The Impact of Patient Adherence on Physician Performance Measurement

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Presentation Objectives

- The nature of the problem: Why do adherence and persistence impact P4P?
- The problem metric: How do we measure adherence and persistence?
- The population: Who adheres or persists?
- Solving the problem: What can we do to improve our performance, especially for P4P?

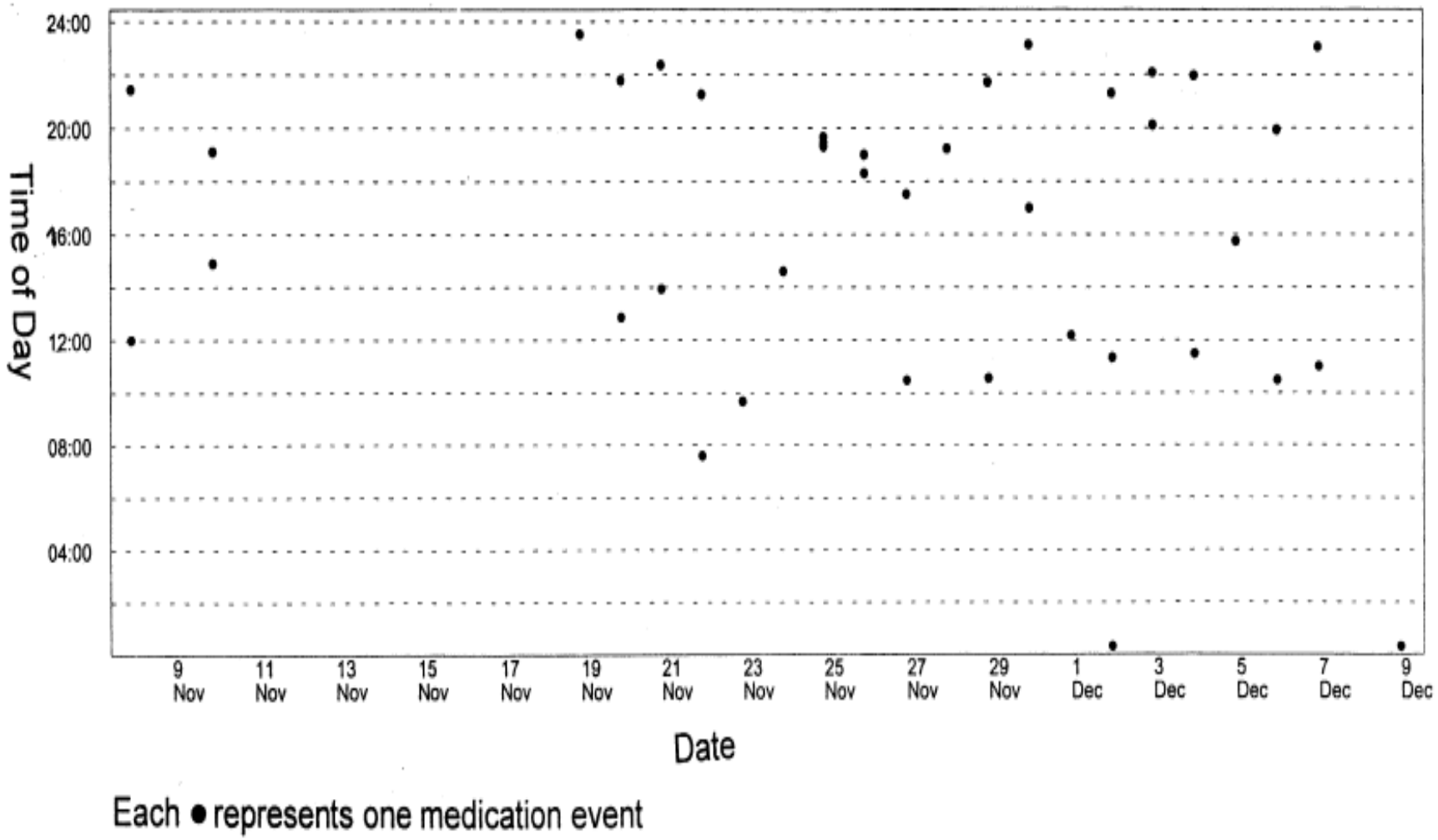
Definitions

- Why are we going to use compliance and adherence interchangeably?
- Compliance = whether patients follow the instructions of their doctor
  - Dichotomous measure
- Adherence = whether patients endorse the instructions of their doctor
  - Dichotomous measure
- Persistence = how long they follow the advice (whether they modify it over time)
  - dichotomous or continuous

Motivation for Compliance Studies

- General recognition that non-compliance is a problem
- Ultimate goal is to improve health outcome by targeting some patients on modifiable factors to improve compliance
- Different parties in health care have different perspectives and interest (*e.g.,* clinicians, patients, and payers)

Evidence that Non-Compliance is a Problem: Medication Event Monitoring System (MEMS)



Administrative Data on Drug Reimbursement

Information about patient's medication acquisition and procurement behavior using pharmaceutical benefit manager (PBM) reimbursement data

Features

- Good snapshot of acquisition in relationship to other mediations
- Affordable
- Reliability can be ascertained
- Insight into dosing intervals

