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From the Selected Works of Glen Mays

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Public Health Expenditures and their Contributions to the Total Spend on Health

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Available at: https://works.bepress.com/glen_mays/241/

Public Health Spending and its Contributions to the Total Spend on Health

Glen P. Mays, Ph.D., MPH

Leavitt Partners | Total Spend on Health: Exploring Opportunities and Challenges

Washington, DC

May 12, 2016



Why we need to know?

“Poor costing systems have disastrous consequences. It is a well-known management axiom that what is not measured cannot be **managed or improved**. Since providers misunderstand their costs, they are unable to **link cost to process improvements or outcomes**, preventing them from making good decisions....Poor cost measurement [leads] to huge **cross-subsidies across services**...Finally, poor measurement of costs and outcomes also means that effective and efficient providers **go unrewarded**.”



- R.S. Kaplan and M.E. Porter, The big idea: how to solve the cost crisis in health care. *Harvard Business Review*; 2011.

Toward a deeper understanding of costs in public health

2012 Institute of Medicine Recommendations

- Identify the components and **costs of a minimum package** of public health services
 - Foundational capabilities
 - Basic programs
- Implement a **national chart of accounts** for tracking spending and flow of funds
- Expand **research on costs and effects** of public health delivery



Institute of Medicine. For the Public's Health: Investing in a Healthier Future. Washington, DC: National Academies Press; 2012.

Tools of the trade

- **Prospective “expected cost” methods (micro-costing)**
 - Vignettes
 - Surveys with staff and/or administrators
 - Delphi group processes
- **Concurrent “implementation cost” methods (micro-costing)**
 - Time studies with staff
 - Activity logs with staff
 - Direct observation
- **Retrospective “cost accounting” methods (micro-costing or gross-costing)**
 - Administrative records, financial reports, billing data
 - Decomposition, allocation or modeling
 - Surveys with staff and/or administrators

**Drug
Abuse
Treatment
Cost
Analysis
Program**

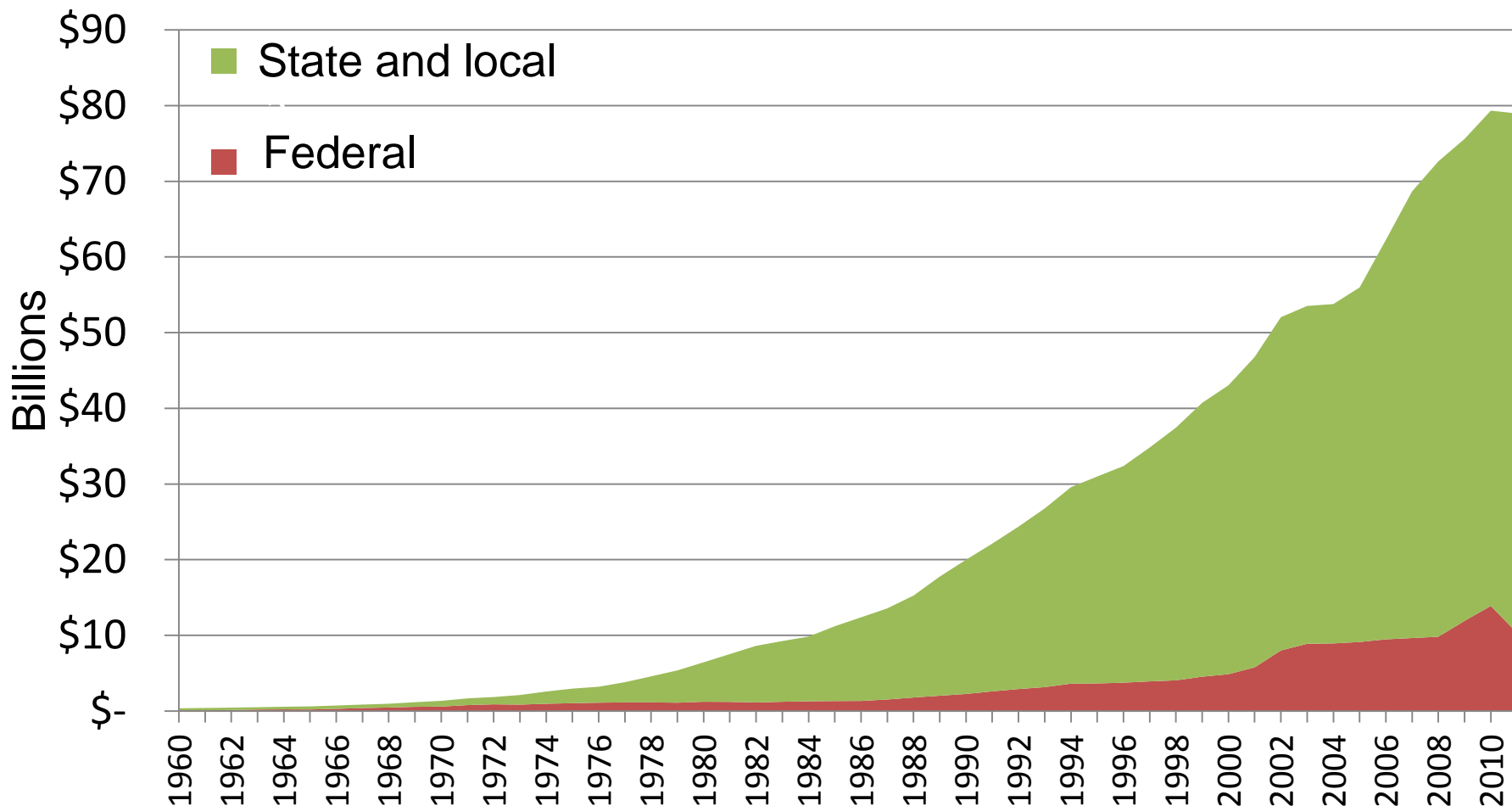
*CostIt Software ©
(Costing Interventions templates)*

