility of pharmacy tiering as a future incentive program that payers may explore.

Pharmacist Reactions

Currently, there is little literature evaluating pharmacists’ attitudes and perspectives of plans implementing VBI programs and associated evaluation of store-level quality performance measures. Meterko et al. (2006) proposed a conceptual framework of how provider attitudes toward pay-for-performance programs affect practice behaviors, including how providers respond to pay-for-performance incentive programs. Their study proposed that three primary domains affected provider attitudes: the characteristics of the incentive program, the practice environment of the provider, and the background characteristics of the provider. The characteristics of the incentive program included the structural features (types of measures, target recipient, reward mechanism, and availability of feedback), and the communication features. The practice environment domain was made up of many autonomy, normative, and social support features such as whether the practice was group or solo, the type of information and support
systems available, the overall practice culture, experience of the practice executives, and community practice norms. Finally, the demographic and background domain was thought to consist of years of practice of the individual, specialty, and whether the participant had a professional school appointment.

Meterko et al. (2006) also conceptualize seven critical dimensions of provider attitudes related to quality targets and incentives: 1) awareness and understanding of the incentive program, 2) salience of the financial incentives, 3) clinical relevance of the quality targets, 4) control over the resources needed to achieve the quality targets, 5) fairness in the administration of the incentive program, 6) frequency and nature of performance feedback provided, and 7) possible unintended consequences associated with the pursuit of the quality targets. The authors hypothesized that each of the dimensions affected whether a change in practice behavior might be seen towards achieving quality targets. The authors developed a survey instrument and tested it in a large sample of physicians to test construct validity of the attitudinal dimensions on perceived impact of quality targets, and incentives on clinical practice behavior. The authors found evidence to support most of the dimensions, except for fairness and performance feedback, for which cooperation (i.e. support from other providers) and perceived impact of the incentive program were found to be significant dimensions of provider attitudes toward incentive programs. Meterko et al.’s (2006) work provides a valid basis to consider overall pharmacy attitudes and behaviors for pay-for-performance programs.

Management theory suggests that many factors contribute to the awareness and strategic decisions of decision-makers. Work by McMullen & Shepherd (2006) suggests that entrepreneurs, in response to uncertainty in their environment, engage in a process of attention and evaluation, where individuals engage in gathering and evaluating knowledge based upon
characteristics of the individual. This agrees with Pfeffer and Salancik (1978), who, in discussing how and when managers may seek information for an area of uncertainty, suggested that uncertainty by itself would not lead to scanning behavior. Rather, external events would need to be perceived as important to organizational performance for managers to attribute any interest to them. In this way, Meterko et al.’s work is in agreement with previous management theory and attempts to consider the many attributes that a provider may place on the importance of the external event (i.e. incentive programs), thus affecting their information-seeking and reactions to these events.

Applied to pharmacy VBI programs, Meterko et al.’s conceptual framework provides a foundation for considering how pharmacists are reacting to these programs. The framework compares well to the Theory of Planned Behavior (TPB) (Ajzen, 1985), which suggests that intentions to change behavior (i.e. try to meet quality targets) are a factor of attitudes, normative beliefs, and perceived control. Meterko et al.’s model, in finding cooperation as a major dimension of attitudes through its exploratory factor analysis, essentially broadened many of the dimensions of TPB. Awareness/understanding, financial salience, clinical relevance, and perceived impact might all fall under the broader scope of general attitudes of the TPB. Likewise, cooperation might be similar to normative beliefs, with taken a step further with not only the beliefs of what others think should be done, but also help to do so. Finally, control over the resources needed from Meterko et al.’s model can be seen as synonymous as perceived control to change behavior. Actual behavioral control (i.e. how well changing behaviors actually allows one to reach quality measurement target) can also be seen in the same light as unintended consequences posited by Meterko et al.’s model. Given the high degree of support for the TPB, recognizing how Meterko et al.’s model fits within the dimensions of it helps provide additional
support how its framework might provide a sound foundation for understanding how pharmacists evaluate VBI programs.
Research Objectives

Health plans are already considering and implementing various value-based incentive (VBI) programs to boost star ratings from the pharmacy store-level. However, little literature has been published outlining the specific programs and the financial impact on pharmacy practice. Additionally, little published research has considered the reaction of pharmacists to VBI programs. The following specific aims are designated for this dissertation are:

1. Provide a categorization of strategies employed by known VBI programs and provide anecdotal evidence of potential programs being implemented by health plans to incentive improvement of retail pharmacy-related quality measures (Paper 1)

2. Understand pharmacist attitudes and perceptions of quality measures and the impact of VBI programs (Paper 2)

3. Using Mississippi Medicare claims data, estimate store-level performance to select quality measures and evaluate the financial impact of possible pharmacy VBI programs on retail stores (Paper 3)
CHAPTER 2: THE EFFECT OF MEDICARE STAR RATINGS ON PHARMACIES:
PAYER STRATEGIES TO ENHANCE PHARMACY PERFORMANCE

Introduction

The landscape of healthcare is slowly shifting in lieu of increased attention to quality health measures. In 2015, the Department of Health and Human Services (DHHS) announced their goal of tying 85% of fee-for-service (FFS) Medicare payments to quality or value by the end of 2016. Additionally, DHHS set a goal that 90% of payments were to be tied to quality or value by the end of 2018 (DHHS, 2015). After the announcement, the Health Care Transformation Task Force was quickly formed, which is comprised of a large collection of health plans and employers whose aim is to shift 75% of their operations to contracts designed to improve health care quality and lower costs by 2020 (Brino, 2015).

The Medicare star rating system was developed in 2007 by the Centers for Medicare and Medicaid Services (CMS). The system analyzes Medicare health plans through quality measures and rates plan from 1 to 5 stars, with 5 stars representing the highest quality rating a plan can receive (Jacobson et al., 2011). In 2012, the Affordable Care Act (ACA) designated that Medicare Advantage plans (MA) and MA plans with Part D (MA-PD) would begin receiving bonus incentives based upon the star rating that the plan received. Sizeable incentives are provided to those plans with the highest ratings in the star rating system (Galewitz, 2016). Plans
can also be designated as “low performing” if they receive an overall star rating of less than three stars for three consecutive years. Medicare members enrolled in “low performing” plans are notified and provided assistance if they want to shift to a different plan. Additionally, low performing plans can lose their contract with Medicare (Jacobson et al., 2011). Both the financial incentives for high ratings as well as the potential for enrollee health plan shifting and contract termination through low ratings (Herman, 2015) have led most plans to develop strategies to raise their star ratings. Data from CMS demonstrated an increasing trend in average star ratings for MA-PD plans from 2012 to 2016 (CMS Fact Sheet, 2016), although the increase has since plateaued (CMS Fact Sheet, 2018).

With plans working to maximize their own star ratings, pharmacies’ impact on star ratings have become the focus of much attention and discussion. Recently, it was estimated pharmacy related measures account for approximately 19% of Part C star ratings and 54% of Part D ratings (Erickson et al., 2014). While pharmacies’ effect on star ratings has altered some with the retiring of some measures (“diabetes measurement” as a triple-weighted measure) and the addition of others (“medication therapy management program completion rate for comprehensive medication reviews” as a single-weighted measure) (CMS Star Ratings, 2016), the impact pharmacies can have on Part D and overall plan ratings is still profound.

Consequently, pharmacies are being pressured by MA-PD plans to increase their performance (Stolpe, 2015). Some reports suggest plans may punish low-performing pharmacies by locking them out of their network (SilverScript, 2014). This would essentially require any patients within the plan to shift to another pharmacy for any medications they don’t want to pay for completely out-of-pocket, resulting in a loss of business for the pharmacy. Other plans are considering rewarding pharmacies that perform well. For example, a Silverscripts’ program
rewards pharmacies with bonuses at the end of the year based upon performance on four distinct star measures as well as the number of patients at each pharmacy (Bonner, 2015).

Research on these value-based incentive (VBI) programs in pharmacy is generally scarce; however, the literature on how payers have addressed physician benefit structures may provide some insight. For instance, physician benefit structures typically follow one of three approaches: changes to fee schedules, limited-networks, and more recently, physician tiering (Rosenthal et al., 2004; Stone & Sullivan, 2007; Ginsburg & Pawlson, 2014). Changes to fee schedules directly affects the net compensation provided to the healthcare practitioner (Rosenthal et al., 2004), while limited-networks and physician tiering may affect patient behaviors by either encouraging or deterring patients from going to particular practitioners (Stone & Sullivan, 2007). Incentivizing prescriber behaviors directly and incentivizing patient behaviors (and thus indirectly practitioner behaviors) can be used independently or in conjunction with one another. Limited networks are more popular than physician tiering, but that is mostly due to issues with effectively tiering physicians who are not in private practice and also adequately informing beneficiaries of the differences between tiers for providers (Ginsburg & Pawlson, 2014). Limited networks and fee schedules in the form of bonus payments are already previously referenced as possible mechanisms that may be used in response to pharmacy quality performance.

The primary aims of this paper are to provide a categorization of strategies employed by known VBI programs and to collect anecdotal evidence of programs being implemented by health plans to incentivize improvement of retail pharmacy-related quality measures. Furthermore, the paper seeks to identify and explore quality measures being monitored and utilized in VBI programs. Anecdotal evidence and information gathered from a survey are used to help achieve these aims.
Types of VBI Strategies

There are three types of VBI strategies readily identifiable in the literature. The first two, quality payment opportunity (QPO) and value-based contracting (VBC), directly impact a pharmacy’s potential revenue through financial rewards offered or punishments levied against a pharmacy. The third strategy, quality-based network (QBN), indirectly impacts a pharmacy’s potential revenue through affecting the patient volume of a pharmacy. The three types of VBI strategies are shown in Figure 1.

The QPO strategy is defined as optional rewards or payments dispersed for meeting specific goals set by a health plan. These goals are often associated with pharmacies achieving high performance on quality-based measures, such as the medication adherence measures used in...
CMS star ratings (Jhawar & Rabbitt, 2016; CMS Star Ratings, 2016). One example comes from Inland Empire Health Plan (IEHP), which awards bonus payments every 6 months to retail pharmacies within its network for meeting specific quality measure metrics, including high rates of patient adherence to diabetes, hypertension, and cholesterol medications (Bonner L, 2016). These additional payment opportunities do not affect contractual agreements between the health plan and pharmacies (e.g., dispensing fees) and offer few disadvantages as they strictly provide optional benefit for those able to achieve specific criterion pre-defined by health plans.

VBC is broadly defined as a strategy where the specific terms of contracting with a practice are adjusted based upon performance. Whereas QPO only offers potential rewards for high performance, VBC can be risk-sharing and associated with both rewards and penalties related to performance. One of the most widely recognized forms of VBC in retail pharmacy is through adjustment of direct and indirect remuneration (DIR) fees based upon quality performance. DIR fees typically encompass “pay to play” fees for network participation between pharmacies and health plans or pharmacy benefit managers (PBMs) (NCPA, 2017). In relation to quality measures, health plans can reduce the DIR fee assessed to the pharmacy for achieving higher quality measure ratings, thereby rewarding the pharmacy (Maxwell, 2015; Moose & Logan, 2016). Alternatively, poor pharmacy performance could result in a higher DIR fee for the pharmacy.

Both QPO and VBC strategies are often collectively referred to as “pay-for-performance” (P4P) strategies in the literature. The term “P4P” broadly characterizes any strategies which offer financial incentivization for achieving good quality outcomes for patients (James, 2012) and is widely recognized both inside and outside the scope of incentive strategies related to pharmacies (e.g., physician practices) (Mendelsen et al., 2017). The term has been associated with retail
pharmacy since at least 2008, when David Nau of the Pharmacy Quality Alliance (PQA) insisted P4P programs would soon be implemented to boost pharmacy performance scores (Drug Topics, 2008).

The third strategy, QBN, is sometimes referred to as a “narrow network” strategy. QBN is defined as a strategy where practices are rewarded or punished through directing patients toward or away from the practice based upon performance scores. Narrow network models are often described as being implemented as preferred or limited networks (DST Health, 2018). In preferred networks, members can visit any pharmacy but are incentivized through lower cost-sharing to visit specific pharmacies. In limited networks, members are only allowed to use specified pharmacies. Historically, plans have implemented narrow networks for reasons beyond quality performance ratings. This paper defines the different models of narrow networks as forms of QBN strategies to make the distinction of narrow network models influenced by quality performance and not other causes (e.g., contracting agreements).

Implementation of VBI Strategies

Utilizing information gathered from conversations with content experts, conference presentations, and available literature, 5 distinct examples of the three VBI strategies emerged as being considered, if not already implemented, for retail pharmacy. While the VBI “strategy” is used to define the three major approaches to achieving higher performance from retail pharmacies, VBI “program” will be used to refer to the actual plan or system of action (i.e., actual implementation) to achieve such goals (program, 2019). The “bonus payments” program
was the only example of a QPO strategy identified. For VBC, two specific examples were identified: “DIR fees” and “medication reimbursement adjustment.” For the QBN strategy, “tiered network” and “limited network” programs were identified. A brief description of each can be found in Table 1.

<table>
<thead>
<tr>
<th>VBI Strategy</th>
<th>Example Programs Specific to Strategy</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Payment Opportunity (QPO)</td>
<td>Bonus Payments</td>
<td>Pharmacies receive bonus payments based upon their quality performance ratings. VBI programs may differ in the size of bonus, eligibility requirements necessary to receive a bonus, and intervals between bonus payment distributed.</td>
</tr>
<tr>
<td>Value-Based Contracting (VBC)</td>
<td>DIR Fee Adjustment</td>
<td>Pharmacies are assessed a fee for participating in health plan / PBM network for Medicare Part D plans, labeled a DIR fee. Typically assessed as a flat fee per-claim or as a flat percentage that is assessed at regular intervals. An example VBI program may reduce the fee based upon high quality performance ratings.</td>
</tr>
<tr>
<td></td>
<td>Medication Reimbursement Adjustment</td>
<td>The total reimbursement to the pharmacy per each prescription claim is adjusted based upon pharmacy quality performance ratings. This can be achieved either through the actual medication reimbursement given to the pharmacy being adjusted or the dispensing fee included as part of medication reimbursement being adjusted. Adjustments can be either increased or lowered, based upon whether higher or lower quality performance ratings are achieved.</td>
</tr>
<tr>
<td>Quality-Based Network (QBN)</td>
<td>Tiered Network</td>
<td>Pharmacies in a health plan’s / PBM’s network are classified in distinct levels of preference (e.g., &quot;preferred&quot;, &quot;non-preferred&quot;) based upon quality performance ratings. Patients receive incentives (e.g., lower copays) for going to &quot;preferred&quot; pharmacies instead of &quot;non-preferred&quot; ones.</td>
</tr>
<tr>
<td></td>
<td>Limited Network</td>
<td>Pharmacies with poor quality performance in a health plan’s / PBM’s network are excluded from the network. Due to patient access considerations, this is not always feasible for all pharmacies.</td>
</tr>
</tbody>
</table>
Identified VBI Programs

The bonus payments VBI program represents the sole example of a QPO strategy currently identified as being used with retail pharmacies. For this program, pharmacies are paid a bonus based upon their performance on meeting specific goals set by a health plan. The amount of bonus provided can range depending on the specific criteria described, with some programs distributing single-store bonuses as high as $40,000 per quarter based upon quality metrics (Chan & Sega, 2016). Alternatively, some programs may offer only minimal bonuses (e.g., $1,000) even for relatively high-performing stores (Deniger, 2015). While the bonus payment program was the only example of a QPO strategy identified, there are conceptually other ways a program could be developed which reflects a QPO strategy. For example, a pharmacy could be paid an additional incentive to provide a service which has been shown to have a beneficial impact on performance ratings, such as the implementation of a Med-Sync program (Painter et al., 2015). Med-Sync is a pharmacy workflow model designed to help pharmacies better manage patients and their prescriptions though monthly appointments and scheduled interactions and has demonstrated improvement in adherence for patients (Krumme et al., 2018).

The first example program of a VBC strategy is adjustment of a pharmacy’s DIR fee. DIR fees are well-documented (Balick, 2018; Millonig, 2018) and are already being implemented. As alluded to earlier, this “pay to play” fee for network participation can be reduced in a DIR fee program if high performance ratings are achieved. For example, if a plan typically charges a DIR fee of 3 to 5% of the drug cost for each medication claimed from the pharmacy, high performing pharmacies may have their fee reduced to 3% whereas low performing pharmacies have to pay the maximum 5% (Moose & Logan, 2016). The second example VBC program, medication reimbursement adjustment, refers to the altering of the
reimbursement of services or medications for pharmacies based upon performance ratings (Lenz & Monaghan, 2011). For example, the dispensing fee or amount of reimbursement associated with each medication dispensed from a pharmacy may be adjusted either higher or lower, depending on the performance of the pharmacy. While not a well-documented program, there appears to be ongoing discussions of how it could be implemented (Lenz & Monaghan, 2011). It should be noted both programs are sometimes described simultaneously as “DIR” programs. DIR fees can encompass both network participation fees as well as periodic reimbursement reconciliations or alternative fees incurred between a retail pharmacy and health plan or PBM (NCPA, 2017). While a medication reimbursement adjustment program may fit within such a definition, this may unnecessarily create confusion in practice when attempting to refer to one program or another. Instead, this paper will distinguish the two programs in definition, allowing “DIR fee” to refer solely to network participation fees.

