Addressing the Challenge of Medication Adherence

Jan Berger MD, MJ
President and CEO
Health Intelligence Partners
Drugs Have Become the Mainstay of Healthcare Treatment

Figure 1. Trends in the percentage of persons using prescription drugs: United States, 1999–2008


NOTE: Age adjusted by direct method to the year 2000 projected U.S. population.

SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey.
Adherence among patients with chronic conditions averages only 50%.

Nearly 1/3 of patients don’t fill the prescriptions they are given.

Nearly 3 in 10 stop taking a medication before their supply runs out.

Nearly 1/4 take less than the recommended dose.

Poor medication adherence costs an estimated $310B annually in total direct and indirect health care costs.

National Medication Adherence Report Card

The National Report Card on Adherence is based on an average of answers to questions on nine non-adherent behaviors. The score can range from 0 (non-adherence on all nine behaviors) to 100 (perfect adherence). Grouping adherence level, an A grade was earned for being completely adherent, and four or more non-adherent behaviors resulted in an F.

AVERAGE SCORE: C

The Problem is Not New

Keep a watch...on the faults of the patients, which often make them lie about the taking of things prescribed. For through not taking Disagreeable drinks, purgative or other, they sometimes Die.

-Hippocrates

“Drugs don’t work in patients that don’t take them.”

—C. Everett Koop, M.D.
There is no impending pharmaceutical discovery, surgical innovation, or governmental policy change with greater potential for improving the health of patients and the efficacy of the healthcare system than simply increasing the percentage of treatment plans that patients carry out as prescribed.

Increasing the effectiveness of adherence interventions may have a far greater impact on health of the population than any other improvement in specific medical treatment.
Health Reform and the Issue of Medication Adherence

- Payment Reform
- New Provider Models
- Reduction of Out of Pocket Cost Barriers
- Care Coordination
- Health Information Technology
Definition of Adherence

Taking a medication in the manner and for the length of time agreed upon between the healthcare consumer and their healthcare provider
All Non Adherence is Not The Same

- Non-Intentional- Most commonly a passive action
- Intentional- An active decision on the part of the patient
- Primary- Prescription given but the patient never fills the medication
- Secondary- The patient has filled the medication at least one time
Almost 25% of patients don’t fill their first prescription

<table>
<thead>
<tr>
<th>Therapy</th>
<th>Percent Filled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutritional Products</td>
<td>81.53</td>
</tr>
<tr>
<td>Genitourinary Products</td>
<td>81.38</td>
</tr>
<tr>
<td>Cardiovascular Agents</td>
<td>80.42</td>
</tr>
<tr>
<td>Central nervous System Drugs</td>
<td>79.70</td>
</tr>
<tr>
<td>Gastrointestinal Agents</td>
<td>78.67</td>
</tr>
<tr>
<td>Respiratory Agents</td>
<td>78.25</td>
</tr>
<tr>
<td>Topical Products</td>
<td>78.02</td>
</tr>
<tr>
<td>Neuromuscular Drugs</td>
<td>76.60</td>
</tr>
<tr>
<td>Endocrine &amp; Metabolic Drugs</td>
<td>76.09</td>
</tr>
<tr>
<td>Analgesics &amp; Anesthetics</td>
<td>74.13</td>
</tr>
<tr>
<td>Anti-Infective Agents</td>
<td>73.34</td>
</tr>
<tr>
<td>Hematological Agents</td>
<td>61.62</td>
</tr>
<tr>
<td>Antineoplastic Agents</td>
<td>51.69</td>
</tr>
</tbody>
</table>

Many patients stop taking their medications
Adherence rates plummet in just a few months

<table>
<thead>
<tr>
<th>Treatment area</th>
<th>3 months</th>
<th>6 months</th>
<th>12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol</td>
<td>60%</td>
<td>52%*</td>
<td>41%*</td>
</tr>
<tr>
<td>Diabetes (type 2)</td>
<td>53%</td>
<td>43%</td>
<td>38%</td>
</tr>
<tr>
<td>Obesity</td>
<td>48%</td>
<td>41%</td>
<td>35%</td>
</tr>
<tr>
<td>Hypertension</td>
<td>47%</td>
<td>34%</td>
<td>30%</td>
</tr>
<tr>
<td>Depression</td>
<td>30%</td>
<td>20%</td>
<td>8%</td>
</tr>
</tbody>
</table>

By the end of the first year of treatment, 50 to 90% of patients stop taking their prescribed therapies.

* Adherence rate ranges were averaged.  
Source: Various sources; A.T. Kearney analysis
Why Does Adherence Matter?

