

A Blueprint for Pharmacy Benefit Managers to Increase Value

William H. Shrank, MD, MSHS; Michael E. Porter, PhD, MBA; Sachin H. Jain, MD, MBA;
and Niteesh K. Choudhry, MD, PhD

Efforts to redesign the healthcare system are increasingly focused on increasing value in the provision of care. The current fragmented delivery system often leads to perverse incentives, a lack of transparency, and limited transmission of health information that adversely affect patient health outcomes. In the recent book *Redesigning Healthcare*, Porter and Teisberg presented a paradigm for improving value in healthcare.¹ Value in healthcare is defined as the “health outcomes per dollar of cost expended,” and the authors posit that value is maximized when care for a medical condition is integrated across specialties over the full care cycle for the patient. Health (and value) improves when payers and providers closely cooperate to ensure that patients receive optimal, evidence-based care. Strategies to reduce short-term costs do not add value if they worsen health, increasing downstream costs to other payers. In a fragmented healthcare system, individual actors may have competing incentives that undermine value, and changing those incentives is part of redesigning the system around the shared goal of improving health.

The opportunity to improve value in healthcare by shifting incentives is perhaps most obvious and actionable for prescription medications. Pharmacy benefit managers (PBMs) are used by many health plans, self-insured employers, and government payers to deliver medications to their beneficiaries; the 3 largest PBMs alone provide prescription drug coverage to more than 200 million Americans.² Their opportunity to improve value is great; many patients are not prescribed appropriate chronic medications, and of those who are, many do not adhere to therapy.^{3,4} These failures are significant contributors to the cost of healthcare in the United States and the associated morbidity and mortality of chronic illness.⁵ If PBMs could assist patients in receiving appropriate medication therapy and adhering to those medications, substantial benefits in terms of patient value would result.

However, PBMs are not currently organized or rewarded to maximize value. They are judged largely on their ability to reduce costs and have little incentive to enhance appropriate prescribing and adherence. As a result, PBMs have developed a variety of benefit designs structured to erect barriers to expensive, but often important medications.

In this Commentary, we outline the potential new roles of PBMs in improving value. We do not mean to suggest that PBMs should be solely responsible for improving value; efforts

Pharmacy benefit managers (PBMs) have a unique opportunity to promote health and generate value in the healthcare system. Today, PBMs are largely evaluated on their ability to control costs rather than improve health. Pharmacy benefit managers should be evaluated along 3 dimensions in which they can increase value: (1) use of cost-effective medications, (2) timely initiation of appropriate medication therapy, and (3) adherence to that therapy. Value creation requires the development of integrated data systems, stronger partnerships with patients and physicians, and improved measurement and reporting of results. Incentives for PBMs to promote value should drive innovation and improve health outcomes.

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by PBMs should complement efforts by insurers, providers, and patients. Pharmacy benefit managers have recently begun to focus on measuring relevant outcomes and improving value for their clients,⁶ and we do not aim to discuss all these initiatives here. Rather, we apply the principles of Porter and Teisberg's work to offer a strategic blueprint to PBMs who aspire to meaningfully increase value in the healthcare system.

Deficits in Chronic Medication Initiation and Adherence

As C. Everett Koop once said, "Medications only work in patients who take them."³ However, patients frequently are not prescribed essential chronic medications and frequently fail to adhere to them when they are prescribed; both of these issues have major consequences for public health. A national chart-based review of the quality of care in the United States indicated that patients receive essential chronic medication therapy only about half of the time.⁴ Once therapy is initiated, the World Health Organization estimates that patients adhere to only about half of the essential chronic medications that they are prescribed.⁷ Numerous other studies have shown that patients with chronic conditions such as coronary artery disease, hypertension, diabetes, and hypercholesterolemia only adhere to 50% to 60% of medications as prescribed despite conclusive evidence that medication therapy can substantially improve life expectancy and quality of life.^{8,9} Medication nonadherence alone is estimated to increase healthcare costs by more than \$170 billion annually in the United States.⁵ Efforts to stimulate better prescribing of and adherence to essential medications will increase value by improving population health, averting costly emergency department visits and hospitalizations, and improving quality of life and productivity.¹⁰

Because costs related to medication underuse and nonadherence are shouldered by insurers, self-insured employers, and government, these payers have increasingly implemented chronic disease management programs designed to reduce costly adverse outcomes. Many of these outcomes can be averted with better adherence to chronic therapies. For example, better adherence to secondary-prevention medications for patients who have suffered a myocardial infarction can dramatically reduce rates of reinfarction and the costs that result from treating those events.¹⁰