Substance Abuse Services Cost Analysis Program

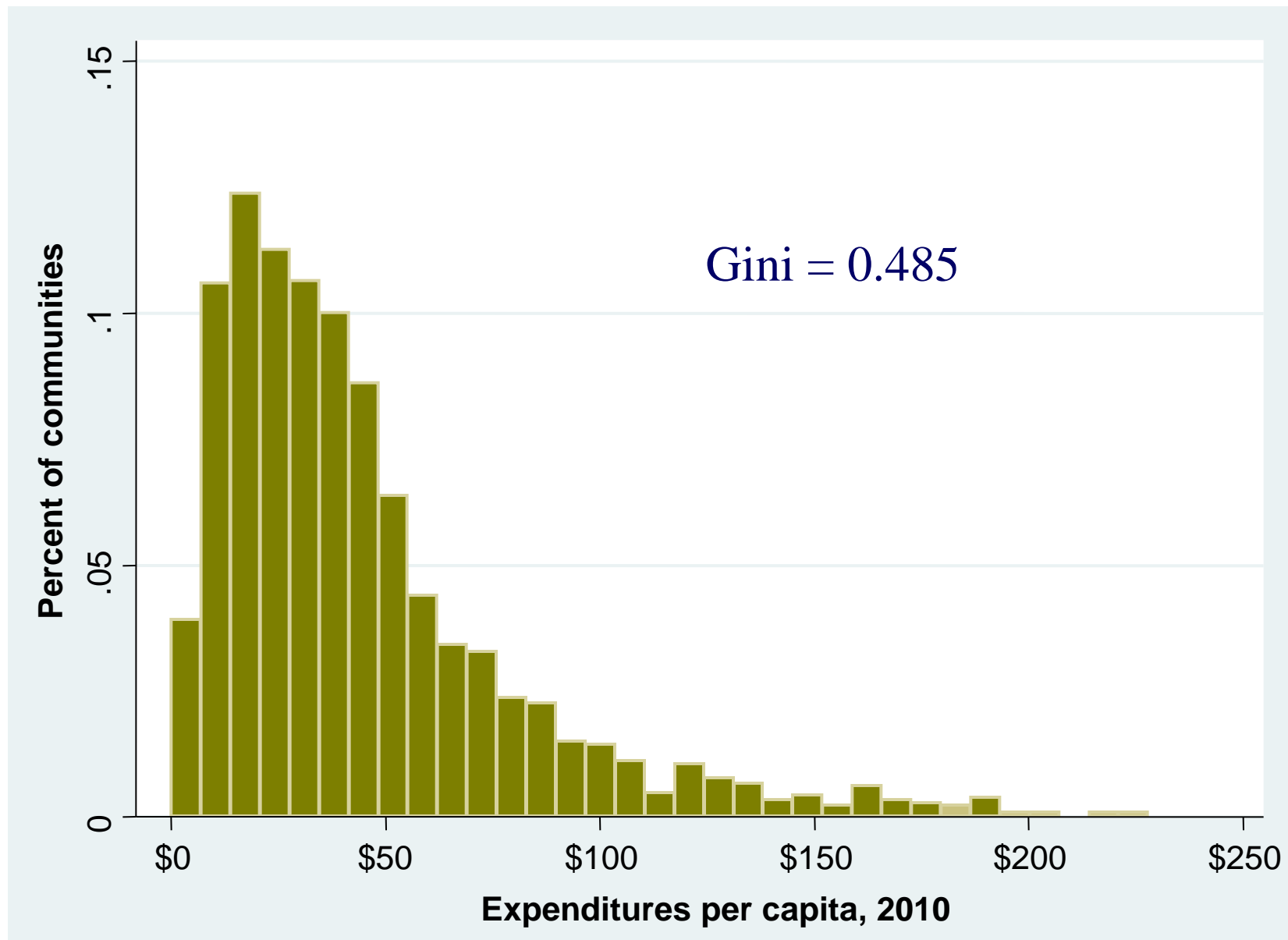
SASCAP™

Public health economics in the U.S.

