Medication Adherence and Chronic Disease Management

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Objectives

- Identify the patient role in chronic disease management focusing on adherence and cardiovascular disease
- Provide examples of where adherence and health policy potentially intersect with respect to chronic disease management
Question....
Adherence Definition

“The extent to which a person’s behavior - taking medications, following diet, and/or executing lifestyle changes - corresponds with agreed recommendations from a health care provider.”

Rule of 6

- 1/6 take meds nearly perfectly
- 1/6 take nearly all doses, but irregular timing
- 1/6 miss an occasional single day’s dose and have irregular timing
- 1/6 take "drug holidays" 3-4 times a year, with occasional missed doses
- 1/6 take "drug holidays" monthly or more often with frequent omissions
- 1/6 take few or no doses

Some patients do not fill their initial prescription following a heart attack.

![Graph showing percent not filled for different medications over time.](image)

Those who don’t fill their first prescriptions have a higher chance of dying after a heart attack

- Filled some instead of all prescriptions
  - 44% higher chance of dying within 1 year

- Filled none instead of all prescriptions
  - 80% higher chance of dying within 1 year

Medication discontinuation occurs early after hospital discharge

- Discharge: ~18%
- 1-month: ~15%
- 6-month: ~16%
- 12-month: ~23%

% of Population

*Acetylsalicylic Acid
Ho PM. et al. Arch Intern Med. 2006
### Statin Adherence by Group

<table>
<thead>
<tr>
<th>Follow-up (Weeks)</th>
<th>0.5 y</th>
<th>1 y</th>
<th>1.5 y</th>
<th>2 y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>72.9%</td>
<td>57.5%</td>
<td>47.6%</td>
<td>40.1%</td>
</tr>
<tr>
<td>6</td>
<td>70.4%</td>
<td>54.1%</td>
<td>43.7%</td>
<td>36.1%</td>
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<tr>
<td>12</td>
<td>56.1%</td>
<td>39.4%</td>
<td>30.9%</td>
<td>25.4%</td>
</tr>
</tbody>
</table>

ACS= Acute Coronary Syndrome
CAD= Coronary Artery Disease

The Heart and Soul Study

- 1015 outpatients with heart disease
- VA and community health clinics
- “In the past month, how often did you take your medications as the doctor prescribed?”
- Cardiac Events: cardiac death, heart attack, stroke

Poor adherence is associated with higher costs: hypertension example

<table>
<thead>
<tr>
<th>Adherence level (%)</th>
<th>Medical cost ($)</th>
<th>Drug cost ($)</th>
<th>Total cost ($)</th>
<th>Hospitalization risk (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-19</td>
<td>4847</td>
<td>31</td>
<td>4878</td>
<td>28</td>
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<tr>
<td>20-39</td>
<td>5973</td>
<td>89</td>
<td>6062</td>
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<tr>
<td>40-59</td>
<td>5113</td>
<td>184</td>
<td>5297</td>
<td>24</td>
</tr>
<tr>
<td>60-79</td>
<td>4977</td>
<td>285</td>
<td>5262</td>
<td>20</td>
</tr>
<tr>
<td>80-100</td>
<td>4383</td>
<td>489</td>
<td>4871</td>
<td>19</td>
</tr>
</tbody>
</table>

Solutions?

Prevent & Intervene
World Health Organization’s 5 Dimensions of Adherence

- Complex behavioural process
- Many interacting factors
- No single model or theory to integrate different studies or findings

WHO 2003
Determinants of Nonadherence

Since ~1975, more than 200 variables have been studied, but none solely predicts nonadherence.

Sociodemographic and health status indicators are not generally good predictors of adherence.

Major determinants:
- Polypharmacy
- Poor patient-provider relationships/multiple providers

Little consensus on other variables.

