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Ending Failures, Showing Results, Improving Population Health: nsights from Research & Reform in the U.S.

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Ending Failures, Showing Results, Improving Population Health: Insights from Research & Reform in the U.S.

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| Policy Rounds

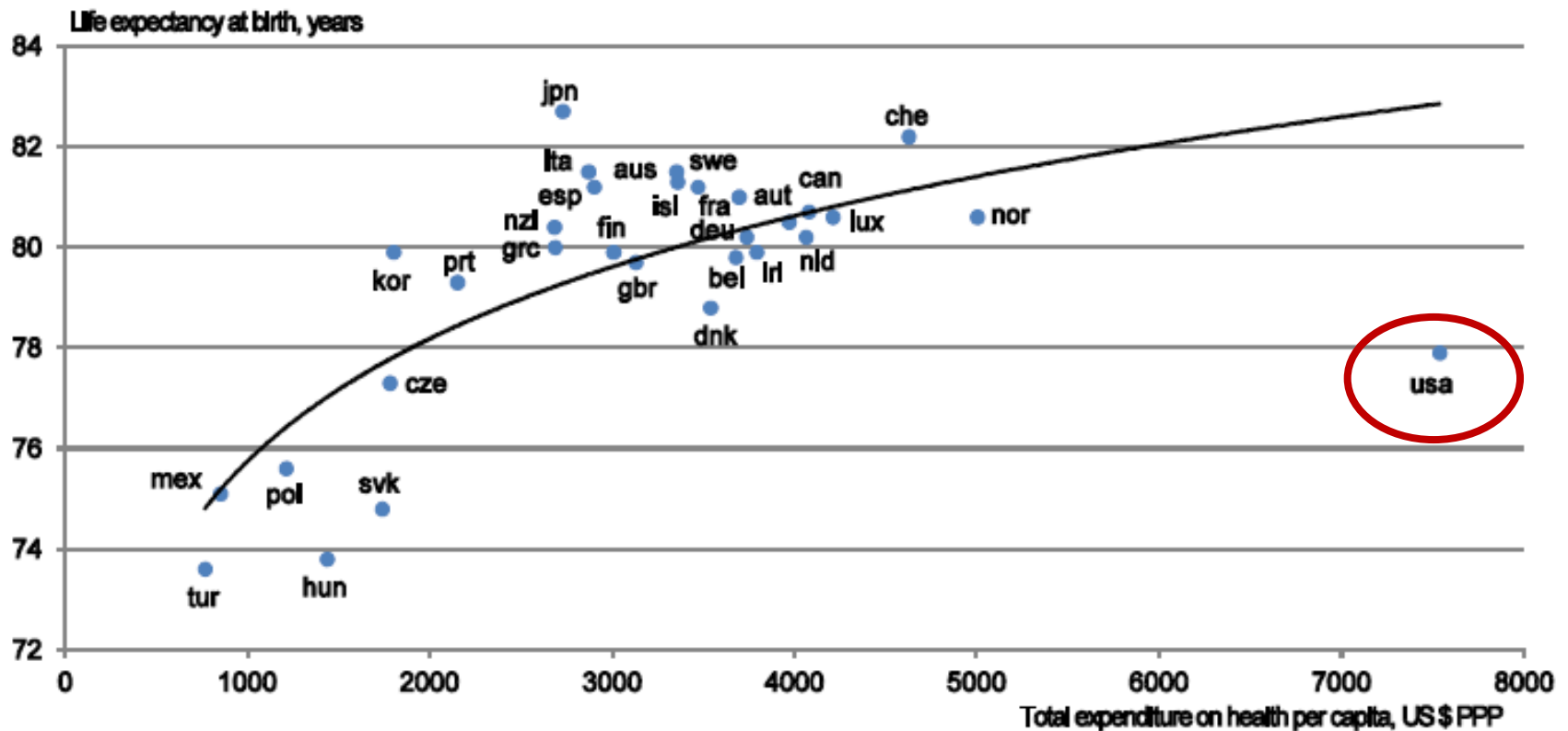
| 10 October 2014

Key Questions

- Why is system alignment needed for population health improvement yet so hard to achieve?
- What types of infrastructure and incentives can help to align systems?
- How can evidence and community-engaged scholarship help?