- 25%: Percentage of coronary artery patients discontinuing drug therapy after 6 months
- 100,000: Number of deaths annually due to poor medication adherence; on par with those caused by stroke
- $310B: Annual cost of poor adherence
Rx Adherence Vs. Medical Spend: Diabetes

Increased drug spend and adherence results in an overall decrease in medical expenditures for diabetes.

Figure 1: Costs of medication nonadherence
Additional annual cost of treatment for a nonadherent vs. an adherent patient

- Congestive heart failure: $7,823
- High blood pressure: $3,908
- Diabetes: $3,765

Source: Medication Adherence Leads To Lower Health Care Use And Costs Despite Increased Drug Spending, Health Affairs (2011)
Survey After Hospital Discharge Reveals Medication Adherence is the #1 Issue

Resources Required for Patients in the 24 to 72 Hours Post Discharge

- Haven’t filled Rx: 31%
- Need help around the house: 19%
- Financial barriers to care: 15%
- Needs same day follow up with care manager: 13%
- No follow up with provider: 11%
- Need transportation: 11%

N = 1,400
Source: Silverlink Communications, Inc.
A Complex Challenge: Barriers to Adherence

• While it may seem to be a simple issue, many factors contribute to adherence problems
• For outcomes to be improved, many factors must be addressed

Barriers to Adherence: No “Magic Bullet”

<table>
<thead>
<tr>
<th>Patient Level</th>
<th>Physician Level</th>
<th>System Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Understanding how to use medication</td>
<td>- Communications about drug costs</td>
<td>- Access / coverage</td>
</tr>
<tr>
<td>- Understanding illness &amp; importance of the medication</td>
<td>- Knowledge of drug costs</td>
<td>- Complexity of formularies</td>
</tr>
<tr>
<td>- Affordability / coverage</td>
<td>- Communications about safe and appropriate use</td>
<td>- Administrative barriers</td>
</tr>
<tr>
<td>- Complexity</td>
<td>- Knowledge about patient adherence</td>
<td>- Prior authorization</td>
</tr>
<tr>
<td>- Side effects</td>
<td></td>
<td>- Barriers to access to care</td>
</tr>
<tr>
<td>- Family support</td>
<td></td>
<td>- Economy</td>
</tr>
<tr>
<td>- Understanding drug costs</td>
<td></td>
<td>- Physician / patient relationship</td>
</tr>
<tr>
<td>- Communications about drug costs</td>
<td></td>
<td>- Health IT</td>
</tr>
</tbody>
</table>

- Economy
- Physician / patient relationship
Survey Reveals Challenges for Patients on Prescription Medication for Chronic Illnesses

- **40%** say they haven't followed doctor's instructions or have skipped taking their meds at least once in the past year.

- **More than a quarter** said they've stopped taking medications altogether or never even filled a prescription.

- **25%** of respondents said taking medication makes them feel old.

- **21%** said they worry when they take meds, and **10%** said it reminds them of their illness and makes them feel sad.

Survey conducted by Healthprize

n=>1,000
Different Patients Cite Different Reasons for Low Adherence

Percent of respondents citing reasons for not adhering to drug regimens

- Sometimes forget to use or refill: 24%
- Don’t want the side effects: 20%
- The drug costs too much: 17%
- Don’t think I need the drug: 14%
- Can’t get Rx filled, picked up, or delivered: 10%
- Don’t know how to use drug: 1%
- Other: 10%

Additional Insights on What Gets in the Way...

Barriers to Medication Adherence
Medicare Population

I am convinced of the importance of my prescription medications

- Agree
- Neutral
- Disagree

I feel financially burdened by my out-of-pocket expenses for my prescription medication

- Agree
- Neutral
- Disagree

My medication will do more harm than good

- Agree
- Neutral
- Disagree

N = 5,271
Source: Silverlink Communications, Inc.
Most patients don’t realize what they don’t do

<table>
<thead>
<tr>
<th>“How frequently, if at all, do you perform the following Rx-related activities?”</th>
<th>Regularly</th>
<th>Occasionally</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forget to take a prescription medication</td>
<td>1%</td>
<td>20%</td>
<td>40%</td>
<td>39%</td>
</tr>
<tr>
<td>Refill a prescription late</td>
<td>2%</td>
<td>14%</td>
<td>30%</td>
<td>55%</td>
</tr>
<tr>
<td>Take a dose of a medication off of the recommended schedule</td>
<td>2%</td>
<td>12%</td>
<td>28%</td>
<td>58%</td>
</tr>
<tr>
<td>Stop taking medication before the allotted treatment time runs out</td>
<td>2%</td>
<td>11%</td>
<td>21%</td>
<td>67%</td>
</tr>
<tr>
<td>Don’t purchase a prescribed drug due to the medication’s cost</td>
<td>4%</td>
<td>11%</td>
<td>15%</td>
<td>70%</td>
</tr>
<tr>
<td>Take a lower dose of the medication (e.g., split pills) to save money</td>
<td>2%</td>
<td>7%</td>
<td>10%</td>
<td>80%</td>
</tr>
</tbody>
</table>