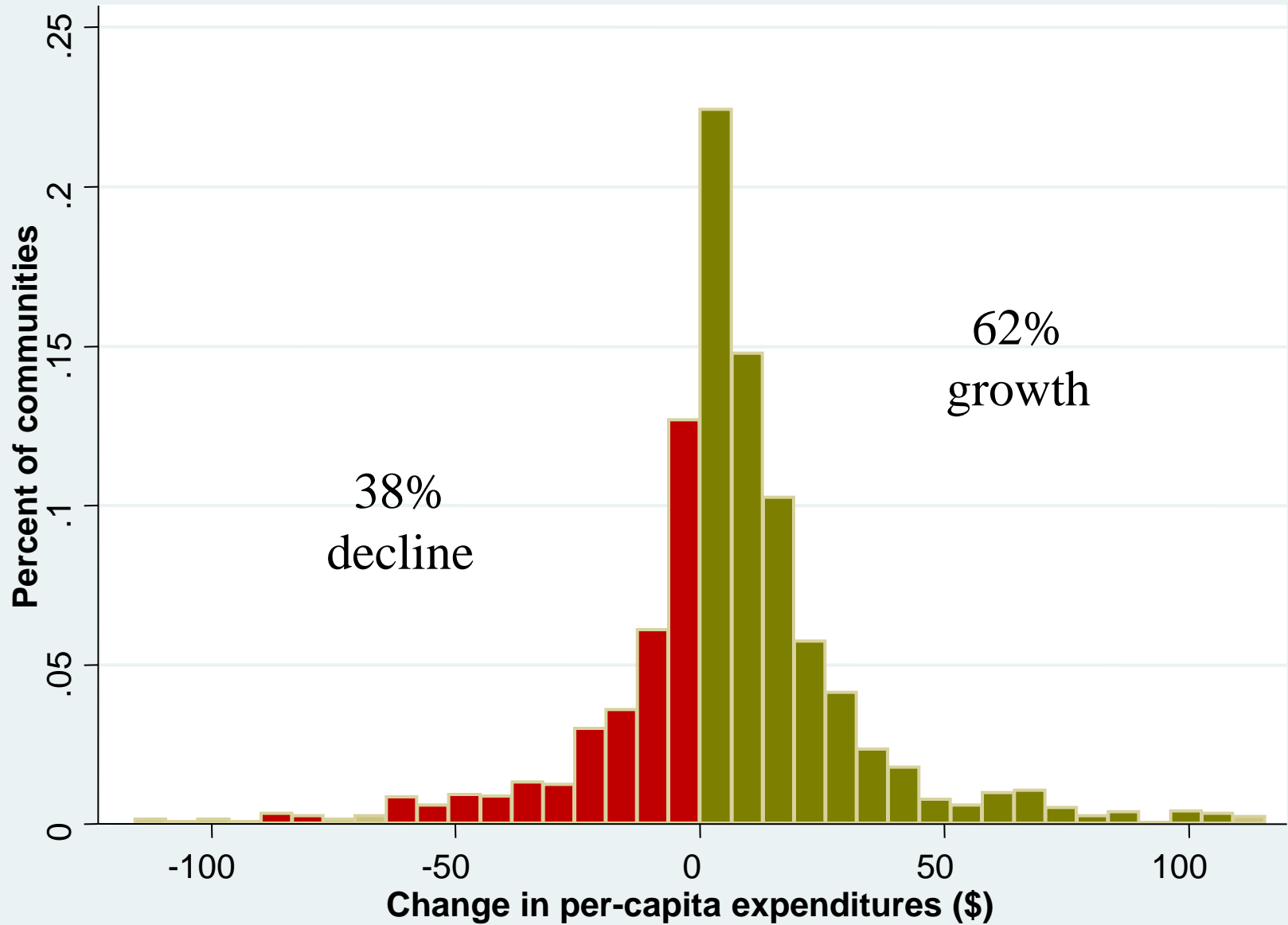
Governmental Expenditures for Public Health Activity, USDHHS National Health Expenditure Accounts



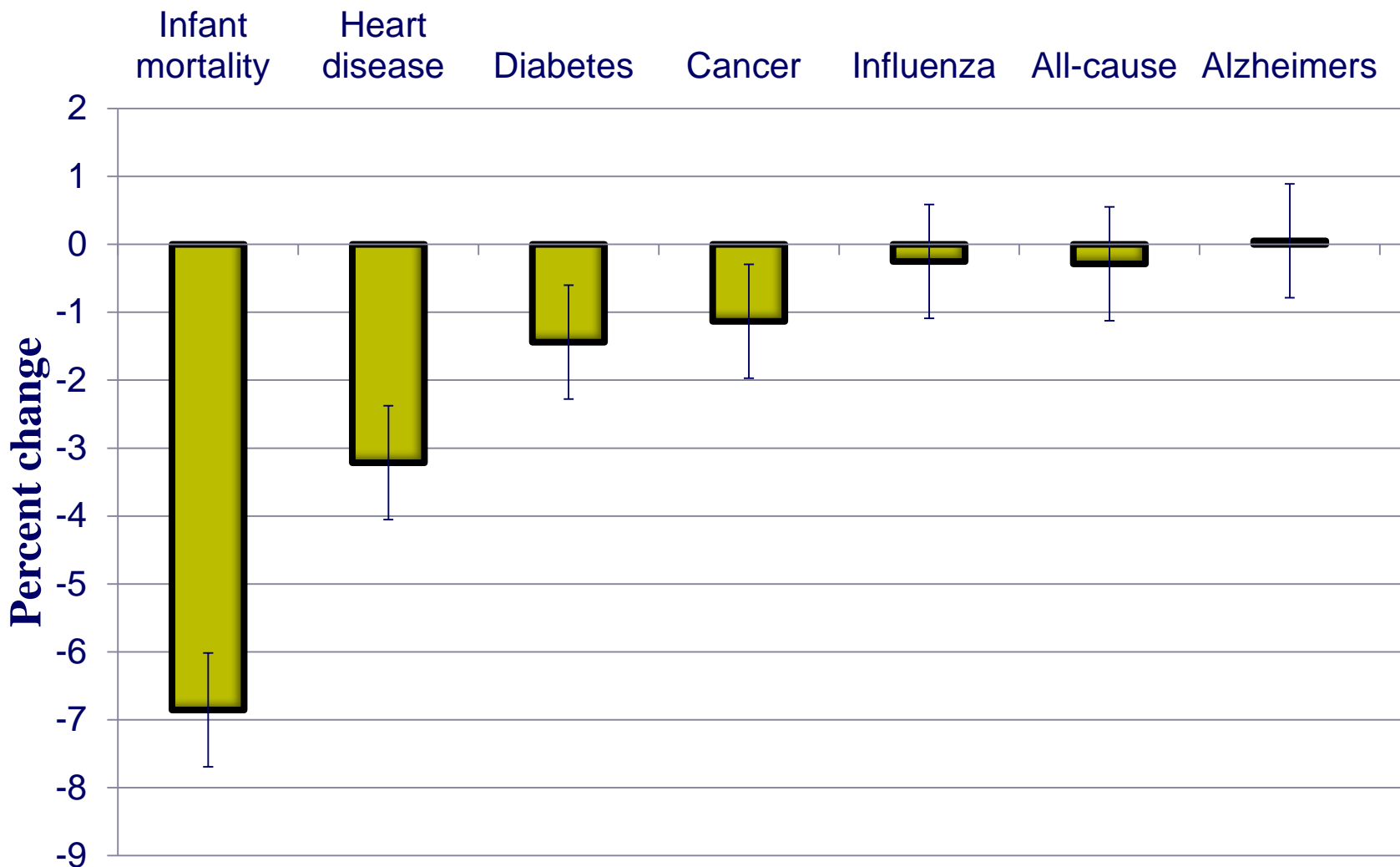
Variation in Local Public Health Spending