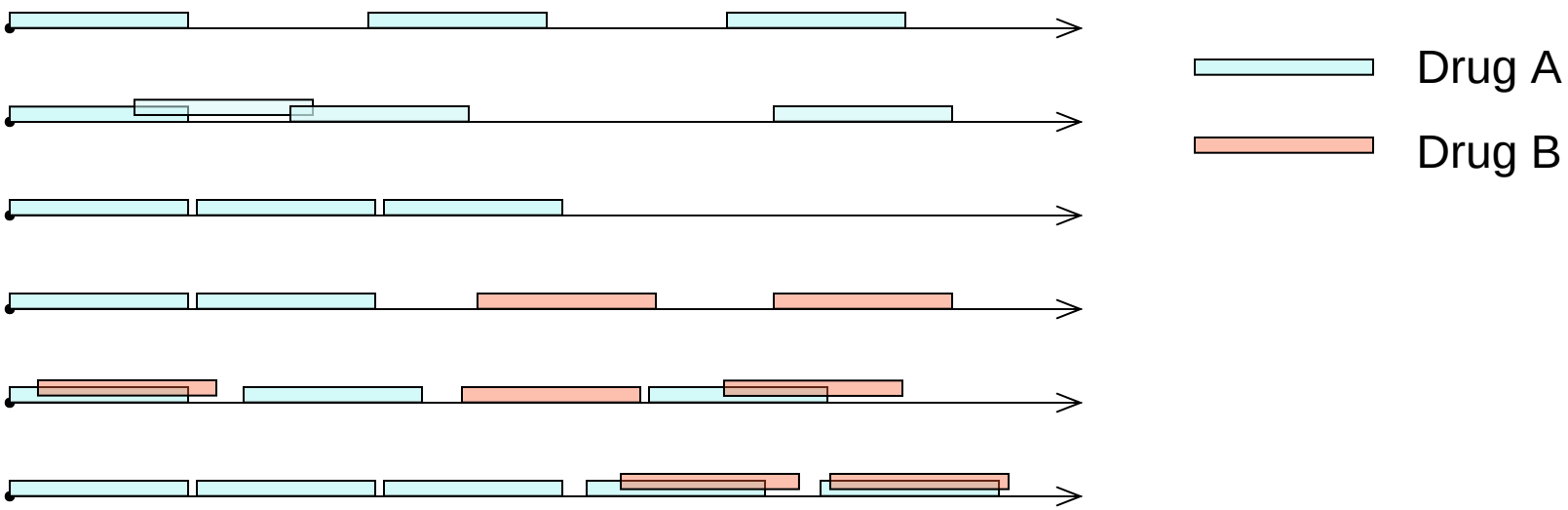
Limitations

- Many confounders
- Selection bias
- Dependent on provider of data
- Retrospective

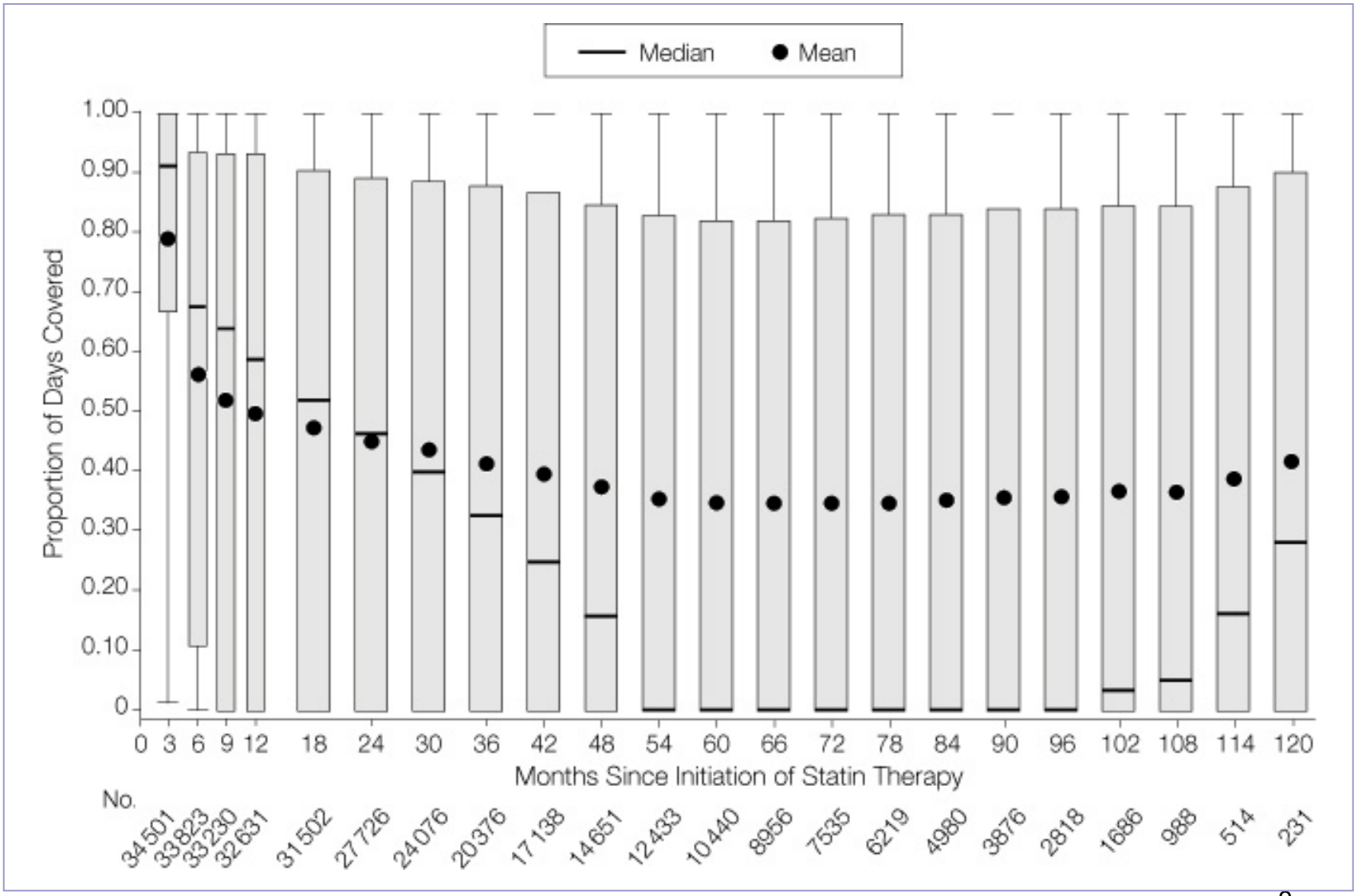
Advantages of Administrative Claims-based Analyses

- Objective (no recall bias)
- Real-world (not controlled)
- Relatively cheap to obtain
- Large sample
- Multiple outcomes
- Cost analysis
- Pattern recognition

