



MEDICATION NON-ADHERENCE: ARE THERE EFFECTIVE INTERVENTIONS THAT CAN ADDRESS THIS POTENTIALLY DEADLY, COSTLY AND PREVENTABLE BEHAVIOR?

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DukeMedicine

DISCLOSURES

**Veterans Affairs Health Services
Research & Development Career
Development Award
(CDA 13-025)**



**Pilot Awards:
Duke Cancer Institute;
Duke Global Health Institute;
Duke University
O' Brien Center for Kidney Research**



AGENDA



The Problem of Medication Non-Adherence



Defining Medication Non-Adherence



Influencing Factors



Tools for Improvement



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TAKING MEDICATIONS IS COMMON



Prescription rates have **increased 39%** over the past 10 years.

Four out of every five American adults take at least 1 medication per week.

On average, **20% of an employer's population** have at least 1 chronic condition and take 4 or more medications. These members represent **80% of health care costs**.

Osterberg L, Blaschke T. "Adherence to Medication." *New Engl.J. Med.*, Aug 4, 2005; 353(5): 487-97.

Fischer MA, Choudhry NK, et al. "Trouble Getting Started: Predictors of Primary Medication Nonadherence." *Am. J. of Med.*, 2011 November; 124(11): 1081.e9 – 1081.e22; See also, Fischer MA, Stedman MR, Lii J, et al. "Primary Medication Non-Adherence: Analysis of 195,930 Electronic Prescriptions." *J. Gen. Intern. Med.*, 2010 April; 25(4): 284–290.

Sokol MC, McGuigan KA, Verbrugge RR, Epstein RS. "Impact of Medication Adherence on Hospitalization Risk and Healthcare Cost." *Med Care.* Jun 2005 ;43(6):521-30.

Prescriptions for a Health America. Available from: http://adhereforhealth.org/who-we-are/medication-adherence/#_edn1