Changes in Local Public Health Spending 1993-2010



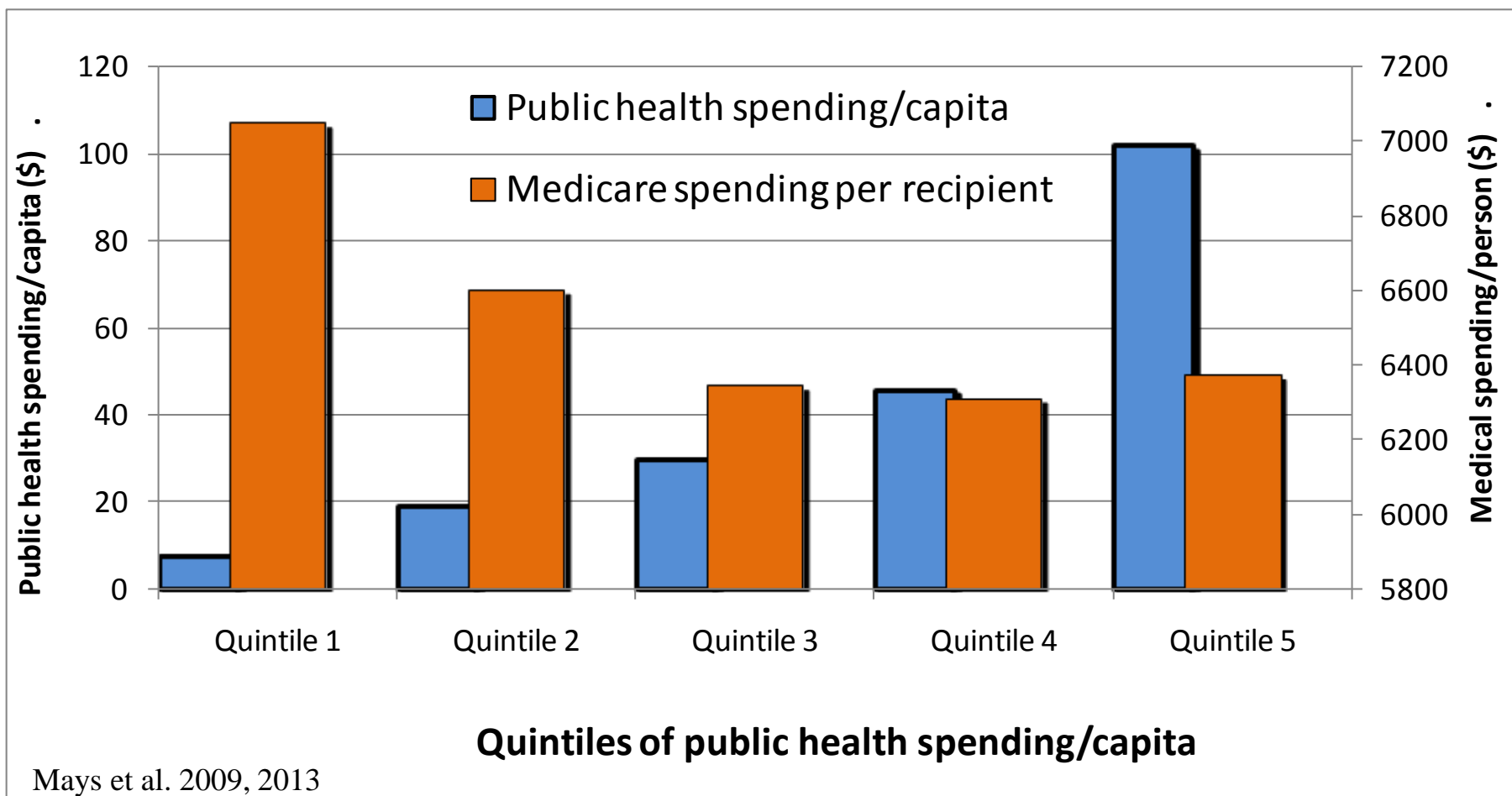
Mortality reductions attributable to investments in public health delivery, 1993-2008



Hierarchical regression estimates with instrumental variables to correct for selection and unmeasured confounding