Measuring the Complexity of Non-Compliance

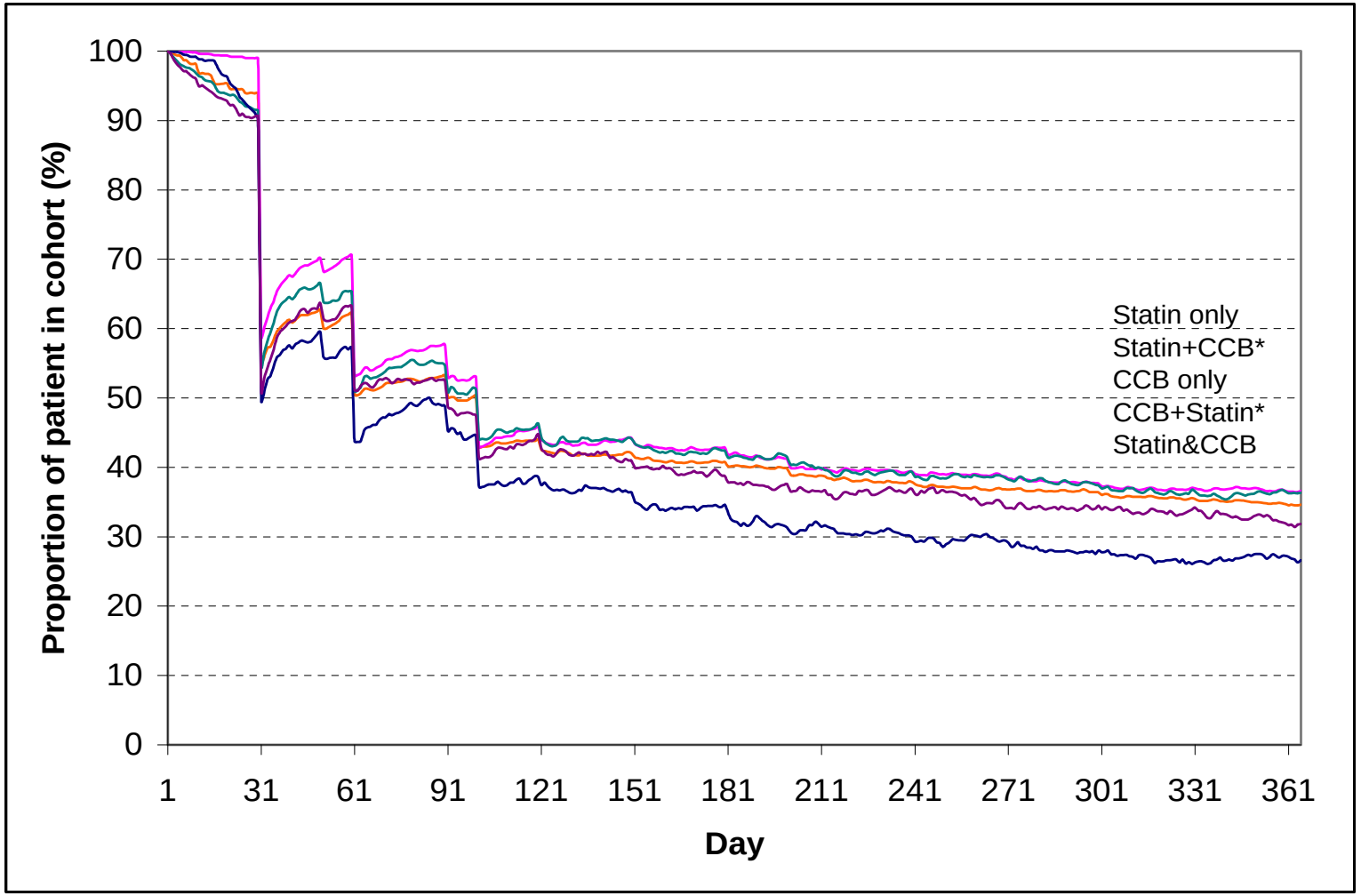


An Example of Non-Compliance: Statins



Benner et al. *JAMA* 2002;288:455-461.

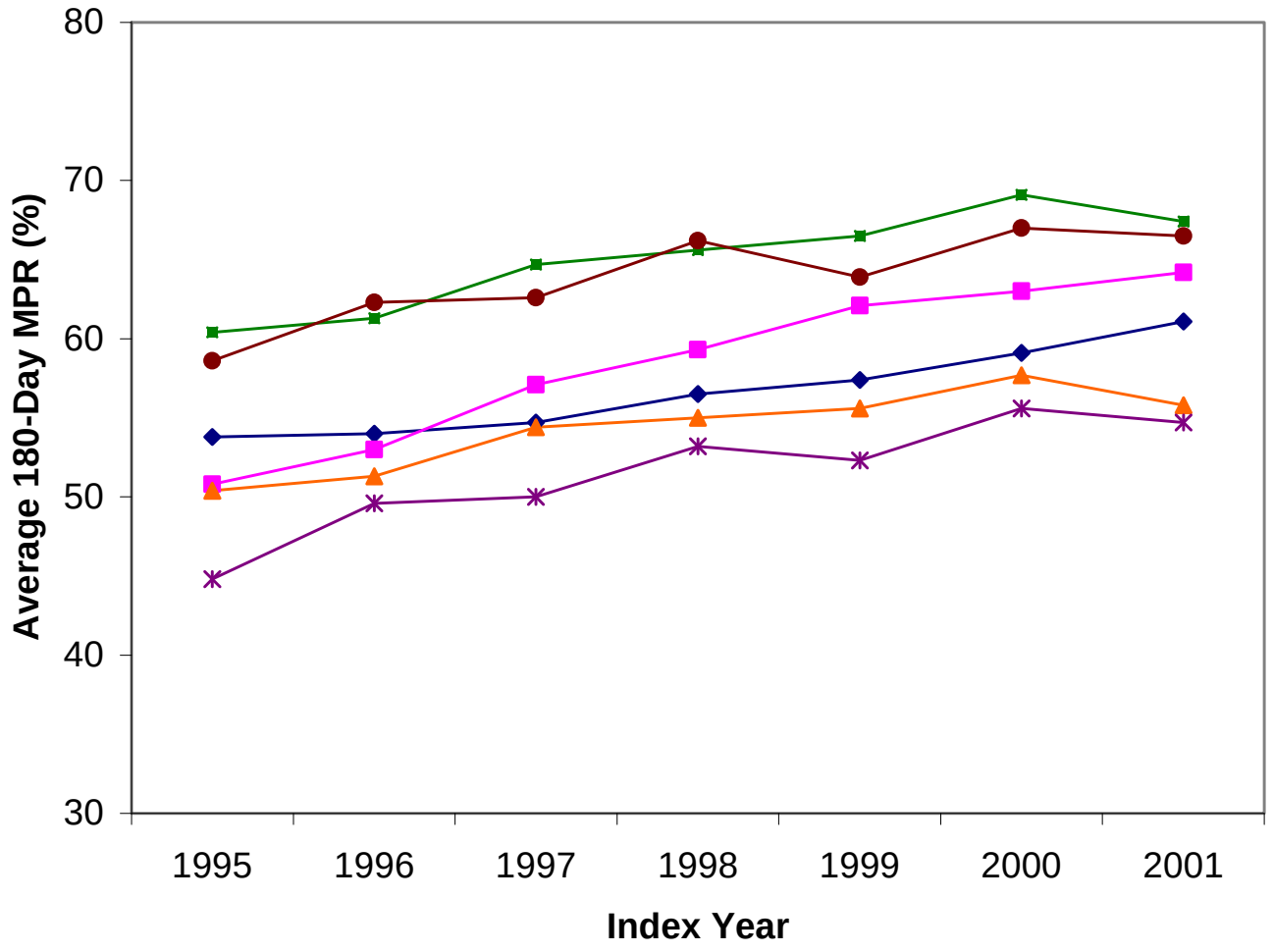
Days Covered for Statins and CCBs



Source: Unpublished data

Medication Possession Ratio for Statins/CCBs

Figure 1. Average 180-Day MPR by Index Year



* MPR is for the newly initiated (not current) medication in the combination therapy.

