

Impact of Medication Adherence on Hospitalization Risk and Healthcare Cost

Medical Care. 2005;43:521-530.

Presented by Rodger Kormylo to the ACSW 11/10/2005

Authors

Michael C. Sokol,* MD, MS

Kimberly A. McGuigan,† PhD

Robert R. Verbrugge, PhD

Robert S. Epstein, MD, MS

Department of Medical Affairs, Medco Health Solutions, Inc.

*Now with GlaxoSmithKline

†Now with Pfizer

Publication

Medical Care

- One of the leading journals for research on healthcare services
- Published by the American Public Health Association
- Peer-reviewed

Background

Many patients with chronic medical conditions do not take their medications as often as prescribed

- Adherence to medication therapy averages only 50% to 65% for common chronic conditions, such as diabetes and hypertension^{1,2}

Poor adherence may increase the risk of health problems, increasing the use of medical resources

The impacts of medication use are often studied in controlled settings (such as clinical trials)

- Do the findings apply in “real life”?
- This study looks at the impacts of medication adherence in a large benefit plan population

¹Nichol MB, Venturini F, Sung JCY. *Ann Pharmacother.* 1999;33:531-540.

²Schlenk EA, Burke LE, Rand C. In: *Compliance in Healthcare and Research.* Armonk, NY: Futura, 2001:57-70.

© 2005 Medco Health Solutions, Inc. All rights reserved.

Study design

Retrospective analysis of pharmacy and medical claims

Population:

- 137,277 patients under age 65
- Employees and dependents of a large manufacturing employer

Study samples:

- Patients with diabetes, hypertension, high cholesterol, congestive heart failure
- Grouped by level of medication adherence, from low to high

Measures: Drug costs, medical costs, hospitalization risk

Analysis:

- Used regression models to measure the impact of medication adherence on cost and risk
- Adjusted for age, gender, comorbidity, and other possible confounding variables

Key findings

A high level of adherence is often associated with:

Lower medical costs

- For diabetes and high cholesterol: Disease-related medical costs were significantly lower for patients with high adherence
- For diabetes, high cholesterol, and hypertension: All-cause medical costs were significantly lower when adherence was high

Lower net healthcare costs (medical cost offsets)

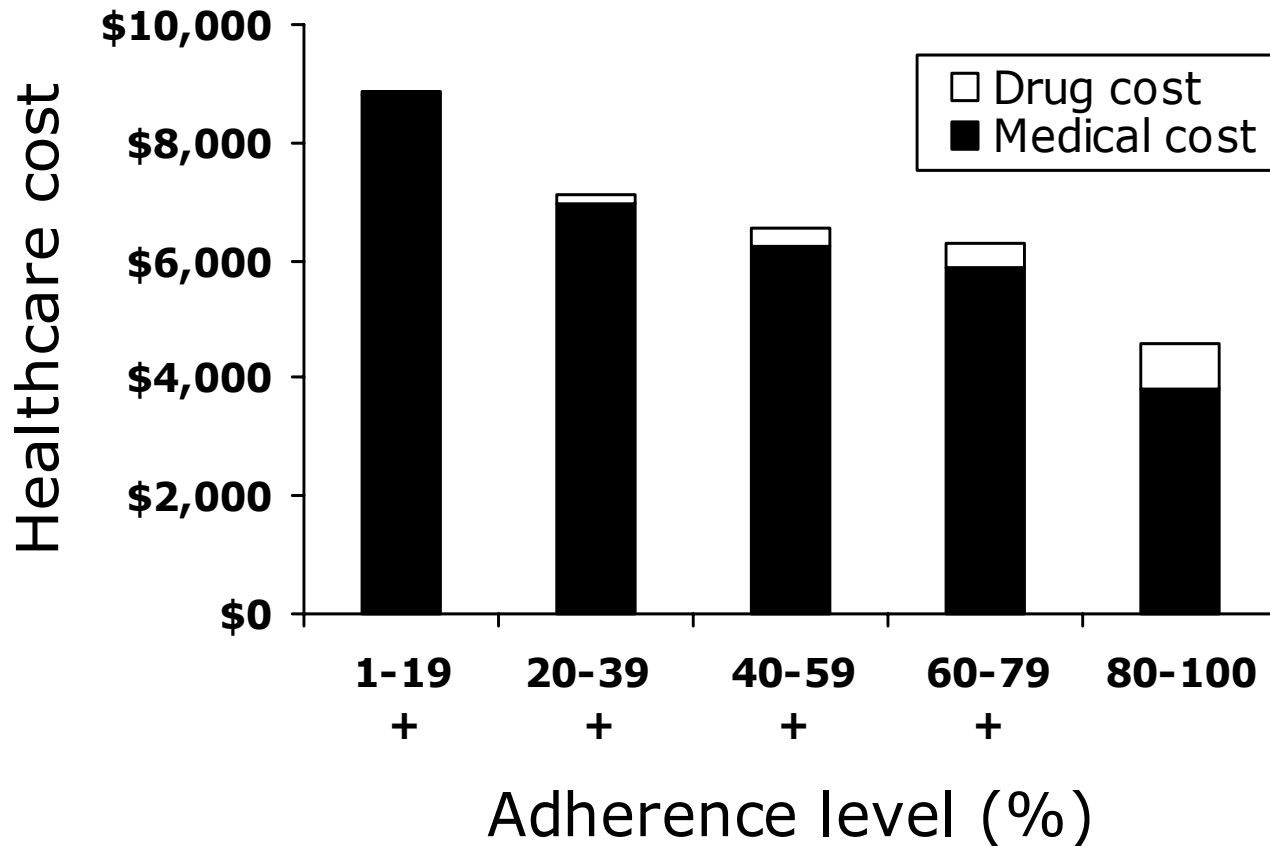
- For diabetes and high cholesterol, increased medication costs were more than offset by the savings in disease-related medical costs
- Diabetes: Save \$7 in medical costs for every additional \$1 spent on medications (ROI of 7:1)
- High cholesterol: Average ROI was 5:1