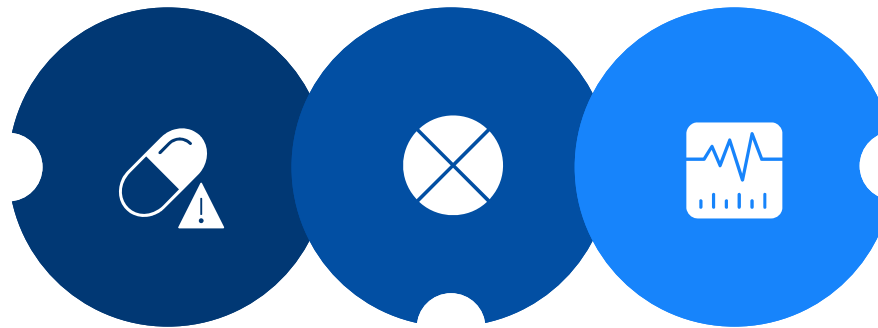
<https://www.triahealth.com/About>





NON-ADHERENCE IS ALSO COMMON

Half of all patients don't take their medications as prescribed



Adherence is lowest among patients with chronic diseases

More than 1 in 5 new prescriptions go unfilled

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HEALTH EFFECTS

At least 125,000
Americans die annually due to
poor medication adherence

86% of studies showed
medication adherence
positively impacted clinical
outcomes

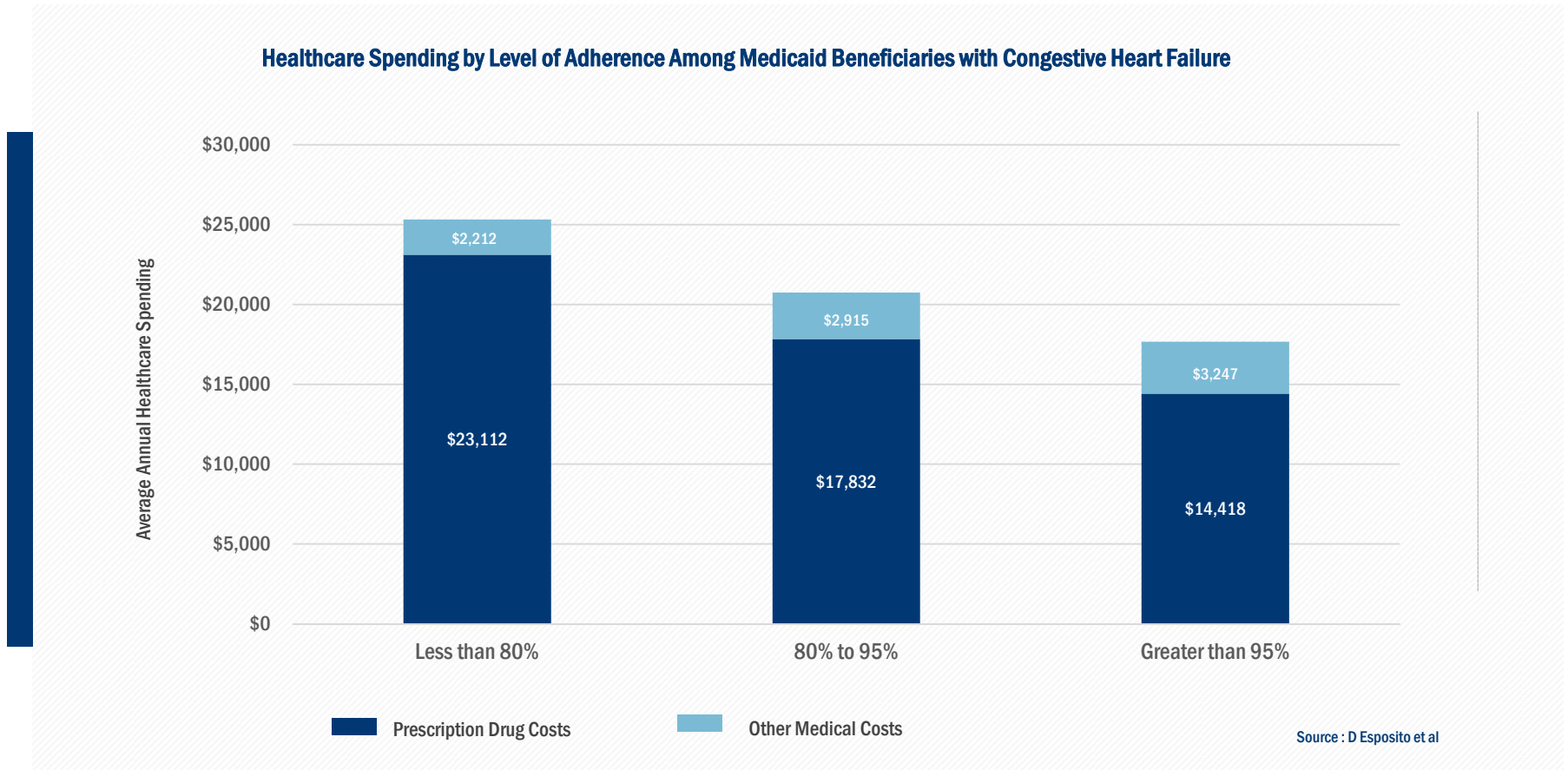
National Council on Patient Information and Education. Accelerating Progress in Prescription Medicine Adherence: The Adherence Action Agenda. A National Action Plan to Address America's "Other Drug Problem." October 2013.
<http://bemedicinesmart.org>.

FOCUS-Value Based Health Management: A Closer Look. GlaxoSmithKline; <https://www.optum.com/content/dam/optum/resources/whitePapers/high-potential-medication-adherence-wp.pdf>



HEALTH CARE USE & COST

Poor medication adherence results in 33% to 69% of medication-related hospital admissions in the United States.



FOCUS-Value Based Health Management: A Closer Look. GlaxoSmithKline; <https://www.optum.com/content/dam/optum/resources/whitePapers/high-potential-medication-adherence-wp.pdf>
Esposito, Dominick, et al. "Medicaid beneficiaries with congestive heart failure: association of medication adherence with healthcare use and costs." *The American journal of managed care* 15.7 (2009) 437-445.



COSTLY PROBLEM

About **\$318 billion** in avoidable health-related spending each year!

Direct costs of medication non-adherence are about **\$100 billion** each year



Total savings from adherence could be **\$290 billion** annually –
13% of health spending

Fischer, Michael A., et al. "Primary medication non-adherence: analysis of 195,930 electronic prescriptions." *Journal of general internal medicine* 25.4 (2010): 284-290.

