



Helping Patients Never Miss a Day

Outstanding access, comprehensive services, motivational incentives and expert outreach combine to improve adherence and outcomes while reducing costs



Walgreens

The World Health Organization defines adherence as “the extent to which a person’s behavior, taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a healthcare provider.”¹

Patient stories



Ted takes seven medications and every month has to decide which ones he can and can’t pay for.



Mandy already takes medication for several health conditions and now has been prescribed a medication for a new condition. She is concerned about interactions with her other medicines, side effects and how she will feel. She wonders, “What if I feel worse?”



Alex has been prescribed a medication for a chronic condition for the first time in his life. He questions how he will remember to take it, what will happen if he forgets and what else he can do to improve his health. He wonders, “Can I stop taking medication someday?”

These patients are not alone. Most people have questions, concerns and, at times, fears when they are prescribed a medication. When patients receive a new prescription, the prescriber may have answered some of their questions, but patients can feel overwhelmed by too much information or have trouble understanding and remembering what was said due to health literacy issues. These issues and emotions, plus other factors,

can turn into barriers that can delay, disrupt or even keep them from starting medication therapy. All of this means patients are experiencing less-than-optimal medication adherence.²⁻⁵

What is adherence? The World Health Organization defines adherence as “the extent to which a person’s behavior, taking medication, following a diet, and/or

executing lifestyle changes, corresponds with agreed recommendations from a healthcare provider.”¹ Medication adherence encompasses more than a patient taking a medication; it is a series of behaviors that must be executed to reach treatment goals.⁶ For example, patients may receive prescriptions that they never bring to the pharmacy to be filled, never pick up from the pharmacy after they are filled, or bring home but do not take them as prescribed or never take them.

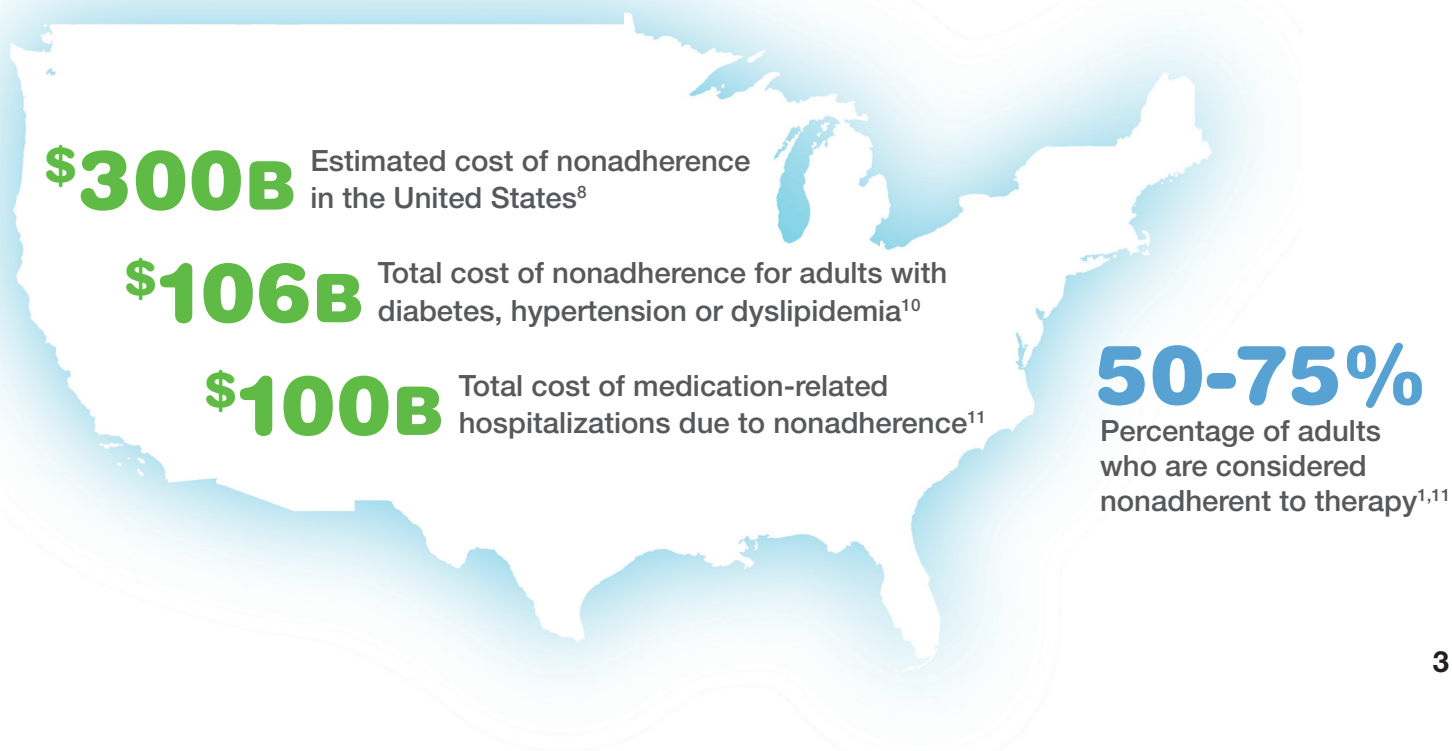
What is the impact of nonadherence? Multiple studies have associated poor medication adherence with increased healthcare utilization and costs and decreased clinical outcomes.^{7,8} Patients that are nonadherent to therapy are at greater risk for not meeting treatment goals, experiencing disease progression and developing complications.⁸ These poor clinical outcomes not only can lead to significant patient morbidity, but can increase healthcare utilization and, as a result, cost of care.⁹ It is estimated that the cost of medication nonadherence in the U.S. is around \$300 billion annually, with hospitalizations

