
The Role of Medication Adherence in the U.S. Healthcare System

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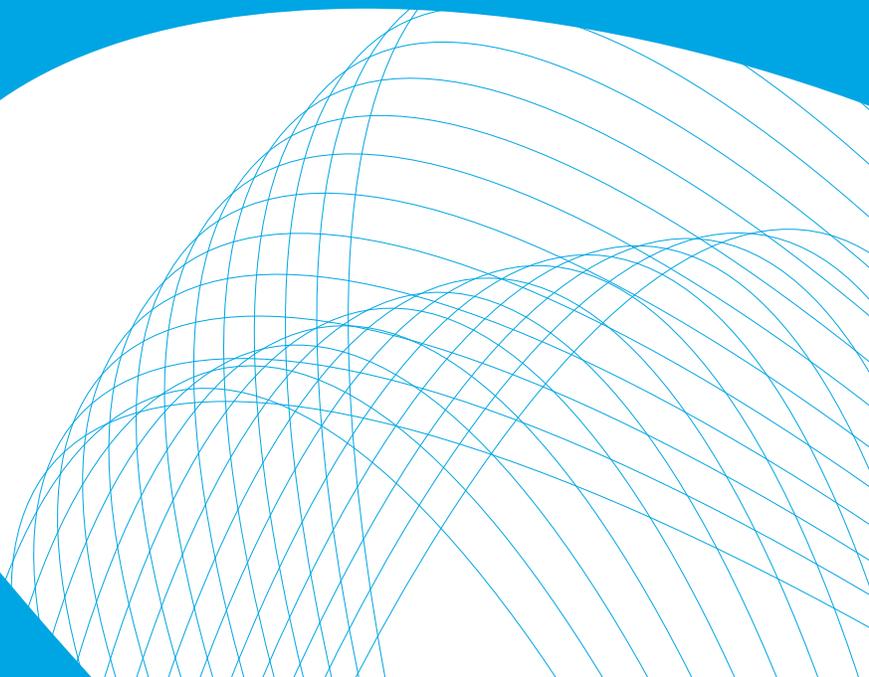
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Executive Summary

As healthcare costs continue to rise, policymakers, payers, providers and employers seek ways to contain the growth of expenditures. Improving patient medication utilization is one strategy that has been shown to be effective.

When patients struggle to obtain and use medications appropriately, they may limit a drug's effectiveness, experience poor health outcomes as a result, and raise the overall cost of care in the United States. For example, recent research has shown that 1) taking drugs as prescribed lowers total healthcare costs by an amount that exceeds the costs of the drugs themselves (Roebuck et al. 2011), and 2) lower spending on prescription drugs may be offset by higher medical services costs (Gaynor et al. 2007).

As the prevalence of chronic diseases grows because of an expanding elderly population, ensuring that patients take their medications will be increasingly important. This document summarizes a review of the literature where we explore the research published to date on the connection between medication adherence, health outcomes, and healthcare system spending. In particular, the evidence largely shows that patients who are adherent to their medications have more favorable health outcomes such as reduced mortality and use fewer healthcare services (especially hospital readmissions and ER visits). Such patients are thus cheaper to treat overall, relative to non-adherent patients. We also review the major barriers linked to poor medication adherence including cost, access, and complexity of the medication regimen. Finally, we identify several notable examples of intervention programs that are designed to improve adherence among various patient populations, including the privately insured and Medicare beneficiaries.

To improve patient outcomes and reduce the financial burden on the healthcare system, policymakers and other healthcare stakeholders should support measures that encourage greater engagement and education with patients to demonstrate the importance of proper medication use.

Background

The United States' population is aging, as the proportion of older adults grows rapidly. In 2000, people aged 65 and older represented 12.4 percent of the population. By 2030, this segment is expected to grow to 19 percent (HHS AOA 2013). These changing demographics have implications for the U.S. healthcare system, as evidenced by the first baby boomers becoming eligible for Medicare in 2011.