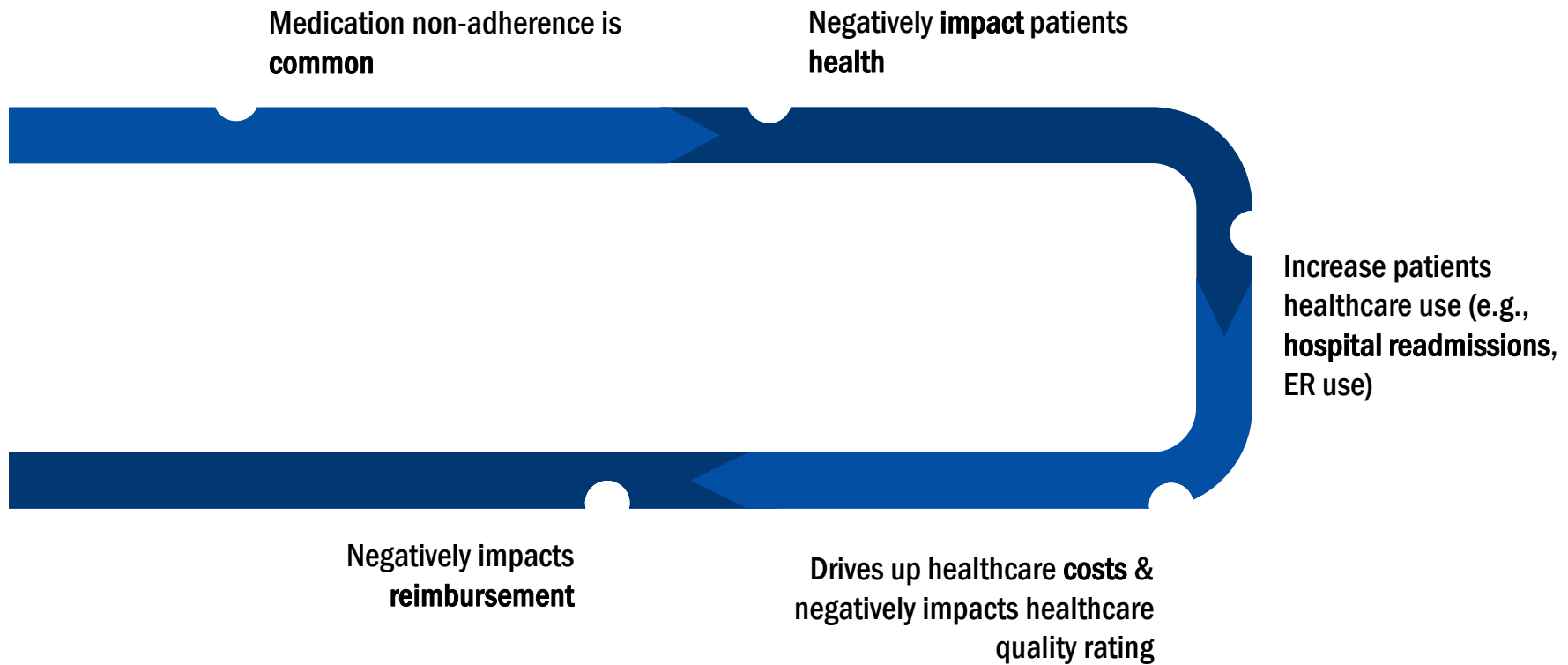
Mahoney, John J., et al. "The unhidden cost of noncompliance." *J Manag Care Pharm* 14.6b (2008): S1-29.

2 Osterberg L, Blaschke T, N Engl J Med. 2005 Aug 4; 353(5): 487-97

Express Scripts 2011 Drug Trend Report. Available from: <http://digital.turn-page.com/1/70797>

Source: 4-6 FOCUS-Value Based Health Management: A Closer Look. GlaxoSmithKline; <https://www.optum.com/content/dam/optum/resources/whitePapers/high-potential-medication-adherence-wp.pdf>





Which in turn makes healthy, selective patients potentially less likely to use healthcare system that has lower quality rating





CMS 5-STAR RATING



One-to-five-star scale, with one star for poor performance, three for average, and five for excellent



Performance measures, largely focused on **clinical outcomes**



Clinical outcomes carry **3 times the weight** in overall score





REIMBURSEMENT



Direct bonus payments

Rebates returned to
beneficiaries





2016 Part C & D Star Rating Measures

Measure

Medication Adherence for Diabetes Medications

Medication Adherence for Hypertension (RAS antagonists)

Medication Adherence for Cholesterol (Statins)

