

The Cost of Not Taking Our Medicine: The Complex Causes and Effects of Low Medication Adherence

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Whether it is for a short-term illness or to manage a chronic condition, taking the medicine we have been prescribed seems like a straightforward course of action to improve or manage our health. Yet, medication adherence in the United States is surprisingly low. One study confirms that up to half of all prescribed medications are not taken as prescribed and some 20% to 30% of all persistent medication prescriptions are never filled.¹

Fortunately, there are actions the healthcare industry can take to substantially improve medication adherence rates and, consequently, the health of the population. Providers, health plans, and healthcare consumers all play a role.

Clinical and research communities agree that improved adherence to medication regimens would reduce the progression of chronic disease and decrease unnecessary hospitalizations.^{2,3} These benefits (as shown in [Figure 1](#)⁴⁻⁸) also translate into a reduction in the cost of healthcare to those with chronic diseases. Poor adherence, on the other hand, puts patients with chronic disease at serious risk of disastrous and sometimes irreparable health decline.

What's Driving the Problem? The Complexity of Medication Adherence

It is very common to explain nonadherence by putting it down to forgetfulness. It seems logical that someone who is ill may also experience related confusion and memory impairment or have other health issues that affect memory and judgment. However, simple forgetfulness explains just a portion of the actual occurrence of low adherence and nonadherence. In reality, the multitude of factors affecting a patient's ability and desire to take their medications cover

a wide gamut, including health status, social and economic factors, and health literacy. The presence of 1 or any combination of these factors can create a disruption in care and treatment.

Unraveling the Web of Causes and Drivers

Unfortunately, improving medication adherence is not as simple as ensuring certain basic factors are met, including health insurance coverage, a convenient network of pharmacies, regular refill reminders, and provider medication reviews. As shown in [Figure 2](#), many of the influences that drive medication adherence are related to care pathways for disease management and coordination of care across multiple healthcare providers. The essential first step in a comprehensive medication adherence improvement program is understanding patient perspectives around poor adherence.

Figure 1. Higher Adherence Improves Health, Lowers Cost

In one study of more than 135,000 patients, high levels of adherence were significantly associated with lower overall healthcare costs for diabetes, hypercholesterolemia, and hypertension.⁴

For elderly patients with diabetes, researchers found that each 10% increase in adherence (based on a portion of days covered methodology) was associated with an 8.6% to 28.9% decrease in total annual healthcare costs.⁵

A 2003 study demonstrated that failure to follow prescribing instructions was estimated to cause more than 125,000 deaths and up to 10% of all hospitalizations annually.^{6,7}

A 2003 study, revisited in an *Annals of Pharmacotherapy* literature review in 2018, showed that poor adherence to medication led to increased morbidity and death and was estimated to incur costs of \$100 billion per year.⁸

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Figure 2. Nonadherence Drivers**Intentional Issues**

- Cost, actual and perceived
- Access to pharmacy
- Fear of and actual adverse effects
- Lack of symptoms
- Inconsistent patient–provider relationship
- Concerns about dependency

Inadvertent Issues

- Hearing, visual, and cognition issues
- Forgetfulness
- Depression
- Other behavioral health barriers
- Complex treatment regimen
- Fragmented and uncoordinated care and prescribing gaps
- General literacy issues about health conditions

“Do I need this medication?” The adverse effects of medication, real or perceived, can often result in early termination of treatment. In some instances, diseases exhibit few symptoms or symptoms are alleviated at the initiation of treatment; thus, patients might assume that they are better and no longer need the medication. Patient polls conducted by the National Community Pharmacists Association reveal that other common reasons for self-termination of treatment include lack of patient understanding of the therapy or their health condition and a lack of connection with their healthcare provider. Patients who report seeing the same provider consistently report a higher likelihood of continued use of prescribed medications, which is perhaps a measure of trust.⁹

“It’s beyond my control.” Involuntary nonadherence or termination of treatment often results when barriers occur, including cognition issues, health deterioration, medication therapy changes, and, in some instances, conflicting posthospitalization discharge instructions.

Several drivers affect patient access to medication and treatment, including lack of social support, affordability of prescription medication, and the patient’s perceived need for treatment. Many at-risk patients with multiple chronic comorbidities require multiple prescriptions and complicated treatment regimens. Adherence challenges can result from fragmented care, poor care coordination, and lack of communication by patients and among healthcare providers.