Elderly people are more likely to be diagnosed with certain chronic conditions such as heart disease, cancer, diabetes, respiratory disease and Alzheimer's disease. Among all Americans, almost 45 percent, or approximately 133 million people, live with at least one chronic disease, and these numbers are growing quickly (Wu and Green 2000; CDC 2012). Chronic diseases account for 70 percent of all deaths in the United States, or 1.7 million each year (CDC 2003; CDC 2012).

Medication is often the first choice for medical intervention of chronic disease. As the population continues to age and the prevalence of chronic diseases grows, ensuring that patients take their medications as prescribed will be an increasingly important aspect to effective treatment. Adherence has been defined as the "active, voluntary, and collaborative involvement of the patient in a mutually acceptable course of behavior to produce a therapeutic result" (Delamater 2006; Meichenbaum and Turk 1987). The lack of adherence to prescribed therapies is termed "medication non-adherence."

Existing literature has already demonstrated that people currently have problems adhering to their medication regimens. Researchers have estimated that 81 percent of adults aged 65 and older take one or more prescription drugs a day, and 29 percent take five or more medications on a regular basis (Qato et al. 2008). However, approximately one-half of patients in the United States do not take their medications as prescribed (Sabate 2003).

Furthermore, a recent study conducted within a pharmacy benefit plan found that, when asked, almost all patients overestimated their perceived level of medication adherence when survey results were compared to actual records of prescription dispensing. For example, among patients whose actual level of adherence to medication was less than 25 percent, the average level that the patients reported, when asked, was more than 90 percent (Express Scripts 2012).

Researchers have also quantified the extent of non-adherence among patient groups with certain medical conditions. For example, research indicates that only 51 percent of hypertension patients adhere to their prescribed drug treatment regimens (Sabate 2003). In a literature review of several studies focusing on patients with prescriptions for antidepressants, researchers concluded that about half prematurely discontinued therapy within six months of initiation (Sansone and Sansone 2012).

The prevalence of medication non-adherence across various patient types has negative implications for health outcomes. For example, non-adherent diabetes and heart disease patients were estimated to have significantly higher unadjusted mortality rates (12.1 percent higher) than a comparative group of patients who were adherent (6.7 percent) (Ho et al. 2006). Further, among hypertension patients, an estimated 86,000 premature deaths per year could potentially be avoided with appropriate and optimally used medication treatment (Cutler et al. 2007).

Poor adherence also translates into increased use of expensive components of health-care, such as hospitalizations, which are more costly and time consuming than the services related to the management of the original condition (e.g., primary or specialty care visits, use of prescribed drugs, etc.) at an earlier point in the care continuum. In fact, non-adherence is related to more than one-third of medication-related hospitalizations (PhRMA 2012). Furthermore, non-adherence has also been associated with as much as 40 percent of nursing home admissions (APhA 2004).

Many studies have focused on the impact of poor medication adherence on the health-care utilization patterns of chronically ill populations. For example, one study showed that diabetes patients with the poorest medication adherence have a 30 percent yearly risk of hospitalization, as opposed to a 13 percent risk for diabetes patients with high adherence (Sokol et al. 2005). A meta-analysis assessing the results of numerous studies found that relative to patients with high levels of adherence, the risk of poor clinical outcomes—including hospitalization, rehospitalization, and premature death—among non-adherent patients is 5.4 times as high among those with hypertension, 2.8 times as high among those with dyslipidemia, and 1.5 times as high among those with heart disease (Gwadry-Sridhar et al. 2009). Another study found that patients who do not adhere to their high cholesterol medications have a 26 percent greater likelihood of a cardiovascular-related hospitalization, as compared to patients who adhere to their drug regimens (Pittman et al. 2011).

In summary, when a patient does not adhere to their medications, their health may decline further, requiring utilization of more expensive services such as those found in the acute or long-term care system. This relationship between non-adherence and utilization of expensive services has been often studied and reported in the literature. In addition, many studies in the literature have quantified the cost-effectiveness of appropriate medication adherence.

Quantifying the Cost-Effectiveness of Medication Adherence

One of the most direct ways to study the cost-effectiveness of medicines is to compare total healthcare costs and utilization for patient populations who are using prescription drugs appropriately versus those who are not. Researchers have found relationships between taking medications as prescribed and lower healthcare costs, as well as the converse relationship of not taking medications as prescribed and steeper healthcare costs.