Role of Pharmacy Benefit Managers in Adding Value

Pharmacy benefit managers originally arose to control prescription drug costs that were rising at a rate that far exceeded inflation. Pharmacy benefit managers generally offer services that range from tiered formularies to prior authorization requirements, designed to erect barriers to the use of more expensive medications by their beneficiaries. These approaches

reduce medication costs and increase generic drug use, but also tend to decrease overall drug use.^{11,12}

Pharmacy benefit managers can add value, not merely reduce costs, in several ways (Table 1). First, PBMs can ensure that beneficiaries use the most cost-effective medication for a particular condition. This, of course, is the current focus of their business. Generic medications are appropriate first-line medications for many patients based on guidelines for the management of numerous chronic diseases such as diabetes, hypertension, and congestive heart failure.^{13,14} Generics remain widely underused, and increasing their use, when appropriate, can improve value by reducing costs without adversely affecting the quality of care.¹⁵⁻¹⁷ Pharmacy benefit managers add value by encouraging generic substitution when there are therapeutically equivalent generic products for prescribed branded medications.

Pharmacy benefit managers also add value when they support appropriate therapeutic interchange, or switching to a less expensive but equally (or more) effective medication for a condition. In many cases, unnecessarily expensive medications are prescribed; PBMs encourage the use of more cost-effective alternatives within the same class or from another class that treats the same disease. Although generic substitution and therapeutic interchange primarily improve value by reducing costs for equivalent (or better) quality, they also can improve adherence by reducing patient out-of-pocket costs, a barrier to adherence.¹⁸

Second, PBMs can increase value by facilitating the timely initiation of essential medications. When a patient is diagnosed with a chronic disease, value is created by ensuring that the patient receives the appropriate prescription and by prompt initiation of therapy. Delaying or avoiding treatment likely will lead to worse health outcomes and higher costs. Collaboration between PBMs and health plans to create integrated databases could allow patients who are undertreated for important chronic diseases to be identified and to begin receiving therapy. Important diagnostic information can be procured from outpatient health services claims, emergency department claims, inpatient claims, and lab values. Some large insurers and self-insured employers have the expertise and capacity to manage integrated databases, and can develop and test such interventions to improve medication use. Those plans and employers will require real-time transmission of PBM data to assess medication use. However, many plans and employers do not have either the capacity or expertise to perform such services. Pharmacy benefit managers could fill a void in the healthcare system and develop this expertise, allowing health plans and employers to outsource these activities.

The third, and we would argue the most important, way that PBMs can add value is to improve beneficiaries' adher-

Table 1. The 3 Dimensions on Which Pharmacy Benefit Managers Should Measure and Improve Value

Dimension for Promoting Value	Measurement of Outcome	Effects on Value
Encourage cost-effective medication use: Generic substitution Therapeutic interchange	Generic prescribing rate, or formulary compliance	Can increase value by reducing unnecessary spending; for patients in tiered benefit designs, can reduce out-of-pocket costs and also improve adherence
Reduce barriers to and assist with initiation of essential chronic medications	Proportion of patients with chronic diseases who are prescribed and take appropriate medication therapy	Can improve health by ensuring that patients with chronic diseases receive appropriate treatment
Improve adherence to essential chronic medications	Adherence to or persistence of essential medication therapy once initiated	Highest value potential—can ensure that patients with chronic diseases take essential chronic medications appropriately

ence to chronic therapies. Patients with chronic diseases generally require persistent medication therapy that often spans decades. Patients who adhere enjoy better health; insurers benefit from better adherence through reduced emergency department visits, hospitalizations, and other health service utilization, as well as improved employee productivity.¹⁹ Because PBMs manage data on all prescriptions filled by their beneficiaries, they can rapidly assess adherence to medications once they are initiated.

Strategies to Improve Value

To promote value, PBMs must refocus their efforts and insurers who purchase their services must realign their relationship with PBMs. We outline a number of specific strategies below (see also **Table 2**).

Optimize Benefit Designs Around Value. Benefit designs of PBMs directly influence medication initiation and adherence. Pharmacy benefit managers should develop designs that reduce barriers to adhering to essential chronic medications.²⁰ Such designs reduce patient copayments for the highest-value medications with the goal of reducing financial barriers to taking them. Fortunately, “value-based benefit designs” are increasingly popular. Studies suggest that value-based benefit designs improve adherence and may reduce overall health-care costs.²¹ Eliminating prior authorization requirements for some essential medications also may improve medication initiation. More innovative approaches, such as offering financial incentives for patients who adhere to chronic therapies or risk-stratifying patients in value-based designs, also may assist with adherence, improve health, and reduce the costs of chronic disease management. If these strategies are shown to improve value through rigorous testing, health plans, self-insured employers, and the federal government should select PBMs based on their ability to implement these approaches. If costs to PBMs are involved, payers should be willing to provide financial incentives to PBMs who implement them.