The VBI programs identified as examples of the QBN strategy generally follow the trend set by narrow networks in either being a “preferred” or “limited” network (DST Health, 2018). In the former, members can visit any pharmacy but are incentivized to visit specific pharmacies through lower-cost sharing at the preferred pharmacy. While often dichotomous (i.e., preferred vs. non-preferred), it has been suggested preferred networks could be expanded to include more than 2 “tiers” of pharmacies, each with different levels of cost-sharing. In this way, poorly performing pharmacies may be penalized by being designated as a “non-preferred” pharmacy with higher patient cost-sharing, rather than be excluded from a network. Given this insight, instead of utilizing “preferred networks” to describe potential programs which remain open for members but have preferred pharmacies, the term “tiered networks” will be used to refer to any open network where plans place pharmacies on distinct tiers in order to influence the pharmacies
patients utilize. In “limited network” programs, pharmacies may be excluded from a health plan’s network for poor performance. While these programs are discussed as being considered and implemented (SilverScript, 2014), there are issues which may limit their utilization. For example, in rural areas where there are limited pharmacy options, it may difficult to restrict patient access to pharmacies by excluding pharmacies, regardless of individual pharmacy performance.

Characteristics of VBI Programs

Beyond understanding how each VBI program’s structure and outcomes differ, it is also important to understand how performance in these programs are evaluated to determine outcomes. First, each program must decide on which metrics to utilize to evaluate performance. Medicare Part D star rating measures are those most commonly mentioned as being used when monitoring and / or making decisions on outcomes associated with VBI programs (Maxwell, 2015; Bonner, 2016; Jhawar & Rabbitt, 2016; Moose & Logan, 2016). Adherence measures are of particular interest for payers, given the continuity of being able to apply them to all retail pharmacies. Currently, the three adherence measures included in star ratings are for hypertension, diabetes, and cholesterol medications (CMS Star Ratings, 2017). Display measures (e.g., avoidance of drug-drug interactions) are mentioned as being monitored but not necessarily used in evaluations yet. Additionally, Medicare Part C star rating measures and CAHPS ratings are identified as potential measures payers may be monitoring or evaluating as measures of retail pharmacy influence. Other measures which may be monitored by plans include percentage of generic products dispense over brand equivalents and number of 90-day supplies dispensed for chronic medications (Deniger, 2015).
Once the performance metrics have been decided, a program must then determine how the metrics translate into program outcomes. For example, what percent of a store’s patients must be adherent to their diabetes medications to receive a bonus? This is generally accomplished through one of two performance evaluation methods: “threshold” or “tournament” performance measure evaluation (Drug Topics, 2008; Cromwell et al., 2011). Each type of evaluation can be summarized as such:

- **Threshold system**: Positive or negative outcomes are based upon whether the pharmacy meets specific thresholds (i.e. at least 90% of patients being adherent to oral diabetes medications or at least 85% of patients being adherent to all three medication adherence quality measures).

- **Tournament system**: Positive or negative outcomes are based upon how pharmacies' quality performance ratings compare to other pharmacies within a specified network within the plan. In this type of system, the best performing pharmacies would receive the highest bonus in a bonus payment program or the lowest fee assessed in a DIR fee program.

Additionally, plans can implement both types of evaluation in determining program outcomes for pharmacies. An example would be that all pharmacies that meet a certain threshold are in competition for rewards in a bonus payment program. Pharmacies that don't meet the threshold are not be eligible for the rewards.
Evidence Collected Through Survey

To further supplement anecdotal evidence, an exploratory survey was developed and administered to a sample of healthcare plan directors. The survey sought to collect information on quality measures being monitored and utilized to influence VBI program outcomes, whether select VBI programs had been implemented, and health plan perceptions of select VBI programs. The survey’s focus on VBI programs was limited to the programs identified earlier in the paper, although respondents were allowed the opportunity to describe other plans or quality measures with responses.

The survey was evaluated and refined by experienced qualitative interview academics as well as a pharmaceutical marketing consultant who specializes in qualitative research with healthcare plans. Face and content validity of the survey was evaluated through a small sample of knowledge experts within the field of pharmacies and Medicare star ratings. These included individuals located in third-party businesses associated with measuring pharmacy performance scores and leading researchers in the field. Additionally, a small pretest was conducted with policy directors of national and regional health plans to identify any potential issues and ensure no meaningful omissions were present in response choices. Only minor changes to the survey were incorporated at the conclusion of the pre-test.

A convenience sample of national health plan directors were recruited through personal interactions at two national pharmacy conferences, survey distribution by the Pharmacy Quality Alliance (PQA), and available email lists from conference workshops focused on quality measures. Additionally, a snowballing technique was used (Bowling, 1997), where respondents were asked to suggest other individuals in separate plans that might also be eligible to participate.
in the study. Screener questions were included to ensure that only individuals who take part in decision-making processes regarding programs directed at improving a plan’s star ratings through pharmacies were included in the study. An incentive was provided in the form of an executive summary of the study results. A total of 9 individuals met the screener criteria and completed some portion of the survey between June to August 2017. While 2 respondents did not fully complete the survey, their responses were still included to provide as much information as possible on payer perceptions of quality measures and VBI programs.

In the survey, respondents were asked to rate their perception of perceived effectiveness for each of the three VBI strategies to increase quality performance ratings of retail pharmacies on a 5-item scale from “not at all effective” to “extremely effective.” For the QPO strategy, 2 respondents (22%) answered “very effective,” 4 (44%) answered “moderately effective,” and 3 (33%) answered slightly effective. For VBC, 1 (11%) answered “extremely effective,” 1 (11%) answered “very effective,” 4 (44%) answered “moderately effective,” 1 (11%) answered slightly effective, and 2 (22%) answered “not effective at all.” For QBN, 1 (11%) answered “extremely effective,” 3 (33%) answered “moderately effective,” 4 (44%) answered slightly effective, and 1 (11%) answered “not effective at all.”

Survey respondents were also asked to rate their perceptions of effectiveness for the five identified VBI programs and likelihood to implement each program to incentivize pharmacies to improve quality measure ratings. A full description of responses can be found in Tables 2 and 3.

For VBI programs which could conceptually have both a threshold and tournament structure implemented (programs associated with QPO and VBC strategies), respondents tended to report a higher level of perceived effectiveness with a combination structure over threshold or tournament structures alone. A combination approach for the bonus payment programs was rated
as moderately effective or better for 63% of respondents, compared to 50% and 38% for threshold and tournament structures, respectively. For the DIR fee adjustment program, a combination approach was rated as moderately effective or better for 71% of respondents compared to 57% and 43% for threshold and tournament structures, respectively. For reimbursement adjustment, 57% of respondents perceived moderate effectiveness or better for a combination approach compared to 29% and 43% for threshold and tournament structures, respectfully. Given the limited approaches to QBN programs, it was decided a combination structure would be unlikely and no rating option was given. Between threshold and tournament structures for QBN programs, respondents rated higher perceived effectiveness for threshold structures for both tiered programs (71% moderately effective or better vs. 57%) and network-lockout programs (57% vs. 29%).

Three respondents reported having already implemented at least one VBI program with their plans. One health plan had implemented two distinct bonus incentive programs which awarded pharmacies a bonus if certain thresholds were met in a given calendar year. Another health plan had adopted a tiered network program with a threshold structure, although the respondent provided no additional information about the program. The final respondent reported a DIR fee adjustment program based upon a threshold-structure as well as a QBN program which implemented both a tiered and limited network approach using thresholds. When no program had yet been implemented, most respondents rated a higher likelihood to avoid programs associated with VBC and QBN strategies compared to the bonus payment program (QPO strategy).
<table>
<thead>
<tr>
<th>TABLE 2-2. Perceptions of Select VBI Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td><strong>Bonus Payments</strong></td>
</tr>
<tr>
<td>Threshold structure</td>
</tr>
<tr>
<td>Tournament structure</td>
</tr>
<tr>
<td>Combination of both structures</td>
</tr>
<tr>
<td><strong>DIR Fee Adjustment</strong></td>
</tr>
<tr>
<td>Threshold structure</td>
</tr>
<tr>
<td>Tournament structure</td>
</tr>
<tr>
<td>Combination of both structures</td>
</tr>
<tr>
<td><strong>Medication Reimbursement Adjustment</strong></td>
</tr>
<tr>
<td>Threshold structure</td>
</tr>
<tr>
<td>Tournament structure</td>
</tr>
<tr>
<td>Combination of both structures</td>
</tr>
<tr>
<td><strong>Tiered Network</strong></td>
</tr>
<tr>
<td>Threshold structure</td>
</tr>
<tr>
<td>Tournament structure</td>
</tr>
<tr>
<td><strong>Limited Network</strong></td>
</tr>
<tr>
<td>Threshold structure</td>
</tr>
<tr>
<td>Tournament structure</td>
</tr>
</tbody>
</table>
**TABLE 2-3. Perceptions of Implementing Select VBI Program**

<table>
<thead>
<tr>
<th>Program</th>
<th># of responses</th>
<th>Definitely not (%)</th>
<th>Probably not (%)</th>
<th>Might or Might not (%)</th>
<th>Probably yes (%)</th>
<th>Definitely yes (%)</th>
<th>Already Adopted (#)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bonus Payments</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threshold structure</td>
<td>8</td>
<td>0%</td>
<td>17%</td>
<td>50%</td>
<td>33%</td>
<td>0%</td>
<td>2</td>
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<tr>
<td>Tournament structure</td>
<td>8</td>
<td>0%</td>
<td>13%</td>
<td>75%</td>
<td>13%</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Combination of both structures</td>
<td>8</td>
<td>0%</td>
<td>25%</td>
<td>50%</td>
<td>13%</td>
<td>13%</td>
<td>0</td>
</tr>
<tr>
<td><strong>DIR Fee Adjustment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threshold structure</td>
<td>7</td>
<td>0%</td>
<td>20%</td>
<td>60%</td>
<td>20%</td>
<td>0%</td>
<td>1</td>
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<tr>
<td>Tournament structure</td>
<td>7</td>
<td>0%</td>
<td>43%</td>
<td>57%</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Combination of both structures</td>
<td>7</td>
<td>0%</td>
<td>43%</td>
<td>29%</td>
<td>14%</td>
<td>14%</td>
<td>0</td>
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<tr>
<td><strong>Medication Reimbursement</strong></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Adjustment</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threshold structure</td>
<td>7</td>
<td>14%</td>
<td>29%</td>
<td>43%</td>
<td>14%</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Tournament structure</td>
<td>7</td>
<td>14%</td>
<td>43%</td>
<td>29%</td>
<td>14%</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Combination of both structures</td>
<td>7</td>
<td>14%</td>
<td>43%</td>
<td>14%</td>
<td>29%</td>
<td>0%</td>
<td>0</td>
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<tr>
<td><strong>Tiered Network</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threshold structure</td>
<td>7</td>
<td>0%</td>
<td>20%</td>
<td>60%</td>
<td>20%</td>
<td>0%</td>
<td>2</td>
</tr>
<tr>
<td>Tournament structure</td>
<td>7</td>
<td>0%</td>
<td>57%</td>
<td>29%</td>
<td>14%</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td><strong>Limited Network</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threshold structure</td>
<td>7</td>
<td>0%</td>
<td>67%</td>
<td>17%</td>
<td>17%</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td>Tournament structure</td>
<td>7</td>
<td>14%</td>
<td>57%</td>
<td>14%</td>
<td>14%</td>
<td>0%</td>
<td>0</td>
</tr>
</tbody>
</table>

*Percentages only account for those who have not adopted program
Both the 2017 final CMS star ratings as well as draft technical notes for the 2018 CMS star ratings were used as a foundation for current and potential quality measures (CMS, 2016; CMS, 2017). The list of measures to include in the survey was refined after conversations with industry experts, and additional select CAPHS and other measures were included which were noted during information conversations. A full list of all measures included in the survey, along with responses to whether the measures were being monitored and/or used in decision-making, are available in Table 4.

The measures most reported to being used to influence pharmacy payment and/or network decisions included non-insulin diabetes medication adherence (50%), antihypertensive medication adherence (38%), cholesterol medication adherence (50%), and percentage of generic products dispensed over brand equivalents (50%). Other measures reported to being used to influence pharmacy payment and/or network decisions included medication therapy management (MTM) program completion rate for comprehensive medication reviews (CMRs), antidepressant medication adherence, asthma medication adherence, annual influenza vaccination, and number of 90-day supplies dispense for chronic medications. CMS Part D star rating active measures and display measures were generally monitored by most respondents. Only one CMS Part C stars rating measure was reported to be monitored: administration of the pneumococcal vaccine.

No respondent reported currently using case-mix adjustment (i.e., factoring in sociodemographic information of the patient population the pharmacy serves) for pharmacies when evaluating quality performance ratings. When asked the likelihood to adopt case-mix adjustment in the future, 2 (29%) reported “probably yes”, 2 (29%) reported “might or might not”, 2 (29%) reported “probably not”, and 1 (14%) reported “definitely not.”
<table>
<thead>
<tr>
<th>Measure Description</th>
<th># of responses</th>
<th>Influences pharmacy payment decisions</th>
<th>Influences pharmacy network decisions</th>
<th>Influences BOTH pharmacy payment and network decisions</th>
<th>Only monitored at the pharmacy level</th>
<th>Not monitored at the pharmacy level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CMS Part D Measures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication adherence: non-insulin diabetes medications</td>
<td>8</td>
<td>25%</td>
<td>13%</td>
<td>13%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Medication adherence: hypertension medications (RAS antagonists)</td>
<td>8</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>25%</td>
<td>38%</td>
</tr>
<tr>
<td>Medication adherence: cholesterol medications (statins)</td>
<td>8</td>
<td>25%</td>
<td>13%</td>
<td>13%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>MTM program completion rate for CMRs</td>
<td>8</td>
<td>13%</td>
<td>0%</td>
<td>13%</td>
<td>25%</td>
<td>50%</td>
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<tr>
<td><strong>CMS Part D Display Measures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Avoidance of drug-drug interactions</td>
<td>8</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>Avoidance of excessive doses of oral diabetes medications</td>
<td>8</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Ensuring statin use in patients with diabetes age 40 to 75 years</td>
<td>7</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>25%</td>
<td>75%</td>
</tr>
<tr>
<td>Appropriate use of high-risk medications in patients 65 years or older</td>
<td>5</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>20%</td>
<td>80%</td>
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<tr>
<td><strong>CMS Part C Measures</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Osteoporosis management in women who have had a fracture</td>
<td>8</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
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<tr>
<td>Glucose control in diabetes patients</td>
<td>8</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Blood pressure control</td>
<td>8</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>CMS Part C Display Measures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration of pneumococcal vaccine (where appropriate)</td>
<td>8</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>13%</td>
<td>88%</td>
</tr>
<tr>
<td>Drug treatment of COPD with bronchodilators or systemic corticosteroids as appropriate</td>
<td>8</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
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</table>
### TABLE 2-4. Respondent Choices to Quality Measures Being Evaluated (continued)

<table>
<thead>
<tr>
<th>Measure</th>
<th># of responses</th>
<th>Influences pharmacy payment decisions</th>
<th>Influences pharmacy network decisions</th>
<th>Influences BOTH pharmacy payment and network decisions</th>
<th>Only monitored at the pharmacy level</th>
<th>Not monitored at the pharmacy level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAHPS Measures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient experience in getting a needed medication</td>
<td>5</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Annual influenza vaccine</td>
<td>5</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>80%</td>
</tr>
<tr>
<td><strong>Other Measures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of generic products dispensed over generic equivalents</td>
<td>8</td>
<td>25%</td>
<td>13%</td>
<td>13%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td># of 90-day supplies dispensed for chronic medications</td>
<td>8</td>
<td>13%</td>
<td>0%</td>
<td>13%</td>
<td>25%</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Respondent Reported Measures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antidepressant medication management – continuation phase</td>
<td>1</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Medication adherence: asthma medications</td>
<td>1</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
Discussion of Findings and Implications for Retail Pharmacy

To date, little research is available which has categorically summarized the types of VBI strategies being utilized in retail pharmacy. Furthermore, this paper attempts to integrate insight from pharmacy conferences, literature, and informal conversations with industry experts to define specific VBI programs being implemented for each strategy. Additional programs may also be under consideration and/or implemented which were not captured by this paper.

The VBI programs identified parallel different approaches to trying to change retail pharmacy behavior through operant conditioning (McLeod, 2007). Operant conditioning proposes a given behavior can be affected by 3 types of responses: reinforcement, punishment, and neutral action. Reinforcements attempt to increase the probability of the behavior being repeated, punishments attempt to decrease the probability of the behavior being repeated, and neutral actions neither attempt to increase or decrease behavior. Furthermore, reinforcements and punishments can be classified as either positive or negative, depending on whether a stimulus is added (positive) or removed (negative).

QPO programs are most likely to encompass a type of positive reinforcement where pharmacies are positively rewarded with monetary gains for improving quality measure ratings. For VBC, programs which impose a DIR fee then offer reductions for high performance ratings reflect negative reinforcement; a negative stimulus (i.e. DIR fee) is removed as quality performance ratings are improved. Adjustment of medication reimbursement based upon performance ratings, dependent upon how implemented, can encompass either positive reinforcement or positive punishment or a combination of the two. QBN programs are interesting, as they indirectly influence pharmacy revenue via influencing patient behavior. They
simultaneously encompass both positive reinforcement and negative punishment techniques. Pharmacies with high performance have the potential to gain patients either through being a preferred pharmacy or not being excluded from a network (positive reinforcement), whereas pharmacies with poor quality performance ratings may have patients directed away from them (negative punishment).

Literature does not provide a resolute answer as to which approach may work best for changing pharmacy behavior to strive for higher ratings. Pharmacists’ perception of the reward (reinforcement) or punishment would have to be taken into account for each individualized plan. While it is outside the scope of this paper to suggest which types of VBI programs may be successful using operant conditioning theory, future research should take these principles into consideration.