Source: Unpublished data

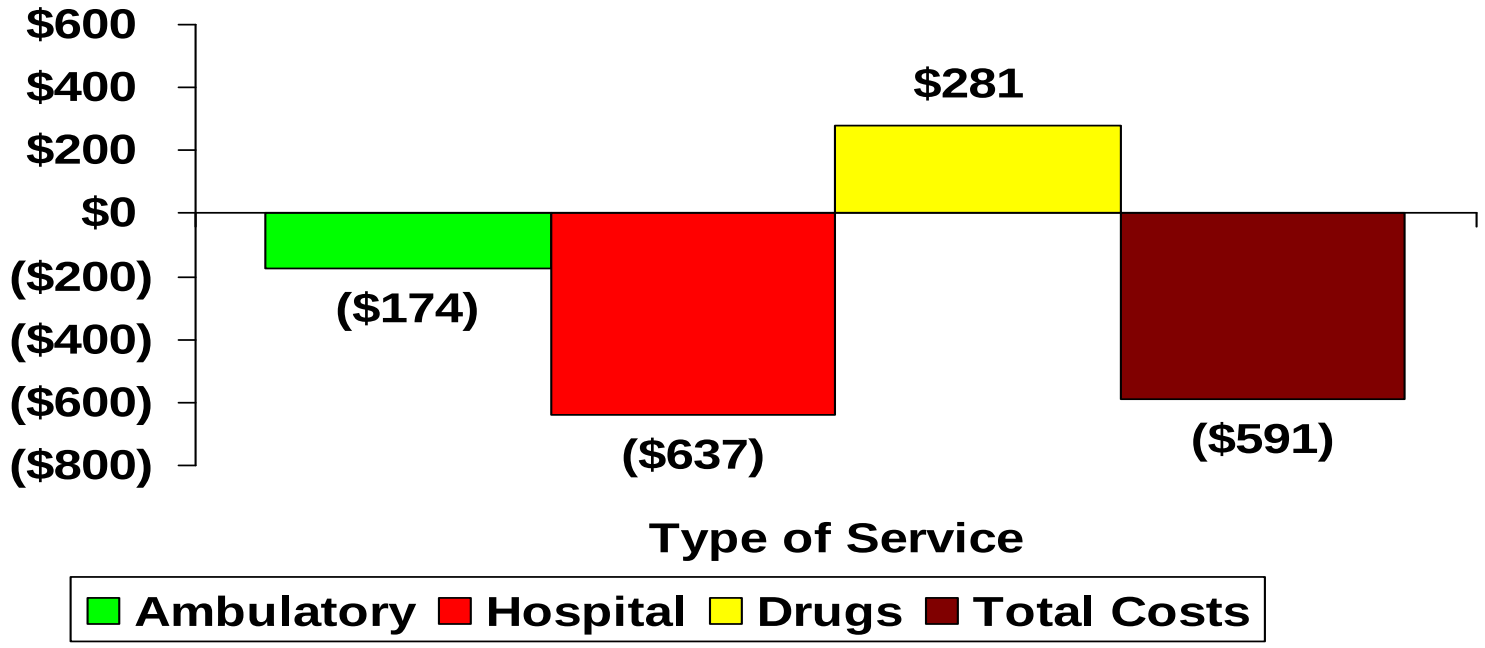
Patterns of Non-Compliance

- 15-20% of first scripts never filled
- Of those filled, 20-35% never fill a second
- Persistence declines slowly after 6 months
- Patients who discontinue rarely restart, at least within a two year window for many chronic problems

Why Do We Care?

- Lack of efficacy from recommended treatment
- Increased mortality and morbidity
- Increased costs
- Inability to meet P4P goals

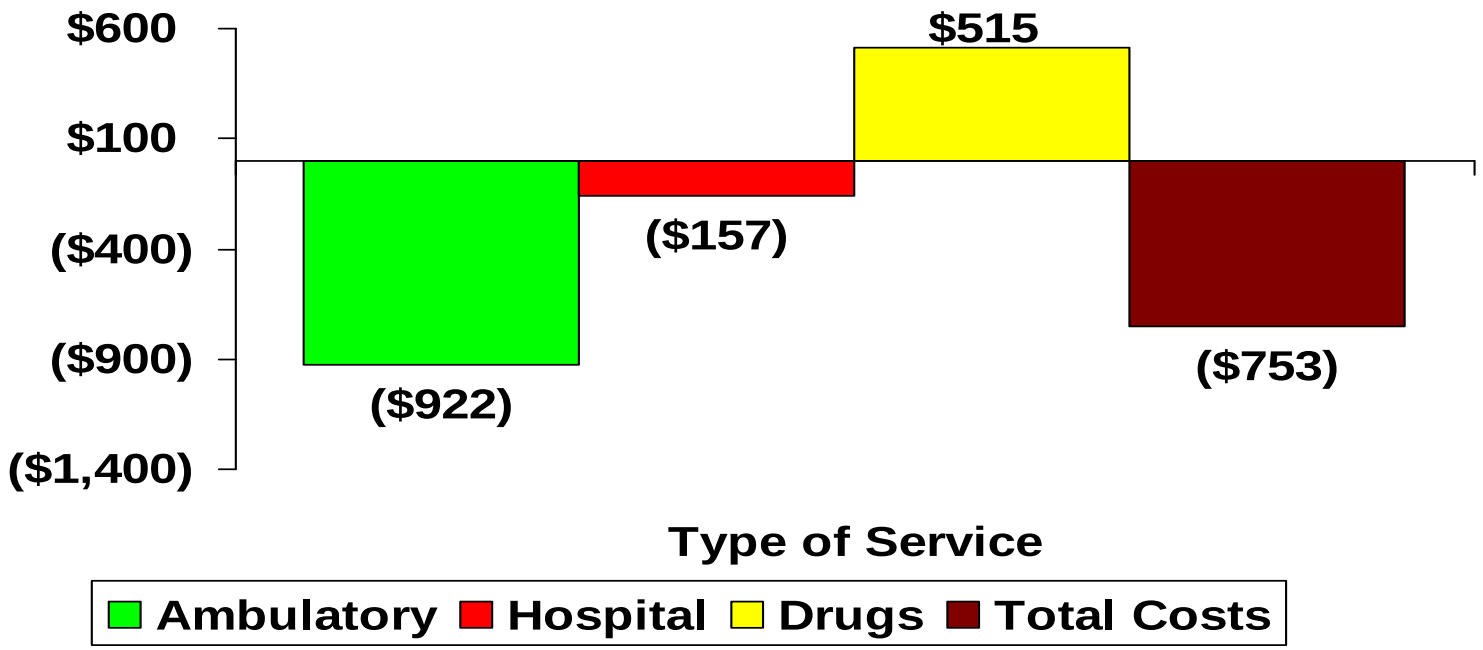
Health Care Costs Associated with Discontinuation: Hypertension