Barriers to Medication Adherence

Patients ↔ Provider

Healthcare System

Osterberg L, et al. NEJM 2005
Most Common Patient Self-Reported Reasons for Nonadherence

- Taking too Many Rx
- Patient Feels Not Needed
- Patient Forgets
- Unclear about Use
- Asymptomatic
- Rx Ran Out, Drug N/A, Cost

Patient’s Role

- Become responsible for your own health
- Become informed & empowered
  - Ask questions
- Work with your health care providers
- Communicate with providers honestly
Improving Adherence

- Single strategies have small effect
- Not surprising since there are many reasons for nonadherence

Intentional nonadherence targets:
  - Information - perceived value (cost-benefit analysis)
  - Beliefs/preferences
  - Confidence/self-efficacy

Nonintentional nonadherence targets:
  - Process oriented
    - Information – skills, techniques
    - Organization
    - Structure
Evidence-Based Strategies to Improve Adherence

**COMBINATIONS of:**
- Instruction and instructional materials
- Counseling about the regimen
- Involving family members
- Support group sessions
- Reinforcements and rewards
- Self-monitoring with regular MD review and reinforcement
- Reminders
- Cuing medications to daily events
- Simplifying the regimen

Start Medications in Hospital

Aronow also found trend to reduced mortality
- 5.7% vs 11.7% (p=0.06 in adjusted model)

Linking initiation of secondary prevention Rx with cardiac admission conveys message of importance of therapy & relation to cardiac event

Targets beliefs & information constructs

Targets process
- System to start Rx in hospital

Policy Barriers

- Medication Costs
- Medication Policies
  - Cost Sharing/Copays
  - Restrictions that present barriers/delays
    - E.g., Prior authorization
  - Restrictive formularies
    - Switching therapies, especially during care transitions
Medication Costs

- Related to socioeconomic status, policies and trust
- Self-reported cost-related medication nonadherence
  - 9.9% in US, 5.1% in Canada
  - Rising to 28.2% in uninsured Americans
  - 23% in US didn’t fill Rx or missed doses due to cost
- Trust between patient and provider is a modifier
  - cost-related underuse ↑ 3X more with low trust relationship with their provider

Cost Sharing Policies

- For every 10% increase in cost sharing, prescription drug spending (surrogate for drug use) decreases by 2% - 6%, varying by drug class & condition
- For example, if copay goes from $5 to $10, then drug spending (& use) will decrease by 10% - 30%
- For some chronic conditions, higher cost sharing is associated with more use of medical services
  - Heart failure, lipid disorders, diabetes, schizophrenia
- Copays are intended to reduce use of “less important” medications by making patients responsible for part of the cost also adversely affect the use of “important” therapies

Decreasing Copayments

- Intervention employer reduced copays for 5 chronic medication classes within a disease management (DM) program
  - Generics: $5 to $0, Brand: $25 to $12.50 (preferred) and $45 to $22.50 (nonpreferred)
- Control employer only did DM program
- Nonadherence was reduced by 7%-14%
  - A lower effect than instituting a copay would have on increasing nonadherence by 10%-30%
  - Decreasing a copay is less effective than increasing a copay on drug use

To evaluate the population level effect on cardiovascular outcomes of a change from a PA policy to a limited use (LU) policy for clopidogrel in patients undergoing stent implantation post-acute myocardial infarction (AMI).

Policy Barriers – Prior Authorization & Outcomes

PA policy associated with:
- Delay in filling Rx (9d) vs. special limited use form (0d)
- Fewer prescriptions filled through government prescription plan

Alabama Medicaid changed to a preferred drug list for statins in 2004 + a limit of 4 brand medications & 10 total medications/patient/month

North Carolina was the control (no change)

Nonadherence in AL pre and post policy change:
  - 39% vs 51%

Increased Chance of Nonadherence Overall

Further Nonadherence For Restricted Statins

Ridley et al. Pharmacoeconomics 2006;24(Suppl 3);65-78.
Drugs don’t work in patients who don’t take them.

C. Everett Koop M.D.
Effect of Doubling Copayment on Medication Use in Chronically Ill Patients

Copay Effect on Statins by Therapeutic Need

Full compliance impact:

- **High risk:**
  - 357 fewer hospitalizations /y/1000 pts

- **Low risk**
  - 42 fewer hospitalizations /y/1000 pts

Medication nonadherence is a common problem that results in poor patient outcomes & economic consequences. Medication adherence may be affected by actions from the patient, the provider and the healthcare system. Drug policies do impact medication use and need to be considered carefully.