When considering the specific quality measures and how they are evaluated to determine program outcomes, it is interesting that survey respondents appeared to favor evaluating performance based on a combination of both the threshold and tournament-based structures, rather than standalone approaches. Combination approaches do allow for more flexibility in how rewards and punishments are determined. As previously described, a plan could set a threshold at which all pharmacies above the threshold would receive a bonus payment. However, the bonus payment may be dependent on comparison to quality ratings achieved by other pharmacies above the threshold. A minimum bonus could be set while allowing for the option to gain more based upon network performance. This would incentive pharmacies to hit a minimum threshold for bonus payments while rewarding those who strive to achieve more. Even for VBC programs this flexibility may allow unique ways to incentivize retail pharmacy.
It makes sense survey respondents would favor a threshold-structure for QBN programs rather than a tournament structure. Plans are likely limited in how they can even implement QBN programs based upon how it affects pharmacy access for their plan members. Setting minimum thresholds to achieve not being locked out of a network or being considered a “preferred” pharmacy are easier to be implemented and more consistent than tournament systems, which would change pharmacy standings within the network in regular intervals.

While not fully described in this paper, many of the identified programs can be conceptually tied together to form more complex programs. For example, a plan may implement a single program where pharmacies are given the choice to participate in a DIR fee program while excluding non-participating pharmacies from the network or designating them as a “non-preferred” pharmacy with higher patient co-pays associated with the pharmacy. Similarly, QPO programs could be combined with VBC programs in unique ways such as reducing DIR fees if certain quality rating thresholds are met while also offering bonuses based upon quality performance comparisons to other pharmacies within the network. Much more research is necessary to understand the many different programs being considered and implemented to incentivize higher quality performance ratings from retail pharmacy.

As would generally be expected, plans appear to be closely following CMS Part D star ratings for measures associated with retail pharmacy practice. Part D measures are those most closely related to pharmacy practice and it intuitively makes sense they would be the primary conduit by which VBI programs are implemented. Some plans may be following display measures closer than others, attempting to potentially set baselines for measurement and preparing for if the measures become active. While few Part C star ratings were noted to be monitored, other plans may be utilizing closer partnerships with retail pharmacies within their
network to help improve these ratings. Additionally, some plans appear to be considering additional quality measures beyond CMS star ratings. One survey respondent reported utilizing adherence measures for antidepressants and asthma medications, which are measures in the Healthcare Effectiveness Data and Information Set (HEDIS) used to evaluate commercial health plans. Other plans are similarly looking to other ways retail pharmacy can help improve the quality of care provided toward their patients.

One interesting finding is plans are utilizing measures other than star ratings or other nationally accepted quality measures. Multiple survey respondents reported using the number of 90-day supplies dispensed for chronic medications and the percentage of generic products dispensed over generic equivalents as influencing pharmacy payment (e.g., bonuses, DIR fees) or network decisions. Research by Matlin et al. (2015) suggest 90-day prescriptions result in better patient adherence over filling 30-day supplies. However, others contend health plans’ inclusion of 90-day supplies as a quality measure is primarily driven by financial incentives to do so (Deniger, 2016). Similarly, research suggests generic fills are associated with greater patient adherence (Briesacher et al., 2009). In some instances, such as narrow-spectrum diseases like epilepsy where changing a patient’s prescription may de-stabilize control of the disease, pushing for medication switches (i.e., brand to generic) may actually cause harm to a patient. Measures such as these will need to be carefully implemented to avoid such situations.

Limitations

A few cautions should be taken into consideration for the present paper. First, while references were ascribed where possible, the informal nature of how information was gathered
results in some of the paper relying on the authors’ personal experiences. Additional research is certainly warranted to confirm the paper’s findings and conclusions. However, the categorizations of VBI strategies may still serve as a basis for discussions of potential ways health plans may pursue in developing and implementing VBI programs. Second, the survey responses should only serve to provide insight instead of developing conclusions for how health plans are pursuing higher quality ratings from retail pharmacy. This limitation should already be expected but a word of caution is still warranted. The limited sample size and convenience sampling technique used for the survey exacerbates this issue through sampling biases which are likely present, including nonresponse bias.

Conclusion

Although awareness and knowledge of quality measures and VBI programs is growing, there is still a lack of comprehensive understanding of the programs being considered and implemented by health plans. This paper provides a categorization of potential VBI strategies being employed and presents anecdotal evidence of the associated VBI programs being considered and implemented. Much more research is necessary to fully understand the variety and complexity of programs being implemented. Doing so benefits multiple stakeholders, including pharmacists, policy makers, researchers, and even health plans seeking to gain insight into how to best adapt to the changing environment. Furthermore, understanding the broad scope of programs being implemented now helps to direct conversations to how they can be improved and foster creative discussion on new programs which may be developed. As VBI programs
continue to evolve and reshape the focus of retail pharmacy, so too will research need to be directed at shedding light into these changes.
CHAPTER 3: RETAIL PHARMACY’S ATTITUDES ON QUALITY MEASURES AND POTENTIAL HEALTH PLAN VALUE-BASED INCENTIVE PROGRAMS

Introduction

“It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change.” – Leon Megginson (1963)

The above quote, in reference to works by Charles Darwin, is often the inspiration behind one of the more recognized idioms in the world of business: “Adapt or die” (McCallum, 2001), which implies that it is those who strive to constantly change to account for the shifting business environment that are able to remain sustainable. Examples of businesses that have not heeded this philosophy, and were consequently forced to close, include Kodak (Mui, 2012), Blockbuster (Satell, 2014), and Borders Books (Sansburn, 2001). For the field of healthcare, pharmacy managers may also be facing a period of environmental shift that requires attention and the adaptation of pharmacy practices to survive.

In 2014, the Affordable Care Act began providing bonus payments to Medicare healthcare plans based upon quality performance measurements (HLMedit, 2014). These payments are part of a larger shift in reimbursements from traditional fee-for-service (FFS) to quality or value-based models (DHHS, 2015). The various Medicare quality performance
measurements make up what is known as the Medicare Star Ratings, a system whereby plans are rated from 1 star to 5 stars, with 5 stars denoting the highest quality. Plans with at least 4 stars are eligible to receive bonus payments (Jacobson et al., 2011). In response to this healthcare plans have begun to consider ways to maximize their star ratings to receive these bonus payments. Data suggest many performance measurements, particularly those related to Medicare Part D, can be highly impacted by pharmacies (Erickson et al., 2014). As such, plans are now evaluating how to prompt pharmacies to increase quality and in turn boost their own performance measures (Stolpe, 2015).

Recently, reports have begun to surface detailing different value-based incentive (VBI) programs being implemented by health plans and PBMs to incentivize pharmacies to boost pharmacy-related quality performance ratings. One plan incentivizes pharmacies used by their beneficiaries by offering bonus payments to the pharmacies themselves based upon the performance measurements (IEHP, 2016). Another has warned pharmacies within their network they will stop providing reimbursements for patients visiting their pharmacy if their performance measure ratings are too low (SilverScript, 2014). Additional reports have described how some plans are incentivize pharmacies through reduction of fees required for a pharmacy to participate in a health plan’s network (i.e., “pay-to-play” fees, also known as DIR fees) (Maxwell, 2015; Moose & Logan, 2016).

As such, pharmacy owners and managers are certainly interested in understanding how they might be impacted by these new reimbursement models. Monitoring systems, such as the Electronic Quality Improvement Platform for Plans & Pharmacies (EQUiPP) that help pharmacies measure and understand their own performance scores have recently gained popularity (EQuIPP, 2016). This system provides data on individual store performance scores as
well as provides organizational, statewide, and national comparisons. Additionally, reports and discussions on how pharmacies might adapt to the changing environment have been presented at various national pharmacy meetings (Maxwell, 2015; Moose & Logan, 2016). However, little research has gathered feedback from members of the retail pharmacy community, to whom VBI programs are directed, regarding their perceptions of quality measures and associated VBI programs.

The following study sought to understand the perceptions of knowledgeable retail pharmacy managers regarding quality measures, VBI programs, and their impact on retail pharmacy practice. Using managerial cognition theory, the study proposes to understand pharmacy managers’ awareness, evaluation, and actions in response to the increasing pressure to maximize performance measurements. Additionally, the study will seek to uncover pharmacy managers’ attitudes and perceptions of potential VBI programs used by healthcare plans.

Methods

The research was conducted using qualitative interviews. A semi-structured interview approach was taken with managers or other pharmacy employees whose job responsibilities included understanding quality measures and helped determine how their pharmacy(ies) should react.
Interview Guide

The interview guide was developed around Meterko et al.’s (2006) conceptual framework of provider attitudes to pay-for-performance incentive programs. Pfeffer and Salancik (1978) designate for a manager to be aware and engage in information seeking to act upon external events, the manager must first consider the external event important. To understand this, multiple dimensions of how a provider might react to uncertainty in the environment (e.g., VBI programs) is necessary.

The framework, conceptualized by Meterko et al. (2006), suggests incentive program characteristics, environment characteristics (e.g., culture of the work environment, resources available), and provider characteristics influence a provider’s attitudes towards the incentive program. The framework also states provider attitudes are made up of many different dimensions affecting providers’ behaviors toward seeking to achieve quality targets of incentive programs. Evidence suggesting convergent and discriminant validity has been observed for the model.

The framework’s theoretical dimensions are comparable to those engendered in the Theory of Planned Behavior (TPB) (Ajzen, 1985). For example, attitude dimensions of awareness and understanding, clinical relevance, and financial salience might reflect the overall attitudinal dimension of TPB. Additionally, cooperation from other colleagues might reflect normative beliefs of TPB, with control over resources needed to achieve quality targets reflecting perceived control of TPB. While Meterko et al.’s framework has much less empirical evidence and support compared to TPB, Meterko et al.’s framework was selected as the foundation for constructs to test when interviewing pharmacists due to its specific application in describing
health provider decision-making, particularly relating to meeting quality targets and reacting to performance measurements.

Specific attitudinal dimensions chosen to be tested include awareness and understanding of VBI programs, financial salience, clinical relevance, perceived impact, control, and cooperation. To provide context to discussion of VBI programs and attitudes surrounding them, three types of programs were reviewed with respondents: 1) pay-for-performance models, 2) value-based contracting models, and 3) quality-based networks. Demographic data of the individuals were captured, along with information-gathering sources and use of evaluation systems (i.e. EQuIPP). The interview guide was refined through multiple rounds of evaluation and critique by experienced qualitative interview academics. Additionally, a small convenience sample of two pharmacy managers were recruited to pre-test the guide to test face and content validity. Both respondents reported no issues with the guide and so no additional changes were made.

Sample

A total of 15 pharmacists were recruited through a purposive sampling approach. An initial sample of 15 pharmacists was chosen with the possibility for additional interviews if saturation was not met within the initial set of interviews. To account multiple viewpoints within community pharmacy practice, a minimum of 5 large chain drug stores and 10 independent pharmacies were recruited. For those within the large chain retail setting members of upper level management, who were more informed of broad-level decision-making, were targeted instead of managers of individual pharmacies or district managers. For independent pharmacies, owners of the pharmacy or those in charge of managing the pharmacy(ies) associated with the independent
practice were targeted. Potential candidates were identified through the Association of Managed Care Pharmacy (AMCP) annual conference and through various pharmacy organizations, including Health Mart, the nation’s largest pharmacy services administrative organization (PSAO) for independent pharmacies (McKesson, 2014). Potential participants were screened to determine they were aware of quality measures and VBI programs and to determine if their job responsibilities included assessment and responding to pharmacy quality performance measures on behalf of the pharmacy. Additionally, a snowballing technique was used to identify additional respondents. Interviews were conducted through scheduled 45-minute telephone calls.

Analysis

All interviews were recorded and transcribed. Transcriptions of the interviews were analyzed using thematic content analysis (Grbich, 1999). This type of analysis involves the broad categorization of interview responses, with further sub-categorizations defined as coding of the interviews occurs. Braun & Clark’s (2006) six-phase framework was used as the basis for conducting the content analysis. All transcripts were first read, then initial codes generated which consolidated text relevant to one of the 6 themes pre-designated from Meterko et al.’s framework. Sub-themes were then developed, refined through multiple reviews of the text, and eventually defined for the purposes of the study.
Results

Interviews took place from August 2016 to April 2017. A point of saturation, where no additional information emerged from respondents, was met once the initial 15 interviews were complete, so no additional pharmacies were sought. Interviews ranged from 34 minutes to 58 minutes in length, with an average time of 44 minutes. Demographic data for respondents are available in Table 1. All chain pharmacies captured within the study owned at least 50 pharmacies within their organization. For independent pharmacies, both single stores as well as multiple store businesses were represented, with two respondents representing at least 6 stores within their business. The Midwest census region was the most represented U.S. region by respondents, with 10 (66.7%) respondents having stores located within the region. Conversely, the West was the least represented, with only 3 (20%) respondents having stores located within the region.

<table>
<thead>
<tr>
<th>Table 3-1. Respondent Demographics</th>
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</thead>
<tbody>
<tr>
<td><strong>Pharmacists (n=15)</strong></td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Time Spent as a Pharmacist</td>
</tr>
<tr>
<td>Less than 1 year</td>
</tr>
<tr>
<td>2 to 3 years</td>
</tr>
<tr>
<td>4 to 10 years</td>
</tr>
<tr>
<td>11 to 20 years</td>
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<tr>
<td>Over 20 years</td>
</tr>
<tr>
<td>Number of Pharmacy Stores Within Business</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2 to 5</td>
</tr>
<tr>
<td>6 to 20</td>
</tr>
<tr>
<td>21 to 50</td>
</tr>
<tr>
<td>Over 50</td>
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<tr>
<td>Census Region(s) Where Pharmacy Store(s) Located</td>
</tr>
<tr>
<td>West</td>
</tr>
<tr>
<td>Midwest</td>
</tr>
<tr>
<td>South</td>
</tr>
<tr>
<td>Northeast</td>
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</table>
Twelve themes were identified from each of the concepts outlined in Meterko et al.’s framework. In the following section, each theme will be discussed under the category it most resembles.

Awareness and Understanding

This category was associated with two themes. First, respondents felt very aware and knowledgeable of star rating measures and the VBI programs health plans were implementing to incentivize higher ratings. Respondents reported they kept informed as possible to appropriately prepare their pharmacy, with one respondent stating, “We are trying to do our best to educate our staff and our people on what our plans are doing to try to plan for the future.”

The second theme was associated with a desire for more transparency in health-plan sponsored VBI programs, specifically in how thresholds and rewards / fees were calculated. In particular, the pharmacists believed they were not provided enough information to consistently predict the amount of reward received (e.g., pay-for-performance) or fee assessed (e.g., DIR fee) based on their pharmacies’ ratings. One respondent expressed their frustration in the perceived lack of transparency, stating, “As far as the methodologies that [health plans] use it’s very, very confusing. I’ve probably taken an extensive time to try to research it and ask different sources and try to remain as objective as possible. As much as anybody can understand it, I attempt to learn but it is difficult. It’s very, very difficult. I think it’s that by design.”

Clinical Relevance

The themes of overall good for patients, further development is needed, and overall good for the profession of pharmacy were identified for clinical relevance. Respondents
believed quality measures helped create better patient engagement through promotion of better identification of and intervention with at-risk patients (e.g., those with poor adherence). One respondent stated, “I think it’s incredibly good for patients. As much work and as much headache as all of this creates for me as an owner, for trying to account for the lesser reimbursements and the trouble that we’re having financially with all of that change – to me, the patient does stand to benefit greatly from this new model.”

However, respondents also wished to see further development of measures and programs to ensure the right approaches were being taken to provide quality care for patients. One respondent posed the question, “Are we chasing the right things for quality? That will become the bigger question as we go forward. Right now, there are flaws with measuring adherence. We use claims data. Just because somebody pays for something doesn’t mean they are actually going to take it.”

Many respondents also expressed a desire for more direct collaboration with health plans for individual patients and having VBI programs more directly tied to patient outcomes (e.g., reduction in A1C for diabetic patients). One respondent described a collaborative pilot program within their state they would like to see more of from plans in the future: “Our pharmacists will be assigned to patients at the beginning of the calendar year and they will follow those patients for an entire year and the plan is supplying clinical data to our pharmacist through a portal. It is a pilot right now. The pharmacist will be incentivized based on being able to lower A1C, for [improving] blood pressure, and for asthma related measures. There will be a payment just for the intervention, like there would for any MTM, but the incentive payment for the outcomes is huge compared to what a normal MTM would reimburse.”
Regardless, all respondents agreed quality measures and VBI programs are positive for the profession of pharmacy, as they realign the focus of pharmacy practice from being “transaction-based” to individual patient care, push pharmacies to play a larger role in patients’ healthcare, and open the door for better relationships with both patients and other providers. One respondent suggested, “We’re going to work ourselves to irrelevancy if we focus on product only and this is a good impetus to push the practice of pharmacy in the direction it needs to go,” while another stated, “It's going to make collectively us strive to do a better job.” Another simply said, “This is why you went to school be a pharmacist.”

Perceived Impact

Three themes were identified related to perceived impact: two associated with impact to the pharmacy, **significant impact to how pharmacy is practiced** and **significant resources required**, and one associated with impact to the patient, **positive impact on patient health**. In an effort to improve quality measure ratings, respondents reported they have re-evaluated and altered how they approach engaging with patients. All respondents have adapted to using EQuiPP to track their ratings, with many also implementing their own internal system systems of measurement to help identify patients with poor adherence. Some pharmacies have implemented more proactive patient engagement structures, such as Med-Sync: a pharmacy workflow model designed to help pharmacies better manage patients and their prescriptions though monthly appointments and scheduled interactions (Painter et al., 2015).