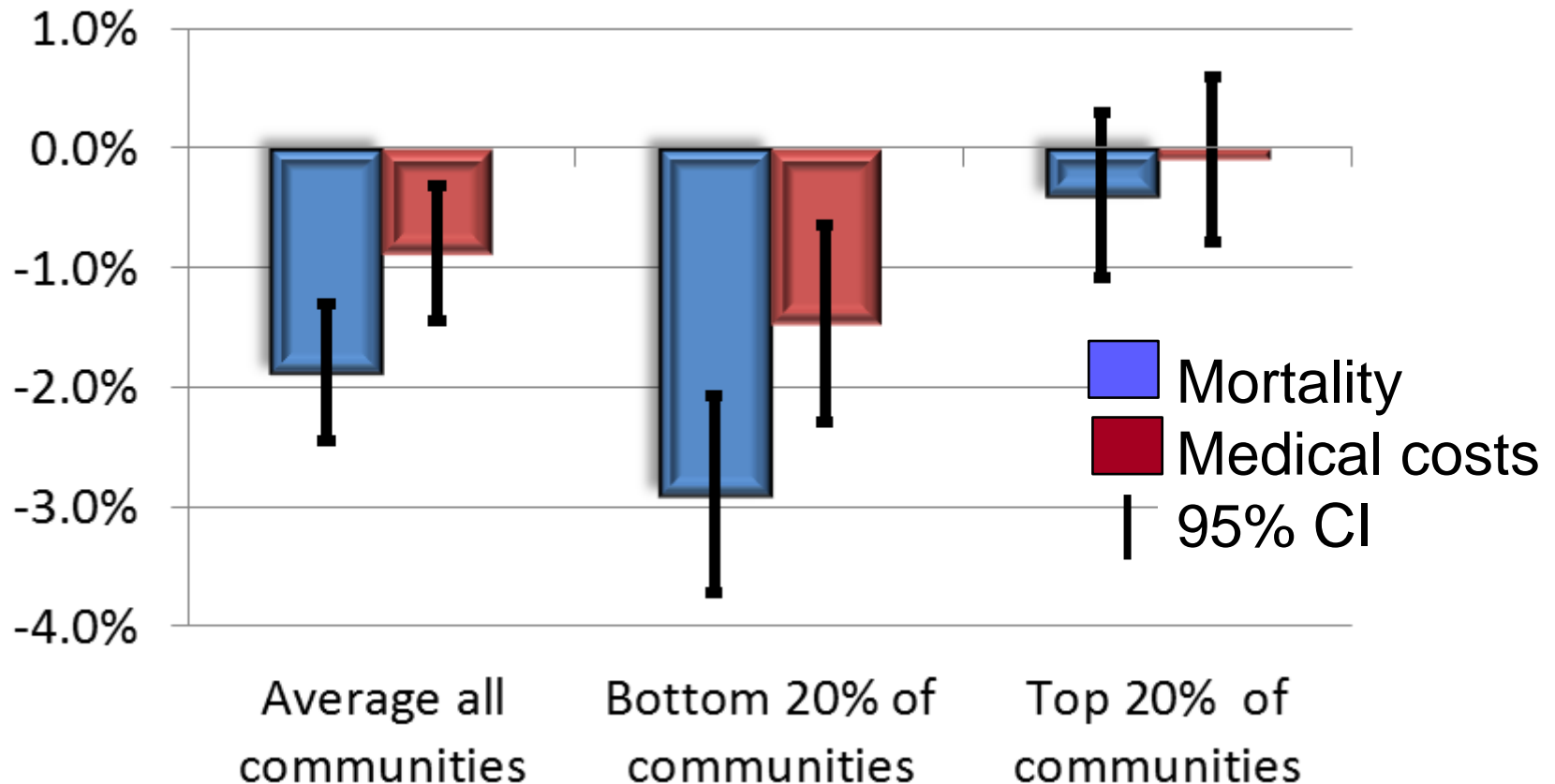
Medical cost offsets attributable to investments in public health delivery, 1993-2008

For every \$10 of public health spending, ≈\$9 are recovered in lower medical care spending over 15 years



Public health investments generate larger health & economic gains in low-resource communities

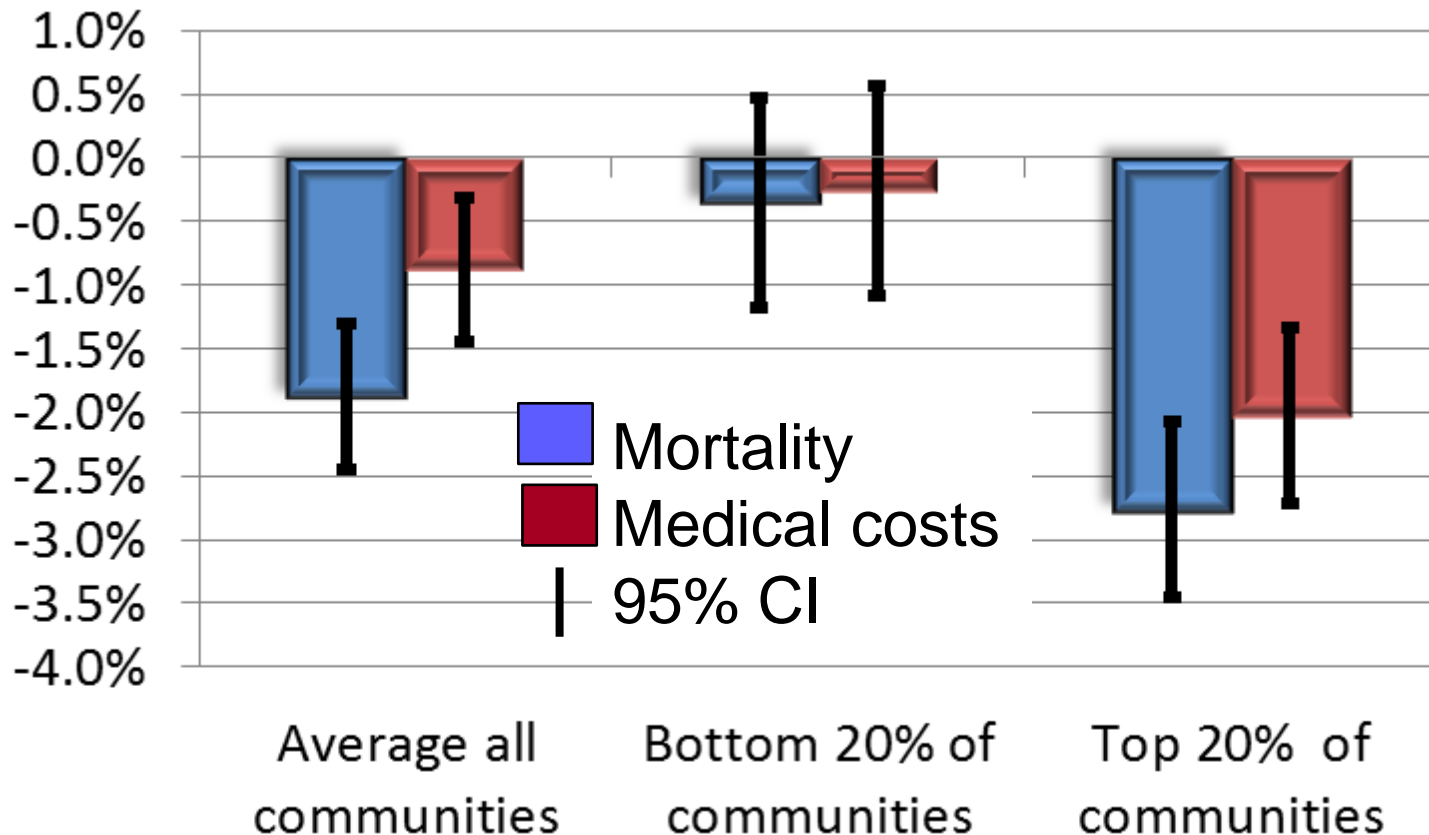
Impact in Low-Income vs. High Income Communities