Failures in population health

Figure 1. There are large differences in life expectancy and health care spending across OECD countries 2008¹



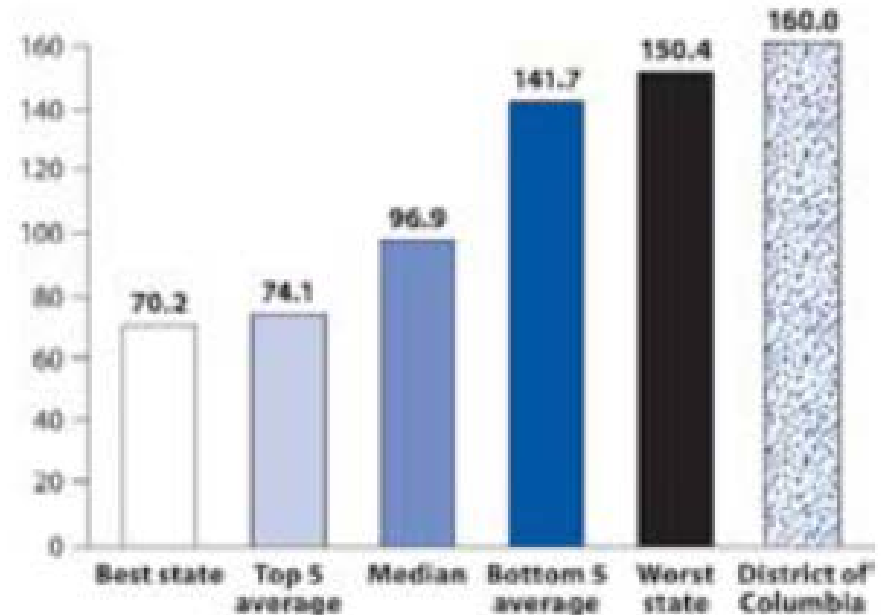
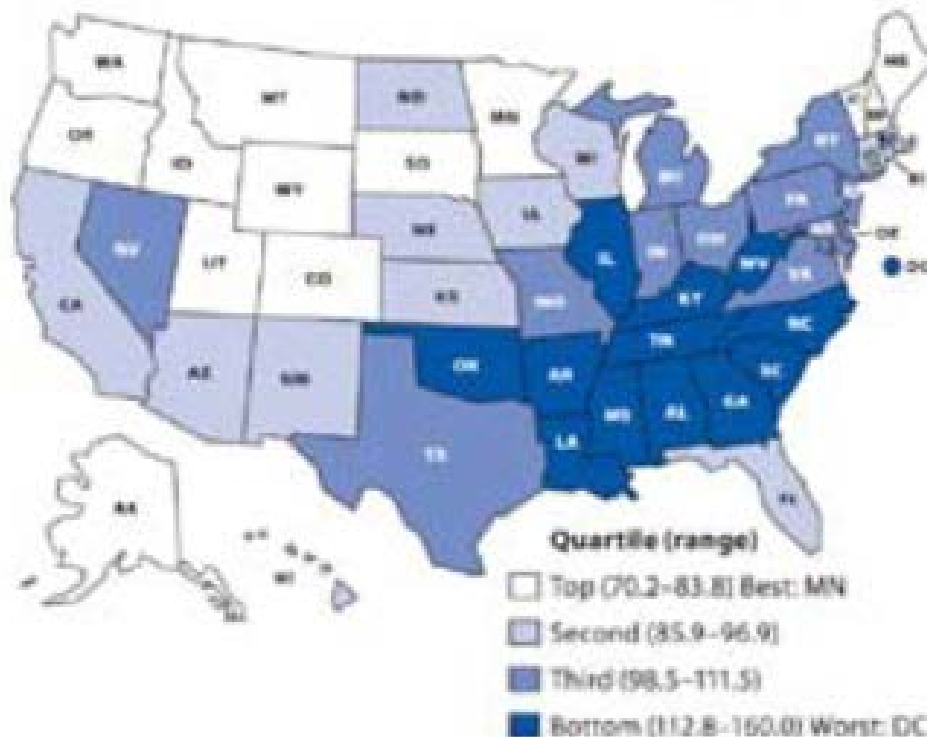
1. Or latest year available.