Assessing the Impact of Medication Adherence (and Non-Adherence) on U.S. Healthcare Spending in General, and for the Chronically Ill

The cost-related benefits of proper medication adherence for the U.S. healthcare system are significant. In a study that used a sample of Medicare beneficiaries drawn from the 1999 and 2000 Medicare Current Beneficiary Survey, researchers found that use of prescription medicines significantly reduced Medicare spending for inpatient hospitalizations (Stuart et al. 2009). Specifically, for each additional prescription drug filled, hospital costs decreased by \$104, or approximately 5 percent of the mean total of Medicare payments in 2000 for study subjects' inpatient hospital services (Stuart et al. 2009).

In another study, researchers estimated that of all medication-related hospital admissions in the United States, 33 to 69 percent were due to poor medication adherence, with a resultant cost of approximately \$100 billion a year (Osterberg and Blaschke 2005). More recently, a report published by the New England Healthcare Institute (NEHI) estimated that \$290 billion in avoidable medical spending across all chronic diseases could be attributed to drug-related problems, of which non-adherence to medications was a subset (NEHI 2009).

The literature has reported an even wider range of cost offsets for patients demonstrating adherence to medications across particular chronic conditions. Studies have shown that for every \$1.00 increase in costs related to prescription drug spending for adherent patients, medical cost decreases by more than \$1.00. The magnitude of the decrease varies depending on a patient's condition. Specifically, for every additional dollar spent on medicines for adherent patients:

- Roebuck et al. estimated medical cost offsets of \$10.10 for hypertension, \$8.40 for congestive heart failure, \$6.70 for diabetes and \$3.10 for dyslipidemia (Roebuck et al. 2011), and
- Sokol et al. estimated a reduction in total healthcare costs by \$7.00 for diabetes patients, \$5.00 for high cholesterol patients and \$4.00 for high blood pressure patients (Sokol et al. 2005).

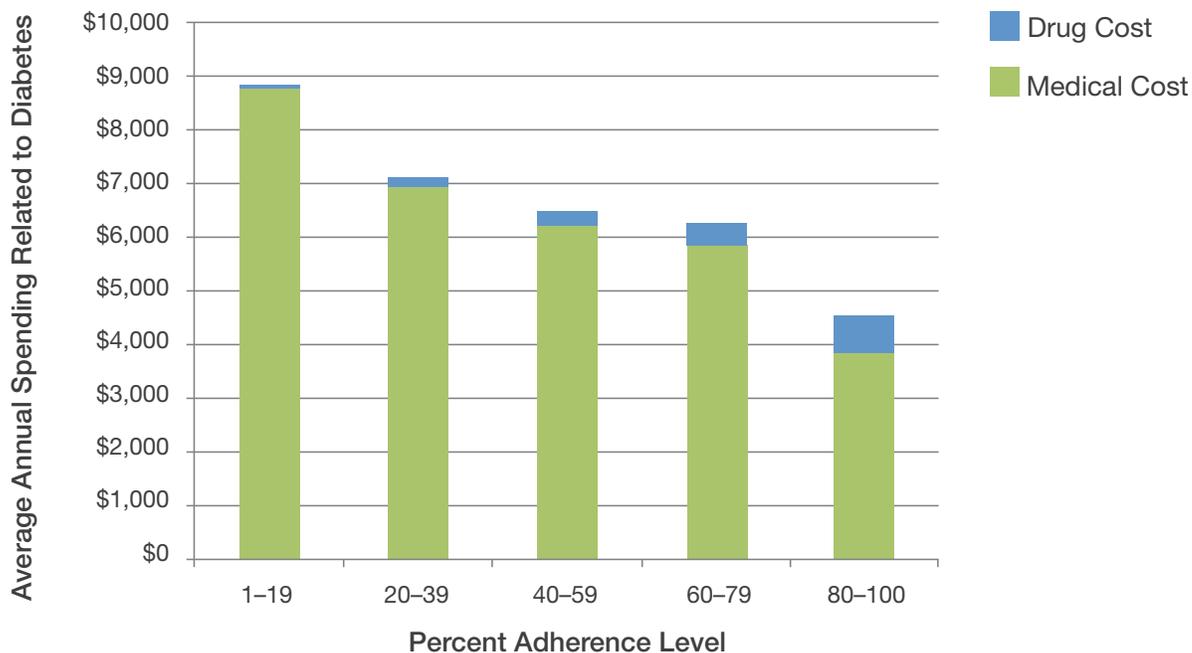
In a study of Medicaid patients with congestive heart failure, patients who were adherent to medications had fewer hospitalizations, lower incidence of ER visits and had overall costs that were 23 percent lower than non-adherent patients (Esposito et al. 2009).