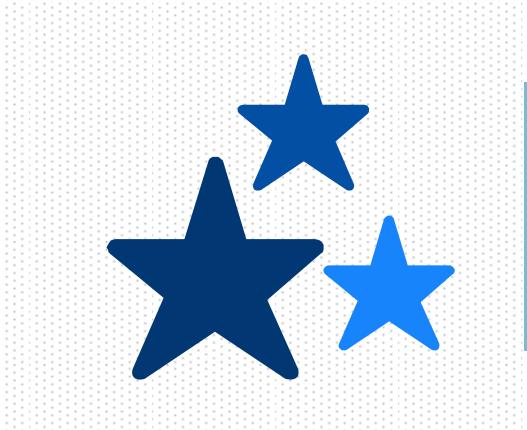
Medication Therapy Management Program Completion Rate for Comprehensive Medication Reviews

Points





SYNERGISTIC EFFECT

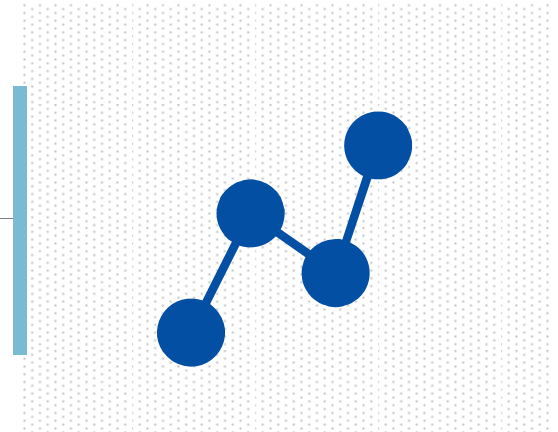


Earn more stars

Attract plan enrollees

1 star rating increase is associated with 9.5% increased likelihood of
new enrollee selecting your plan

4.4% increased likelihood for people switching plans



<http://americanactionforum.org/research/primer-the-medicare-advantage-star-rating-system>

<http://americanactionforum.org/research/medicare-advantage-star-ratings-detaching-pay-from-performance>

http://aishealth.com/sites/all/files/mapd_gfb_ch2_0.pdf



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DEFINING MEDICATION ADHERENCE

ADHERENT

NON-ADHERENT



TYPES OF MEDICATION NON-ADHERENCE



PERSISTENCE

Sabate E. 2003. Adherence to Long-Term Therapies: Evidence for Action. WHO.

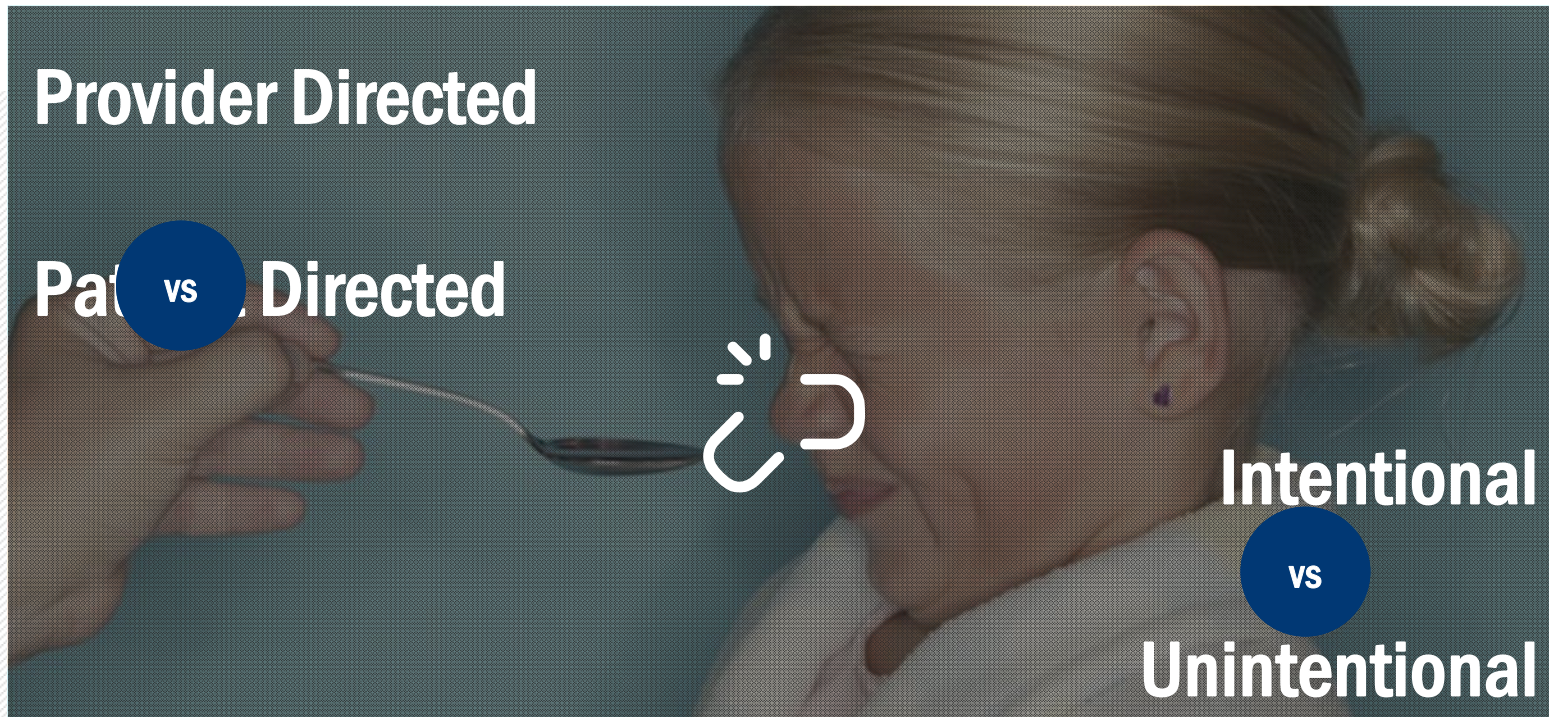
IOM. 2007. Preventing Medication Errors: Quality Chasm Series. National Academies Press.

