MEDICATION ADHERENCE

Stuart J. Beatty, PharmD, BCPS
Assistant Professor of Clinical Pharmacy
The Ohio State University College of Pharmacy
April 26, 2012

Have you ever been told to floss daily?
1. Yes
2. No

How frequently do you floss?
1. >95% of the time
2. >80% of the time
3. >50% of the time
4. <50% of the time

Quantifying Adherence
- No universal definition
- >95%
- >80%
- No missed doses
- Current estimates of adherence
  - 17%-80%
  - Diabetes <2%
  - Asthma <28%

Quantifying Adherence
- 29% discontinue prescription
- 22% take less than prescribed amount
- 12% never even fill the prescription
- 59% with polypharmacy are taking improperly
- 76% discrepancy rate

Clinical and Economical Impact
- Primary cause of suboptimal clinical benefit
- Increase in morbidity and mortality
  - 125,000 deaths annually
  - 22% of hospital admissions
  - 25% of nursing home admissions
  - 112 million unnecessary visits to HCP
- Increase in health care costs
  - $100-$300 billion annually
Medication Adherence Assessment

**Adherence Assessment**

- **Direct Methods**
  - Directly Observed Therapy
  - Plasma concentrations
  - Biological markers

- **Indirect Measurements**
  - Questionnaire/Self Reports
  - Pill Counts
  - Pharmacy Databases
  - Clinical Response
  - Electronic Monitors
  - Physiological Markers
  - Patient Diaries

**Adherence Assessment**

- **Morisky Scale**

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you ever forget to take your medicine?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you careless at times about taking your medicine?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When you feel better do you sometimes stop taking your medicine?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sometimes if you feel worse when you take your medicine, do you stop taking it?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CMAG 2006

**Modified Morisky Scale**

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you know the long term benefit of taking your medicine as told to you by your doctor or pharmacist?</td>
<td>Yes (1)</td>
<td>No (0)</td>
</tr>
<tr>
<td>Sometimes do you forget to refill your prescription medicine on time?</td>
<td>Yes (0)</td>
<td>No (1)</td>
</tr>
</tbody>
</table>

CMAG 2006

**Five Dimensions of Adherence**

Before we can improve adherence, we need to know the cause...

WHO 2005
Therapy Related Factors

- Complexity of regimen
- Adverse effects
- Duration of treatment
- Frequency of treatment changes
- Previous treatment failures
- Severity of symptoms

Adherence to Medication According to Frequency of Doses – Claxton et al

Medication Compliance Over Time as Related to the Nature of Therapy

Patient-Related Factors

- Knowledge
- Beliefs
- Attitudes
- Confidence
- Resources
- Forgetfulness

Condition Related Factors

- Level of disability
  - Physical, Psychological
- Severity of symptoms
- Availability of effective treatments
- Co-morbid disease states
  - Depression, Drug/Alcohol Abuse

Social/Economic Related Factors

- Socioeconomic status
- Poverty/High cost of medication
- Illiteracy
- Low level of education
- Unemployment
- Lack of social support networks
- Cultural/Religious beliefs
Health Care System Related Factors

- Poor patient-provider relationships
- Limited health insurance plans
- Lack of training for HCP on adherence
- Limited time of visit
- Lack of outcome-based incentives
- Poor education and follow-up
- Poor continuity of care

Medication Adherence Tools

Pill Boxes

Apps

HealthPrize
Pillboxie
MediRemind

Alarms

Apps

Dosecast
RxMind Me Prescription
Other Factors

- Patient Education
- Motivational Interviewing
- Financial Considerations

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

-C. Everett Koop, M.D.