accounting for the largest proportion of the costs.⁸ Evidence suggests that nonadherence to medications for just three conditions, diabetes, hypertension and dyslipidemia, costs around \$106 billion annually.¹⁰ Furthermore, the problem of nonadherence is common, with 50 to 75 percent of adults considered nonadherent to their therapy in some way.^{1,11}

What influences adherence?

Much research has gone into evaluating what causes nonadherence to better understand what drives patient behaviors.^{12,13} Studies have found that adherence is a complex behavior influenced by multiple interactions between the patient, many healthcare providers and prescribers, the patient’s environment of family and friends, media input, and the patient’s knowledge, experience, beliefs and fears. All of these factors continue to change over time and throughout the patient’s journey through their life and health. Also, the way these factors can influence individual patient behavior is different from one person to the next.^{12,13}

Medication nonadherence is a costly national problem



Improving adherence begins with understanding the various barriers to adherence:

Patient-related		Healthcare provider-related	Healthcare system-related
Intentional	Unintentional		
<ul style="list-style-type: none">• Patients choosing not to take a medication• Lack of symptoms• Distrust	<ul style="list-style-type: none">• Forgetfulness• Health literacy• Depression	<ul style="list-style-type: none">• Poor communication• Not collaborating with patients during treatment selection• Failure to engage other healthcare providers to determine the most affordable medication	<ul style="list-style-type: none">• Lack of clinical data• Lack of provider reimbursement• Lack of time to address nonadherence• Increased cost share of medication

Studies have identified numerous barriers to adherence, which allow for the development of interventions that can mitigate these barriers.^{12,13} Adherence barriers are typically grouped into categories, such as **patient-, healthcare provider- and healthcare system-related** barriers.

Patient-related barriers can fall into intentional and unintentional nonadherence. Examples of intentional nonadherence include patients choosing to not take a medication due to fear of side effects, costs, not understanding the need for the medication, lack of disease symptoms, or distrust of the prescriber. Some examples of unintentional nonadherence include forgetfulness, health literacy and depression. Depressed patients are about twice as likely to be nonadherent.¹⁴

Healthcare provider-related causes of nonadherence can include poor communication with the patient regarding the importance of therapy, not collaborating with patients during treatment selection, and failure to

engage other healthcare providers to determine the most affordable medication for the patient.

Examples of healthcare system-related barriers include lack of clinical data, lack of reimbursement for the provider, lack of time to address nonadherence and increased cost share of medications.

What can be done to improve adherence?