Cramer J, Spilker B. Patient Compliance in Medical Practice and Clinical Trials. New York; 1991:414.



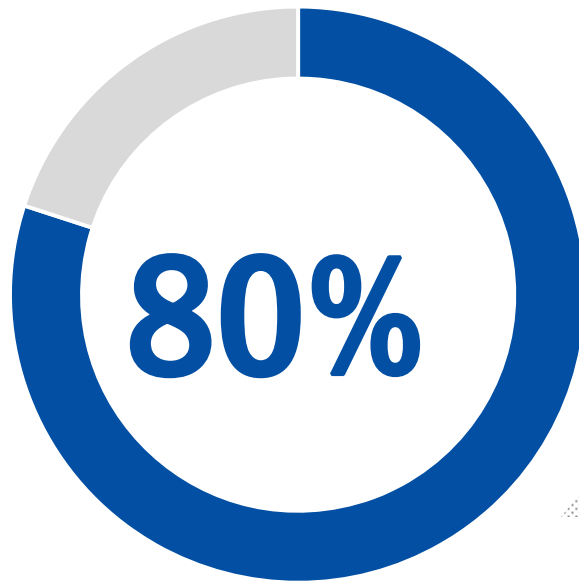


DISCONTINUATION





INTENTIONAL VS. UNINTENTIONAL



**OF NON-ADHERENCE MAY BE
INTENTIONAL**



Available from: <http://www.managedcaremag.com/archives/1301/1301.adherence.html>





Key Definitions

- **Dissemination:** Active approach of spreading evidence-based interventions to the target audiences via determined channels using planned strategies
- **Implementation:** Process of putting to use or integrating evidence-based interventions within a specific setting
- **Evidence-Based Intervention:** Interventions with proven efficacy and effectiveness



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What we see is not the problem...

An iceberg floating in a blue ocean under a blue sky. The tip of the iceberg is above the water, and the much larger base is submerged. Several text boxes are overlaid on the iceberg, with the top one on the tip and the others descending into the water.

Non-Adherence

Uninformed Decision-Making

Poor Communication

Disengaged Patients

Complex Drug Regimens

Financial & Cognitive Constraints

Mismatched Preferences

...just the tip of hazardous contributing factors.