N=6,430

Source: McCombs JS, Nichol MB, Newman C and Sclar DA: The costs of interrupting antihypertensive drug therapy in a Medicaid population. *Medical Care*, 32(3): 214-226, 1994.

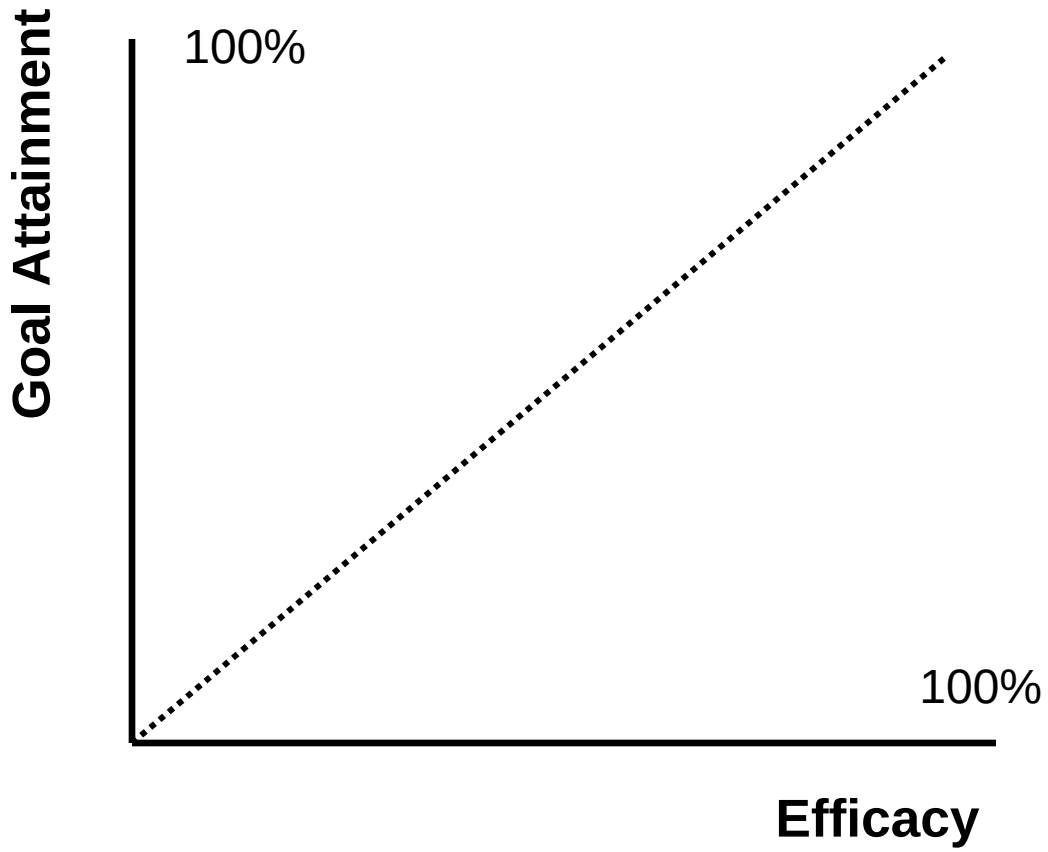
Health Care Costs Associated with Discontinuation: Major Depressive Disorder