Source: Consumer Technographics® Q2 2005 North American Survey
Quick Take “Rx Adherence Hits The Ignorance Wall,” 2006
Women of All Ages Struggle More than Men to Follow Doctor's Orders

32% of women said they've quit taking medications or didn't fill a prescription, compared with 20% of men.

20% of women also said they're more likely to follow a prescription if it's for a pet rather than for themselves.

People of both genders report that they don't always trust their doctor's judgment.
The Biggest Non-adherence Culprits are Millennials

56% of millennial reported stopping their medications altogether or had never filled a prescription, compared to 16% of people ages 65 and older

23% of all survey respondents said they don't always trust their physicians or the medications they prescribe
The Provider-Patient Disconnect

- 83% of Patients would not tell their doctor that they did not take their medications
- 74% of doctors believe that their patients are adherent to their medications

Goldberg et al, Social Science Medicine 1998
Lepane, AJMC 2007
What do we know about how to intervene to improve adherence?
"My diabetic research shows that test subjects are 98% more likely to take their diabetic pills if the pills are covered in chocolate."
Beliefs Don’t Predict Behavior

• When asked 90% of patients stated that taking their medications was important to their health
• At the end of one year over 50% of patients stopped taking their medications

So what is the disconnect?
Patients Want Caring Physicians


Money Matters

But how much?
Physicians Are Rarely Aware Of Patients’ Out-Of-Pocket Costs

<table>
<thead>
<tr>
<th>Physician Familiar with Patient’s:</th>
<th>Familiar “Most” or “All” of the Time</th>
<th>Familiar “Some of the Time”</th>
<th>Familiar “Seldom” or “Never”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurer</td>
<td>47%</td>
<td>24%</td>
<td>29%</td>
</tr>
<tr>
<td>Formulary</td>
<td>16%</td>
<td>25%</td>
<td>59%</td>
</tr>
<tr>
<td>Out-of-Pocket Costs</td>
<td>10%</td>
<td>20%</td>
<td>70%</td>
</tr>
</tbody>
</table>

Shrank et al. AJMC, 2005
Patients Unaware of Costs of Medication at the Point of Prescribing

Shrank, AJMC 2005
Systematic Review of The Effect of Copayments on Adherence

**Increased cost-sharing** associated with lower rates of drug use, worse adherence among existing users, and more frequent discontinuation of therapy.

For every 10% increase in cost sharing, **drug use decreases by 2-6%**.

For patients with CHF, lipid disorders, diabetes, and schizophrenia, **higher copayments** are associated with increased use of medical services.

Cost Alone Does Not Solve The Problem

• Studies have shown that plan design changes that reduce a patient's out of pocket expenses for medications without any other interventions increases medication adherence by 3-11%.

• Adding personalized communications and coaching can more than double these rates with increases of 20-25%.
Communications: Personalize the Message

Not a Best Practice!

October 13, 2010

Dear Resident(s),

WELCOME to BARRON PARK!*!*! We hope that you will find the following items in our Greeting Packet useful.

All residents receive the Barron Park Association Newsletter in Spring, but you must subscribe to receive the other issues quarterly. A recent issue is included for you to sample, with a separate membership form to encourage you to subscribe.

The Weekly’s Resource Guide Info (once a year) will come to you, along with the Weekly, by mail.

The Neighborhood Watch material is something you’re probably already familiar with. The Neighborhood Watch program is organized by local neighborhood organizations.
Health Literacy is critical

October 15, 2010

USA care is reaching out to make sure that you are adherent to the health care that your physician had prescribed for you in order to maximize your health and manage your diabetes.

Doctors recommend that you see an ophthalmologist and receive a slit lamp eye exam annually. In addition, you should receive an Hemoglobin A1c semi annually.

Our records show that an appointment is required with your ophthalmologist for an eye exam and endocrinologist or primary care physician for your hemoglobin A1C.