- Limited language proficiency
- Low health literacy
- Unstable living conditions/ homelessness
- Lack of health insurance
- Medication cost

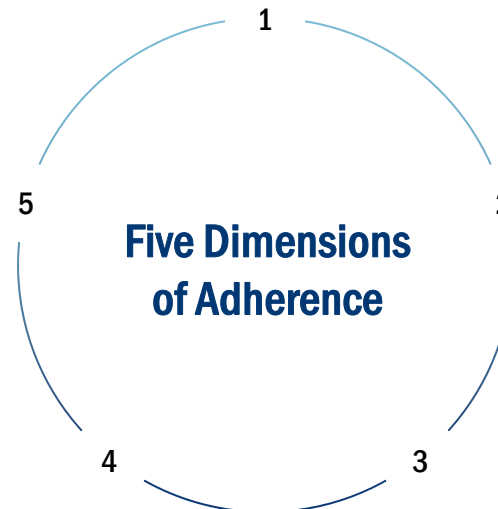


Social & Economics

- Visual, hearing, cognitive impairment
- Knowledge about disease
- Perceived risk/ susceptibility to disease
- Perceived benefit of treatment
- Motivation and confidence



Patient - Related



- Patient-provider relationship
- Long wait times
- Lack of care continuity
- Restricted formularies



Health Care System

- Complexity of the medication regimen
- Duration of therapy
- Frequent changes
- Actual or perceived side effects



Therapy - Related

Condition - Related



- Lack of symptoms
- Severity of symptoms
- Depression
- Psychotic disorders





Provider Barriers

- Lack of knowledge and poor communication with patients about: drug costs, insurance, patients' adherence history
- Complex regimens make it difficult to provide patients with proper information about safe and appropriate medication use



Healthcare System Barriers

- High drug costs
- Administrative issues (e.g., formulary complexity, prior authorization requirements)
- Insufficient access to, and coverage for, medications
- Inadequate health information technology solutions



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Adherence Improvement Toolbox



- Reminders
- Smartphone apps
- Smart pill bottles
- Dispenser systems
- Cuing
- Literacy interventions
- Health coaching
- Medication synchronization
- Financial assistance
- Medication therapy management





KEYS TO EFFECTIVE INTERVENTIONS



—● Modest effect sizes can be significant if they improve clinical outcomes

—● A health outcome is the endpoint

—● No one-size-fits-all intervention

—● Combinations of 2+ interventions that address different dimensions





<http://www.cdc.gov/cancer/crccp/sem.htm>



Tailored Solutions to Improve Adherence



Reason for Non-Adherence

Solution Strategy

Don't know the need to take the medication

Medication counseling using motivational interviewing

Forget to order refills

Electronic refill reminders (e.g. telephone calls, email, text messages)

Forget to take each dose

Dose reminders or packaging solutions

Can't make multiple trips to the pharmacy to pick up multiple medications

Medication synchronization

Can't tolerate side effects

Prescriber collaboration

Can't afford cost

Formulary review or patient assistance programs





Phases of Chronic Medication-Taking



INITIATION



- ☐ Level of motivation
- ☐ Readiness for change
- ☐ Self-efficacy
- ☐ Problem solving