Log IV regression estimates controlling for community-level and state-level characteristics

Public health investments produce larger gains in communities with robust infrastructure

Impact in Communities with Low vs. High Public Health Infrastructure



Log IV regression estimates controlling for community-level and state-level characteristics

Examples: Program Costing

Arkansas Community Connector Program

- Use community health workers & public health infrastructure to identify people with unmet social support needs
- Connect people to home and community-based services & supports
- Link to hospitals and nursing homes for transition planning
- Use Medicaid and SIM financing, savings reinvestment
- Costing with electronic time logs



Felix, Mays et al. 2011

<http://content.healthaffairs.org/content/30/7/1366.abstract>

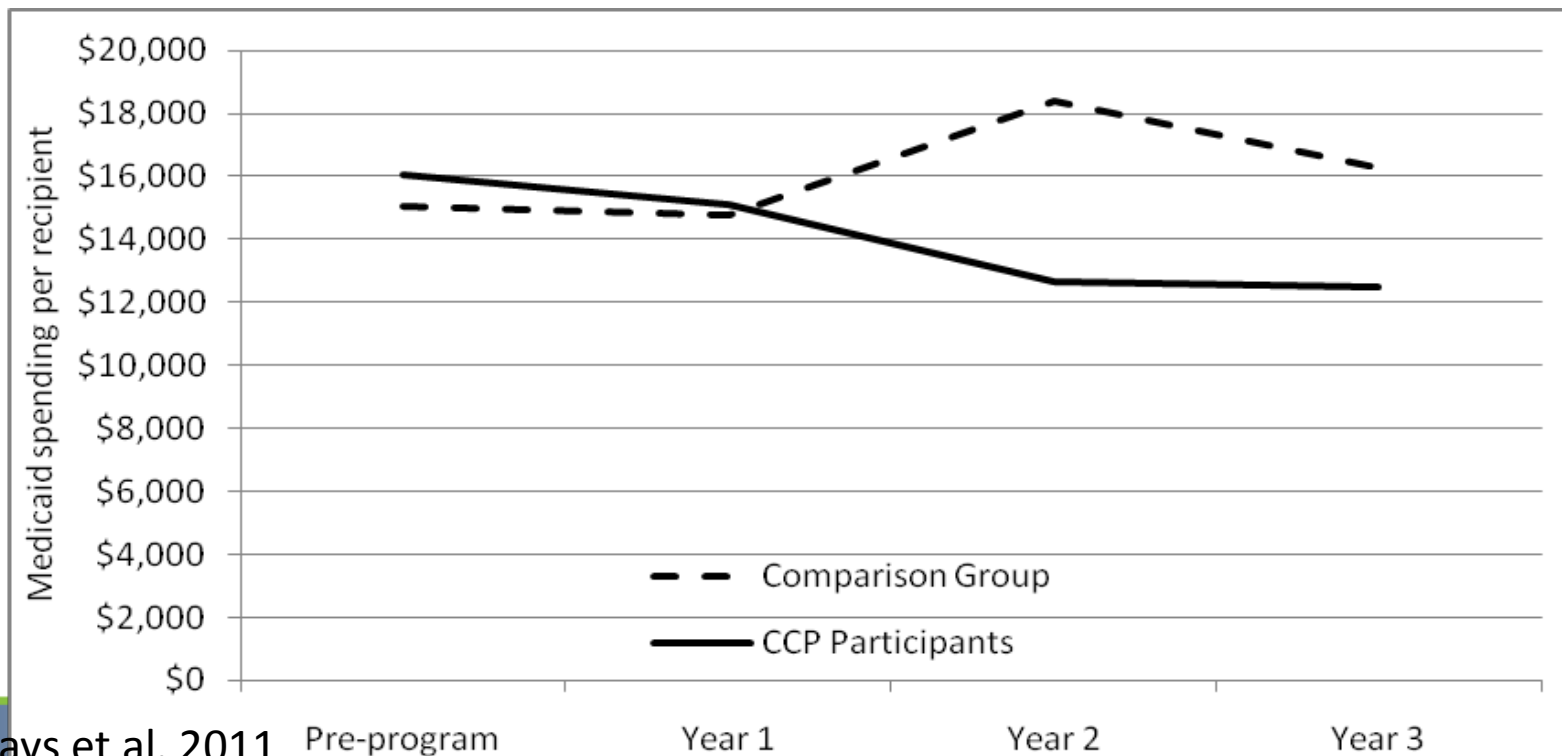
Examples: Program Costing

By Holly C. Felix, Glen P. Mays, M. Kathryn Stewart, Naomi Cottoms, and Mary Olson

THE CARE SPAN

Medicaid Savings Resulted When Community Health Workers Matched Those With Needs To Home And Community Care