Partnership with payers could help to ensure that innovative and effective benefit designs are appropriately reimbursed and incentivized.

Improve Formulary Management. Pharmacy benefit managers should strive to increase the transparency of their formulary decision-making to demonstrate their commitment to increasing value through cost-effective drug use, and dispel concerns that formulary decision-making is motivated to increase PBM profits (often driven by rebates). With more transparent formulary management, PBMs could develop and publicize innovative metrics for cost-effective prescribing. For example, to promote appropriate medication use, PBMs could measure rates of narrow-spectrum versus broad-spectrum antibiotics for particular illnesses. To promote cost-effective medication use, PBMs could measure physician-specific sequences of prescribing, such as prescribing an angiotensin-converting enzyme inhibitor before switching to an angiotensin receptor blocker, or prescribing a generic proton pump inhibitor before switching to a branded option. In this way, cost-effectiveness research and evidence-based formulary decision-making would be encouraged.

Integrate and Analyze Data in New Ways. Pharmacy benefit managers are in a unique position to influence initiation of and adherence to medication therapy because of their access to a great deal of useful data. Pharmacy benefit managers pay a portion of every claim for prescription medications and possess the data necessary to accurately measure medication use and adherence. By merging pharmacy data with healthcare claims that contain information on diagnosis from outpatient, emergency department, and inpatient health services use, and from lab values, PBMs can assist in identifying opportunities to improve medication use. Such information can guide the development of appropriate education and outreach programs to support patient adherence to chronic medications and to assess how these interventions improve relevant outcomes. It is in the best interest of health plans to

Table 2. Strategies Pharmacy Benefit Managers Can Implement to Improve Value Along the 3 Dimensions of Value Promotion

Intervention	Method of Value Promotion	Effect on 3 Dimensions of Value
Improve pharmacy benefit designs	Experiment with value-based benefit designs as well as other innovative incentive structures that may improve essential medication initiation rates and adherence	Can promote adherence to chronic medications and reduce barriers to initiating chronic therapy
Improve formulary management	Implement more transparent, evidence-based formularies	Promote cost-effective medication use and adherence to lower-cost medications
Integrate and analyze pharmacy and health services data	Use all available data to better identify patients who have not started essential medications or who do not adhere to essential medications	Essential for measuring appropriate initiation of and adherence to chronic medications, and the associated health outcomes
Partner with patients	Provide user-friendly information about drug costs, reach out to patients to better understand barriers to appropriate drug use, provide improved support services for patients with questions, reach out to patients who have not initiated or refilled essential medications	Increase patient awareness of appropriate generic drugs, reduce barriers to initiation of chronic medications, and improve adherence to therapy
Partner with physicians	Pharmacy benefit managers can open lines of communication and improve the information technology framework to provide physicians with real-time information that can be used to improve care for all 3 dimensions of value	Increase physician awareness of cost-effective medication options, and provide better information to support communication about medication initiation and adherence
Research medication management	Multifactorial interventions aimed at each of the 3 dimensions of value must be implemented, and the effects must be rigorously evaluated and compared to create evidence-based best practices for such interventions	Needed to improve all 3 dimensions of value
Measure performance	Use integrated data source to measure prescription drug use as well as health outcomes; use data to assess cost-effective medication use and to predict and identify those who will not fill or adhere to medications	Needed to measure outcomes for all 3 dimensions of value
Report performance	Performance on all 3 dimensions of value should be transparent to insurers before contracting relationships	Needed to communicate performance on all 3 dimensions of value
Align reimbursement with outcomes	Create meaningful rewards to stimulate investment in improving all 3 dimensions of value	Needed to stimulate improvements and innovation for all 3 dimensions of value

share these data if PBMs can meaningfully and cost-effectively assist in improving medication use. Doing so would allow large PBMs to create immense databases, large enough to assess the relationship between specific medication use, quality improvement interventions, and health outcomes.