Notably, there is a body of studies that investigated the relationship between medication adherence and chronic disease expenditures which focuses on diabetes patients. For example, a study of Medicare patients found that for every 10 percent increase in adherence to diabetes medication, total healthcare costs declined between 9 and 29 percent (Balkrishnan et al. 2003). A subsequent study of Medicare patients diagnosed with diabetes found that patients who were adherent to cardiovascular drugs as part of their treatment therapy had lower total healthcare costs within the Medicare system over three years, with savings from medical costs outweighing additional costs from greater prescription drug use (Stuart et al. 2011).

Additionally, in a recent study of a national sample of diabetes patients, researchers compared outcomes in 2008 between people who increased their medication adherence levels between 2006 and 2007 (i.e., were non-adherent in 2006 and adherent in 2007) to those who remained non-adherent during this time. They found that patients who increased adherence to their diabetes medications were 13 percent less likely to be hospitalized or visit the ER relative to those who remained non-adherent (Jha et al. 2012). They also compared outcomes between people who decreased their adherence during this time to patients that remained adherent. For patients with lower adherence, they calculated a 15 percent higher likelihood of hospitalization or visiting the ER relative to patients who remained adherent. Due to these utilization impacts, the authors estimated that measures designed to increase adherence could generate potential healthcare savings of \$8.3 billion (Jha et al. 2012).

Figure 1 illustrates results comparing the relationship between healthcare costs and varying levels of medication adherence among diabetics. In this example, the total annual healthcare spending level for diabetes patients with the lowest medication adherence (\$8,867) was almost twice as much as for those with high levels of adherence (\$4,570) (Sokol et al. 2005). It is important to note that with higher levels of adherence, total drug expenditures are higher; however, overall costs of care remained lower when compared to patients with poor adherence.

Figure 1. Healthcare Costs at Varying Levels of Medication Adherence



Source: Sokol et al. Impact of Medication Adherence on Hospitalization Risk and Healthcare Cost. Medical Care. 2005; 43 (6): 521-30.

Focusing on medication adherence among individuals with chronic conditions is essential because by targeting this group of patients for improved adherence, it will likely result in better cost-effectiveness of healthcare utilization and delivery.

The body of evidence on the cost-effectiveness of medication adherence has begun to influence policy. For example, the Congressional Budget Office (CBO) recently released the legislative scoring methodology it uses to estimate medical offsets related to improved medication use. Based upon this methodology, the CBO associates a one-fifth of a percent reduction in Medicare’s medical service spending for every 1 percent increase in the number of prescriptions filled (CBO 2012). This is the first time the government’s non-partisan legislative scoring agency has credited greater usage of medications with saving healthcare costs, generally, as part of their guidance.

Before the healthcare system can realize the full potential of cost savings related to higher medication adherence, it is important for stakeholders to understand the issues that prevent some patients from using the medications they are prescribed. In the next section, we will discuss the most common barriers to medication adherence.

Understanding the Barriers to Optimal Medication Adherence

In 2003, the World Health Organization (WHO) identified medication non-adherence as the leading cause of preventable morbidity, mortality and healthcare costs (Sabate 2003). Sources of non-adherence, such as cost and access issues, patient forgetfulness or misunderstanding, represent the barriers patients face to achieving appropriate adherence. The relationship between patient prescription cost sharing and access issues as they relate to medication adherence have been studied and reported in the literature. In addition, research has investigated the degree to which forgetting or misunderstanding a regimen relates to the level of complexity involved in taking their medications. The following describes findings from research about how patient cost sharing, access and regimen complexity can affect medication adherence.