Source: OECD Health Data 2010.

Failures in population health

Premature Deaths per 100,000 Residents

U. S. Average = 103 Deaths per 100,000



Cost of failures in population health

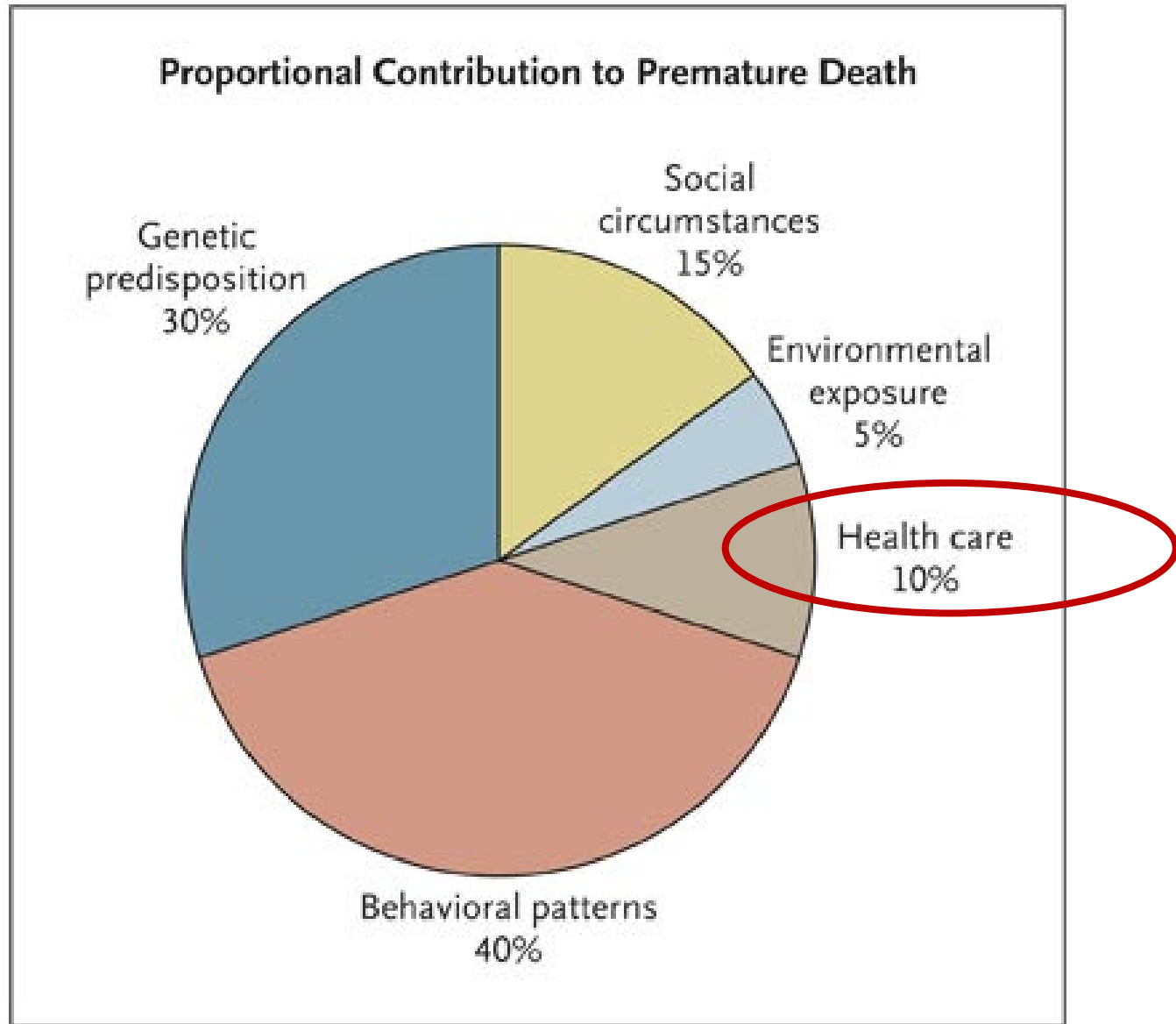
EXHIBIT 1

Estimates of Waste in US Health Care Spending in 2011, by Category

	Cost to Medicare and Medicaid ^a			Total cost to US health care ^b		
	Low	Midpoint	High	Low	Midpoint	High
Failures of care delivery	\$26	\$36	\$45	\$102	\$128	\$154