The technical barriers to sharing and merging such data are low. Many of the nation's largest insurers have developed or acquired their own PBMs, simplifying the process of data integration. Motivated health plans or employers who have the capacity and expertise to integrate pharmacy data from PBMs with their own health services claims may be the optimal reservoir for integrated databases. Although PBMs should play a central role in improving medication adherence, health

plans and large employers may be the best source for interventions to improve medication initiation. Pharmacy benefit managers may best support improved medication initiation by providing real-time data transfers to those motivated health plans or insurers to support their programs. If insurers and health plans lack the capacity or resources to optimize the use of these data, PBMs could fill an important void by serving as the data reservoir and intervener. Moreover, the 3 largest PBMs, by the accumulation of health services claims for a large proportion of their beneficiaries, could develop large databases that could support improved predictive modeling and rapid interventions. Their scale suggests that PBMs may be in the best position to serve as integrated data reservoirs.

To do so, they must reframe themselves as experts in data integration and analysis, and build better systems to promote value in the healthcare system.

Partner With Patients to Improve Adherence. There are a number of ways that PBMs could improve their beneficiaries' adherence, which range from the identification of patients likely to fail to adhere to therapy (prediction of nonadherence), education of and outreach to patients to reduce the likelihood of nonadherence (prevention of nonadherence), and assistance to patients who fail to adhere to medications (treatment of nonadherence).

Better data will allow PBMs to develop algorithms to identify predictors of nonadherence such as nonadherence to other medications, poor adherence to preventive services, complex medical regimens, mental illness, and high rates of preventable illnesses.^{22,23} Such algorithms can be used to proactively identify those at risk for nonadherence.

After predicting who is at risk, PBMs can intervene in various ways to prevent nonadherence. Interventions must address the numerous factors known to be associated with medication nonadherence, including cost, poor understanding of medications and their side effects, complex regimens, and cultural beliefs. Better education about chronic disease management, packaging and labeling to facilitate medication use, and patient support telephone lines to help patients with medication questions all could enhance medication use.^{24,25} Improved patient support may reduce barriers to administration associated with poor comprehension of medication administration, side effects, and costs, and empower patients to pursue more information about their therapy and cost-effective options for medication acquisition.

Pharmacy benefit managers also can use claims data to identify those who have not refilled their medications and assist in ensuring that these patients reinitiate therapy. Pharmacy benefit managers can reach out directly to patients when they do not refill chronic medications to identify and remedy the cause of nonadherence. Although simple mailed correspondence may have limited efficacy, phone calls to patients or use of electronic methods of communication such as e-mailing or text messaging may meaningfully influence medication use. Pharmacy benefit managers also can identify and contact the prescribing physicians or pharmacies of nonadherent patients. Improved communication and collaboration with nonadherent patients may assist in improving outcomes.

Partner With Physicians to Improve Drug Therapy. Pharmacy benefit managers also can use their access to data to build stronger partnerships with physicians and encourage their participation in improving appropriate prescribing and adherence. Pharmacy benefit managers should be able to identify patients who have not filled or refilled their medica-

tions as prescribed and provide real-time data to physicians as they communicate with their patients about their chronic disease management. Sharing data with providers will be crucial to influencing communication about adherence, a first step toward changing behavior. As more physicians implement electronic prescribing systems, PBMs will have a platform to provide decision support at the point of prescribing to identify opportunities to initiate essential medications. If physicians are able to play an important role in improving adherence, PBMs may be best served by helping to build improved electronic data systems and providing those systems to physicians, to support better prescribing behavior and medication management.

Research Medication Management. Little is known about which interventions are the most effective or cost-effective means of improving patient initiation or adherence. Although reviews of the literature indicate that simple interventions have little effect on medication adherence, multifactorial interventions that include better medication systems, education, and communication all have been shown to substantially improve adherence.²⁴ Pharmacy benefit managers have the data and facilities to support and, in some cases, provide some of these multifactorial interventions. In addition, PBMs who integrate healthcare claims with pharmaceutical claims will be positioned to study how health outcomes and healthcare costs are affected by the development of better systems. Such studies can be used to guide the development of best-practice interventions that can be tailored for the needs of particular patient populations.

Measuring and Rewarding Pharmacy Benefit Manager Results

Recommendations to adopt PBM strategies to increase value are unlikely to generate meaningful change without explicit measurement and reporting of results. In addition, the reimbursement methodology must be aligned with the desired outcomes.

Measuring Patient Medication Results. Pharmacy benefit managers can use an integrated data system to better measure patient results along each of the 3 dimensions of value creation: cost-effective medication use, appropriate medication initiation, and adherence. Measurement is critical to developing and assessing performance and to targeting interventions to those patients who may benefit most. Measuring results also will allow for a better understanding of the relationship between patient behavior and health outcomes.