The Impact of Patient Cost Sharing on Adherence

Cost-control measures implemented by payers and health systems can have the unintended effect of deterring adherence. For instance, healthcare systems can inadvertently create barriers to adherence by requiring prohibitively high out-of-pocket costs in the form of copayments or co-insurance for medications (D'Amato 2008).

Many researchers have found that raising medication copayments reduces patient adherence and increases utilization of hospital inpatient and outpatient services.

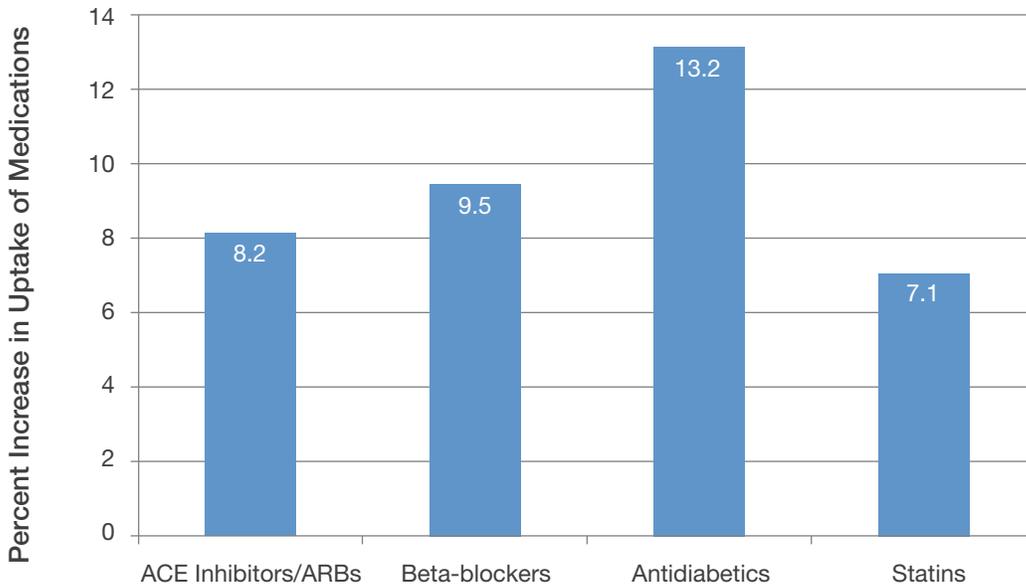
- Specifically, when medication copayments doubled for a population of privately insured patients, the use of prescription drugs in the most common therapeutic classes declined, ranging from a 45 percent reduction in use for NSAIDs, to a 26 percent decline for antihypertensives and antidepressants. Further, among patients with chronic conditions who were receiving routine care, drug use declined between 8 and 23 percent in reaction to the doubling of copayments. Among patients with diabetes, asthma or gastric acid disorder, emergency room visits climbed by 17 percent, and hospital stays rose by 10 percent (Goldman et al. 2004).
- A follow-up study demonstrated that for patients with certain chronic conditions, such as diabetes, lipid disorders and congestive heart failure, higher prescription cost sharing was associated with more use of expensive medical services. Furthermore, for every 10 percent increase in cost sharing, researchers found a 2 to 6 percent decrease in prescription drug spending, depending on the therapeutic class of the medication (Goldman et al. 2007).
- Increases in patient copayments for prescription medications resulted in decreased utilization of medications, while simultaneously increasing the use of outpatient medical care (Gaynor et al. 2007).

- For seniors identified as having multiple chronic conditions, estimated hospital spending increased by almost \$2.00 for every \$1.00 in estimated savings realized on prescription drugs and office visits as a result of higher prescription copayments levied on patients (Chandra et al. 2010).
- In a study that investigated the degree to which cancer patients abandon oral oncology therapy at the pharmacy, researchers found that abandonment rates rose more than four-fold when out-of-pocket costs exceeded \$500, compared to out-of-pocket costs of \$100 or less (Streeter et al. 2011).