Failures of care coordination	21	30	39	25	35	45
Overtreatment	67	77	87	158	192	226
Administrative complexity	16	36	56	107	248	389
Pricing failures	36	56	77	84	131	178
Subtotal (excluding fraud and abuse)	166	235	304	476	734	992
Percentage of total health care spending	6%	9%	11%	18%	27%	37%

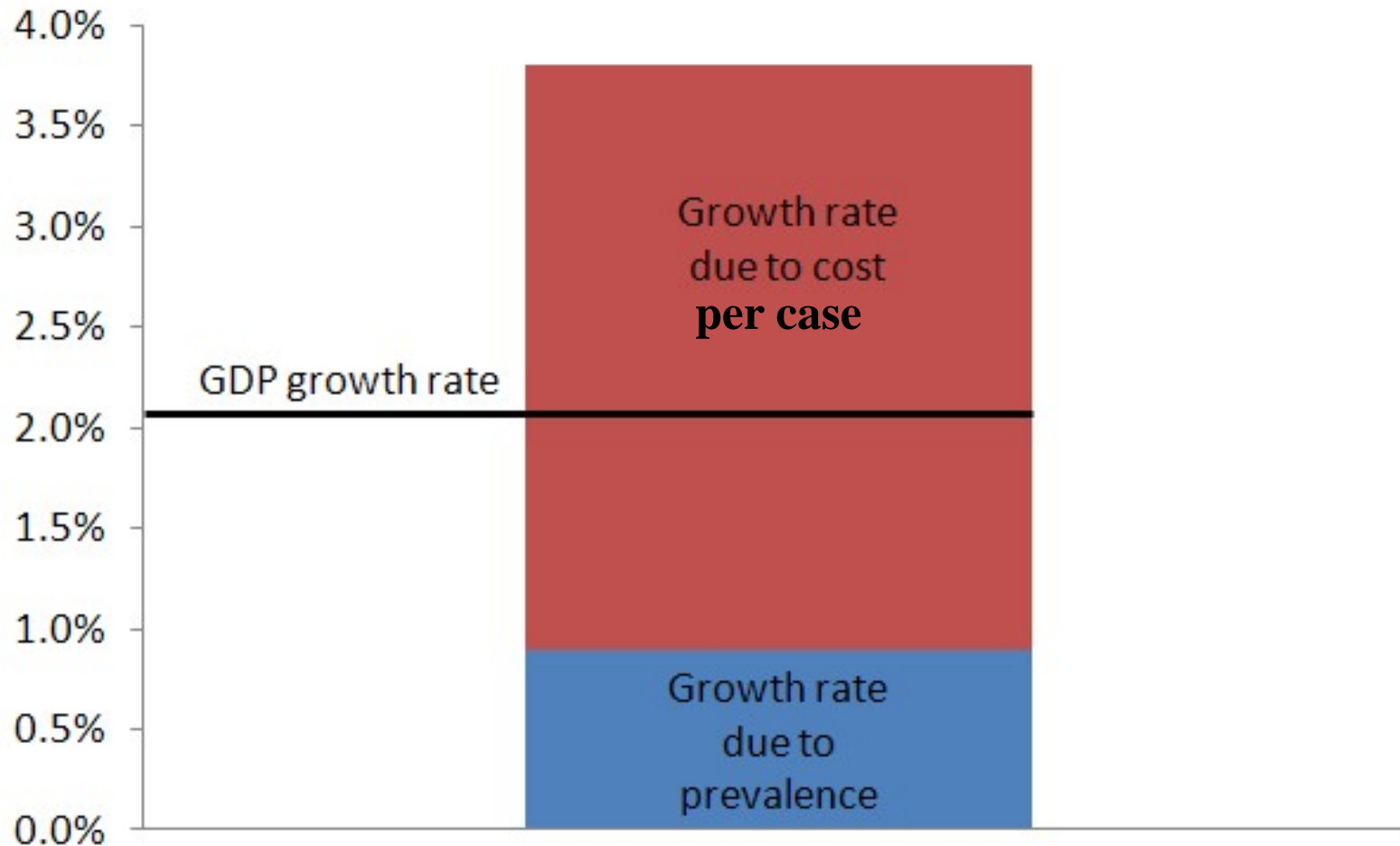
^a"Health Policy Brief: Reducing Waste in Health Care," *Health Affairs*, December 13, 2012.
<http://www.healthaffairs.org/healthpolicybriefs/>