Increasing attention has been directed toward developing and comparing metrics to measure adherence. The Healthcare Effectiveness Data and Information Set (HEDIS)

Take-Away Points

Pharmacy benefit managers should be restructured to optimize value on 3 dimensions: (1) use of cost-effective medications; (2) timely initiation of essential medication therapy; and, most importantly; (3) adherence to that therapy. The following strategies should be used:

- Improve pharmacy benefit designs.
- Integrate and analyze pharmacy and health services data.
- Partner with patients and physicians.
- Develop, implement, and rigorously test interventions.
- Measure and report performance.
- Align reimbursement with outcomes.

measures now include an adherence indicator that assesses whether patients reach a threshold for refilling beta-blockers in the year subsequent to a myocardial infarction. The Pharmacy Quality Alliance has brought together stakeholders to identify appropriate adherence metrics for government and private payers. Further studies comparing different adherence metrics and their relationship with health outcomes will promote more evidence-based measurement; PBMs could play an important role in this research agenda.

Reporting of Pharmacy Benefit Manager Performance.

Payers should have an objective way of evaluating the value that PBMs provide to their beneficiaries. Performance in all 3 domains of value should be the criteria by which insurers select PBMs. Public reporting on these 3 domains of performance may be needed to allow insurers to choose best-value PBM partners.

Rewarding Value. Beyond expecting excellent performance in the dimension of value creation, payers may want to modify the way PBMs are compensated to better align with value. If PBMs can improve beneficiaries' essential medication use, they should receive meaningful rewards for doing so. Such incentives would drive innovation and promote the development, implementation, and evaluation of interventions to improve medication use and adherence. Although a small minority of insurers share claims data with outsourced PBMs and several are requesting that PBMs implement adherence interventions for their beneficiaries, we are not aware of any insurers that have offered incentives to PBMs based on outcomes.

Additionally, PBMs may consider passing on some of the available rewards to physicians who are able to improve medication outcomes. By aligning physician incentives to address medication adherence, PBMs may encourage physicians to develop better support systems in their offices to promote medication adherence and stimulate improved physician-patient communication about medication use.

Challenges

Establishing specific targets for medication use and adherence will require careful attention to variations in patient

populations. Patients who are poor or disadvantaged tend to adhere to medications less consistently.²⁶ Pharmacy benefit managers who care for a poorer or more disadvantaged population will contend that reimbursement must be risk-adjusted to ensure that they are not penalized. Similar arguments were invoked by physicians when health plans proposed to offer financial incentives to improve qual-

ity. Thresholds indicating optimal use and adherence need to be set based on appropriate risk factors. Rewards also should be available for absolute improvements, not just meeting a fixed threshold.

Offering rewards also raises concerns about moral hazard. Using pharmacy claims to measure adherence might create perverse incentives to continue providing medications to patients who no longer need them, leading to the waste of medications or, worse yet, inappropriate use of medications. Pharmacy benefit managers will need to collect better information about medication discontinuation from prescribing physicians to better account for the appropriateness of therapy. Doing so will likely require improved data systems that link electronic prescribing data to PBM data, allowing physicians to indicate discontinuation of essential chronic medications.

The length of enrollment of some patients in commercial insurance plans may also serve as a barrier. Some insurers may choose to forgo value-promoting activities if they anticipate beneficiaries will change insurance plans, allowing the next insurer to reap the benefits of preventive therapy. Better reporting of PBM performance should help insurers and beneficiaries to select PBMs that offer greater value and avoid short-sighted plans.

A Call for Changing Goals

The delivery of prescription drugs offers an ideal locus to increase value in healthcare. We call for new approaches and metrics in the delivery of prescription drugs that align with patient value. A dialogue about the broader role of PBMs in the healthcare system and their potential to promote value should encourage insurers to demand better measurement and performance reporting by PBMs, and to consider realigning PBM incentives to reward value. With the implementation of Part D, Medicare became a massive purchaser of PBM services and could drive these changes. Such an approach may improve the appropriate use of medications in chronic disease and reduce the burden of chronic disease management.

Author Affiliations: From the Division of Pharmacoepidemiology and Pharmacoeconomics (WHS, NKC), Brigham and Women's Hospital, Boston, MA; the Department of Medicine (WHS, NKC), Harvard University, Boston, MA; and the Institute for Strategy and Competitiveness (MEP, SHJ), Harvard Business School, Boston, MA.

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Address correspondence to: William H. Shrank, MD, MSHS, Division of Pharmacoepidemiology and Pharmacoeconomics, Brigham and Women's Hospital, 1620 Tremont St, Ste 3030, Boston, MA 02120. E-mail: wshrank@partners.org.

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