Lower hospitalization risk

- For all 4 conditions, hospitalization rates were significantly lower for patients with high medication adherence

Impact on healthcare costs

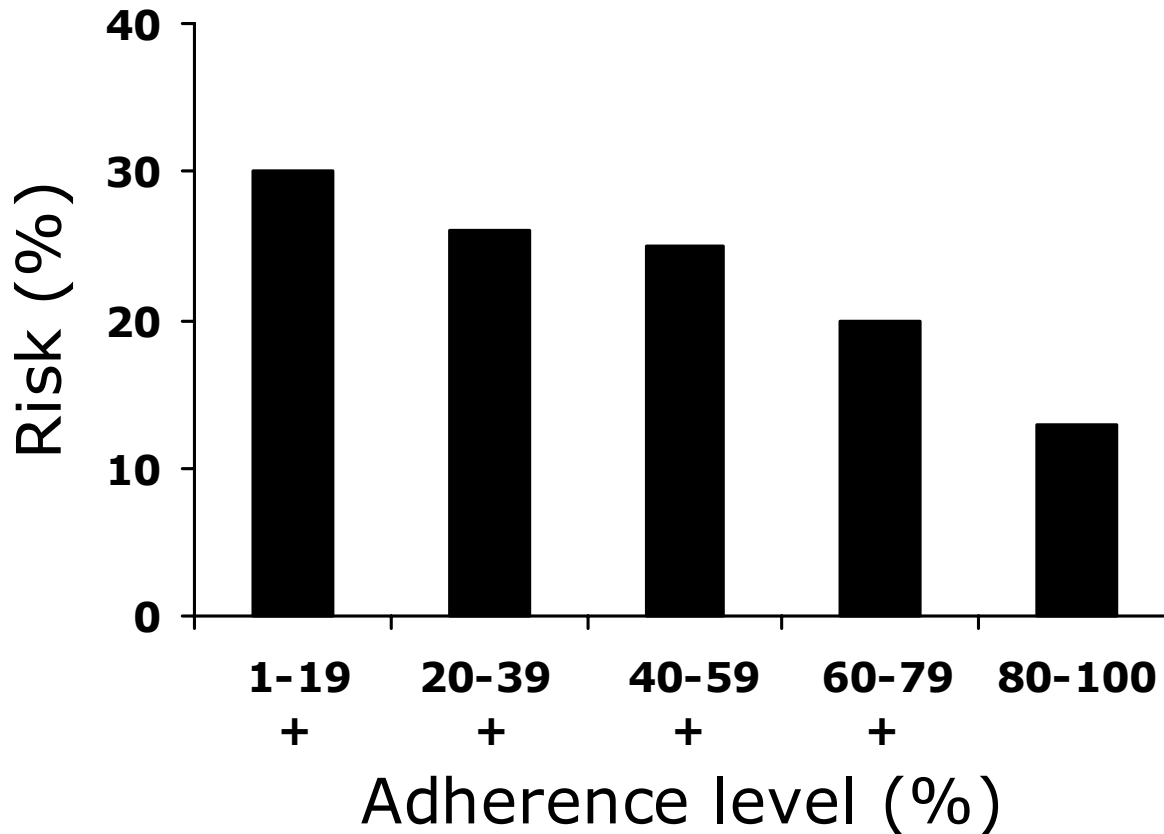
Example: Diabetes



+ = Healthcare cost is significantly higher than for the 80-100% adherence group ($p < 0.05$)

Impact on hospitalization risk

Example: Diabetes



+ = Hospitalization risk is significantly higher than for the 80-100% adherence group ($p < 0.05$)

Conclusions

For some chronic conditions, improving medication adherence can reduce hospitalizations and lower total healthcare costs

- Effects may be strongest where the risk of near-term complications is high (diabetes) or the payback from secondary prevention is high (high cholesterol)

Increased investment in drug therapy can yield a positive return

- The return on investment can range from 4:1 (hypertension) to 7:1 (diabetes)
- Leverage will increase as more generic drugs become available (same savings at a lower cost)

Significance of study

- First study to demonstrate medical cost savings from improved medication adherence in a large benefit plan population
- Study provides a good indication of the potential benefits of medication adherence in patients with chronic disease
- Impacts on medication adherence need to be considered carefully when plan designs and clinical management strategies are modified
- Plan sponsors may benefit from programs that improve medication adherence in subpopulations with chronic conditions