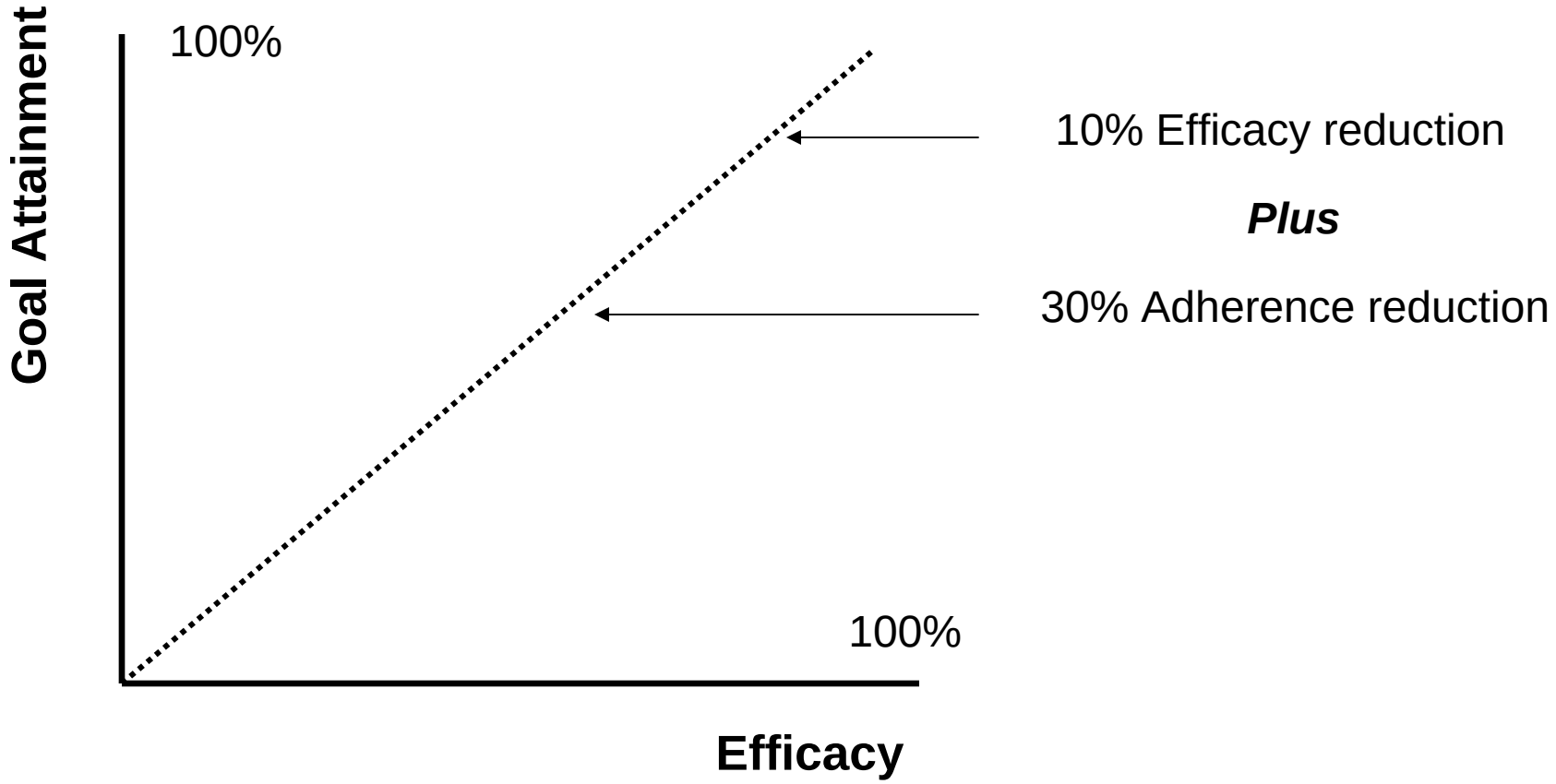
N=1,240

Source: McCombs JS, Nichol MB, Stimmel GL. The role of SSRI antidepressants for treating depressed patients in the California Medicaid (Medi-Cal) program. *Value in Health,* 2(4): 269-280, 1999.

Efficacy/Goal Relationship



Efficacy/Goal/Adherence Relationship



Impact on P4P Goals: LDL <= 130

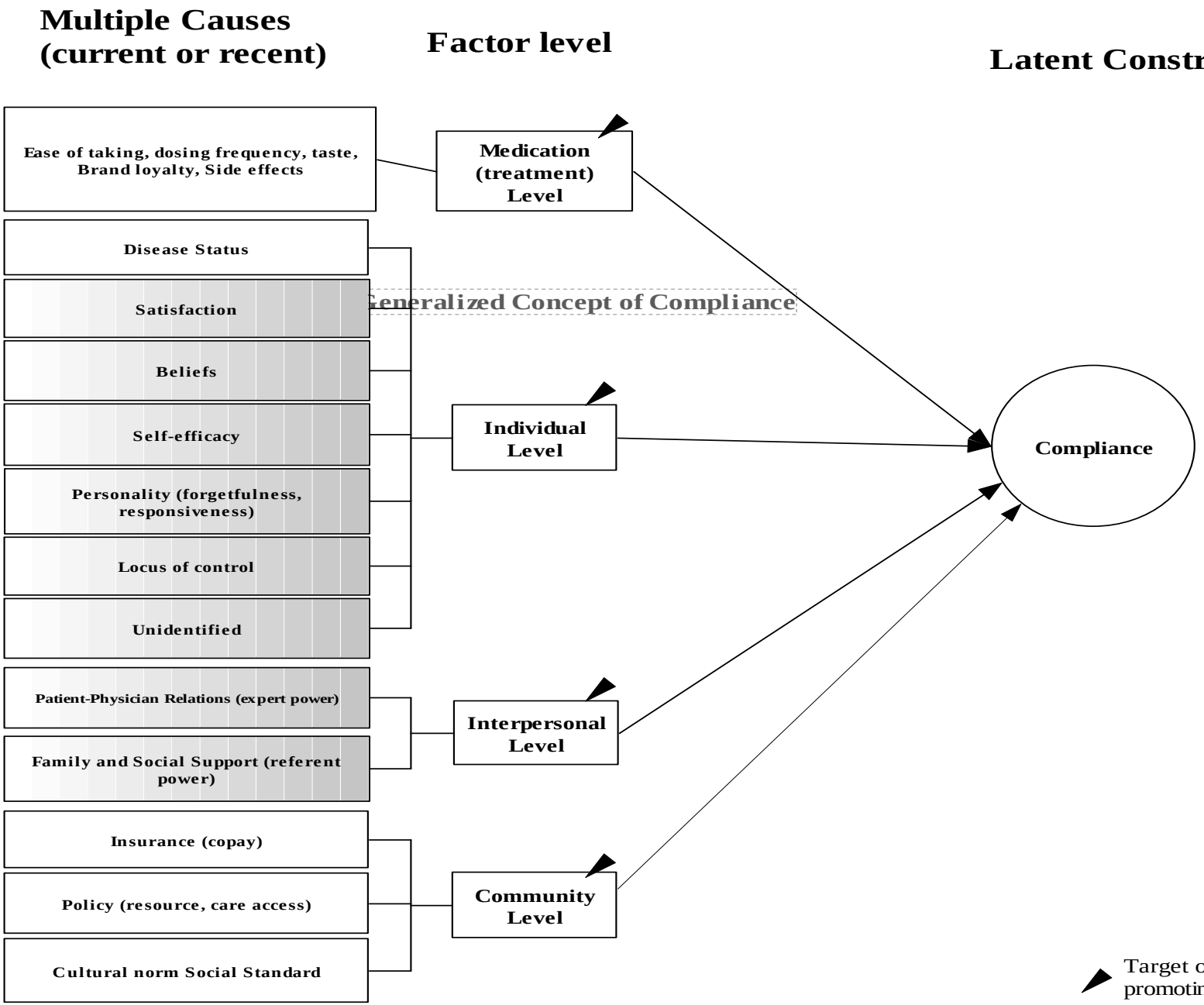
- Simulation of impact on P4P LDL goal
- Data source is the IHA 2007 P4P reporting for LDL <= 130
- 84.3% of the cardiovascular population were screened
- Assumes that all patients screened are treated
- Assumes that treatment is 100% efficacious