Further, when Medicare patients were subjected to a prescription drug expenditure cap, beneficiaries were less likely to adhere to their hypertension, diabetes, and cholesterol medicines. Compared to seniors with uncapped prescription coverage, seniors with a \$1,000 annual benefit cap under a Medicare+Choice plan were less likely to use medicines appropriately and experienced unfavorable clinical outcomes. Specifically, mortality rates were 22 percent higher for this group compared to Medicare patients without a prescription cap, controlling for health status (Hsu et al. 2006).

Reducing potential cost-sharing barriers for patients has been shown to have positive results. Employer groups who have eliminated or reduced copayments for insulin and all oral diabetes medicines have seen significant gains in medication adherence among employees. Relative to employees whose copayments for diabetes medicines did not change, those whose copayments were waived or reduced were more likely to fill new prescriptions and more likely to continue their treatment (Chang et al. 2010). An employer implementing a disease management program in two groups of employees found that when the disease management program was combined with economic incentives (reduced copayments) for five classes of chronic disease medications, patient adherence in four of the drug classes increased by a statistically significant 7 to 13 percent (Figure 2) (Chernew et al. 2008). Follow-up research by these authors using economic modeling indicates that this increase in employee adherence could lead to reductions in the use of other medical services, thus offsetting the costs associated with the additional use of medicines encouraged by the program (Chernew et al. 2010).

Figure 2. Effect from Decreased Copayments on Medication Adherence for Various Therapeutic Classes, 2004–2005



Source: Chernew et al. Impact of Decreasing Copayments on Medication Adherence within a Disease Management Environment. *Health Affairs*. 2008; 27 (1):103–112.

Research has identified a relationship between the level of a patient’s out-of-pocket costs and the degree to which they are adherent to their medications. For example, raising copayments and relatively high out-of-pocket costs are associated with decreased, or low medication adherence. Conversely reducing copayments has been shown to improve medication adherence.

The Impact of Patient Access to Medications on Adherence

Healthcare systems may create barriers to medication adherence by limiting access to medications through use of a restrictive formulary (D’Amato 2008). For example, a retrospective cohort study found that in the year after a state implemented a preferred drug list for its Medicaid program, patients with hypertension were 39 percent more likely to stop taking their medications than in the year prior to implementation (Wilson et al. 2005). Further, expanding drug benefit coverage has been shown to improve uptake and use of medications. Studies suggest that drug use increases (up to 20 percent) and adherence improves when patients get drug insurance coverage (Parks Thomas 2008). Moreover, the healthcare system may benefit from cost offsets through reductions in the utilization of non-drug services, such as inpatient hospitalizations and emergency room visits (Parks Thomas 2008).

These outcomes characterize Medicare beneficiaries after the extension of the prescription drug benefit through Part D coverage in 2006. Offering Part D coverage to beneficiaries who previously had lacked comprehensive prescription drug coverage saved Medicare an average of more than \$1,200 per patient per year on non-drug health expenses, such as hospitalizations (McWilliams et al. 2011). Based on this finding, and the fact that 11 million people received drug coverage through Part D, PhRMA estimated that Medicare saved \$13.4 billion in 2007 (PhRMA 2013). While beneficiaries used more medicines after enrolling in Medicare Part D, the cost of greater medication uptake was offset by reductions in other medical spending. Afendulis et al. found that among patients with certain conditions, the boost in drug coverage through Part D was associated with a 4 percent reduction in hospitalization rates, representing 42,000 admissions (Afendulis et al. 2011).

As Medicare patients continue to experience greater financial support through larger discounts garnered while in the “coverage gap” in the coming years, the potential for improved access to medications may allow Medicare to realize savings in medical care. As evidence, a recent study, which assessed the affect of the Affordable Care Act’s (ACA) coverage gap reform, found that it has already begun to have a positive impact on medication adherence levels among diabetes patients. Specifically, diabetes patients who had no coverage or partial coverage in the gap before the implementation of the ACA provision were more adherent to their drugs in the first year after implementation compared to the year before implementation (Zeng et al. 2013).