Other pharmacies have even altered the pharmacy structure itself to provide a better “counseling” area or room where more comprehensive discussions with patients can take place. To this end, one respondent stated, “We have to transition to where we are more accessible to
the patients and that, in turn, will increase your quality ratings.” One respondent stated that pharmacy practice has traditionally been “set up to be a transactional thing: get them in and get them out as fast as you can.” They also stated pharmacy is shifting, due to quality measures, to require a more “relational component. Pharmacists need to have a system and a process in place that they are making the most of working with a patient.”

To accommodate these changes, respondents argued the need for pharmacies to invest significant resources. Respondents mentioned needing to spend time to reevaluate and implement new processes, reallocating pharmacist and / or technician time, and purchasing and learning new technology (e.g., software) to assist in improving ratings. In adapting to shifting practice patterns, one respondent stated trouble with “finding the time, that's the biggest thing. Also identifying a workflow, workflow that accommodates both a clinical initiative and still having to dispense and fill prescriptions at the same time.” Additionally, respondents noted the need to educate pharmacy staff on the importance of quality measures as well as devoting time and other resources to remaining aware of any and all changes in the environment which may affect their practice(s) (e.g., new quality measures).

Despite the significant changes and resources required, respondents believed quality measures generally result in a positive impact on patient health. Respondents reported better overall care was being provided to their patients due to a focus on improving quality measure ratings, with one respondent stating, “at the end of the day we have greater pharmacy engagement with patients related to their medication therapy, which is always a positive thing.” Furthermore, respondents believed they could see the positive impact on patients whom had been intervened on due to trying to improve ratings. One respondent described the benefit for patients by saying, “We know driving better adherence certainly leads to healthier patients which then
keeps them out of the hospital and lowers healthcare costs, overall. Everybody wins in that arena. I think it is extremely important.”

Control

Two themes emerged related to the Control category. First, respondents believed pharmacists have enough control in patient interactions to affect quality measures. Respondents reported at least at a basic level, the choice of pharmacists to intervene with patients will have an overall positive effect on outcomes such as medication adherence and patient health. One attributed the ability of the pharmacist to affect quality measures through pharmacists “still having the trust of the public... as the experts on medications” and “accessibility, because we’re in the community, we’re here, they can call us up at any time – that is what kind of sets us apart, I feel like, from other healthcare professionals.” Most respondents felt the shift to deeper patient engagement has led or can lead to greater response of patients to pharmacist intervention, with one stating “We've seen it here by solving problems for patients, fixing gaps in care that they've got.”

However, it was quickly noted this is not true for every patient, as each patient is ultimately responsible for their own healthcare. One respondent voiced their frustration saying, “I have some hard headed customers, they are going to do it the way they want to do it regardless. That negatively affects me and my score when I can’t make that person do [what they need to].” Respondents pointed out how some pharmacies may contend with a higher prevalence of patients who do not respond to pharmacist intervention, which resulted in discussion of the second theme: a need for community-level adjustments. For example, quality performance ratings of pharmacies located in communities with a large percentage of patients with poor
adherence could be slightly adjusted to account for the inherent adherence issues which may be beyond the control of the pharmacist (i.e., risk-adjustment). One respondent stated, “I think it is going to be necessary, particularly if we want to go to the next level with star measures in looking at some sort of composite quality rating. You are definitely going to have to consider risk adjustment.”

Cooperation

Two themes were associated with Cooperation. The first theme, a good opportunity for cooperation, reflected sentiment that, in general, respondents felt quality measures provided a chance for pharmacists to facilitate better working relationships with other health professionals. However, actual experiences varied greatly between respondents. One respondent stated, “The collaboration piece is very important, and I think that's where healthcare is kind of moving. The problem is getting the physician or the other parts of the healthcare team to recognize pharmacists as a peer because right now we're working against in the way pharmacy is perceived, and that's as dispensers.” Most respondents who had positive interactions with other health professionals reported it was due to proactively developing collaborative relationships and the successful demonstration of the quality of care provided to patients through the pharmacy.

The second theme identified was pharmacists’ desire for better technology to interact with other health professionals. Respondents felt technology which facilitated better communication between health professionals could allow pharmacists to continue building relationships with other health professionals and establishing pharmacists as integral members of the healthcare team. For example: access to electronic medical records (EMR). One respondent described their desire for pharmacists “[to be] able to look and see adherence scores on the
patients so they can actually see real-time how the patients are doing, and then how we can see and look and see how they're doing at their clinic visits, you know, if the changes we're making for better adherence are actually affecting the patients' blood pressure, affecting their cholesterol scores, just seeing that changes we're making are actually having a difference, and then so providers can also see that the patients are actually taking their medications. If they're not, then they might want to know that data so then they aren't falsely increasing their blood pressure medication.” Respondents believed this would not only facilitate better cooperation with health professionals, but also result in a more comprehensive approach to patient care.

Financial Salience

One primary theme was prevalent throughout discussion regarding the perceived financial salience of quality measures: current VBI programs do not adequately incentivize pharmacies to achieve high quality measure ratings. Most respondents felt current VBI programs fell short in the rewards provided for achieving high ratings, such as through the amount of reward received through programs which provide bonuses for high performance. Another example given was the perceived insufficient reward associated with reducing the required network participation fee (i.e., DIR fee) by achieving high performance. Given the perceived need to expend additional resources to achieve higher quality ratings, respondents felt current programs did not adequately reward the effort to achieve high ratings, or that only few pharmacies were able to achieve sufficient reward. One respondent summarized general sentiment best by stating, “I don’t know of any [VBI program] I like. I would say that we are probably still moving towards that formula that works best and aligns incentives as we go...
forward. I don’t have any idea what the timeline is for us to see that. It is out there, and we will get closer to it, at least.”

Programs which provided more of a “stick” approach, such as implementing a DIR fee and decreasing the level of fee with higher ratings, were viewed negatively and as only motivating pharmacies due to a fear of losing money. One respondent stated, “You’re not trying to actually beat or exceed anything. You’re not trying to be first in the class, you’re just trying not to fail,” a sentiment reflected by several respondents that punishing programs only motivated a minimal effort to not have poor ratings. Still, respondents were willing to pursue higher ratings in the hope achieving higher ratings would, in the future, result in rewards commensurate with the effort.

Discussion

The results of the study capture the perspectives of pharmacists actively engaged in understanding and adapting to pharmacy-related quality measures and the programs being implemented by health plans to incentive higher ratings. Fifteen pharmacy managers representing both large chain retail as well as independent retail pharmacies were interviewed. Under the pre-designed themes from Meterko et al.’s framework of awareness and understanding, clinical relevance, perceived impact, control, cooperation, and financial salience, 12 subthemes were identified from interviews. While several concerns were voiced regarding the resources required and change necessary to achieve high ratings, the sample generally favored the impact of quality measures on the profession of pharmacy and the quality of care provided to patients.
These results match those of other studies which also captured positive overall positive attitudes of pharmacists to the implementation of quality ratings (Teeter et al., 2016)

Given the study recruited pharmacists with responsibilities associated with understanding and helping adapt their pharmacies to quality measure ratings, it comes as no surprise the sample was knowledgeable about current measures and those being discussed for future implementation (i.e., display measures). Despite the desire for the pharmacists to fully understand their environment, especially the VBI programs being implemented within their own pharmacies, the perceived lack of transparency associated with VBI programs is of concern. In particular, this appears to be a missed opportunity for health plans to better motivate pharmacies through a clear articulation of program incentives. As stated by several of the respondents, closer collaboration between pharmacists and health plans on development and implementation of VBI programs in the future may also help bridge this gap in communication.

As pharmacists form opinions of quality measures and VBI programs, the ethical obligation of pharmacists to focus on the well-being of their patients is likely to play a prominent role in the formation of their overall attitudes. Therefore, it is important for pharmacists to be able to perceive a clinical relevance in quality measures before they are willing to seek improving their own ratings. The study participants largely voiced their approval of quality measures in this way. This is further exemplified through positive attitudes regarding how pharmacists perceived the profession evolving due to quality measures and VBI programs.

While there was a clear perception of clinical relevance, several barriers were noted by respondents which may or may not be able to be addressed as quality measures and VBI programs continue to evolve. While most respondents believed pharmacists had enough control to significantly impact pharmacy-related quality measures (e.g., adherence measures), a desire
for ratings to take into account community-level variables (i.e., risk-adjustment) was prominent. Currently, no quality measures or display measures include risk-adjustment, and it is unclear how much health plans employ risk-adjustment in their own calculations of ratings.

The respondents’ desire to cooperate more closely with health plans may also suggest an indirect feeling of lack of control related to performance programs. Pharmacists may not get to contribute much feedback to the development or implementation of VBI programs. Many may only get to choose how to react instead of proactively engaging with plans to develop mutually agreed upon approaches. Feelings of lack of control may also manifest in cooperation received from other health professionals. For example, some pharmacists may face barriers when attempting to work with other health professionals to achieve higher quality ratings for patients (e.g., getting prescription changed to resolve an issue causing poor adherence for the patient). Further research is necessary to understand how perceptions of control may affect the intended behavior of pharmacists in meeting and / or exceeding quality measure targets.

The perceived lack of financial salience is consistent with emerging research on VBI programs (NCPA, 2018). Coupled with pharmacists’ perceived impact on resources (e.g., time, money) to adapt to quality measures, pharmacists’ overall intention to try to achieve high ratings may be dampened over time. No previous research has analyzed the impact of financial incentives on pharmacist attitudes of behavior compared to other constructs such as subjective norms or perceived professional obligation. Furthermore, it is too soon to determine whether attitudes of lacking financial incentive will even remain given the currently evolving nature of VBI programs. As new programs are developed and existing ones adjusted, health plans and researchers may wish to evaluate the long-term impact of financial salience and resource
investment required to how motivated pharmacists are to achieve and sustain high quality ratings.

Limitations

As with all qualitative research, several limitations are worth noting. First, respondents may have been subject to providing socially desirable answers in their responses (i.e., social desirability bias). The study sought to minimalize this bias by building rapport with respondents through informal communication prior to interviews. Additionally, respondents were assured there were no right or wrong answers and informed of possible dissenting views to ensure truthful answers were given. Finally, the primary investigator attempted to probe when hesitations were present in respondent answers or when discrepancies occurred within the interview. For example, when respondents appeared vocally negative about quality measures but stated they believed they were positive for the profession of pharmacy, their responses were queried further to gain better understanding of respondent perceptions and ensure consistency of responses.

Second, respondents may have been subject to a choice-supportive bias within their responses. This is the tendency for respondents to ascribe a positive attribute to a previous choice made by an individual (Mather et al., 2000). The pharmacists had all committed some level of resources to adapting to quality measures, even if just regularly reviewing EQuIPP scores, meaning there is a higher likelihood for desiring validation for their actions. To minimize this bias, respondents were asked to present both the opportunities and challenges associated with
quality measures and VBI programs in a balanced approach. However, respondents were fairly open in responses and were very willing to discuss challenges currently present, despite their committal to adapting to quality measures.

The third limitation which may be present is related to the subjective interpretation of qualitative research. The interview guide attempted to keep questions straightforward to facilitate clear answers from respondents, reducing the likelihood for responses to be mis-interpreted. Furthermore, the author re-reviewed themes multiple times once identified to ensure consistency in interpretation to responses.

Conclusion

The present study suggests pharmacists who are actively engaged in understanding and responding to star rating measures and VBI programs have generally positive attitudes toward the evolving pharmacy environment. Opportunity exists for health plans and pharmacists to work together to address adjust quality measure ratings and further develop VBI programs which better align clinical relevance with financial salience and account for perceived pharmacist control. Additional research is necessary to fully understand the relationships between pharmacist attitudes of star ratings and VBI programs to behavioral intention to adapt pharmacy practices to achieve high ratings.
CHAPTER 4: ESTIMATING THE FINANCIAL IMPACT OF POTENTIAL MEDICARE VALUE-BASED INCENTIVE PROGRAMS ON RETAIL PHARMACY

Introduction

Value-based incentive (VBI) models of healthcare are quickly becoming an integral part of how healthcare is funded in the United States. Since 2010, the Star Rating system provides bonuses to Medicare Advantage (MA) and Medicare Advantage with Part D (MA-PD) plans based upon a set of quality performance measures for Part C and Part D services (Galewitz, 2016; Jacobson et al., 2011). Medicare Star Ratings performance measurements for Part D include adherence scores for three medication classes: oral anti-diabetics, renin-angiotensin-aldosterone system agents, and cholesterol medications (CMS Star Ratings, 2016). Community pharmacies are in a prime position to help improve overall adherence scores for plans, as literature supports the positive effect retail pharmacists can have on patient medication adherence (Lee et al., 2006; Murray et al., 2007). Furthermore, pharmacies are in a position to influence other Star Rating performance measures, such as provision of medication therapy management (MTM) services and annual vaccinations (CMS Star Ratings, 2016). The multiple direct and indirect ways pharmacies can impact Star Ratings, which were previously estimated to be as high as 19% of Part C star ratings and 54% of Part D ratings (Erickson et al., 2014), have caused
healthcare plans to begin implementation of VBI programs for incentivizing pharmacies to engage in improving performance scores (SilverScript, 2014; IEHP, 2016).

Given the relative infancy of these programs in community pharmacy, it comes as no surprise information is limited on the programs being considered and implemented by health plans. Available anecdotal information suggests multiple distinct ways in which the dynamic between pharmacies and health plans are changing (Rawal et al., 2015). Some plans have begun implementing bonus payment programs, whereby pharmacies who achieve distinct thresholds of performance scores or are among the highest performing stores in their network receive bonus payments from the health plan (IEHP, 2016). In some programs, pharmacies’ fee to participate in the network is affected by quality measures (Balick, 2018), while others are discussing adjustment of medication reimbursement or dispensing fees based on performance scores (Lenz & Monaghan, 2011). A few plans have considered completely removing low-performing pharmacies from their networks (Maxwell, 2015; Moose & Logan, 2016).

In addition to only limited information available on implemented programs, there is even less information on the financial impact these programs are having on community pharmacies. One case report lists the financial impact of a single bonus payment VBI program on the pharmacy as being $1,190 in bonus payments (Deniger, 2015). This is a reflection of achieving adherence performance scores higher than the 5-star benchmark in two out of the three adherence measures. The pharmacy in question was considered a medium-size pharmacy, filling approximately 250 to 350 prescriptions per day. While the report gives a glimpse of how pharmacies might be impacted, further research is necessary to fully comprehend the financial impact VBI programs will have on retail pharmacy.
The purpose of the study was to evaluate potential VBI programs health plans might implement for community pharmacies in their network. For multiple stakeholders, including individual store managers, the study provides insight into how potential programs may financially impact community pharmacies.

Methods

A retrospective study was conducted using 2016 Mississippi Medicare administrative claims data to compute pharmacy performance scores and estimate the impact of potential payer VBI programs. The study was approved by The University of Mississippi Institutional Review Board (IRB).

Data Source

Mississippi Medicare claims data were made available as de-identified files for the calendar year of 2016. Encrypted IDs for beneficiaries and pharmacy stores were utilized to link data between files. Use of these data was covered by a data use agreement (DUA) between The University of Mississippi’s Centers for Pharmaceutical Marketing and Management (CPMM) and the Centers for Medicare and Medicaid Services (CMS).

Pharmacy Performance Measurement

Pharmacy performance was operationalized as the percentage of Medicare patients associated with a given pharmacy who met criteria to be defined as “adherent” to a subset of
medication adherence measures. The calculations predominantly reflect methodology for the three triple-weighted adherence measures used in star ratings for the following diseases: diabetes mellitus, hypertension, and cholesterol (CMS Star Ratings, 2015). Therapy classes comprising the diabetes measure included biguanides, sulfonylureas, thiazolidinediones (TZDs), DPP-IV inhibitors, incretin mimetics, meglitinides, and SGLT2 inhibitors. The hypertension measure was comprised of renin angiotensin system (RAS) antagonists, including angiotensin converting enzyme inhibitors (ACEI), angiotensin receptor blockers (ARBs), or direct renin inhibitors. The cholesterol measure was comprised of HMG-CoA inhibitors, otherwise known as “statins”. Combination therapies containing any of the eligible active ingredients were also included in measure calculations.

The first step included calculating the medication adherence for each Medicare patient across the three adherence measures. Proportion of days covered (PDC) was used to calculate adherence for eligible patients. The PDC is calculated as the percent of days in the measurement period accounted for by prescription claims for the same medication or medications contained within the same therapeutic category (CMS Star Ratings, 2015). A patient was defined as “adherent” for each measure if they achieved a PDC of ≥0.8 (i.e., patient was covered by medication claims for at least 80% of the measurement period). Each patient’s measurement period was defined as the period beginning on the date of the first prescription of the calendar year and ending on the last day of the year, the last day covered by the final prescription if not covered until the end of the year, or date of patient’s death. Prescription data from mail-order pharmacies was not included in the analysis, as it is not typically available to be utilized in CMS Star Ratings.
Eligible patients included those who were 18 years or older (as measured by the last day of the measurement year) with at least two fills of medication(s) across any of the drug classes during the measurement period. Patients were also only included in the measure calculation if the first fill of their medication occurred at least 91 days before the end of the enrollment period. Patients with ESRD coverage dates were excluded as is consistent with star rating adherence measures. In addition to these requirements, two adherence-specific exclusions were included. For the diabetes adherence measure, patients with one or more fills for insulin were excluded from the denominator. For the hypertension adherence measure, patients with one or more fills for sacubitril / valsartan were excluded from the denominator. As long as eligibility criteria were met, patients could serve as a denominator for all three adherence measures. In this way, medication adherence as a dichotomous variable was defined for patients across the three different adherence measures.