Impact on P4P Goals: LDL <= 130

Proportion adherent to Rx	All screened treated, Proportion meeting goal	90% screened treated, Proportion meeting goal
baseline	59.6% (70% “adherent”)	59.6% (78% “adherent”)
80% Rx adherent	67.4%	60.7%
90% Rx adherent	75.9%	68.3%

Source: Table computed from 2007 P4P results provided at iha.org

Theory of Compliance Behavior


Multiple Causes
(current or recent)
Factor level
Latent Construct
Ease of taking, dosing frequency, taste, Brand loyalty, Side effects
Medication (treatment) Level
Disease Status
Satisfaction
Beliefs
Self-efficacy
Personality (forgetfulness, responsiveness)
Locus of control
Unidentified
Generalized Concept of Compliance
Individual Level
Patient-Physician Relations (expert power)
Family and Social Support (referent power)
Interpersonal Level
Insurance (copay)
Policy (resource, care access)
Cultural norm Social Standard
Community Level
Compliance
Target of compliance-promoting intervention

Causes of Non-Compliance

- Multiple causes with multiple levels
- Many factors may not be observable to researchers (many latent variables)
- Each causal level can be targeted to improve compliance

What Can We Do About Non-Adherence: Targeting for Compliance

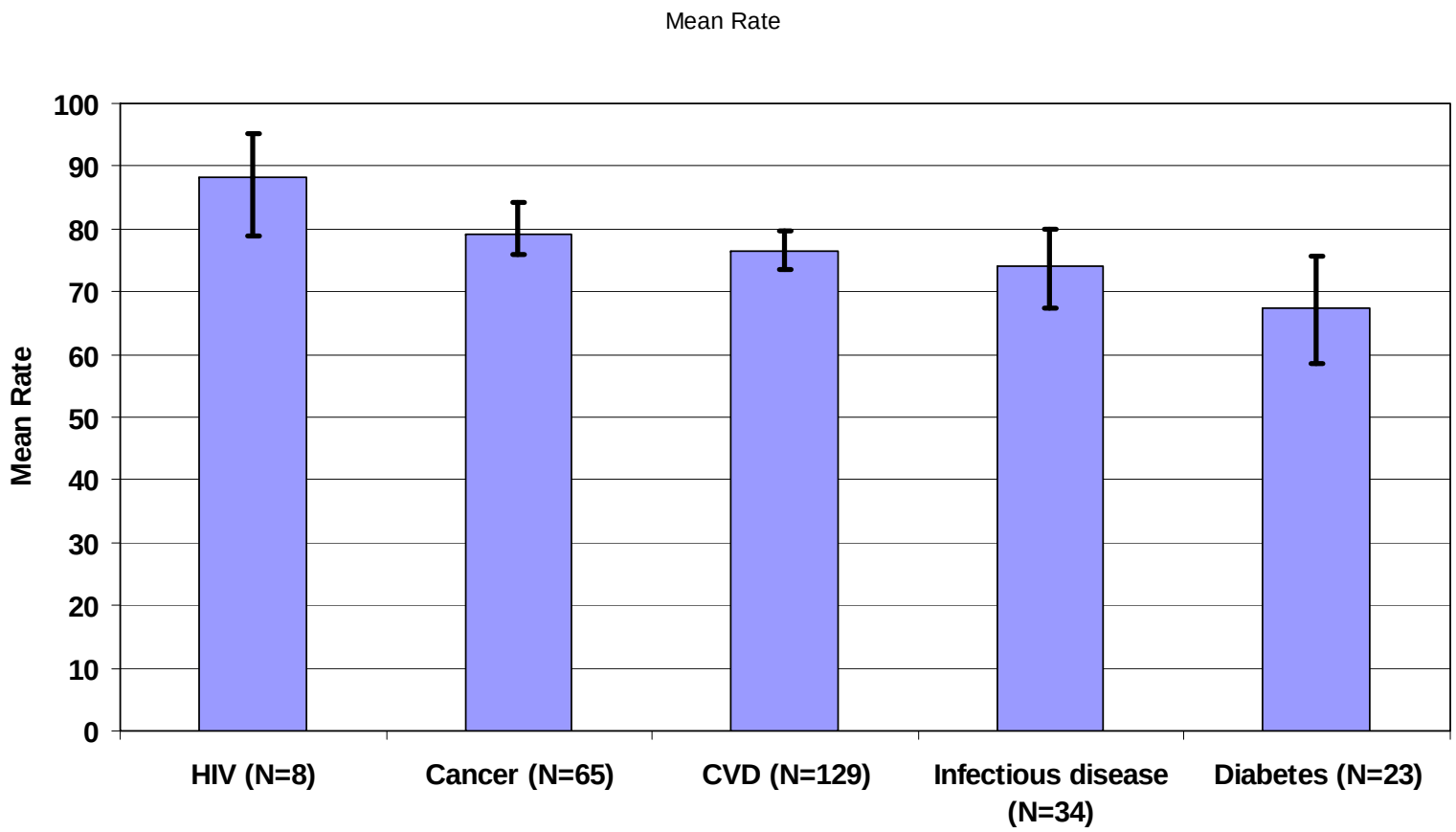
- Who is non-compliant?
- Why are they non-compliant?
- How can we change their behavior?
- When can we change their behavior?

Demographic Associations with Adherence

- Few studies show clear correlations with adherence among characteristics like age, gender, education, and socio-economic status
- Correlation between patient education level and adherence is positive, but only for medications to treat chronic disease