The Complexity of Treatment Regimens

The level of complexity in a patient’s drug regimen can also impact the degree to which they will take their medications as prescribed. In a study of cardiovascular disease patients, researchers found that those with more complex therapeutic prescribing requirements had lower medication adherence relative to those who had less therapeutic complexity. In assessing therapeutic complexity, researchers considered factors such as the number of prescriptions filled, the number in different drug classes, the number of different doctors who prescribed the prescriptions and the number of pharmacy visits required to fill the prescription. This study suggests that strategies to reduce the burden of the factors related to the complexity of prescribing and prescription dispensing patterns should be considered by health providers when designing a patient’s medication program (Choudry et al. 2011). Another study showed that reducing a patient’s dosing frequency and their required number of different medicines, as well as using special packaging, such as blister packages with more than one medicine per blister where appropriate, may be effective for improving adherence (Conn et al. 2009).

Findings on Medicare patients’ uptake of medication and resulting adherence levels suggest that interventions to improve health outcomes should focus on behavioral strategies to

raise levels of medication adherence. However, improving a patient's ability to follow a medication regimen requires understanding all potential barriers to adherence in order to target the intervention appropriately. Factors that relate to the patient, their socioeconomic status, the condition being treated, their interactions with their healthcare system and providers and their prescribed therapies, should all be considered when developing effective interventions to improve adherence (Sabate 2003; Zyczynski and Coyne 2000).

Programs and Incentives to Improve Medication Adherence

All stakeholders in the healthcare system should have an active interest in ensuring patients are able to appropriately access and utilize required medications. One researcher suggests that “given the pervasive and morbid effects of medication non-adherence, healthcare professionals, health systems, third-party payers, governmental agencies and policymakers are all stakeholders in promoting greater emphasis on medication adherence” (Lee et al. 2006). The following provides examples from the literature regarding how various stakeholders, including pharmacists, commercial insurers and the Medicare program, have addressed improving medication adherence through certain intervention programs or incentives.

The Pharmacist's Role in Medication Adherence Interventions

Research suggests that targeted and personalized interventions between patients and pharmacists are beneficial. Diabetic patients who had direct interaction through face-to-face meetings with retail pharmacists and phone calls with mail-order pharmacists as part of medication adherence interventions were more adherent to their medications relative to patients who did not receive the direct interaction. Specifically, during the six-month program period, patients with direct interaction had 2.1 percent more days' supply per month relative to the comparison group. Patients who were engaged in direct interaction with the pharmacist also had higher initiation rates for recommended concomitant diabetes therapies such as angiotensin receptor blockers and statins (Brennan et al. 2012).

Additional studies have demonstrated the benefit of targeted medication adherence interventions. In a study of patients prescribed cholesterol-lowering therapy, Taitel, et al. found that those who met with pharmacists for counseling at the initiation of their drug regimen showed higher medication adherence and refilled their prescriptions faster over a 12-month period than those who did not participate in the intervention program (Taitel et al. 2012). In a broad systematic review of randomized controlled trials of adherence interventions for patients with cardiovascular disease or diabetes, researchers found that targeted one-on-one interventions in the pharmacy were an effective means for improving adherence (Cutrona et al. 2010).

Pharmacists also play a key role in the delivery of medication therapy management (MTM) programs, which involve enhanced counseling for patients to optimize their therapeutic

outcomes (APhA 2008). Comprehensive medication reviews (CMR) are often a part of the services provided by pharmacists through an MTM program. When conducting a CMR, a patient brings all of the medications they take to the pharmacist for review (including prescription, over the counter and even dietary supplements). As a prime function of the CMR, the pharmacist reviews each individual drug and makes sure the patient is taking them appropriately to avoid adverse reactions and promote optimal outcomes (AMCP 2008). An important element of CMR is the communication of any potential issues or recommended modifications to drug therapy between the pharmacist and the patient's prescriber to ensure coordination of care for the patient (AMCP 2008; APhA 2008).