Pharmacies were attributed to patients based upon previous fill history for eligible medications in each of the three adherence measures. If medications within the therapeutic category were filled at multiple pharmacies, the most frequent (i.e., mode) of representative pharmacies was attributed to the patient. In the event where two or more pharmacies tied for most frequent fills, the pharmacy visited last in the measurement period was attributed to the patient. A different pharmacy could be attributed to the same patient across each of the adherence measures. For example, for a single patient one pharmacy could be attributed to both the hypertension and diabetes measure whereas a completely different pharmacy be attributed to the cholesterol measure, based upon fill history across each measure. The decision to attribute pharmacies as outlined reflects the practices employed by multiple health plans as described by an advising third-party expert with direct experience of incentive program implementation.
Store adherence scores were then calculated for each pharmacy over the three therapeutic categories by dividing the total number of adherent patients (numerator) divided by total number of eligible patients for the adherence measure (denominator). A minimum number of denominator patients for each adherence measure was required to calculate the associated adherence measure performance score (described more in payer incentive programs). While in actual practice individual Medicare plans would generate their own store performance scores, for this analysis all available patient data was utilized to generate one global score for each adherence measure to provide simplicity in evaluation of VBI programs associated with adherence measures.

Only pharmacies designated as a “community/retail pharmacy” for the primary dispenser type were included in the analysis. Examples of pharmacies excluded under this designation included long-term care pharmacies, clinic pharmacies, and nuclear pharmacies. The “dispenser class” variable, which helps distinguish between independent pharmacies, chain-store pharmacies, etc., was used to exclude “alternate dispensing sites”, those pharmacies which do not fit into typical descriptions for retail pharmacies.

Payer Incentive Programs

Three programs were chosen for evaluation after a comprehensive literature search and discussions with experts in implemented payer incentive programs. The three programs chosen were a bonus payment program, a medication reimbursement adjustment program, and a limited network program. Given the variety of potential options, choice of the three programs was based upon feasibility of available data to determine program outcomes and generalizability for other pharmacies. For example, bonus payments are well-recognized for already being implemented
(IEHP, 2016) in retail pharmacy. Details of implemented programs are generally lacking in literature and reports, so characteristics were designed based upon available information as well as guidance from third-parties with expertise in implemented payer incentive programs.

**Bonus Payment Program.** Bonus payments are distributed to pharmacies based upon whether store adherence to individual measures met pre-defined thresholds. Store adherence thresholds were set at 80% and 90% for each adherence measure (i.e., 80% or 90% of all eligible patients attributed to the pharmacy classified as “adherent”). For pharmacies achieving 90% store adherence for a given measure, $60 was paid per compliant patient. The amount was chosen as a conservative estimate of reimbursement for an hour’s worth of MTM services (Lewin Group, 2003). It is reasonable to assume a pharmacist may spend an extra hour’s worth of time per patient over the course of a year to promote adherence. For pharmacies achieving 80% to 90% store adherence, bonus payments were halved to $30 per compliant patient. No bonus was awarded for store adherence below 80%. Since outcomes of the program were not associated with negative consequences (e.g., penalties), only a minimum of 10 denominator patients were required to be considered eligible for the program.

**Medication Reimbursement Adjustment Program.** Pharmacies received bonuses or were penalized based upon how much their store adherence deviated from the mean store adherence for each adherence measure. Pharmacies achieving a store adherence ≥1 standard deviation from the mean adherence for each measure received a 1% bonus, based upon total drug costs accrued for all patients included in a store’s adherence for the measure. Similarly, those achieving ≥2 standard deviations from the mean resulted in a 2% bonus. Conversely, those whose store adherence for measures was ≤1 and ≤2 standard deviations from the mean resulted in 1% and 2% penalties, respectively. To ensure sufficient sample size to determine whether a pharmacy should
be rewarded or penalized, a minimum of 30 denominator patients were required to be considered eligible for the program.

*Limited Network Program*. There are generally reasons beyond adherence measures which influence a plan’s decision to exclude a pharmacy, such as whether there are any reasonable pharmacy alternatives which could serve patients if a given pharmacy was excluded. Instead of utilizing adherence measures to describe the effect of a limited network program, an analysis of the impact of losing an individual Medicare plan was chosen. Two levels of analysis were chosen based upon the total amount of drug costs associated with the plan: pharmacies’ largest individual Medicare plan and a “typical” plan, operationalized as a pharmacy’s median plan. The relative impact of both levels of Medicare plans, including patient size, number of prescriptions, and associated drug costs were described.

**Analysis**

Descriptive statistics (mean, median, etc.) of each program’s financial impact (in dollars) on community pharmacies was calculated and reported. Subgroup analyses on total Medicare prescription volume and pharmacy type (independent vs. chain) were conducted to understand how the impact differed for multiple groups. Where available, the difference in groups was analyzed to determine if there was a statistical difference. For comparisons with a dichotomous dependent variable, a chi-square analysis was used. For comparisons with a continuous dependent variable, an independent samples t-test was used when comparing two groups, whereas a one-way ANOVA was used when comparing more than two groups. Significance was set at 0.05 for all tests.
Results

A total of 713 retail pharmacies met eligibility criteria to be included in the study. Among the pharmacies, 307 (43%) were identified as independent pharmacies, 394 (55%) as chain pharmacies (defined as part of a group of 4 or more under the same ownership), 9 (1%) as franchise pharmacies, and 3 (<1%) as government pharmacies. Subgroup analyses were only conducted between independent and chain pharmacies due to lack of sample on other types. Franchise pharmacies are independently owned but affiliated with another company, resulting in shared resources and the other company’s brand. It is difficult to accurately determine whether a franchise pharmacy behaves closer to an independent or chain pharmacy, so they were not attributed to either group for the subgroup analysis.

Store Performance on Adherence Measures

Of the 713 pharmacies, 695 had at least one Medicare patient who met eligibility criteria for one of the adherence measures. When accounting for the minimum patient requirements to be included in the first two programs, a total of 679 pharmacies met criteria to be included in the bonus payment strategy (10 patient minimum) whereas 663 met criteria to be included in the medication adherence strategy (30 patient minimum). A summary of differences between the two minimum patient requirements can be found in Table 1.

For the bonus payment program (≥10 patient minimum requirement per threshold), the majority (97.5%) of pharmacies were eligible for all three adherence measures. The diabetes measure appeared to have fewer patients on average included in the measure. Higher mean store adherence was observed for the hypertension measure (0.770) compared to the diabetes (0.730)
and cholesterol (0.715) measures. When comparing mean store adherence between independent pharmacies and chain store pharmacies, a significantly lower mean adherence was observed in independent pharmacies for both the hypertension measure (0.753 vs 0.782, p<0.001) and the cholesterol measure (0.701 vs 0.726, p<0.001), with no significant difference for the diabetes measure.

Few meaningful differences were noted when the minimum patient requirement was increased to ≥30 patients for the medication reimbursement adjustment program. A smaller percentage of pharmacies eligible for all three adherence measures (85.2%) was observed, likely the result of a large drop in pharmacies eligible for the diabetes measure. Mean store adherence remained fairly consistent between adherence measures. A significantly lower mean store adherence for independent pharmacies compared to chain pharmacies was again observed for both the hypertension measure (0.755 vs 0.782, p<0.001) and the cholesterol measure (0.702 vs 0.725, p<0.001), whereas no significant difference was observed for the diabetes measure.
TABLE 4-1. Demographics of Pharmacies Eligible for Store Adherence Programs

<table>
<thead>
<tr>
<th>Pharmacies Meeting Eligibility Criteria</th>
<th>≥10 patient minimum per adherence measure (Bonus Payment Program)</th>
<th>≥30 patient minimum per adherence measure (Medication Reimbursement Adjustment Program)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>679</td>
<td>663</td>
</tr>
<tr>
<td># eligible for ≥1 adherence measure</td>
<td></td>
<td></td>
</tr>
<tr>
<td># eligible for ≥2 adherence measure (%)</td>
<td>677 (99.7%)</td>
<td>656 (98.9%)</td>
</tr>
<tr>
<td># eligible for all 3 adherence measures (%)</td>
<td>662 (97.5%)</td>
<td>565 (85.2%)</td>
</tr>
</tbody>
</table>

Diabetes Adherence Measure

<table>
<thead>
<tr>
<th># of pharmacies eligible</th>
<th>662</th>
<th>565</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean # of patients included (range)</td>
<td>77 (10 to 327)</td>
<td>86 (30 to 327)</td>
</tr>
<tr>
<td>Mean store adherence (SD)</td>
<td>0.730 (0.081)</td>
<td>0.728 (0.073)</td>
</tr>
</tbody>
</table>

Hypertension Adherence Measure

<table>
<thead>
<tr>
<th># of pharmacies eligible</th>
<th>678</th>
<th>661</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean # of patients included (range)</td>
<td>197 (10 to 886)</td>
<td>202 (31 to 886)</td>
</tr>
<tr>
<td>Mean store adherence (SD)</td>
<td>0.770 (0.063)</td>
<td>0.771 (0.059)</td>
</tr>
</tbody>
</table>

Cholesterol Adherence Measure

<table>
<thead>
<tr>
<th># of pharmacies eligible</th>
<th>678</th>
<th>658</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean # of patients included (range)</td>
<td>197 (10 to 793)</td>
<td>202 (30 to 793)</td>
</tr>
<tr>
<td>Mean store adherence (SD)</td>
<td>0.715 (0.064)</td>
<td>0.715 (0.061)</td>
</tr>
</tbody>
</table>

**Bonus Payment Program**

A total of unique 679 pharmacies were eligible to be included for the bonus payment program once the minimum requirement of 10 eligible patients for a given adherence measure was accounted for. If implemented, a total of $1.45M would be distributed among 283 pharmacies (41.7% of those eligible) based upon adherence performance scores. Out of those receiving a bonus, 254 (89.8%) pharmacies would receive bonuses less than $10,000, 27 pharmacies (9.5%) would receive bonuses between $10,000 and $20,000, and 2 pharmacies (0.7%) would receive bonuses greater than $30,000. The average total payment given to pharmacies receiving bonuses would be $5,114.

Comparing bonus paid for adherence measures, the hypertension adherence measure would result in the highest percentage of eligible pharmacies who would receive payment as well
as the largest sum of total bonuses paid. Approximately $1.10M would be distributed to 33% of eligible pharmacies for the adherence measure. For pharmacies receiving a bonus through a given adherence measure, the average bonus would be $1,533 for the diabetes measure, $4,984 for the hypertension measure, and $3,354 for the cholesterol measure. A summary of the bonuses paid for the program can be found in Table 2.

### TABLE 4-2. Description of Rewards for Bonus Payments Program

<table>
<thead>
<tr>
<th>Total Sample</th>
<th>N (%)</th>
<th>Mean (SD)</th>
<th>Median</th>
<th>Range</th>
<th>Sum of Bonuses</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Eligible Pharmacies</td>
<td>679 (100%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Bonus Payment</td>
<td>283 (42%)</td>
<td>$5,114 ($4,470)</td>
<td>$3,990</td>
<td>$360 to $35,940</td>
<td>$1.45M</td>
</tr>
<tr>
<td>Diabetes Adherence Measure</td>
<td>662</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Bonus Payment</td>
<td>548 (83%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Store Adherence ≥0.8 and &lt;0.9</td>
<td>102 (15%)</td>
<td>$1,546 ($980)</td>
<td>$1,395</td>
<td>$270 to $4,740</td>
<td>$157,710</td>
</tr>
<tr>
<td>Store Adherence ≥0.9</td>
<td>12 (2%)</td>
<td>$1,420 ($735)</td>
<td>$1,230</td>
<td>$540 to $3,060</td>
<td>$17,040</td>
</tr>
<tr>
<td>Hypertension Adherence Measure</td>
<td>678</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Bonus Payment</td>
<td>457 (67%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Store Adherence ≥0.8 and &lt;0.9</td>
<td>214 (32%)</td>
<td>$5,026 ($3,432)</td>
<td>$4,095</td>
<td>$240 to $18,480</td>
<td>$1.08M</td>
</tr>
<tr>
<td>Store Adherence ≥0.9</td>
<td>7 (1%)</td>
<td>$3,703 ($3,676)</td>
<td>$2,940</td>
<td>$780 to $11,520</td>
<td>$25,920</td>
</tr>
<tr>
<td>Cholesterol Adherence Measure</td>
<td>678</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Bonus Payment</td>
<td>627 (92%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Store Adherence ≥0.8 and &lt;0.9</td>
<td>49 (7%)</td>
<td>$3,390 ($3,378)</td>
<td>$2,580</td>
<td>$360 to $17,460</td>
<td>$166,110</td>
</tr>
<tr>
<td>Store Adherence ≥0.9</td>
<td>2 (&lt;1%)</td>
<td>$2,460 ($2,630)</td>
<td>$2,460</td>
<td>$600 to $4,320</td>
<td>$4,920</td>
</tr>
</tbody>
</table>

### Prescription Volume Comparisons

<table>
<thead>
<tr>
<th>&lt;30 / day (n=127)</th>
<th>30-59 / day (n=255)</th>
<th>60-89 / day (n=161)</th>
<th>≥90 / day (n=136)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Pharmacies Receiving Bonus</td>
<td>54.33</td>
<td>40.78</td>
<td>39.75</td>
<td>33.82</td>
</tr>
<tr>
<td>Mean Bonusa (SD)</td>
<td>$2,070 ($1,356)</td>
<td>$4,188 ($2,493)</td>
<td>$5,889 ($3,133)</td>
<td>$10,695 ($6,750)</td>
</tr>
</tbody>
</table>

### Independent vs. Chain Store Comparisons

<table>
<thead>
<tr>
<th>Independent Pharmacies</th>
<th>Chain Store Pharmacies</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Pharmacies Receiving Bonus</td>
<td>35.69</td>
<td>45.97</td>
</tr>
<tr>
<td>Mean Bonusa (SD)</td>
<td>$3,848 ($4,038)</td>
<td>$6,095 ($4,470)</td>
</tr>
</tbody>
</table>

---

*a Only accounting for those receiving a bonus

*b Chi-Square test used to measure difference between the two groups

*c One way ANOVA used to test differences between groups

*d Independent samples t-test used to test difference of amount of bonus received for pharmacies receiving a bonus
Medication Reimbursement Adjustment Program

A total of unique 663 pharmacies were eligible to be included for the medication reimbursement adjustment program once the minimum requirement of 30 eligible patients for a given adherence measure was accounted for. If implemented, a total of 179 pharmacies (27%) would receive bonuses for their performance while 175 pharmacies (26%) would be penalized. The sum of bonuses paid would be $172,701 whereas the amount of penalties levied would be $188,489, resulting in a net savings to the program of $15,789. The average total bonus received by a pharmacy would be $965 and the average penalty would be $1,077. The average outcome for pharmacies impacted by the strategy would be a penalty of $45. The maximum amount of additional compensation paid to a pharmacy would be $4,044, whereas the maximum penalty levied against a pharmacy would be $5,205.

For the diabetes measure, 70 pharmacies would receive bonuses while 76 would be penalized. The overall average outcome for pharmacies impacted would be a $135 penalty. For the hypertension measure, 78 pharmacies would receive bonuses while 82 would be penalized. The overall average outcome for pharmacies impacted would be a $21 penalty. For the cholesterol measure, 98 would receive bonuses while 100 would be penalized. The overall average outcome for pharmacies impacted would be a $38 bonus. The diabetes measure resulted in both the highest reward ($4,044) and penalty ($4,401) attributed to a pharmacy across all three measures. A summary of the rewards and penalties associated with strategy can be found in Table 3.
<table>
<thead>
<tr>
<th>TABLE 4-3. Description of Rewards &amp; Penalties for Medication Reimbursement Adjustment Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Sample</strong></td>
</tr>
<tr>
<td>All Eligible Pharmacies</td>
</tr>
<tr>
<td>Total Pharmacies Impacted</td>
</tr>
<tr>
<td><strong>Diabetes Adherence Measure</strong></td>
</tr>
<tr>
<td>+2% Bonus (≥2 SD)</td>
</tr>
<tr>
<td>+1% Bonus (≥1SD, &lt;2SD)</td>
</tr>
<tr>
<td>No Bonus / Penalty</td>
</tr>
<tr>
<td>-1% Penalty (≤1 SD, &gt;2SD)</td>
</tr>
<tr>
<td>-2% Penalty (≤2 SD)</td>
</tr>
<tr>
<td><strong>Hypertension Adherence Measure</strong></td>
</tr>
<tr>
<td>+2% Bonus (≥2 SD)</td>
</tr>
<tr>
<td>+1% Bonus (≥1SD, &lt;2SD)</td>
</tr>
<tr>
<td>No Bonus / Penalty</td>
</tr>
<tr>
<td>-1% Penalty (≤1 SD, &gt;2SD)</td>
</tr>
<tr>
<td>-2% Penalty (≤2 SD)</td>
</tr>
<tr>
<td><strong>Cholesterol Adherence Measure</strong></td>
</tr>
<tr>
<td>+2% Bonus (≥2 SD)</td>
</tr>
<tr>
<td>+1% Bonus (≥1SD, &lt;2SD)</td>
</tr>
<tr>
<td>No Bonus / Penalty</td>
</tr>
<tr>
<td>-1% Penalty (≤1 SD, &gt;2SD)</td>
</tr>
<tr>
<td>-2% Penalty (≤2 SD)</td>
</tr>
<tr>
<td><strong>Prescription Volume Comparisons</strong></td>
</tr>
<tr>
<td>% Pharmacies Receiving Bonus</td>
</tr>
<tr>
<td>% Pharmacies Penalized</td>
</tr>
<tr>
<td>Mean Bonus* (SD)</td>
</tr>
<tr>
<td>Mean Penalty* (SD)</td>
</tr>
<tr>
<td><strong>Independent vs. Chain Store Comparisons</strong></td>
</tr>
<tr>
<td>% Pharmacies Receiving Bonus</td>
</tr>
<tr>
<td>% Pharmacies Penalized</td>
</tr>
<tr>
<td>Mean Bonus* (SD)</td>
</tr>
<tr>
<td>Mean Penalty* (SD)</td>
</tr>
</tbody>
</table>

*Only accounting for those receiving a bonus / penalty  
1Chi-Square test used to measure difference between the two groups  
2One way ANOVA used to test differences between groups  
3Independent samples t-test used to test difference of bonus / penalty for pharmacies receiving a bonus / penalty
**Limited Network Program**

A total of 713 MS retail pharmacies were identified in the analysis with an average of 22 individual plans associated with each pharmacy. Of the 713 pharmacies, 6 (1%) only had 1 Medicare plan associated with the pharmacy, 4 (1%) were associated with between 2 and 9 plans, 193 (27%) were associated with between 10 and 19 plans, 444 (62%) were associated with between 20 and 29 plans, 64 (9%) were associated with between 30 and 39 plans, and 2 (<1%) were associated with greater than 40 plans. On average, pharmacies’ Medicare business accounted for 782 patients, 21,876 prescriptions, and $1.34M worth of drug costs. Out of the 713 total pharmacies, 712 were included in the analysis to determine impact of a limited network for the largest plan and median plan. One pharmacy was excluded as the only Medicare plan associated with the pharmacy was a LI NET plan. The summary of the limited network program results can be found in Table 4.