Drivers of population health failures



Factors driving growth in medical spending

Health spending growth rate 1996-2006



Factors driving growth in medical spending

- ✦ Unmet social needs have large effects on medical resource use and health outcomes
- ✦ Most primary care physicians lack confidence in their capacity to address unmet social needs
- ✦ Linking people to needed health and social support services is a core public health function

Drivers of population health failures

>75% of US health spending is attributable to conditions that are largely preventable

- Cardiovascular disease
- Diabetes
- Lung diseases
- Cancer
- Injuries
- Vaccine-preventable diseases and sexually transmitted infections

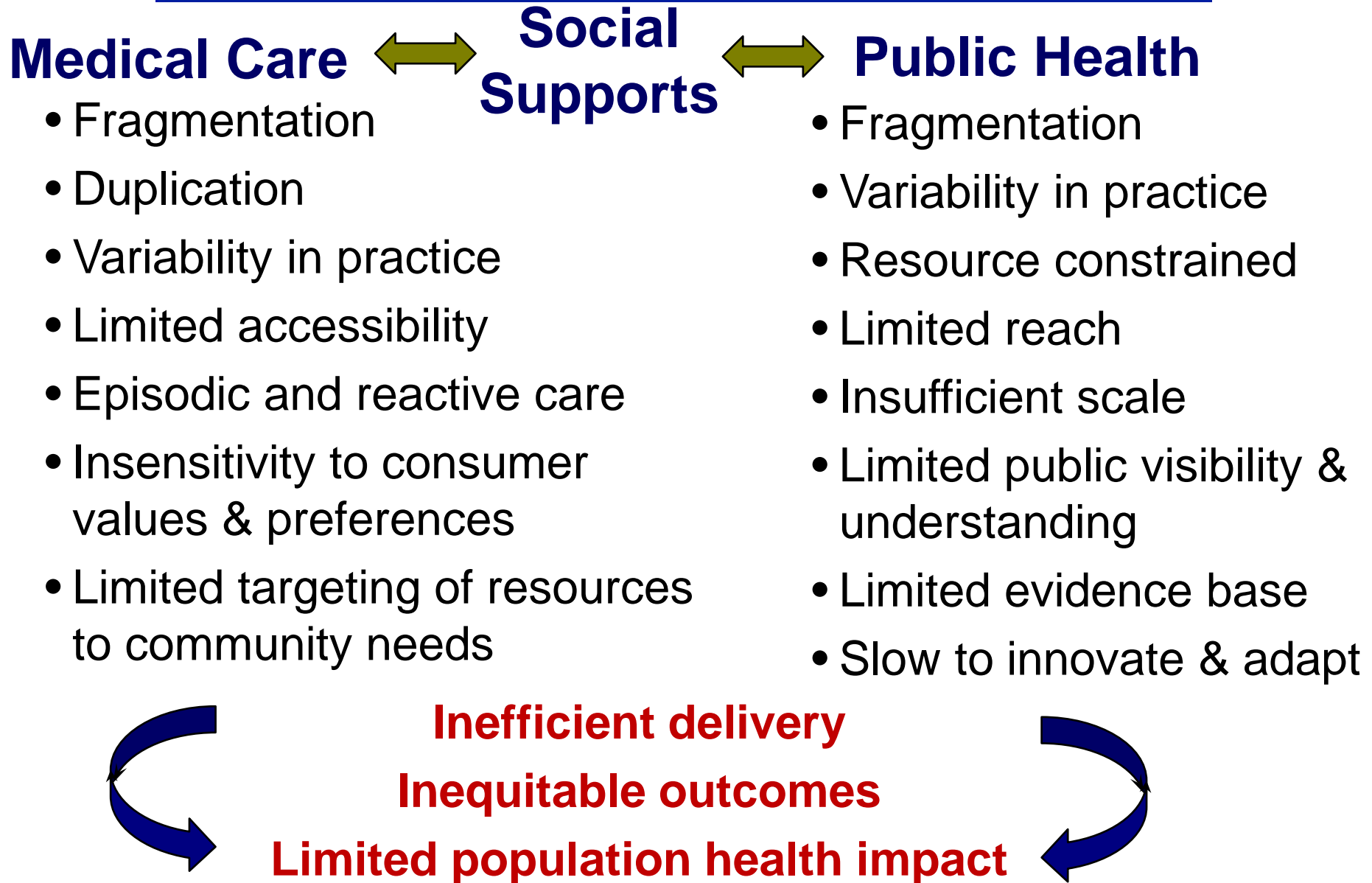
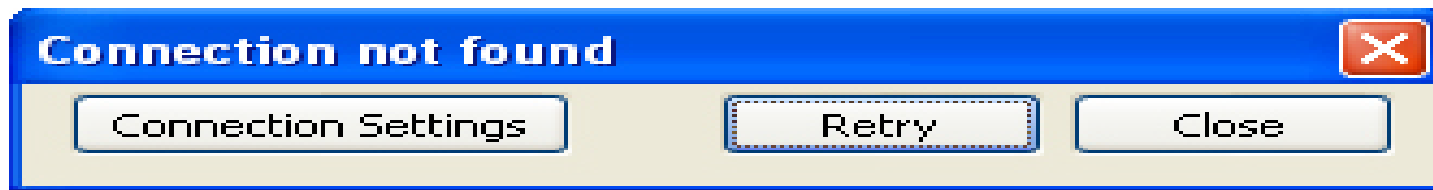
<5% of US health spending is allocated to prevention and public health