HealthAffairs



Felix, Mays et al. 2011 Pre-program

Year 1

Year 2

Year 3

<http://content.healthaffairs.org/content/30/7/1366.abstract>

Examples: Program Costing

Three Year Aggregate Estimates

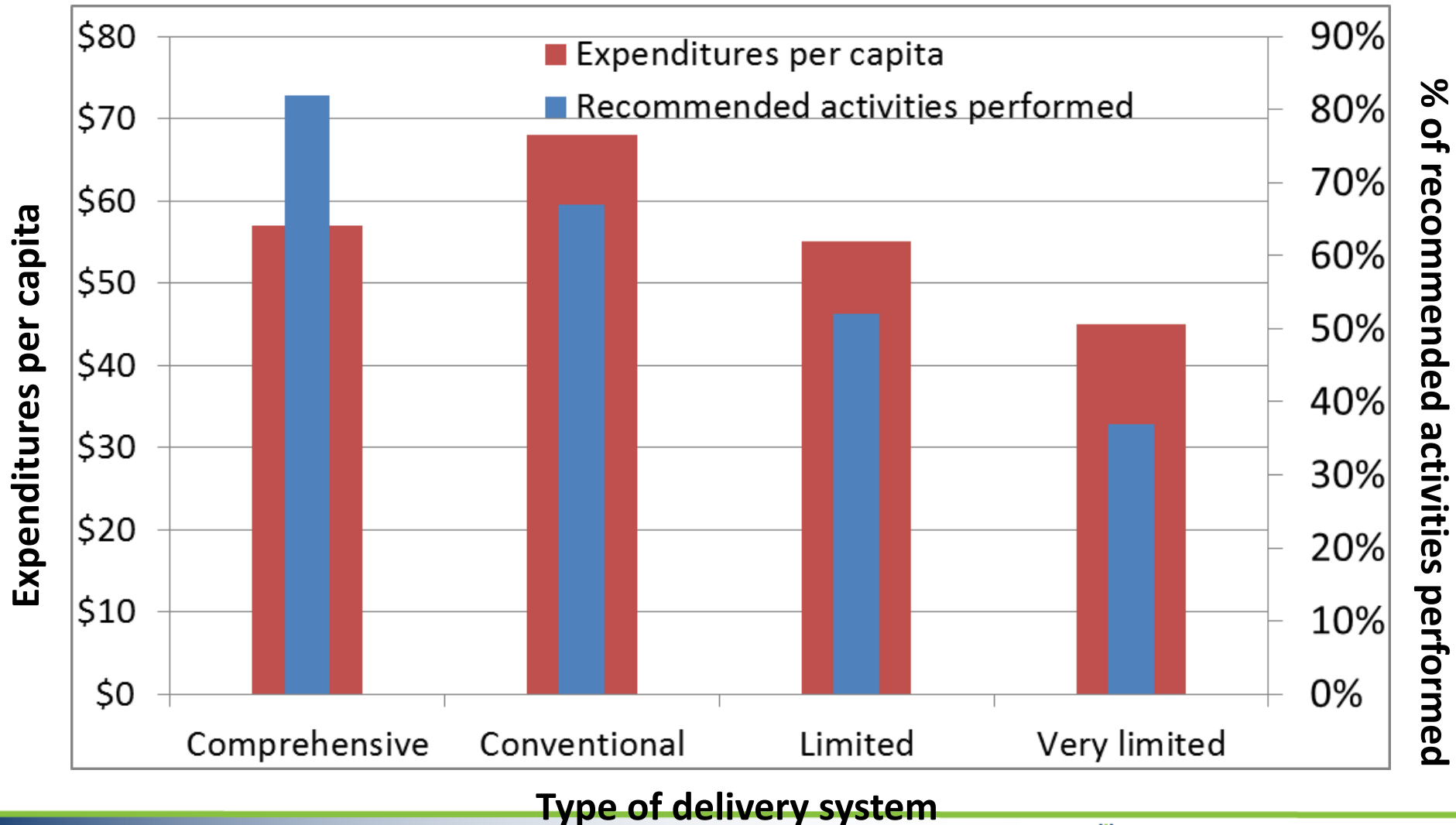
➤ Combined Medicaid spending reductions:	\$3.515 M
➤ Program implementation costs:	\$0.896 M
➤ Net savings:	\$2.629 M
➤ ROI:	\$2.92