Overall, the loss of pharmacies’ largest Medicare plan would account for a loss of approximately 24% of unique Medicare beneficiaries, 26% of total Medicare prescriptions, and 29% of their total Medicare drug costs. Conversely, the loss of a pharmacy’s median Medicare plan would account for a loss of 3% of total Medicare business across the three groups. Significant differences were observed for prescription volume groups for associated drugs costs of both largest and median Medicare plans. When comparing independent pharmacies to chain pharmacies, the relative impact of a loss of either the largest or the median Medicare plan was significantly higher for independent pharmacies. This reflects the mean number of distinct Medicare plans associated with both groups: 19.5 plans for independent pharmacies and 24.5 plans for chain store pharmacies (p<0.001). It is of note the loss of an independent pharmacy’s median Medicare plan was approximately double that of chain stores’ median plan.
TABLE 4-4. Description of Results for Limited Network Program

<table>
<thead>
<tr>
<th>Total Sample</th>
<th>Mean (SD)</th>
<th>Mean % of Total Medicare (SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Largest Medicare Plans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of patients</td>
<td>186 (136)</td>
<td>24.28 (9.38)</td>
<td>1 to 840</td>
</tr>
<tr>
<td># of prescriptions</td>
<td>5,587 (4,289)</td>
<td>25.88 (9.89)</td>
<td>1 to 42,609</td>
</tr>
<tr>
<td>Associated drug costs</td>
<td>$374,308 ($420,530)</td>
<td>28.95 (9.98)</td>
<td>$41 to $8.56M</td>
</tr>
<tr>
<td>Median Medicare Plans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of patients</td>
<td>16 (12)</td>
<td>3.27 (8.46)</td>
<td>1 to 94</td>
</tr>
<tr>
<td># of prescriptions</td>
<td>441 (367)</td>
<td>3.19 (8.57)</td>
<td>1 to 4,089</td>
</tr>
<tr>
<td>Associated drug costs</td>
<td>$24,070 ($26,737)</td>
<td>2.90 (8.72)</td>
<td>$41 to $557,152</td>
</tr>
</tbody>
</table>

Prescription Volume Comparisons

<table>
<thead>
<tr>
<th></th>
<th>&lt;30 / day (n=161)</th>
<th>30-59 / day (n=255)</th>
<th>60-89 / day (n=161)</th>
<th>≥90 / day (n=136)</th>
<th>P Valuea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Largest Medicare Plan – Mean % of Total Medicare (SD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of patients</td>
<td>25.59 (16.17)</td>
<td>23.55 (6.34)</td>
<td>23.64 (5.49)</td>
<td>24.89 (6.36)</td>
<td>0.113</td>
</tr>
<tr>
<td># of prescriptions</td>
<td>27.68 (16.60)</td>
<td>25.42 (7.27)</td>
<td>25.10 (5.91)</td>
<td>25.56 (6.67)</td>
<td>0.071</td>
</tr>
<tr>
<td>Associated drug costs</td>
<td>32.27 (15.82)</td>
<td>28.83 (7.67)</td>
<td>27.48 (6.73)</td>
<td>27.00 (6.78)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median Medicare Plan – Mean % of Total Medicare (SD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of patients</td>
<td>6.98 (17.17)</td>
<td>2.61 (1.64)</td>
<td>2.01 (1.29)</td>
<td>1.62 (1.21)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td># of prescriptions</td>
<td>6.93 (17.44)</td>
<td>2.53 (1.50)</td>
<td>1.93 (1.18)</td>
<td>1.53 (1.09)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Associated drug costs</td>
<td>6.36 (17.92)</td>
<td>2.22 (0.94)</td>
<td>1.75 (0.87)</td>
<td>1.48 (0.89)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Independent vs. Chain Store Comparisons

<table>
<thead>
<tr>
<th></th>
<th>Independent Pharmacies (n=307)</th>
<th>Chain Store Pharmacies (n=394)</th>
<th>P Valueb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Largest Medicare Plan – Mean % of Total Medicare (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of patients</td>
<td>26.47 (11.99)</td>
<td>22.58 (6.35)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td># of prescriptions</td>
<td>28.91 (12.68)</td>
<td>23.55 (6.22)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Associated drug costs</td>
<td>32.77 (12.44)</td>
<td>25.93 (6.21)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median Medicare Plan – Mean % of Total Medicare (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of patients</td>
<td>4.68 (12.57)</td>
<td>2.18 (1.94)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td># of prescriptions</td>
<td>4.63 (12.77)</td>
<td>2.09 (1.78)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Associated drug costs</td>
<td>4.36 (13.09)</td>
<td>1.78 (1.03)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

aOne way ANOVA used to test differences between groups
bIndependent samples t-test used to test difference between groups

Further analysis on the plans with the largest contribution to drug costs for retail pharmacies found the top 5 Medicare plans accounted for approximately 66% of all Medicare drug costs within the state. Furthermore, at least one of the top 5 plans were observed in 709 pharmacies (99%), whereas all 5 top plans were accounted for in 695 pharmacies (97%). A top 5
plan was also observed as an individual pharmacy’s largest Medicare plan in 672 pharmacies (94%). On average, the accumulation of the top 5 plans accounted for 66% of individual pharmacies’ total Medicare drug costs.

Discussion

The results of this study help provide context to the financial impact of VBI programs health insurance plans may implement for pharmacies within their network. This study is one of the first known studies to estimate outcomes from three possible VBI programs using Medicare claims data. Actual programs may differ in practice, such as the inclusion of additional store-level measures (e.g., complete medication review) or differences in eligibility and payment structures (e.g., all pharmacies meeting a minimum threshold eligible to “compete” for a pool of bonuses among all other pharmacies in the network). Regardless, the possible scenarios depicted through the study provide a foundation for pharmacists and researchers to understand how community pharmacies may be impacted with the increasing shift to value-based models of care.

The outcomes of the first two programs, bonus payments and medication reimbursement adjustment, were based on medication adherence performance measures. When comparing between the two minimum patient requirements for each program, it is worth noting the relatively minimal differences for both pharmacy eligibility and mean store adherence, with an exception for store eligibility for the diabetes measure. The 15% drop in number of pharmacies eligible when moving to the higher patient requirement is reflective of the generally overall smaller number of eligible patients present in the measure compared to the other two measures.
When considering independent pharmacies and chain store pharmacies, the fewer patients generally associated with independent pharmacies and ability to implement store-level changes without corporate approval (e.g., chain stores) might be expected to translate into better individual patient care and adherence. However, the study observed a significantly lower store adherence in the hypertension and cholesterol measures for independent pharmacies compared to chain pharmacies. The results were reflected in the bonuses and penalties distributed across both the bonus payment and medication reimbursement programs. The study’s results differ from that of Kalsekar et al.’s (2007), a retrospective cohort study evaluating Medicaid claims data which found a higher prevalence of adherent patients associated with independent pharmacies compared to chain pharmacies for oral hypoglycemic agents. While the two different patient populations of the two studies (i.e., Medicaid vs. Medicare) may account for some portion of the different study results, the recent consideration and implementation of VBI programs may also have resulted in chain stores placing a greater emphasis on medication adherence than in previous years. Future research should seek to further understand the differences between these two types of pharmacies and additional variables which may explain potential differences in store adherence, including geographical differences (i.e., urban vs. rural) and whether risk-adjustment may minimalize these differences (Dharmarajan et al., 2014).

Overall, less than half of pharmacies would receive additional compensation through the bonus payment program as designed. While pre-defined goals were set for the strategy, a plan could choose to adjust the thresholds based upon actual store adherence, such as decrease the thresholds for the diabetes and cholesterol measure since relatively few pharmacies were eligible for a bonus for each measure (17% and 8%, respectively). For those pharmacies that would currently require large improvements to achieve a bonus payment (e.g., store adherence ~0.7)
and thus may be less likely to try to improve performance, reducing thresholds might result in more of an incentive to achieve higher ratings. However, if a plan did not want to pay more than $1.45M already accounted for in the program, this would require a decrease in the amount per compliant patient paid as more pharmacies became eligible for a bonus. That said, it is unclear whether the average payment of $5,114 may be enough to incentive pharmacies. Considering plans can receive billions of dollars for achieving higher Star Ratings (Galewitz, 2016), it may be more favorable to plans to do so when striving for the highest ratings.

The medication reimbursement program resulted in a more favorable outcome for health plans through balancing of rewards and penalties to pharmacies. Approximately half of all pharmacies were impacted, although the impact was noticeably less than the bonus payment strategy. The highest penalizations and highest bonuses were relatively minimal given the amount of Medicare dollars associated with pharmacies. A health plan could choose to utilize additional levels of bonus / penalty (e.g., ±0.5%, ±1.5%) to further incentivize pharmacies. Additionally, the amount of bonus / penalty attributed could be increased to create greater degrees of positive reinforcement (bonus) and negative punishment (penalty) (McLeod, 2007). While the bonuses / penalties were constrained to the drug costs associated with eligible patients, some plans could also choose to provide a bonus or penalty for all drug costs associated with a given Medicare plan. Considering the mean drug costs associated with pharmacies’ largest drug plan was $374,308, just an 1% impact could result in either a gain or loss of $37,431, resulting in a larger impact to the pharmacy.

While no performance metrics (e.g., store adherence) were used to describe impact of a limited network program, pharmacists should still take note of how a given Medicare plan may affect individual store business if the pharmacy is excluded from the network. While a “typical”
(median) Medicare plan may only affect approximately 3% of a pharmacy’s Medicare business, additional negative consequences can occur not described in this study. For example, a loss of one Medicare plan may cause a negative feedback loop which results in fewer recommendations to the pharmacy and an impact on overall business, Medicare or otherwise. Furthermore, it should be noted the top 5 Medicare plans accounted for 66% of all Medicare business in community pharmacies. Pharmacists should take care in considering the patients associated with their top plans, as they are in a better position to implement VBI programs and will have the largest impact on individual stores.

Assumptions and Limitations

For the bonus payment and medication reimbursement adjustment programs, all Medicare plans were used to analyze individual store performance and model the outcomes of the programs. In actual practice, different Medicare plans may implement different programs (including none at all) and less store-level data will be available for each plan. This will result in diminished outcomes than what was shown within this study. Additionally, programs implemented may be much more complex, including both adjustments to medication reimbursement and providing bonus payment at the same time. Still, the purpose of the study was to provide an initial view at how a set of basic programs could impact pharmacies, not provide an accurate forecast of actual impact to community pharmacies.

It should also be noted a general limitation of utilizing insurance claims data to measure patient adherence is the lack of available information on prescriptions paid for by cash.
Considering the three adherence measure have an abundance of generic options which are associated with low cash out-of-pocket costs for patients, overall adherence of patients may have been underestimated.

Conclusion

Although health plans have started adopting different programs to try to incentivize community pharmacies to improve performance on quality metrics such as patient adherence, little research has been conducted to understand the potential impact on pharmacies from these programs. As VBI models are implemented for community pharmacy, it will be imperative for pharmacists to be proactive in understanding potential impact to their stores. This study presents an evaluation of how three distinct programs may impact community pharmacies. Additional research is warranted to provide further insight into the programs being implemented and a detailed analysis of the impact to pharmacies affected. Doing so may help pharmacists and health plans alike in cooperatively designing VBI programs which benefit both parties.
CHAPTER 5: CONCLUSIONS & IMPLICATIONS FOR FUTURE RESEARCH

Conclusions

This dissertation explores the impact of CMS’ Medicare Star Ratings program on retail pharmacies. Currently, health plans are implementing different value-based incentive (VBI) programs to try to incentivize pharmacies to achieve higher performance ratings on quality measures, particularly those related to star ratings. Despite the present changes occurring in pharmacy associated with VBI programs, little research has been conducted to understand the relative impact on retail pharmacies. This dissertation sought to provide a greater understanding of this impact through three specific goals: 1) identifying potential VBI programs being implemented and defining a conceptual framework of the strategies being employed with each VBI program; 2) understanding retail pharmacists’ attitudes and perceptions of quality measure and impact of potential VBI programs; and 3) evaluate the potential financial impact of select VBI programs on retail pharmacies.

The first paper (Chapter 2) provides a categorization of potential VBI strategies being employed through various VBI programs. The paper defines three distinct strategies: quality-based payment (QBP), value-based contracting (VBC), and quality-based network (QBN). Each strategy presents a distinct way health plans are attempting to improve quality performance ratings from retail pharmacies. Furthermore, the paper identifies 5 distinct VBI programs being
considered or already implemented which reflect the strategies defined in the categorization of VBI strategies and characteristics of how they may be implemented in practice. A survey was used to support the collection on information on potential programs being considered or implemented. The paper compares identified strategies and programs to established theory in human behavior research (operant conditioning). Overall, the paper helps provide a more cohesive understanding of how certain dynamics of the health plan-retail pharmacy relationship are evolving to place an emphasis on quality performance ratings through VBI programs.

The second paper (Chapter 3) explores retail pharmacy’s perception of these changing dynamics. Pharmacy managers from both independent and chain retail pharmacies who were actively engaged in understanding and adapting to quality performance ratings were interviewed. While several concerns were voiced regarding the resources required and change necessary to achieve high ratings, the respondents generally favored the impact of quality measures on the profession of pharmacy and the quality of care provided to patients. While research has previously been conducted understanding the perceptions of the lay retail pharmacist on star ratings, this paper provides a more nuanced perspective of those being proactive in addressing how quality performance ratings may affect retail pharmacy practice. In doing so, this paper adds to the literature by adding a more robust discussion of pharmacist attitudes and opinions of the changes occurring due to the environment’s shifting focus toward incentivizing high-quality performance ratings.

The third paper (Chapter 4) evaluates the financial impact to retail pharmacies of possible VBI programs. Three examples of VBI programs were developed and their outcomes estimated in Mississippi Medicare claims data. The research provides the first look at how pharmacies may be rewarded or penalized based upon their performance. Particularly, the financial impact from a
pharmacy losing their largest Medicare contract demonstrates the need for retail pharmacies to pay close attention to the VBI programs being implemented within the health plans of their patients. While programs implemented in practice may differ than those evaluated in the research, the outcomes still provide a foundation for pharmacists and health plans to discuss the impact of VBI programs and cooperatively design programs which benefit both parties.

Implications for Future Research

The research associated with this dissertation was conducted with the goal of providing a greater understanding to how retail pharmacy is being impacted by healthcare’s shift toward achieving high quality performance ratings. While the research represents a meaningful step forward in understanding the impact of VBI programs on the retail pharmacy, there remains much to understand. While five distinct VBI programs were identified, additional programs are likely to be developed. The three strategies proposed through this research should serve as a foundation to help explain different programs, and if needed additional strategies can be considered as new ways for health plans and pharmacies to collaborate are established. Future research should attempt to provide even more detailed information on implemented VBI strategies to help guide researchers as well as provide examples for stakeholders to use when designing new VBI programs. Research should continue to understand pharmacists’ perspective of VBI programs. Specifically, better understanding relationships between financial incentives and pharmacist willingness to engage in improving quality performance ratings would be worthwhile in the development of VBI programs. Furthermore, such research might help
elucidate additional ways for health plans to engage with pharmacists which benefit both parties.

Finally, as new VBI programs are identified, research should continue to try to estimate the potential financial impact on retail pharmacies to help pharmacists understand the potential implications on their practice.
LIST OF REFERENCES


Meggison, L. (1963). Southwestern Social Science Quarterly, Volume 44, Number 1, Lessons from Europe for American Business by Leon C. Meggison, (Presidential address delivered at the Southwestern Social Science Association convention in San Antonio, Texas, April 12, 1963), Start Page 3, Quote Page 4, Published jointly by The Southwestern Social Science Association and the University of Texas Press.