IMPLEMENTATION



- ☐ Tailored support
- ☐ Motivational interviewing
- ☐ Setting goals
- ☐ Cuing



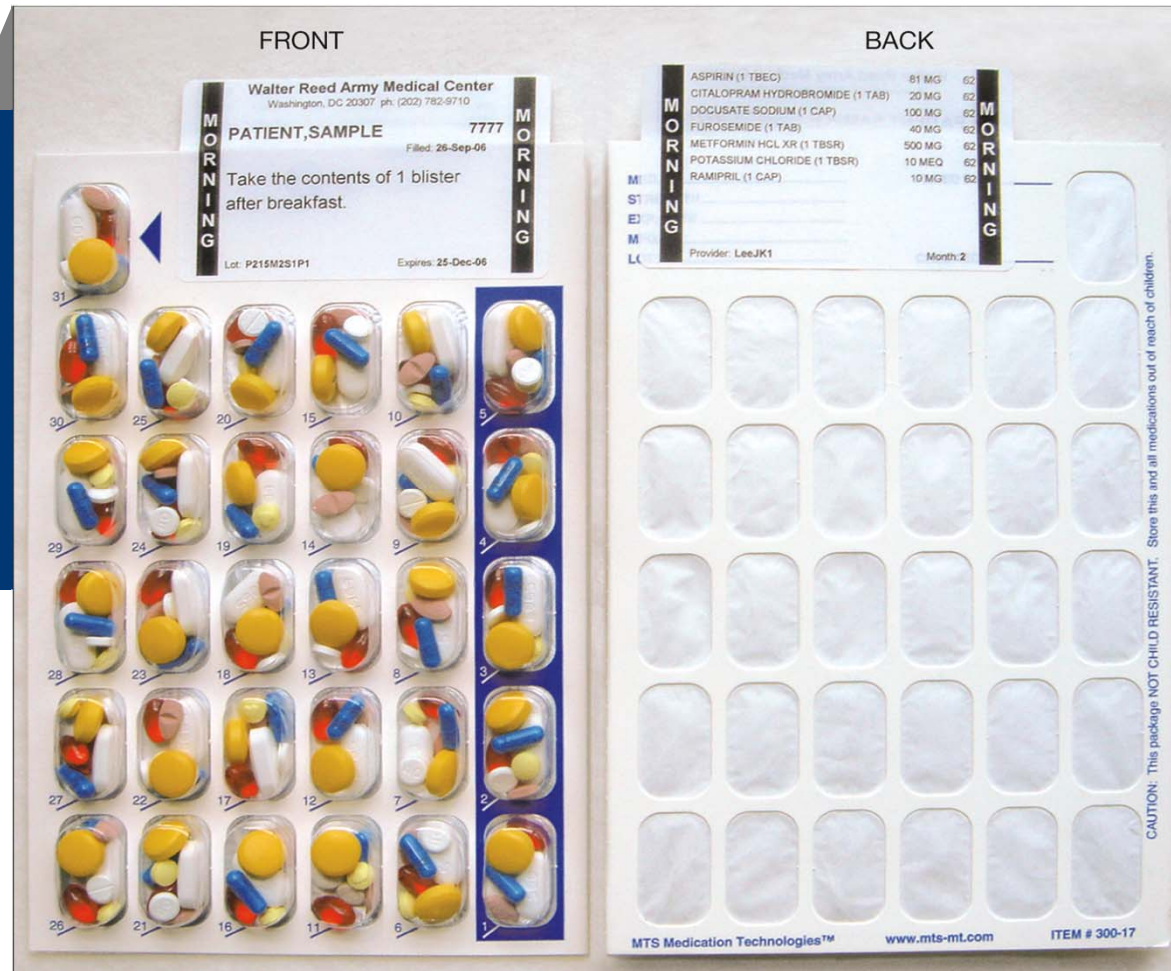
PERSISTENCE



- ☐ Long-term communication
- ☐ Self-monitoring
- ☐ Reinforcement
- ☐ Shared decision making



Blister Packaging

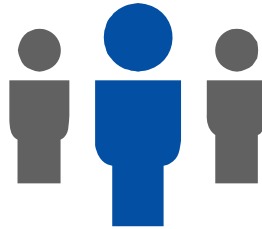


Lee, Jeannie K., Karen A. Grace, and Allen J. Taylor. "Effect of a pharmacy care program on medication adherence and persistence, blood pressure, and low-density lipoprotein cholesterol: a randomized controlled trial." *Jama* 296.21 (2006): 2563-2571.

Conn, Vicki S., et al. "Packaging interventions to increase medication adherence: systematic review and meta-analysis." *Current Medical Research & Opinion* 31.1 (2014): 145-160.



Health Literacy



One in every 3 American has low health literacy



Polyglot Systems, Inc. Meducation. Available from: <http://www.pgsl.com/Products/Meducation.aspx>.



Medication Synchronization

- Med sync patients had 3.4 to 6.1 greater odds for adherence
- Med sync patients more likely to be taking medications for chronic diseases after 1 year



Holdford, David A., and Timothy J. Inocencio. "Adherence and persistence associated with an appointment-based medication synchronization program." J Am Pharm Assoc 53.6 (2013): 576-583.