As the factors that influence adherence are varied, so must be the support for improving adherence. While studies have allowed better understanding of barriers that drive nonadherence, evidence suggests that developing interventions to improve adherence and reduce healthcare costs is not an easy task.¹⁵ Interventions that address only one barrier, or are not tailored to an individual’s needs, are often ineffective.¹⁶ Programs that are effective at improving adherence and reducing costs are multifaceted and include many types

of interventions. These interventions can include patient support from family or peers, education, reminders, healthcare provider training, regimen simplification, care coordination, lowering copays, aligning prescriptions, and adherence tracking and self-monitoring tools.^{6,15,17-20}

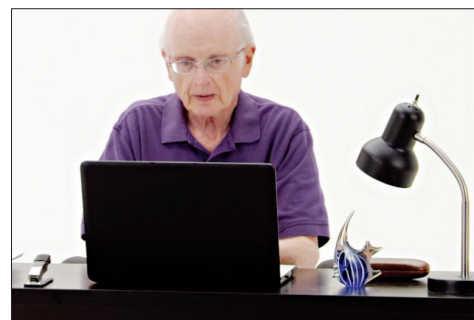
Also, interventions that are designed to specifically address the behavioral aspects of medication adherence have been shown to be effective.²¹ Because adherence to medications is a behavior, which is influenced in part by motivation, interventions focused on increasing motivation for medication-related

behaviors can improve adherence.²¹ For example, one technique used to help explore and increase motivation is motivational interviewing. Combining motivational interviewing-based consults with other services, like simplifying the fill experience and reminding patients to take medications, can result in a notable improvement in adherence and related outcomes.¹²

Let's take a closer look at the stories of the three patients introduced at the beginning of this paper. Each individual has different needs, barriers and ideas regarding his/her medication. Furthermore, each patient is at a different place in his/her medication journey.

Patient story 1: Ted

Ted is a 65-year-old man with coronary artery disease, chronic obstructive pulmonary disease (COPD) and atrial fibrillation. He is semiretired and enjoys his work at a local hobby shop. Visiting the pharmacy at least three times a month, Ted takes a few different types of inhaled medications for his COPD, which, on his budget, are quite expensive. In addition, he takes a brand-name blood thinner and a couple of medications for his heart. He wonders what some of his new heart medications do, if he really needs them and if he is taking too many pills.



Patient story 2: Mandy

Mandy is a 42-year-old woman who recently started taking an antidepressant medication. She enjoys raising her young son and daughter, helping them with their school work and taking them to all of their extracurricular activities. However, the recent passing of her husband and constant pressures at work have contributed to Mandy developing symptoms of depression. She also battles chronic health conditions, including hypertension and rheumatoid arthritis and has a history of breast cancer. Taking another medication that she has never taken before is a concern, and she isn't sure she even needs it or if it will work.



Patient story 3: Alex

Alex is a 37-year-old male with a diagnosis of high cholesterol. His blood pressure, triglycerides and blood glucose are also higher than his physician would like. He has a full-time job as a dentist in a busy dental practice, his wife is an elementary school principal, and they have three children. Alex's father has diabetes, hypertension, gout, and recently suffered a heart attack. Knowing that his health is at risk and wanting to avoid developing conditions like his father's, he is actively making changes to his diet and physical activity. With that in mind, Alex signed up for Walgreens Balance Rewards for healthy choices®, which awards points for connecting his physical activity tracking device, and earns more points for the steps that are logged through this device. While he is motivated to do more to take care of himself, balancing work and family makes it difficult, and it is not uncommon for him to forget his medication and miss a dose.



What is Walgreens approach to improving adherence?

Successful adherence happens when a combination of factors come together for patients, and they:

- 1. Believe the benefits of their medications outweigh the risks.**
- 2. Trust in their healthcare professionals.**
- 3. Have access to and can afford their medication.**
- 4. Possess the confidence and skills needed to properly take their medications.**

To assist patients, Walgreens has built an adherence support system with an omnichannel approach. We interact with 9.5 million retail and digital customers daily, and our adherence support services are available at more than 8,000 Walgreens locations. We partner with

health plans, manufacturers, health systems and others to support our patients and provide interventions and services that help them get and take their medications as prescribed, manage their chronic conditions and gain access to resources for diet, exercise and reduced healthcare costs.