Low health literacy. A major deterrent to medication adherence is a lack of health literacy. About 8 of 10 patients have below-average health literacy, meaning they have limited understanding of common health terms, a poor understanding of the potential complications of their health conditions, and a limited capacity to discuss care and treatments with providers. Patients with low health literacy have been linked to poor health outcomes and higher rates of hospitalization, and they are less likely to seek preventive services.¹⁰

Low health literacy can also mean an inability to read and comprehend prescription dosing instructions. Reading a prescription label can be challenging and stressful. Medication labeling is inconsistent and further complicates patient understanding. For example, prescription labeling can vary widely: “take with food,” “take before eating,” “take with meals,” and “take on a full stomach” all mean the same thing, but does the layperson comprehend these variations? Patients of lower socioeconomic status and the elderly are more likely to exhibit lower health literacy. These same populations often have a higher prevalence of chronic conditions requiring persistent medications.

Treatment Phases and Approaches to Support Improved Adherence

Managing adherence is complex and can be addressed by providing tailored outreach and engagement across treatment phases, as detailed in **Figure 3**.

New to therapy. Opportunities exist at the first prescription fill to support and educate patients on the importance of the medication for treating their conditions and to address barriers (eg, adverse effects, cost of treatment, complexity of dosing) early on. This form of conversational engagement to assess patient adherence intent, based in part on past behavior, can be crucial in identifying patients at risk of nonadherence.

Ongoing therapy, moderate adherence. Managing patient continuation of treatment includes providing support via regular refill reminders, incentives or tools to encourage healthy behaviors, and periodic reinforcement of the reasons and positive effects of the treatment. Many patients who are highly adherent in early stages of treatment have been shown to become less adherent over time for a variety of reasons, such as symptom improvement and complacency. Changing messages and personalized communications, including outreach channels (such as phone, text message, or email), can be helpful to keep the message fresh.

Low adherence and discontinuation. Monitoring adherence through prescription fills is essential for timely outreach to assess the reasons for nontreatment, possible barriers to adherence, and appropriate interventions. Continued outreach after a patient demonstrates complete nonadherence, such as no refill after 3 prescription fill cycles, may create unnecessary abrasion and affect future engagement with that patient. Pharmacist and provider involvement are important at this point to reassess and drive next steps to get the patient back on track or simply assess why the failure occurred.

How Do We Improve? An Action Plan

The causes of and solutions to poor medication adherence are complex. Coordination among physicians, pharmacists, and managed care organizations can make a difference. A proactive and organized

Figure 3. Adherence Tracking: 3 Phases**1. New to Therapy**

- Focus on education at first fill
- Address misconceptions, barriers, and social/financial determinants
- Support development of regimen routine

2. Moderate to Poor Adherence

- Regular tracking of adherence and refill reminders
- Provide information on condition and long-term medication needs

3. Low Adherence to Discontinuation: Late to Fill, No Refill

- Establish “point of no return” measures (eg, patient or physician may have terminated treatment)
- Engage pharmacist and providers in active management of patient behavior

approach that meets the patient where they are and ensures regular personalized communication is needed. The goal is to support patients to create engagement, thus resulting in greater adherence to treatment once outside the provider office, where physicians cannot manage patient behavior. A plan of action should include several options to address the varied reasons for poor adherence:

(1) Identify patients early who are new to therapy. Set up a cadence of communication that increases patient understanding of their disease(s) and provides an opportunity to address questions. The goal is to reduce the percentage of patients who become nonadherent.

(2) Integrate behavioral health and condition management programs. Patients who do not adhere to behavioral health treatments are likely to be nonadherent to all medical treatment.

(3) Use health plan resources wisely. Use pharmacy and medical claims data to stratify at-risk patients, including those with a past history of poor adherence and those with irregular provider visits, which could indicate limited management of chronic conditions. Past health engagement behavior is highly correlated with future health behaviors.

(4) Encourage regular medication reconciliation review with primary care providers, and coordinate medication adherence management with disease and condition management programs. Use multiple communication channels to provide patient education support and to provide patients with potential talking points and questions for patients and providers.

(5) Deploy active medication adherence management with regular patient communication through a multitouch, multichannel outreach. This communication can include simple refill reminders and complete assessments and educational content to support improved patient activation and comprehension.

Conclusions

Improved outcomes for chronic conditions will require active medication adherence. As an industry, we need to mobilize all available resources to achieve this through early and regular monitoring and coordinated messaging among the care team and patient. In addition, we must work with patients to better understand their needs

and challenges and intervene as necessary to successfully combat the multitude of obstacles to proper adherence.

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