Recently, a study compared the drug therapy outcomes between Medicare patients diagnosed with chronic heart failure or chronic obstructive pulmonary disease who received MTM services and those who did not. Researchers found that beneficiaries receiving MTM had higher odds of being adherent to their medications compared to the beneficiaries who did not receive MTM. Furthermore, the effect of improved adherence was most significant among the MTM beneficiaries who received a CMR as part of their pharmacy services (Marrufo et al. 2013).

Payers, both in the private and public sectors, are realizing the potential economic and health-related benefits of better medication adherence. Many have implemented programs that incentivize patients to take a more active role in ensuring appropriate use of medications.

Commercial Payer Initiatives

In 2010, UnitedHealthcare announced that it would reduce copayments by \$20 for patients who refilled their asthma and depression medicines on time (UHC 2010). UnitedHealthcare also offers employers a plan option to provide some diabetes medicines and supplies at no charge to patients who take steps to manage their condition and participate in wellness coaching (EON 2009).

Similarly, Aetna and the University of Pennsylvania are collaborating to investigate whether giving patients an opportunity to win cash prizes for appropriate medication use will improve adherence (Belluck 2010). Through this lottery-like program, a patient who opts to use computerized pillboxes is eligible to be compensated randomly either \$10 or \$100 if he or she properly takes his or her medicine. By paying patients a modest incentive to improve adherence up front, the insurer hopes to save the much larger costs of hospitalization in the long term.

Another approach, led by the Center for Connected Health, a division of Partners Healthcare, is to use wireless electronic pill bottles that remind high blood pressure patients to take their medication (Center for Connected Health 2010). Under this initiative, pill bottles are topped with special caps that signal patients with light and sound at the proper

times to take medications. An embedded wireless connection enables the cap to send automated calls to patients to inform them of missed doses and can also provide weekly progress reports and refill reminders. Patients also have the option of sharing adherence data with physicians and a social network. This approach resulted in a 27 percent higher rate of medication adherence compared to controls.

Medicare Star Ratings Adherence Initiatives

To inform Medicare beneficiaries about the quality of Medicare Advantage (MA) plans offered in their local areas, the Centers for Medicare & Medicaid Service (CMS) awards plans between one and five stars to measure quality (CMS 2012). Plans have good reason to improve their ratings: their payments from Medicare are based in part on their performance on these measures (KFF 2013).

For 2013, the star ratings program uses 55 quality measures from various data sources such as the Healthcare Effectiveness Data Information Set (HEDIS), the Consumer Assessment of Healthcare Providers and Systems (CAHPS) surveys, and the Patient Outcomes Survey (POS). CMS assigns final ratings to plans based upon a calculation of measures across various indices related to patient outcomes, patient experience, process and access issues (CMS 2012).

Three separate MA star ratings measures assess MA plans on the medication adherence levels of their members with diabetes, high blood pressure and high cholesterol. In determining a plan's overall Part D rating, CMS weights these medication adherence measures three times more than other categories, such as process-related measures (CMS 2012). This weighting suggests the government values medication adherence as an essential part of managing the health of beneficiaries diagnosed with these chronic conditions.

Since CMS added the medication adherence measures to the MA star ratings in 2011, there has been a greater awareness among plans of the opportunities for improving adherence, (Benner 2012) which may translate to an improved star rating.

Conclusion

Prescription drugs, when used appropriately, are often the most cost-effective component of the healthcare delivery system. Yet while the clinical and economic benefits to patients from the proper use of prescribed medications are well known, ensuring appropriate medication adherence continues to be difficult within the U.S. healthcare system. Particularly among Medicare patients and individuals with chronic conditions, encouraging the proper use of medicines presents significant challenges.

Innovative strategies by payers, physicians, pharmacists and others suggest there are opportunities to incentivize and encourage patients to remain more adherent to prescribed drug regimens. Specific strategies may include lowering copayments, reducing dosing frequency and pharmacist-directed medication therapy management.

To improve health outcomes and save money, those who influence healthcare policy and practice should support measures that encourage greater engagement and education with patients to demonstrate the importance of proper medication use.

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