Beginning the medication journey – Helping patients get their medications

There are many services available at Walgreens that provide convenient ways for patients to order and pick up their prescriptions. A proactive opportunity involves providing 90-day medication supplies for chronic medications. Filling prescriptions with 90-day quantities can lessen the chance of the patient running out of medication and the frequency of requesting refills. Our data suggests those filling 90-day medication supplies have a 20 percent increased adherence rate and a 23 percent increased persistence rate over those filling only 30-day medication supplies.²²

Another way we help patients avoid running out of medication is by offering convenient refill options. The simplest refill-related service is Auto Refill, where the prescription is automatically refilled when it is near its due date. The patient is then sent a text, email or telephonic notification that it is ready for pickup. We also offer refill reminder options for patients who do not want automatic refills. Refill reminders are sent to patients before they run out of medication. Reminders can be sent via text, telephone or email. With a single click or a brief text response, the patient can reorder their prescriptions. Our evidence shows those receiving our email refill reminders have significant improvements in adherence, with over a 2.6 percent better adherence rate and a 7.9 percent better persistence rate over those not using the service.²³ Finally, our mobile app has a Refill by Scan function that provides an easy way

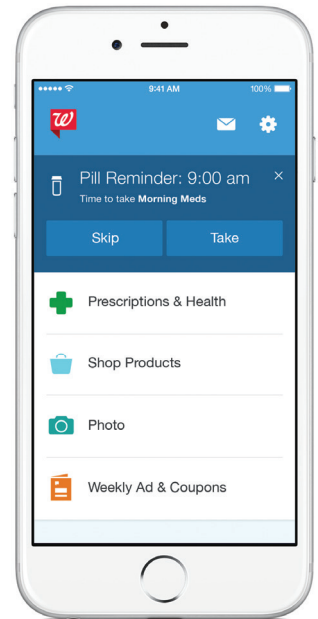
to order refills through a smart phone without the need to go online or call to order refills.

Patients can also transfer prescriptions to Walgreens by using the same feature.

Continuing the journey –

Helping patients to take their medications

The journey to better adherence continues with supporting patients in properly taking their medication. For example, we know patients new to a therapy often need help in understanding how to properly take the medication and what they should expect. This is why



Adherence rate of **patients who received refill reminders**

51.2%

2.6
percent
difference²³

Adherence rate of **patients who did not receive refill reminders**

48.6%

$p < .001$

Persistence days for **patients who received refill reminders**

236.0

7.9
days
difference²³

Persistence days for **patients who did not receive refill reminders**

228.1

$p < .001$

Commercial patients new to therapy at Walgreens and receiving Walgreens services had a **3 percent increase** in adherence compared with patients new to therapy and not filling at Walgreens.²⁴

we designed our intervention program for patients new to therapy. The goal of the intervention is to deliver a patient-centered consultation that identifies and addresses the patient’s concerns about starting a new chronic medication.

In our most recent study, we compared patients new to a medication who were eligible to receive a pharmacist consult, plus other Walgreens services such as refill reminders, Auto Refill, refill ready notifications and more, to patients not filling at Walgreens.

Commercial patients new to therapy at Walgreens and receiving Walgreens services had a **3 percent increase in adherence** compared with patients new to therapy not filling at Walgreens.²⁴

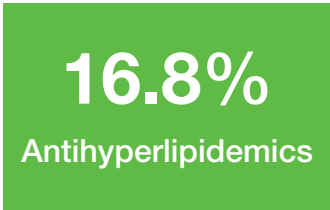
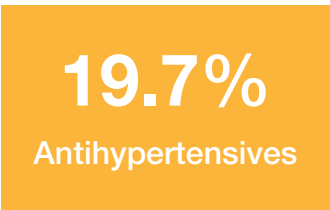
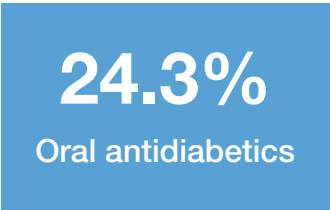
Furthermore, this study also suggested that those Walgreens commercial patients had **a reduction in**

healthcare utilization and 3 percent reduction in total healthcare costs compared with those new to therapy not filling at Walgreens.²⁴

Other services that Walgreens offers to assist or motivate patients to take their medications include our pill reminder, Balance Rewards for healthy choices®, online health coaching program, Pharmacy Chat and medication therapy management (MTM) consultations. All these solutions help patients find their motivation, or simply remember to take their medication.