Remember, it is the time of year to discuss your influenza vaccine in order to protect yourself.
### Physician-Patient Communication About New Medications

<table>
<thead>
<tr>
<th></th>
<th>1. Physicians stated the medication name for 74% of new prescriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Explained the indication 87% of time</td>
</tr>
<tr>
<td></td>
<td>3. Adverse effects addressed for 35% of medications</td>
</tr>
<tr>
<td></td>
<td>4. Duration of therapy 34%</td>
</tr>
<tr>
<td></td>
<td>5. Explicit instructions about the number of tablets to take 55% and frequency or timing of dosing 58% <em>Tarn D. Archives of Internal Medicine. 2007</em></td>
</tr>
<tr>
<td></td>
<td>6. Patients frequently do not remember their conversations with doctors <em>Fletcher SW, Journal of Community Health 1979</em></td>
</tr>
</tbody>
</table>

Patients frequently do not remember their conversations with doctors *Fletcher SW, Journal of Community Health 1979*
Many Patients Cannot Understand Labels

- IOM finds that almost half patients have low-health literacy

- In an evaluation of 395 patients shown 5 medication labels
  - Correct understanding ranged from 67.1% to 91.1%
  - Low literacy patients did worse and were less able to understand all 5 label instructions
  - Only 34.7% could demonstrate the number of pills to be taken daily

Davis T, Annals of Internal Medicine 2006
Can Written Material Fill The Void? What is The “Label”? 

**Container Label**

**Consumer Medication Information (CMI)**

**Package Insert**

**Medication Guide**
Implications of Therapeutic Complexity on Medication Adherence

- Evidence that complex dosing schedules negatively impact adherence

- But medication complexity also involves number of:
  - Pharmacies
  - Visits to the pharmacy
  - Prescribers

- Purpose of this study was to:
  - Define the magnitude of treatment complexity
  - Determine the impact of complexity, refill synchronicity, and a “pharmacy home” on medication adherence
  - Estimate the potential impact of simpler medication regimens on adherence, health outcomes and health care utilization
A simple prediction rule may help us design interventions to reduce complexity and improve adherence.
Social Support: Leveraging Caregiver / Buddy System to Drive Adherence

- Filling Pill Boxes
- Reading Labels
- Paying for Medications
- Providing Transportation
- Picking Up Prescriptions
- Providing Encouragement & Reassurance

AJMC, December 2012; vol. 18 no. 12 c461-c467
Technology: Using Text Messaging to Support Medication Adherence

- Series of multiple educational text messages and adherence reminders

- One-way or two-way, interactive messages sent weekly

- Interactive prescription refill survey several weeks into the program.

Interactive Messaging

One-Way Reminders

- Stay Healthy!
  Be sure to refill your medicine on time. If you’re having trouble taking your meds or refilling on time, chat w/your Dr.

- Know your numbers!
  Regular A1C & Cholesterol tests can help avoid harm to kidneys, eyes, heart & feet. Visit USACare.com

- Keep your A1C near normal, 7.0% or less can add 5 yrs to your life. Aim for a Cholesterol of 100.

- Eating & taking your meds at about the same time each day helps you keep your blood sugar at the right level.

Don’t miss or skip on those meds! Are you on track with your refills? Reply REFILL Yes or REFILL No
Case Study: Adherence

- Focused on people who were more than **21 days** past due for a **100-day refill**
- **85%** better refill rate among those listening to the message

- **Targeted** members with diabetes and/or heart disease
- **71%** of targeted members heard the message
- Conducted a **barrier survey** during call and provided results back to client

- **13%** of those with side effects eventually refilled
- **42%** of those with convenience issues eventually refilled
What Employers Can Do

• Make it a corporate focus
• Data matters
• Align incentives
• Benefit design
• Vendor based adherence summit
Aggregate-Integrate-Analyze
Aligned Incentives
Value-Based Benefit Design Approaches

- **Therapeutic class-based**
  - Copay waiver for generics within high-value therapeutic classes (i.e., high blood pressure)
  - Move all generic and brand drugs within a therapeutic class to a lower tier

- **Risk-based**
  - Copay incentives for high-risk consumers taking high-value drugs according to evidence-based medicine

- **Compliance-based**
  - Copay incentives for consumers who are compliant with health management model (i.e., HRQ, biometric; medication adherence)
The Vendor Summit
Final Thoughts

• Medication non-adherence is a serious healthcare problem that has high clinical and financial implications to patients and payers

• There are a number of reasons that patients are non-adherent to their medications

• There are a number of solutions that are available to minimize the risk member non-adherence

• In order to maximize medication adherence solutions need to be personalized and multi-faceted