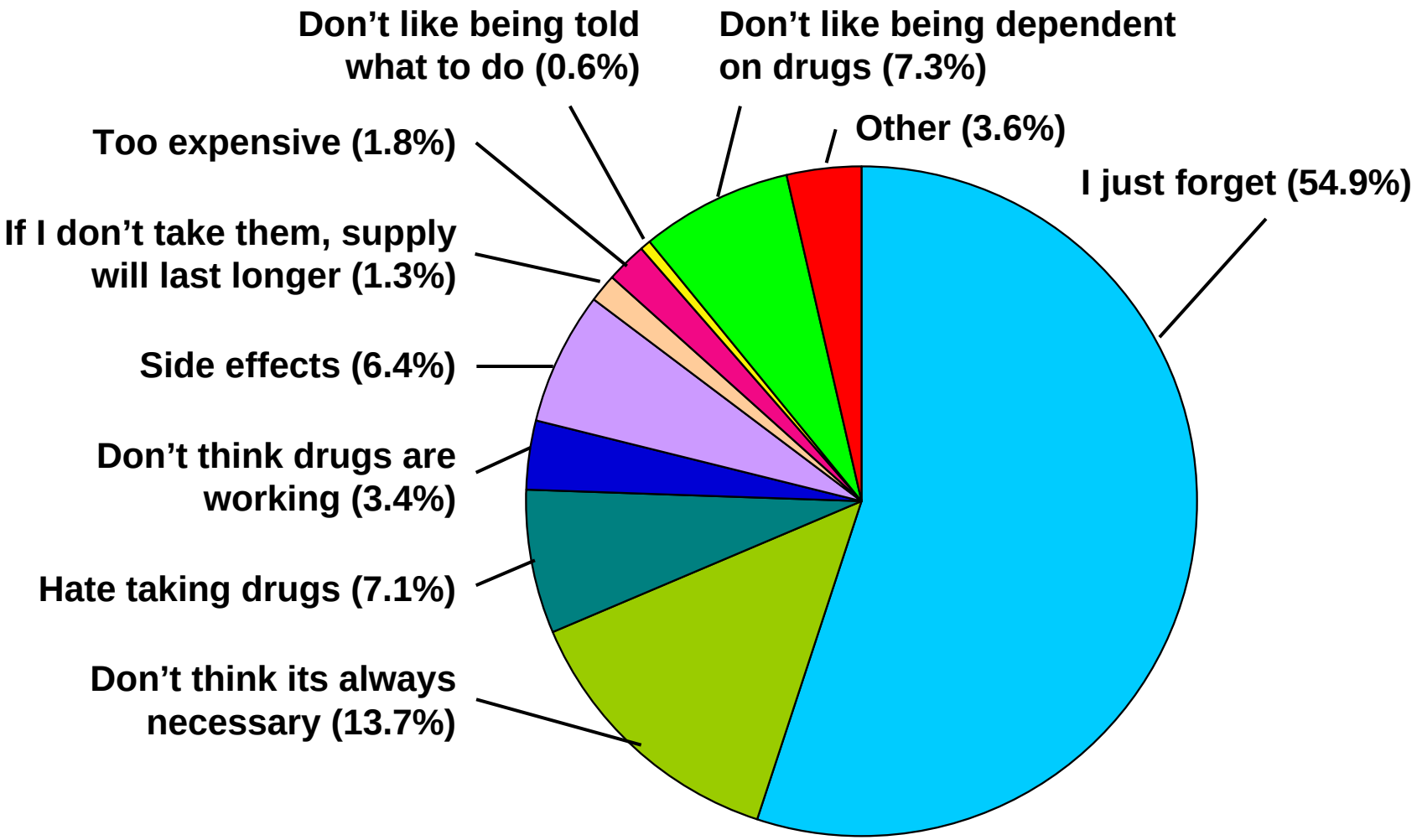
DiMatteo MR. Variations in patients' adherence to medical recommendations, *Medical Care*: 42:200-209, 2004

Selected Disease Condition Adherence Rates



DiMatteo MR. Variations in patients' adherence to medical recommendations, *Medical Care*: 42:200-209, 2004

Reasons for Non-Compliance



Cheng JW, et al. *Pharmacotherapy*. 2001;21:828-841.

What Works? A Review of Reviews

- Review of 38 meta-analytic reviews of adherence interventions
- *Technical Interventions* (simplifying medication regimen; electronic monitoring)
  - Less frequent dosing = improved adherence
  - Single dose/day better than multiple doses/day
  - Electronic device improvements attributed to reduction in doses

Van Dulmen S, et al. Patient adherence to medical treatment: A review of reviews, *BMC Health Services Research*, 7:55, 2007

What Works? A Review of Reviews

- *Behavioral Interventions* (memory aids, monitoring by calendars, support or rewards)
  - Financial rewards improved adherence in 10/11 studies
  - Mail and telephone reminders can improve adherence

Van Dulmen S, et al. Patient adherence to medical treatment: A review of reviews, *BMC Health Services Research*, 7:55, 2007

What Works? A Review of Reviews

- *Educational Interventions* (teaching/providing knowledge, including personal, group, audio-visual, home visits)
  - Effects can be important in the short term, but decay over time (> 4 weeks)
  - When tested against dosing simplification, educational interventions less robust
  - Collaborative care (systematic inclusion of multiple providers) superior to education alone intervention

Van Dulmen S, et al. Patient adherence to medical treatment: A review of reviews, *BMC Health Services Research*, 7:55, 2007

What Works? A Review of Reviews

- *Social Support Interventions* (practical, emotional, undifferentiated)
  - Large effect sizes seen with social support in well-designed studies

Van Dulmen S, et al. Patient adherence to medical treatment: A review of reviews, *BMC Health Services Research*, 7:55, 2007

What Works? A Review of Reviews

- *Complex or Multi-faceted Interventions* (combine multiple approaches)
  - Less than half resulted in improved adherence, and only a third better treatment outcomes
  - Successful interventions very resource intensive
  - Even the most effective did not yield large effect sizes
  - Variability in intervention and study design compromises assessment

Van Dulmen S, et al. Patient adherence to medical treatment: A review of reviews, *BMC Health Services Research*, 7:55, 2007

Intervention Effects: Largest to Smallest

- Reduced drug dose frequency
- Financial rewards
- Prompting devices
- Adherence-enhancing packaging
- Telephone calls
- Personal counseling
- Home visits
- Reminder letters
- Written education material

Pitfalls to Avoid

- Starting with the intervention “concept”
- Doing too little
- Intervening too late
- Preaching to the choir
- Not from a trusted source
- Measurement via self-report
- Broad intervention population

Recommendations for Improving Adherence to Chronic Medications

- Low hanging fruit
  - Quick follow-up by medical staff after initial prescription (not automated calls)
  - Only apply sampling for cost reasons
  - Get the discontinuers back!

Recommendations for Improving Adherence to Chronic Medications

- Medium term
  - Screen for depression
  - Build IT capacity to support clinical staff
- Long term
  - Targeted populations
  - Medical Home
  - Social support

Conclusions

- Non-compliance remains an on-going and significant problem in health care
- The factors associated with non-compliance are now being investigated
- Literature reviews indicate that largest effect sizes will be produced by complex or multi-faceted interventions
- Multiple longitudinal interventions may be required to obtain positive results
- Non-compliance can significantly affect attainment of P4P goals