Fitting medications into one’s life is essential to adherence. Walgreens Mobile App, available for Android and iOS, contains a pill reminder feature that can alert patients who have busy lives or may forget to take medication at a regular time. The Walgreens pill reminder can take away the worry of missing a medication.

Seniors using Walgreens Mobile App pill reminder feature were more likely to be adherent to specific medication categories by a percentage of^{23,*}



Because behavior is driven, in part, by motivation, providing an extra incentive for patients to take their medication is the basis for our rewards program. Evidence shows that our rewards program can improve medication adherence. We currently have 81 million active Balance® Rewards members. Any of these members can sign up for our Balance Rewards for healthy choices® program and receive points for healthy behaviors, such as tracking physical activity, blood pressure and blood glucose to name a few. Our evidence shows patients tracking their blood pressure have a significantly greater level of adherence compared to those patients who do not track their blood pressure (81.7 percent proportion of days covered (PDC) vs. 79.1 percent).²⁵ We have seen similar results for those tracking their blood glucose, with an 82.9 percent rate of adherence compared to 77.5 percent rate for those not tracking their blood glucose.²⁶ While these differences appear small, it is important to note that these changes can carry a population from under 80 percent PDC threshold to over, which is important for the Medicare plans that are evaluated on specific medication adherence-related Star Ratings quality measures, as well as improved quality of life for the patient.

Finally, we offer consultations with a pharmacist, including targeted and comprehensive medication reviews. These comprehensive medication reviews can identify drug therapy problems that can lead to nonadherence, such as duplicate therapy, complex regimens and drug-drug interactions. We have found medication reviews can improve adherence to targeted medications by 2.5 percent.²⁷ Our evidence also suggests that through targeted conversations, we can reduce high-risk medication use in the elderly by

5.6 percent.²⁸ At any point during interactions with patients, if the pharmacist identifies issues that need to be communicated to the patient's prescriber, the pharmacist will perform this outreach. Any issues that require a change in therapy or alteration in dose, or addition to therapy, would require contacting the prescriber. This is one more way we engage with other healthcare providers and bridge our pharmacy services to the patient's medical community.

Assisting patients with getting back on track

No matter how much we support patients at the beginning of their journey, there may come a time when they need assistance getting back on track. Interventions that assist patients during this time include personal outreach through late-to-refill and return-to-stock phone calls. Patients late in refilling their prescriptions receive a phone call encouraging them to refill and enquiring about reasons why the refill is late. The goal of this patient-centered consultation is to have the pharmacist work with the patient to identify adherence barriers and arrive at customized solutions. Pharmacists, who receive special behavioral training, are expected to engage patients through use of open-ended questioning and active listening. Based on patient response, the pharmacist offers suggestions and guidance in overcoming the adherence barrier. Patients then receive another call to pick up their medication after it has been filled and before it gets returned to the pharmacy shelves.

Now let's get back to our three patients and see how Walgreens adherence interventions helped them stay on track.

Patient story 1: Ted



Ted receives a letter from his health plan explaining that he is eligible for a medication review when he comes in to pick up his prescriptions. He decides to set up some time for him and his caregiver to talk with his pharmacist. During this conversation, his pharmacist reviews all of his medications to check for actual or potential problems. She works with him and his caregiver to prioritize the issues they would like addressed, including cost savings. The pharmacist identifies a cost-saving opportunity, which requires her to reach out to the prescriber. The prescriber accepts

the recommended change to his therapy. When Ted picks up his prescription, the pharmacist discusses the new medication and assures him that his next refill will be a 90-day supply like the rest of his eligible medications. The pharmacist also mentions that Ted can receive refill reminder messages to assist him with ordering his refills.