APPENDICES
APPENDIX A: Health Plan Survey
Payer Survey

Q1 Thank you for your interest in the study. We believe your insight will be valuable to understanding how health insurance plans are evaluating and interacting with community pharmacy practice in response to quality performance measures. Before we begin, please answer the following questions to ensure that you are eligible to complete the survey.

Q2 What is your title within the health plan?

________________________________________________________________

Q3 Approximately how many total lives are covered under your plan?

________________________________________________________________

Q4 Which type of lives does your plan cover? (Click all that apply)

☐ Commercial lives (1)
☐ Medicare Advantage (MA) lives (2)
☐ Medicare Advantage with Part D (MA-PD) lives (3)
☐ Part D only (PD) lives (4)
☐ Medicaid Managed Care lives (5)
Q5

Census Regions and Divisions of the United States

Q6 Using the graphic above, please select all regions where you have covered lives.

- [ ] All regions (19)
- [ ] Northeast (15)
- [ ] South (16)
- [ ] Midwest (17)
- [ ] West (18)
Q7 Do your job responsibilities include understanding quality performance ratings of the pharmacies within your health plan's network?

- Yes (1)
- No (2)

Q8 How knowledgeable are you about whether your plan has considered or implemented various strategies such as pay-for-performance (i.e. bonus payments) or quality-based networks (i.e. pharmacies included based on performance) to try to boost quality performance ratings from pharmacies within the health plan's network?

- Extremely knowledgeable (1)
- Very knowledgeable (2)
- Moderately knowledgeable (3)
- Slightly knowledgeable (4)
- Not knowledgeable at all (5)

(IF RESPONDENT FAILED SCREENER CRITERIA)

Q9 Thank you for taking the time to consider participating in this research. However, you do not appear to meet the criteria to participate, which includes job responsibilities of understanding how your plan evaluates quality performance ratings for pharmacies in your network. If you know of someone that meets this criteria, please consider directing them to this survey. If you feel that you do indeed meet the criteria, please contact the study author, Tristen Jackson, at thjackso@go.olemiss.edu, to discuss the possibility of still participating.

(IF RESPONDENT PASSED SCREENER CRITERIA)

Q10 Your responses indicate you are eligible to participate in this study. Please read each of the following 4 pages carefully and answer the questions. Your participation in this study is crucial to understanding how health insurance plans are evaluating pharmacy quality performance
measures and implementing strategies to try to encourage pharmacies to try to improve their own performance.

Q11

Page 1 of 4

Q12 Please carefully read through this brief background of quality performance measures and strategies to boost pharmacy quality performance ratings.

Increasingly, health plans are taking an interest in the quality of care community pharmacies deliver. Quality of care is reflected through specific quality performance measures that are assessed through administrative claims data associated with the pharmacy. While quality measures associated with CMS Star Ratings (i.e. medication adherence for non-insulin diabetes medications) are those most likely to be utilized in measuring pharmacy performance, some plans include additional measures such as percentage of generics products dispensed over brand products (where applicable) or the number of 90 day medication supplies dispensed for chronic medications.

Regardless of the specific quality measures being assessed, many plans have begun to implement various strategies to try to boost the performance of these measures for the pharmacies in their network. These “incentive” strategies appear to generally align with one of three primary categories:

- **Pay-for-Performance (P4P)**
  - Bonus payments or compensation is given based upon performance scores.

- **Value-Based Contracting**
  - Contracting with pharmacies is altered based upon pharmacy performance. This can include decreasing the direct and indirect remuneration (DIR) fees associated with pharmacy contracting or altering medication reimbursement that a pharmacy receives in accordance to performance scores

- **Quality-Based Networks (QBN)**
  - Poorly performing pharmacies are either placed on a “non-preferred” tier where patients pay higher copays to visit, or completely removed from the network if performance is too low. These strategies indirectly affect pharmacies by shifting where patients are likely to get their medications filled.

Given all this, please read and respond to the following prompts.
Q13 Given the description above of the three primary strategies, please rate how effective you believe each type of strategy (used alone) would be in increasing quality performance ratings of retail pharmacies.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Not effective at all (1)</th>
<th>Slightly effective (2)</th>
<th>Moderately effective (3)</th>
<th>Very effective (4)</th>
<th>Extremely effective (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pay-for-Performance (P4P) (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value-Based Contracting (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality-Based Networks (QBN) (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q14

Quality Performance Ratings

Please review through the following potential quality performance ratings and indicate whether the potential measure is:

- Used to influence payment decisions of pharmacies in your network (i.e. bonus payments, DIR fees, medication reimbursement)
- Used to influence network decisions of pharmacies in your network (i.e. preferred vs. non-preferred pharmacies, removing pharmacy from network)
- Used only to monitor pharmacy performance, but not to make payment or network decisions from; or
- Not monitored at the pharmacy level
### Q16 CMS Part D Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Influences pharmacy payment decisions (1)</th>
<th>Influences pharmacy network decisions (2)</th>
<th>Only monitored at pharmacy level (3)</th>
<th>Not monitored at pharmacy level (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication adherence for non-insulin diabetes medications (1)</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
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<tr>
<td>Medication adherence for hypertension medications (RAS antagonists) (2)</td>
<td>![ ]</td>
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<tr>
<td>Medication adherence for cholesterol medications (statins) (3)</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>Medication therapy management (MTM) program completion rate for comprehensive medication reviews (CMRs) (5)</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
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<tr>
<td>Ensuring statin use in patients with diabetes age 40 to 75 years (display measure for 2017) (7)</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
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### Q17 CMS Part D Display Measures

<table>
<thead>
<tr>
<th>Pharmacy Payment Decisions (1)</th>
<th>Pharmacy Network Decisions (2)</th>
<th>Only Monitored at Pharmacy Level (3)</th>
<th>Not Monitored at Pharmacy Level (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoidance of drug-drug interactions (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidance of excessive doses of oral diabetes medications (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensuring statin use in patients with diabetes age 40 to 75 years (display measure for 2017) (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate use of high risk medications in patients 65 years or older (4)</td>
<td></td>
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### Q18 Part C Measures

<table>
<thead>
<tr>
<th>Pharmacy Payment Decisions (1)</th>
<th>Pharmacy Network Decisions (2)</th>
<th>Only Monitored at Pharmacy Level (3)</th>
<th>Not Monitored at Pharmacy Level (4)</th>
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<tbody>
<tr>
<td>Osteoporosis management in women who have had a fracture (2)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Glucose control in diabetes patients (3)</td>
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<td></td>
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</tr>
<tr>
<td>Blood pressure control (4)</td>
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</tbody>
</table>
### Q19 Part C Display Measures

<table>
<thead>
<tr>
<th>Measures</th>
<th>Influences pharmacy payment decisions (1)</th>
<th>Influences pharmacy network decisions (2)</th>
<th>Only monitored at pharmacy level (3)</th>
<th>Not monitored at pharmacy level (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration of pneumococcal vaccine (where appropriate) (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug treatment of COPD with bronchodilators or systemic corticosteroids as appropriate (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient experience in getting a needed medication (Part of CAHPS) (7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual influenza vaccine (Part of CAHPS) (8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of generic products dispensed over brand products (where applicable) (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of 90 day supplies dispensed for chronic medications (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### If applicable, please designate any other measures:

- (3)
- (4)
- (5)
- (6)
Q22 This page will describe five specific pharmacy performance strategies that health plans may adopt to try to increase quality performance ratings of retail pharmacies.

One of the most common ways that these five strategies can differ is whether they utilize a “threshold” or “tournament” type of performance measure evaluation. For each scenario, "threshold", "tournament", and "both threshold and tournament" systems are defined as such:

- **Threshold system**: Positive or negative outcomes are based upon whether the pharmacy meets specific thresholds (i.e. at least 90% of patients being adherent to oral diabetes medications or at least 85% of patients being adherent to all three medication adherence quality measures).

- **Tournament system**: Positive or negative outcomes are based upon how pharmacies' quality performance ratings compare to other pharmacies within a specified network within the plan. In this type of system, the best performing pharmacies would receive the highest bonus payment in a P4P strategy or the lowest DIR fee assessed in a value-based contracting strategy.

- **Both threshold and tournament system**: A mixture of both systems. An example would be that all pharmacies that meet a certain threshold are in competition for bonus payments through a pay-for-performance strategy. Pharmacies that don't meet the threshold might either not be eligible for rewards or may be eligible for negative outcomes.

Please read through each scenario and respond to the prompts.

Q23 **Pay-for-Performance Strategies**

---

Q24 **P4P Strategy 1**

Pharmacies receive bonus payments based upon their quality performance ratings.
Q25 Please rate how effective you believe each strategy might be.

<table>
<thead>
<tr>
<th>Bonuses</th>
<th>Not effective at all (1)</th>
<th>Slightly effective (2)</th>
<th>Moderately effective (3)</th>
<th>Very effective (4)</th>
<th>Extremely effective (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>incentives with threshold system (1)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>incentives with tournament system (2)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>incentives with both threshold and tournament system (3)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

Q26 Please rate your likelihood to adopt each type of strategy. If you have already adopted such a strategy, please indicate "already adopted".

<table>
<thead>
<tr>
<th>Bonuses</th>
<th>Definitely not (1)</th>
<th>Probably not (2)</th>
<th>Might or might not (3)</th>
<th>Probably yes (4)</th>
<th>Definitely yes (5)</th>
<th>Already adopted (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>incentives with threshold system (1)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>incentives with tournament system (2)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>incentives with both threshold and tournament system (3)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
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<td>[ ]</td>
</tr>
</tbody>
</table>
Q27 **Value-Based Contracting Strategies**

Q28 **Value-Based Contracting Strategy 1**
Direct and indirect remuneration (DIR) fees, those fees that pharmacies must pay to participate in a given network, are altered (typically lowered) based upon pharmacy quality performance ratings.

Q29 Please rate how effective you believe each strategy might be.

<table>
<thead>
<tr>
<th>Not effective at all (1)</th>
<th>Slightly effective (2)</th>
<th>Moderately effective (3)</th>
<th>Very effective (4)</th>
<th>Extremely effective (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIR fee altered based on threshold system (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIR fee altered based on tournament system (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIR fee altered based on both threshold and tournament system (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q30 Please rate your likelihood to adopt each type of strategy. If you have already adopted such a strategy, please indicate "already adopted".

<table>
<thead>
<tr>
<th>Likelihood to adopt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitely not (1)</td>
</tr>
<tr>
<td>DIR fee altered based on threshold system (1)</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>DIR fee altered based on tournament system (2)</td>
</tr>
<tr>
<td>DIR fee altered based on both threshold and tournament system (3)</td>
</tr>
</tbody>
</table>

**Q31 Value-Based Contracting Strategy 2**
Reimbursement of medications is either increased or decreased based upon pharmacy quality performance ratings.

---

**Q32 Please rate how effective you believe each strategy might be.**

<table>
<thead>
<tr>
<th>Medication reimbursement alteration with threshold system (1)</th>
<th>Not effective at all (1)</th>
<th>Slightly effective (2)</th>
<th>Moderately effective (3)</th>
<th>Very effective (4)</th>
<th>Extremely effective (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication reimbursement alteration with tournament system (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication reimbursement alteration with both threshold and tournament system (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---
Q33 Please rate your likelihood to adopt each type of strategy. If you have already adopted such a strategy, please indicate "already adopted".

<table>
<thead>
<tr>
<th>Medication reimbursement alteration with threshold system (1)</th>
<th>Definitely not (1)</th>
<th>Probably not (2)</th>
<th>Might or might not (3)</th>
<th>Probably yes (4)</th>
<th>Definitely yes (5)</th>
<th>Already adopted (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication reimbursement alteration with tournament system (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication reimbursement alteration with both threshold and tournament system (3)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Q34 **Quality-Based Networks Strategies**

Q35 **QBN Strategy 1**
Pharmacies in a health plan's network are classified as either "preferred" or "non-preferred" pharmacies based upon quality performance ratings. Patients receive incentives (i.e. lower copays) for going to "preferred" pharmacies instead of "non-preferred" ones. We will refer to this as the "tiered structure".
Q36 Please rate how effective you believe each strategy might be.

<table>
<thead>
<tr>
<th>Tiered structure with threshold system (1)</th>
<th>Not effective at all (1)</th>
<th>Slightly effective (2)</th>
<th>Moderately effective (3)</th>
<th>Very effective (4)</th>
<th>Extremely effective (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiered structure with tournament system (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q37 Please rate your likelihood to adopt each type of strategy. If you have already adopted such a strategy, please indicate "already adopted".

<table>
<thead>
<tr>
<th>Likelihood to adopt</th>
<th>Definitely not (1)</th>
<th>Probably not (2)</th>
<th>Might or might not (3)</th>
<th>Probably yes (4)</th>
<th>Definitely yes (5)</th>
<th>Already adopted (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiered structure with threshold system (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tiered structure with tournament system (2)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Q38 **QBN Strategy 2**

Lowest-performing pharmacies in a health plan's network are excluded from the network.* This is sometimes referred to as "narrow networks".

*It is understood that due to patient access considerations, not all "low-performing" pharmacies could be excluded from the network. Please answer effectivness questions assuming access considerations are not an issue and implementation questions considering these realistic concerns.
Q39 Please rate how effective you believe each strategy might be.

For this statement, please consider how effectively you believe it would "incentivize" pharmacies to increase their quality performance ratings, not whether by excluding low-performing pharmacies that it would increase the plan's overall ratings.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Not effective at all (1)</th>
<th>Slightly effective (2)</th>
<th>Moderately effective (3)</th>
<th>Very effective (4)</th>
<th>Extremely effective (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrow network with threshold system (1)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Narrow network with tournament system (2)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Q40 Please rate your likelihood to adopt each type of strategy. If you have already adopted such a strategy, please indicate "already adopted".

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Definitely not (1)</th>
<th>Probably not (2)</th>
<th>Might or might not (3)</th>
<th>Probably yes (4)</th>
<th>Definitely yes (5)</th>
<th>Already adopted (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrow network with threshold system (1)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Narrow network with tournament system (2)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Q41

Q42 Please rate your likelihood to adopt a case-mix adjustment for pharmacies as you evaluate quality performance ratings (i.e. factoring in sociodemographic information of the patient population that the pharmacy serves).

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Definitely not (1)</th>
<th>Probably not (2)</th>
<th>Might or might not (3)</th>
<th>Probably yes (4)</th>
<th>Definitely yes (5)</th>
<th>Already adopted (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of case-mix adjustment (1)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Q43 You indicated that your plan has already adopted a pay-for-performance (P4P) strategy for pharmacies in your network.

In a few sentences, please briefly describe how bonuses are determined. (i.e. what level of performance ratings need to be met, how level of performance in a network alters bonus amount, what is an approximate bonus amount for various levels of performance?)

_______________________________________________________________________________________________________________________

_______________________________________________________________________________________________________________________

_______________________________________________________________________________________________________________________

_______________________________________________________________________________________________________________________

Q44 You indicated that your plan has already adopted a value-based contracting strategy for pharmacies in your network; specifically, that you utilize a DIR fee adjustment strategy.

In a few sentences, please briefly describe how DIR fees are adjusted. (i.e. what level of performance ratings need to be met, how level of performance in a network alters fee, what approximate amount of DIR fee altered for various levels of performance?)

_______________________________________________________________________________________________________________________

_______________________________________________________________________________________________________________________

_______________________________________________________________________________________________________________________

_______________________________________________________________________________________________________________________
Q45 You indicated that your plan has already adopted a value-based contracting strategy for pharmacies in your network; specifically, that you utilize a medication reimbursement adjustment strategy.

In a few sentences, please briefly describe how mediation reimbursements are adjusted. (i.e. what level of performance ratings need to be met, how level of performance in a network alters fee, what what is an approximate amount of medication reimbursement altered for various levels of performance?)

________________________________________________________________

________________________________________________________________

________________________________________________________________

________________________________________________________________


Q46 You indicated that your plan has already adopted a quality-based network (QBN) strategy for pharmacies in your network; specifically, that you utilize a tiered structure (preferred vs. non-preferred) strategy.

In a few sentences, please briefly describe how pharmacies are delegated to different levels of "preference". (i.e. what level of performance ratings need to be met, how level of performance in a network alters tier structure placement, what incentives are there for patients to visit a "preferred" pharmacy?)

________________________________________________________________

________________________________________________________________

________________________________________________________________

________________________________________________________________
Q47 You indicated that your plan has already adopted a quality-based network (QBN) strategy for pharmacies in your network; specifically, that you utilize a narrow network (i.e. network lockout) strategy.

In a few sentences, please briefly describe the decision-making process to how pharmacies are removed from the network. (i.e. what level of performance ratings need to be met, how level of performance in a network affects network inclusion, are there opportunities for a pharmacy to rejoin the network?)

________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________

(SHOW AT CONCLUSION OF SURVEY)

Q48 This concludes the survey. Thank you for your contribution to understanding how health plans are evaluating quality performance ratings and implementing performance strategies for pharmacies in their network.
APPENDIX B: Pharmacist Interview Guide
Pharmacist Interview Guide

The purpose of the following interview is to understand the opinions and perspectives of retail pharmacists to performance strategies being implemented by health plans and Pharmacy Based Managers (PBMs).