Felix, Mays et al. 2011

<http://content.healthaffairs.org/content/30/7/1366.abstract>

Examples: Gross Costing

Performance and Efficiency in Local Public Health Delivery Systems



Mays et al. Milbank Quarterly 2010

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2888010/>

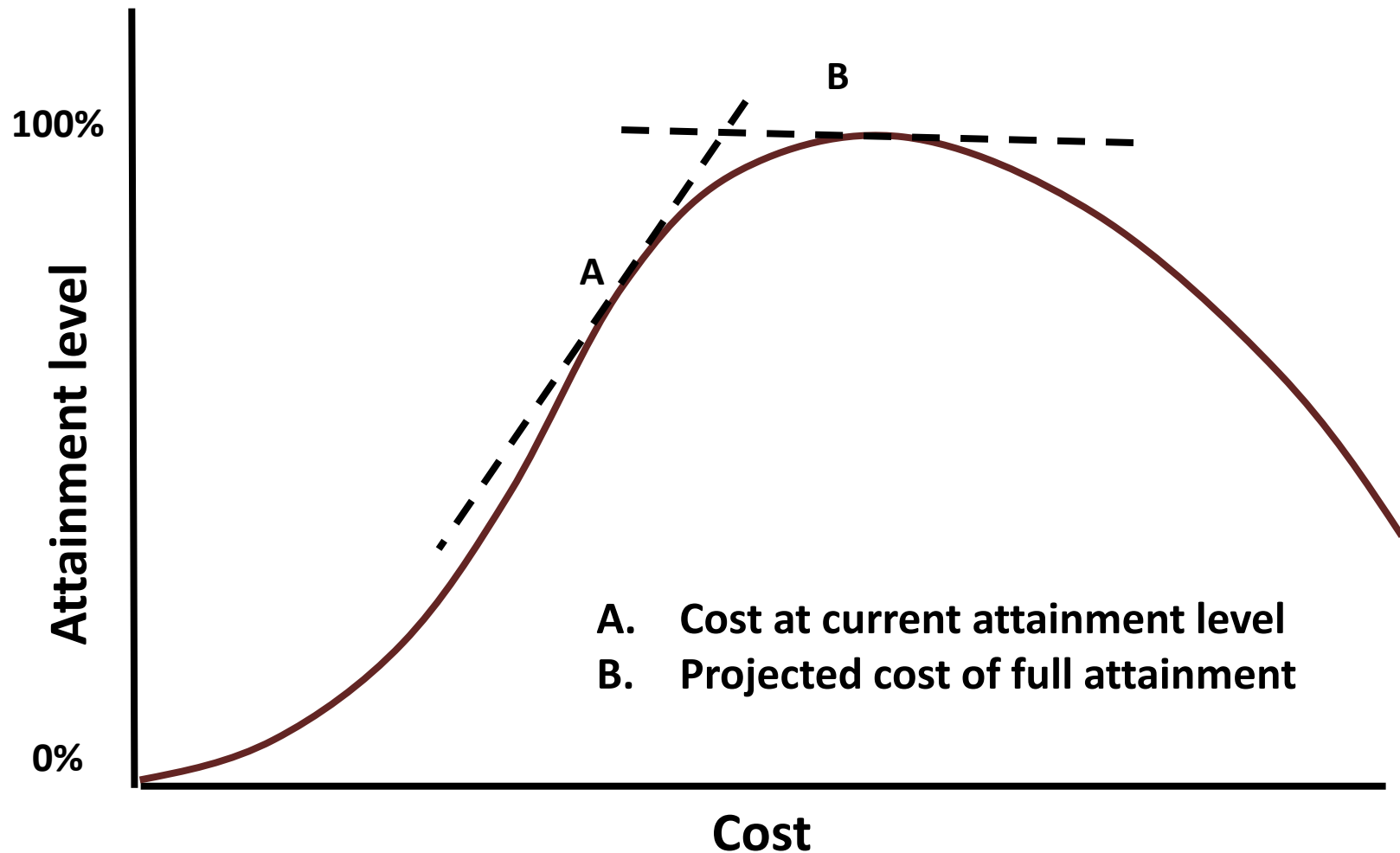
Ongoing work: Public Health Delivery and Cost Studies (DACs)

- Set of 11 ongoing studies conducted by PBRNs
- Focus on 1 or more public health services: communicable disease control, chronic disease prevention, environmental health protection
- Estimate costs and cost variation across multiple institutional and community settings
- Identify factors that drive variation in costs
- Use standardized approaches to cost measurement and cost analysis: DO, time logs, manager surveys

Ongoing work: Costing Foundational Public Health Services

- Prospective “expected cost” & retrospective “cost accounting” methods
- Sampling strategy to empirically estimate scaling
 - Stratify based on state-local administrative structure
 - Sample based on population strata and density (rural/urban)
- Vignette-based questions for each domain
 - Elicit **quantity**, FTE and labor cost, non-labor cost, indirect cost components
 - Elicit **staff time allocation** across service areas
 - Elicit **expectations** about current level of attainment of each service
- Use “fuzzy set” costing approach to deal with uncertainty
 - Upper and lower bounds, most likely values
 - Monte Carlo simulation

Costing Foundational Services: Estimation of “projected” costs from current attainment ratings



Costing Foundational Services: Current vs. Projected Costs with Simulated Uncertainty Parameters

Current Costs

78.3

Projected Costs

177.5

5.0%

90.0%

5.0%

5.0%

90.0%

5.0%

5% = 52.750

Mean = 65.036

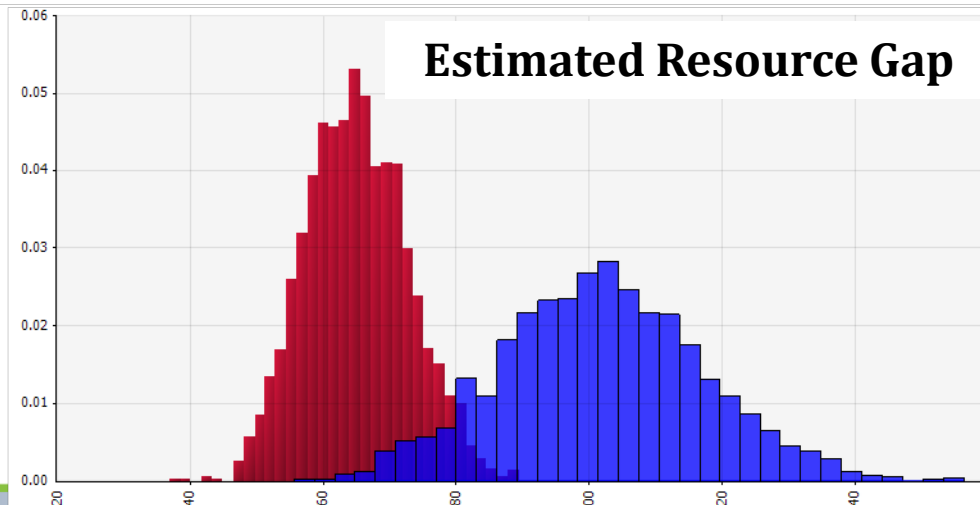
95% = 78.323

5% = 76.75

Mean = 101.82

95% = 127.46

Estimated Resource Gap



Transforming policy & practice with cost estimation

- Align resources with preventable disease burden
- Identify and address inequities in resources
- Improve productivity and efficiency
- Demonstrate value: linking costs to outcomes
- Strengthen fiscal policy: financing mechanisms



For More Information



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