Patient story 2: Mandy

Because Mandy is filling a new chronic prescription at Walgreens, she is eligible for a personal consultation with a pharmacist. Mandy receives a phone call from her pharmacist three days after picking up her medication. After verifying she is talking to Mandy, the pharmacist asks if she has taken this medication before and what concerns she has about starting this medication. Mandy says that she has been feeling sad for some time and has never taken an antidepressant. She is worried that she really shouldn't need a medication like this to help her feel better and is concerned about side effects. The pharmacist determines that Mandy would benefit from some additional information about how her antidepressant works and what to expect from the medication. She talks about potential side effects, including what is normal and what is not, and lets her know she can chat with a pharmacist online through the Walgreens App and on Walgreens.com anytime. The pharmacist mentions that Mandy can connect with people facing similar circumstances through a group, and describes Patients Like Me, available on Walgreens.com. The pharmacist also points out that the refill reminder program can help her easily obtain refills on all her chronic medication through the channel of her choice.



Patient story 3: Alex

Alex says that it's difficult to keep track of all he needs to do, including refilling his medication. His pharmacist suggests a few options such as filling his medication for 90 days, placing his medication on Auto Refill and signing up for refill reminders. Alex decides to sign up for 90-day prescription fills and refill reminders via text message. The pharmacist also recommends that Alex use the pill reminder that is part of the Walgreens Mobile App. Trying his best to exercise more, Alex has been walking and earning Balance® Rewards points when he logs his steps. The pharmacist lets him know he can use Your Digital Health Advisor from WebMD, available on Walgreens.com, to set goals and get tips while earning even more points.



Walgreens adherence tools, in partnership with providers, payer and patients, are a proven successful combination.

These three patient stories highlight the Walgreens omnichannel adherence experience. Adherence is a behavior that requires engagement, resources, and collaboration among patient, pharmacist, prescriber, and the entire patient environment. Walgreens offers omnichannel, tailored interventions that have proven

adherence benefits and related healthcare cost savings. Even with all the work we have done to build connected touch points and tools, we are not satisfied. We are currently evaluating delivery of medications and working to align patients' chronic prescriptions as two more ways to enhance our offerings.

To learn how our adherence solutions can benefit your organization, visit **Walgreens.com/HealthSolutions**.



*Compared to nonusers, after controlling for differences across groups. $P < .001$

1. Adherence to long-term therapies: Evidence for action. World Health Organization Web site. http://www.who.int/chp/knowledge/publications/adherence_full_report.pdf. Published 2003. Accessed May 23, 2016.

2. Gujral G, Winckel K, Nissen LM, Cottrell WN. Impact of community pharmacist intervention discussing patients' beliefs to improve medication adherence. *Int J Clin Pharm*. 2014;36:1048–1058. 3. Zwikker HE, van den Ende CH, van Lankveld WG, et al. Effectiveness of a group-based intervention to change medication beliefs and improve medication adherence in patients with rheumatoid arthritis: a randomized controlled trial. *Patient Educ. Couns*. 2014;94:356–361. 4. Ekedahl A, Oskarsson V, Sundberg B, Gustafsson V, Lundberg T, Gullberg B. Impact of postal and telephone reminders on pick-up rates of unclaimed e-prescriptions. *Pharm World Sci*. 2008;30:503–508. 5. Vervloet M, Linn AJ, van Weert JC, de Bakker DH, Bouvy ML, van Dijk L. The effectiveness of interventions using electronic reminders to improve adherence to chronic medication: a systematic review of the literature. *J Am Med Inform Assoc*. 2012;19:696–704. 6. Gellad, WF, Grenard J, McGlynn EA. A Review of Barriers to Medication Adherence: A Framework for Driving Policy Options. Santa Monica, CA: RAND Corporation; 2009. http://www.rand.org/pubs/technical_reports/TR765.html. 7. Sokol MC, McGuigan KA, Verbrugge RR, Epstein RS. Impact of medication adherence on hospitalization risk and healthcare cost. *Med Care*. 2005;43:521–530. 8. Thinking outside the pillbox: A system-wide approach to improving patient medication adherence for chronic disease. A NEHI research brief. The Network for Excellence in Healthcare Innovation Web site. http://www.nehi.net/writable/publication_files/file/pa_issue_brief_final.pdf. Published August 2009. Accessed May 23, 2016. 9. Osterberg L, Blaschke T. Adherence to medication. *N Engl J Med*. 2005;353(5):487–497. 10. Nasseh K, Frazee SG, Visaria J, Vlahiotis A, Tian T. Cost of medication nonadherence associated with diabetes, hypertension and dyslipidemia. *Am J of Pharm Benefits*. 2012;4(2):e41–e47. 11. Improving medication adherence is key to better healthcare. Pharmaceutical Research and Manufacturers of America Web site. http://phrma.org/sites/default/files/pdf/PhRMA_improving%20Medication%20Adherence_Issue%20Brief.pdf. Accessed May 23, 2016. 12. Bosworth HB. *Improving Patient Treatment Adherence: A Clinician Guidebook*. New York, NY: Springer; 2010:301.