Predictive Analytics

Extract information from EHR and pharmacy data

Determine patterns and characteristics

Identify patients who may benefit most from intervention





Multicomponent Interventions



Educational



**Behavioral &
Motivational**



System Level



Self-Monitoring: Mobile Optimized

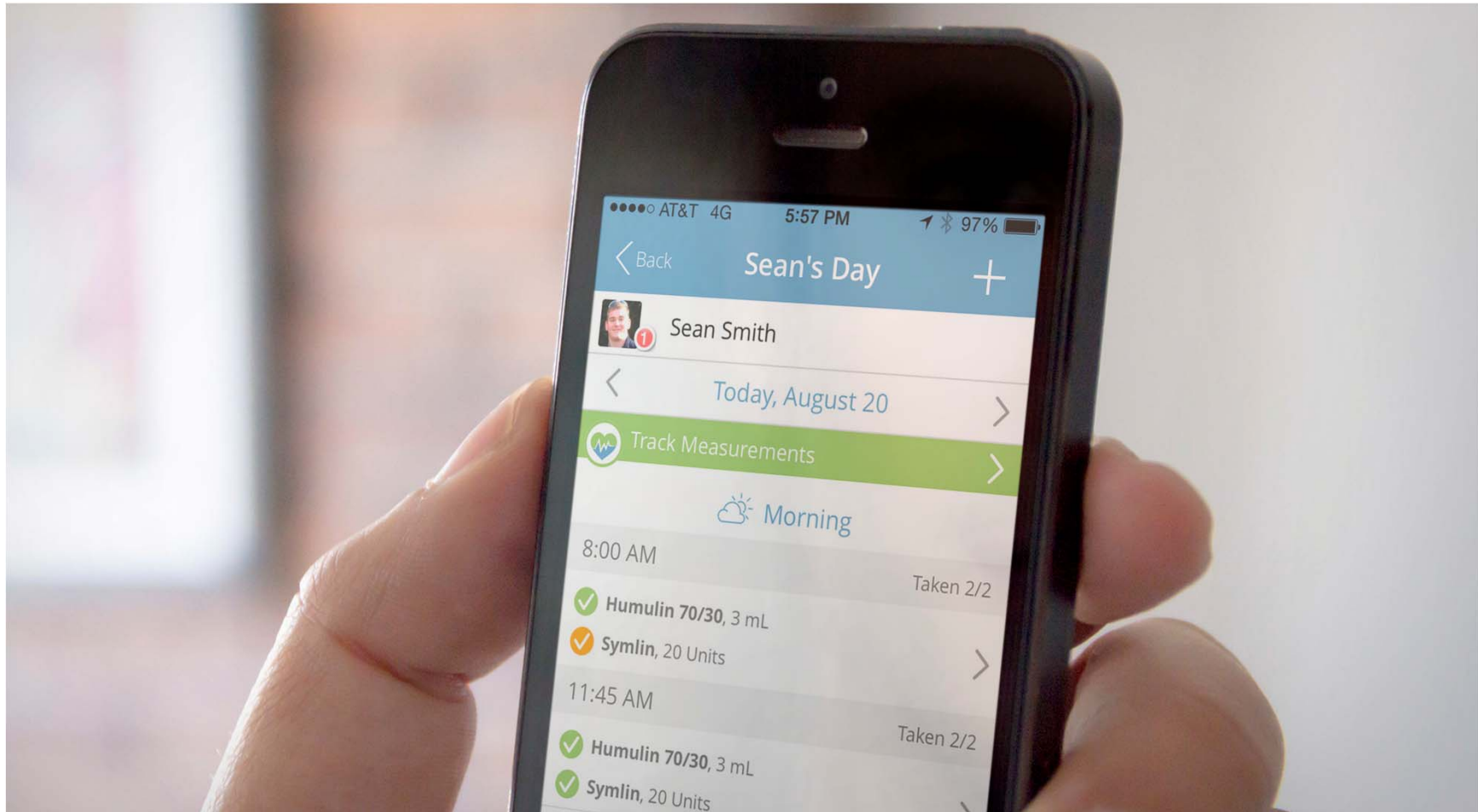


Image from: <http://www.prweb.com/releases/caresync/financing/prweb12261607.htm>





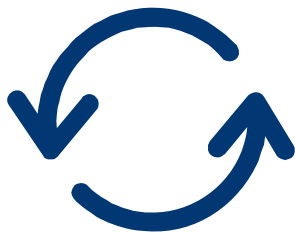
Treatment



Adherence



Outcome



eg. med
synchronization



improved
adherence



better diabetes and
hypertension control





Resources



Agency for Healthcare Research and Quality Medication Adherence Interventions: Comparative Effectiveness

http://www.effectivehealthcare.ahrq.gov/ehc/products/296/1248/EvidenceReport208_CQGMedAdherence_FinalReport_20120905.pdf



Summary



Medication non-adherence is common, costly problem.

Factors contributing to non-adherence are complex, thus solutions to address it must be multidimensional.

We have evidence based tools and strategies to improve non-adherence.

It is important to select targeted tools that match reasons for non-adherence.





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