This research has been approved by the University of Mississippi Institutional Review Board (IRB). There are no identifiable risks associated with this study. The interview will be recorded so that you and I can talk casually, without the need for taking notes. You and the pharmacy you represent will remain completely anonymous for your participation in this project. You have the right to withdraw at any point in the interview. If you decide at any point you do not want to finish the interview, let me know and the interview will conclude at once. You also have the right to skip any questions you prefer not to answer. By conducting this interview, you are giving your explicit consent to participate in this study, and for use of what you have to say to be used in the analysis of this study, as well as for dissemination of study results. By conducting this interview, you are additionally giving explicit permission to use anonymous quotes from our conversation in dissemination of results.

Do you have any questions before we begin?

Guide

1. How well do you feel you understand the incentive strategies that plans and PBMs are implementing to boost pharmacy performance ratings?
   
   a. What aspects/components do you wish you knew more about?

2. How do you assess your own quality performance ratings?
   
   a. Are there any internal systems of assessment?
   b. Do you use a third-party, such as EQUiPP?

3. What are your thoughts on whether achieving higher quality performance scores is good for patients or not?

4. What barriers are there for pharmacies to meet quality performance targets?
   
   a. Are the targets realistic?
   b. Do pharmacists have enough control in the interaction with the patient to achieve high performance scores? Why or why not?
   c. What additional resources do you believe would be needed to achieve the highest quality performance targets?
   d. Describe your thoughts on whether pharmacy practice sites have to significantly alter current practices to meet quality performance targets.
5. How much do you think the emphasis on achieving higher quality performance for each patient facilitates an opportunity for a closer working relationship with other health professionals?
   a. Describe how other healthcare professionals will work with pharmacists to achieve higher quality performance targets?
   b. Which other healthcare professionals do you believe should work with pharmacists to achieve higher quality performance targets?

6. (Refer to pre-read) Out of the strategies discussed in the pre-read, which of these strategies have you heard of so far?
   a. Which ones have you seen used so far?
   b. Have any of the strategies been used within your own pharmacy? If so, which one(s)?

7. Out of the three strategy types previously described, which do you prefer and why?

8. What are your thoughts on what the positive and negative aspects of the P4P model would be if it was implemented in part of your organization?
   a. Would it be a welcome change?
   b. How well do you think P4P models would motivate your pharmacy to meet or exceed quality performance targets?

9. What are your thoughts on what the positive and negative aspects of the value-based contracting model would be if it was implemented in part of your organization?
   a. Would it be a welcome change?
   b. How well do you think value-based contracting models would motivate your pharmacy to meet or exceed quality performance targets?

10. What are your thoughts on what the positive and negative aspects of the QBN model would be if it was implemented in part of your organization?
    a. Would it be a welcome change?
    b. How well do you think QBN models would motivate your pharmacy to meet or exceed quality performance targets?

11. Under which type of strategy do you believe you would strive to reach the highest quality targets? (if not already answered in previous questions)

12. Do you believe that there are any other ways that plans can incentivize or help pharmacies to achieve higher quality performance targets?
13. Overall, do you believe quality performance strategies are good or bad for the profession? Why?
   a. What’s good about them?
   b. What’s bad about them?

14. Is there anything else we have not discussed that you believe would be important to this discussion?

Thank you very much for your time. You have been incredibly helpful in understanding the field of pharmacy’s point of view of health plans implementing pharmacy performance strategies. Once the study is concluded, would you like to receive an executive summary of the findings?
[Conclude]
EDUCATION

The University of Mississippi, Oxford, MS
Ph.D. in Pharmaceutical Sciences
Pharmacy Administration
August 2019

The University of Mississippi, Oxford, MS
Ph.D. in Pharmaceutical Sciences
Pharmacy Administration
May 2015

The University of Mississippi, Oxford, MS
Pharm.D.
May 2010

The University of Mississippi, Oxford, MS
B.S. in Pharmaceutical Sciences
May 2008

PROFESSIONAL WORK EXPERIENCES

Medical Marketing Economics, LLC, Oxford, MS
Manager
December 2017 – Present

◦ Experienced in pharmaceutical market research and pricing strategy. Manage all aspects of project execution and various consulting engagements, including pricing and reimbursement strategies in a wide range of therapeutic areas including orphan drugs, business development strategy research, qualitative and quantitative research with different stakeholders, and analog assessments. Regularly engages with clients in project proposals, communication during consulting engagement, and presentation of results / recommendations. Experienced in managing both small (<3) and large (>10) project teams.

Senior Research Analyst
September 2016 – December 2017

◦ Facilitated execution of projects and project reports. Worked directly with senior partner to develop critical thinking and client engagement skills. Provided expertise as pharmacist to multiple projects. Managed timeline, tasks, and communication of project teams, developed qualitative and quantitative research guides, conducted interviews with multiple healthcare entities (e.g., payers, physicians, pharmacists), developed databases, provided comprehensive data
analyses in a wide variety of software (e.g., Excel, SAS, SPSS), and drafted and presented project reports.

**Consultant (Part-time)**

January 2012 – September 2016

- Provided support in qualitative research, helped develop project reports, and provided expertise in healthcare as a pharmacist.

**Wal-Mart Pharmacy, Oxford, MS**

**Pharmacist (Part-time)**

August 2015 – May 2018

- Interacts with patients, physicians, and health insurers in the dispensing of medication to patients. Reviews patients’ profiles to pursue optimal patient care, helps solve problems that may arise in the pharmacy processes and in the care of the patient, and provides medication counseling to patients.

**Office of Senator Thad Cochran (MS), Washington, D.C.**

**Healthcare Internship**

May 2013 – August 2013

- Critically reviewed legislation related to healthcare services for former Senate appropriations committee chairman and provided experienced healthcare insight and recommendations. Met and discussed healthcare issues with multiple constituents and lobbyists.

**North Mississippi Medical Center, Tupelo, MS**

**Clinical Pharmacist (Part-time)**

July 2011 – May 2012

- Advised on care of patients as well as managed patients on pharmacist consulting services such as anticoagulation, pharmacokinetic, nutrition, pain, and others.

**North Mississippi Medical Center, Tupelo, MS**

**Pharmacy Resident (PGY-1)**

July 2010 – June 2011

- Completed rotations in practice management, internal medicine, drug information & research, ambulatory care, and medication management. Also completed several projects for the hospital including a DUE for Entereg, conducting time-in-motion studies of pharmacy technicians, and assessing the cost, compliancy, sterility, and stability of a newly implemented insulin syringe system.

**Wal-Mart Pharmacy, Flowood, MS**

**Pharmacy Intern**

May 2008 – January 2010

- Managed transactional duties of filling patients’ prescriptions, counseled patients, and helped manage inventory of pharmacy.
TEACHING EXPERIENCE

**Pharmacoeconomics, Pharmacoepidemiology, and Medication Safety**, University of Mississippi 2016

*Graduate Teaching Assistant*

- Presented a lecture on pharmacy quality measures and pharmacy quality organizations, related pharmacy experience to course material, tutored students, graded assignments, and performed test item analyses.

**Professional Communication in Pharmacy**, University of Mississippi 2015

*Graduate Teaching Assistant*

- Presented a lecture on the use of healthcare technology in pharmacy communication, related pharmacy experience to course material, tutored students, and graded assignments and tests.

**Pharmacy Ethics**, University of Mississippi 2013 – 2014

*Course Instructor*

- A hybrid-style course, students interacted with the course director through online media whereas I led all in class lectures and discussions for two semesters of 60+ students per semester. Materials covered include sources of ethics, healthcare ethical principles, discussion on several ethical issues in healthcare (e.g. abortion, physician-assisted suicide), ethical considerations of the healthcare system, and discussion on healthcare policy. Also provided feedback to students outside the class and constructed, administered, and graded tests.

**Pharmacy Ethics**, University of Mississippi 2012

*Graduate Teaching Assistant*

- Presented lectures on basic healthcare ethical principles, formulary committees and their purpose, and realities of herbal products. Also provided pharmacy experiences during discussions, tutored students, and graded assignments.

**Pharmacy Administration**, University of Mississippi 2011

*Graduate Teaching Assistant*

- Presented a lecture on health literacy, tutored students, graded assignments, and performed test item analyses.

PUBLICATIONS


PRESENTATIONS


**Research Reports**

**Grants & Contracts**
National Community Pharmacists Association. "Adherence Environmental Scan and Literature Review." Investigator, June 2012 – May 2013, $5,000.00.

**Honors**
Rho Chi Pharmacy Honorary Society
University of Mississippi
April 2013

Phi Kappa Phi Honorary Society
University of Mississippi
April 2013

Phi-Lambda Sigma Pharmacy Leadership Fraternity
University of Mississippi
April 2008

Who’s Who Among College Students
University of Mississippi
January 2008

Campus Favorite
University of Mississippi
October 2007

**Service Opportunities**

**Graduate Student Council, The University of Mississippi**

*President* May 2013 – May 2014

*Secretary* May 2012 – May 2013

*Chairman of Constitutional Reform* May 2012 – May 2013

**Associated Student Body, The University of Mississippi**

*Co-Chairman of Infrastructure* September 2012 – May 2013

*Graduate Senator Representative* March 2012 – May 2013

*Governmental/External Affairs Committee* March 2012 – September 2012

*University Development Committee* September 2007 – May 2008

*Pharmacy Senator Representative* September 2007 – May 2008

*Student Involvement Committee* August 2006 – May 2007

*Elections Committee* August 2006 – May 2007
**Chancellor’s Standing Committees**, The University of Mississippi

*University Appellate Consideration Board*  
May 2014 – May 2015

*Strategic Council*  
May 2013 – May 2014

*Academic Appeals Committee*  
May 2013 – May 2014

*Vice-Chancellors Student Advisory Council*  
May 2013 – May 2014

*Council of Academic Administrators*  
August 2012 – May 2014

*Recruiting, Admissions, Orientation, & Advising*  
August 2012 – May 2013

**Christ Presbyterian Church**, Oxford, MS  
*Worship Leader*  
August 2012 – Present

**College Hill Presbyterian Church**, Oxford, MS  
*Worship Leader*  

**American Heart Association Heart Walk**, Jackson, MS  
*Co-Chairman of Event Logistics*  
May 2009 – October 2009

**Campus Crusade for Christ**, University of Mississippi  
*Praise and Worship Team*  
December 2006 – May 2008

**School of Pharmacy**, University of Mississippi  
*Honor Council Representative*  
August 2006 – May 2007

**Ole Miss Ambassadors**, University of Mississippi  
*Co-Director of Special Events/Housing*  
August 2006 – May 2007

*Ambassador*  
August 2005 – May 2006

**CHEERS**, University of Mississippi  
*Webpage Chairman*  
August 2006 – May 2007

**RELEVANT COURSEWORK**

**Applied Longitudinal Modeling**, University of Mississippi (Audited)  
2016

Instructor: John Bentley, Ph.D., R.Ph.

- Covered methods of data analysis focused on the application of modern longitudinal data analysis. Discussed the theory and practical application of multilevel growth modeling, latent growth curve modeling, and several time-to-event models.

**Organizational Behavior**, University of Mississippi  
2015

Instructor: Tony Ammeter, Ph.D., MBA

- Reviewed prominent theory in organizational theory literature. Specific topics of discussion germane to management theory included personality and individual differences, motivation, work-related attitudes, organizational behavior,
leadership, groups and teams, culture and climate, and organizational entry and socialization. Developed and presented a theoretical proposal on medical team characteristics and resulting health outcomes.

**Theoretical Foundations of Management,** University of Mississippi 2014
Instructor: Milorad Novicevic, Ph.D.
- Examined theoretical foundations of the field of management in how they developed in history. Considered history’s ability to provide insight on new or existing theory, and how to conduct research using various historical mediums. Conceptualized and completed three different projects during the course.

**Mediation and Moderation,** University of Mississippi 2014
Instructor: John Bentley, Ph.D., R.Ph.
- Covered methods of data analysis focused on questions about moderation and mediation. Discussed estimation, testing, and probing interactions in various types of models, tested indirect effects in different situations, and developed experience in SAS and SPSS software in application of these concepts.

**Structural Equation Modeling,** University of Mississippi (Audited) 2014
Instructor: Doug Vorhies, Ph.D.
- Reviewed theory of Structural Equation Modeling and its application in social sciences. Furthermore, developed techniques of application through various statistical software.

**Global Business Strategy,** University of Mississippi 2014
Instructor: Richard Gentry, Ph.D.
- A seminar-based course, a broad focus of research in various areas of business strategy was analyzed, including the structure-conduct-performance paradigm, game theory, resource based theory, theories of organizational knowledge and learning, transaction cost economics, and evolutionary economics.

**Theoretical Foundations of Marketing,** University of Mississippi 2013
Instructor: Scott Vitell, Ph.D.
- Discussed the basic elements of what constitutes theory, how theory is developed, and the characteristics of good theory in the social sciences. Provided a critique of theory developed in a recent piece of literature.

**Human Resource Management,** University of Mississippi 2013
Instructor: Walter Davis, Ph.D.
- Evaluated the literature surrounding human resources, including topics areas of compensation, recruiting and selection, job-work design, employment interviews, development of HR, performance evaluation and management, employee-organization relationship, workforce diversity, and mobility and withdrawal of HR. Constructed a paper on employer branding, its effect on employer attractiveness, and the moderating role of individual personality in retail pharmacy employees.
Drug Development and Marketing, University of Mississippi 2013
Instructors: Allyson Best, M.B.A., & Mick Kolassa, M.B.A., Ph.D.
♦ Learned how pharmaceutical companies plan and market products during and after the drug approval process. Conduct analyses on various segments of the market from both pharmaceutical and policy perspectives.

Applied Multivariate Analysis, University of Mississippi 2013
Instructor: John Bentley, Ph.D., R.Ph.
♦ Examined multivariate analytical techniques and how to apply to research methodology, including multivariate analysis of variance (ANOVA), repeated measures ANOVA, discriminant analysis, logistic regression, cluster analysis, and factor analysis.

Marketing and Management Ethics, University of Mississippi 2012
Instructor: Scott Vitell, Ph.D.
♦ Explored deontological ethical decision making models, discussed popular ethical theories in relation to various aspects of marketing and management (e.g. job satisfaction, job turnover, etc.), and proposed new antecedents of ethical behavior. Developed two papers on potential relationships of ethics in the retail pharmacy setting.

General Linear Models, University of Mississippi 2012
Instructor: John Bentley, Ph.D., R.Ph.
♦ Examined basic theory and application of general linear model (GLM) analytical techniques toward research, including simple and multiple linear regression analyses.

Secondary Data Techniques, University of Mississippi 2012
Instructor: Ben Banahan, Ph.D.
♦ Instructed on various techniques and principles of using secondary data to answer research questions, including data and data source evaluation, accessing and preparing secondary databases, and review of common data types and sources. Also, constructed a white paper on the general lack of national consensus on medications designated as “specialty drugs.”

Health Economics, University of Mississippi 2012
Instructor: Yi Yang, M.D., Ph.D.
♦ Discussed theory and established practices of U.S. health economics, including current expenditure policy issues, health care reform, and economics of the uninsured. Additionally, gave a presentation on how the Affordable Care Act would affect Employer-Sponsored Insurance (ESI) and conducted a study using national MEPS data for characteristics of the uninsured utilizing the emergency department (ED).
Primary Data Techniques, University of Mississippi 2012
Instructor: David J. McCaffrey, Ph.D., R.Ph.
◆ Studied primary research techniques related to pharmaceutical marketing and/or pharmacy management, including sampling, instrument development, and data collection using several personal interview and self-administered survey techniques. Working as a team, fielded a national survey exploring pharmacy faculty stress.

Pharmaceutical and Healthcare Policy, University of Mississippi 2012
Instructor: Erin Holmes, Ph.D., Pharm.D.
◆ Discussed health care policy and research relating to Medicare, Medicaid, Private Insurers, how the Affordable Care Act would affect outcomes in current health care, roles of different health care professionals, whether we were responsibility allocated health care dollar, etc. Additionally, I completed a policy paper on the HITECH act and how the Meaningful Use clause could potentially be interpreted by hospital administrators for health information technology.

Data Management and Statistical Software, University of Mississippi 2012
Instructor: Pat Pace, Ph.D.
◆ Introduced and instructed to techniques of data management and how to become proficient in SAS programming for such purposes.

Research Methodology and Techniques, University of Mississippi 2011
Instructor: Donna West-Strum, Ph.D., Pharm.D.
◆ Examined a broad overview of the research process from project inception to its conclusion, including problem statement, hypothesis generation and testing, measurement, research design, sampling theory, data collection and analysis, and ethical conduct in research.

Pharmacoeconomics, University of Mississippi 2011
Instructor: Yi Yang, M.D., Ph.D.
◆ Discussed principles and analytical techniques in assessing the overall value of pharmaceutical products, services, programs, and other health care interventions. Also, conducted a decision-modeling analysis on using allopurinol vs. febuxostat for gout.

Quantitative Methods in Psychology I, University of Mississippi 2011
Instructor: Nick Prins, Ph.D.
◆ Learned basic analysis designs related to descriptive statistics, probability theory, hypothesis testing, linear regression, analysis of variance, experimental design, nonparametric and multivariate techniques, and computer application.
CERTIFICATIONS

American Heart Association

Medication Therapy Management  March 2010
American Pharmacists Association

Immunization Certification  October 2008
American Pharmacists Association

HIPAA Compliance Training  August 2008
University of Mississippi Medical Center

SKILLS

Computer Software

◆ SAS (Proficient), Statistical and administrative claims data analyses
◆ SPSS (Proficient), Statistical and administrative claims data analyses
◆ TreeAge (Proficient), Decision modeling
◆ Microsoft: Word, Excel, PowerPoint, Outlook (Expert)
◆ Adobe Photoshop (Proficient)