13. Marx G, Witte N, Himmel W, Kuhnel S, Simmenroth-Nayda A, Koschack J. Accepting the unacceptable: Medication adherence and different types of action patterns among patients with high blood pressure. *Patient Educ Couns*. 2011;85:468–474. 14. Grenard JL, Munjas BA, Adams JL, et al. Depression and medication adherence in the treatment of chronic diseases in the United States: A meta-analysis. *J Gen Intern Med*. 2011; 26(10):1175–1182. 15. Iuga AO, McGuire MJ. Adherence and healthcare costs. *Risk Manage Healthcare Policy*. 2014;7:35–44. 16. Beena J, Jose J. Patient medication adherence: Measures in daily practice. *Oman Med J*. 2011;26(3):155–159. 17. Nieuwlat R, Wilczynski N, Navarro T, et al. Interventions for enhancing medication adherence. Cochrane Database of Systematic Reviews. 2014;11. DOI: 10.1002/14651858.CD000011.pub4. 18. Lack of medication adherence harms Americans' health: Results from a U.S. national survey of adults. Greenberg Quinlan Rosner Research Public Opinion Strategies. http://pos.org/documents/cahc_2013_public_poll_memo.pdf. Accessed May 23, 2016. 19. Zullig LL, Peterson ED, Bosworth HB. Ingredients of successful interventions to improve medication adherence. *JAMA*. 2013;310(24):2611–2612.

20. Viswanathan M, Golin CE, Jones CD, et al. Interventions to improve adherence to self-administered medications for chronic diseases in the United States: A systematic review. *Ann Intern Med*. 2012;157(11):785–795. 21. Bosworth HB. *Enhancing Medication Adherence: The Public Health Dilemma*. London, United Kingdom: Springer Healthcare; 2012:7–14. 22. Taitel M, Fensterheim L, Kirkham H, Sekula R, Duncan I. Medication days supply, adherence, wastage and cost among chronic patients in Medicaid. *Medicare Medicaid Res Rev*. 2012;2(3):e1–e13. 23. Taitel M, Mu Y, Lou Y, Cannon, A. Impact of mail refill reminders on medication adherence among patients with chronic diseases in a retail community pharmacy. Poster presented at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR), May 16–20, 2015; Philadelphia, PA. 24. Akinbosoye OE, Taitel MS, Grana J, Hill J, Wade RL. Improving medication adherence and healthcare outcomes in a commercial population through a community pharmacy. *Popul Health Manage*. April 2016, ahead of print. doi:10.1089/pop.2015.0176. 25. Taitel M, Jiang J, Akinbosoye O, Orr G. Assessing the relationship between online activity and biometric tracking and medication adherence among members with hypertension. Poster presented at: 36th Annual Meeting and Scientific Sessions of the Society for Behavioral Medicine; April 22–25, 2015; San Antonio, TX. 26. Taitel M, Jiang J, Akinbosoye O, Orr G. The relationship between online activity and biometric tracking and medication adherence among members with diabetes. Poster presented at: 75th Scientific Sessions of the American Diabetes Association; June 5–9, 2015; Boston, MA. 27. Walgreen Co. data on file. 2014. Medication Therapy Management at Walgreens. 28. Taitel M, Lou Y, Huang Z, Nadas J. Face-to-face medication therapy management program at a community pharmacy reduces high risk medication use in the elderly. Poster presented at: Annual Meeting of Academy Health; June 8–10, 2014; San Diego, CA.