Missed opportunities in public health delivery

Evidence-based public health strategies reach less than two-thirds of U.S. populations at risk:

- Smoking cessation
- Influenza vaccination
- Hypertension control
- Nutrition & physical activity programs
- HIV prevention
- Family planning
- Substance abuse prevention
- Interpersonal violence prevention
- Maternal and infant home visiting for high-risk populations





Learning how to succeed with population health strategies

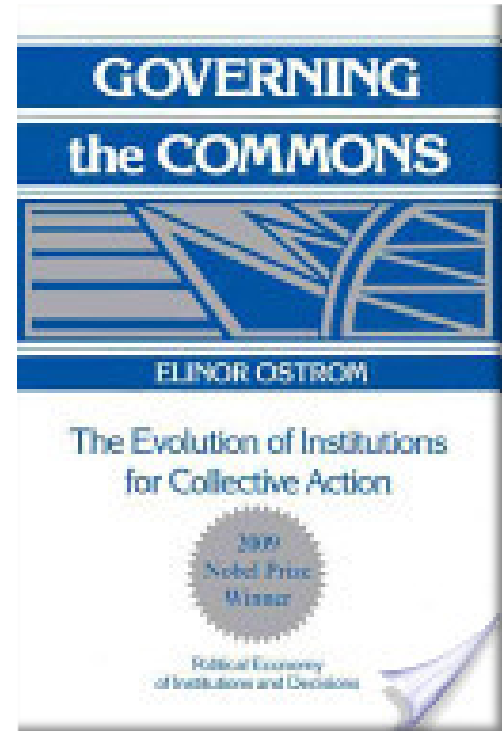
- Designed to achieve **large-scale** health improvement: neighborhood, city/county, region
- Target **fundamental** and often **multiple** determinants of health
- Mobilize the **collective actions** of multiple stakeholders in government & private sector
 - Usual and unusual suspects
 - Infrastructure requirements

Mays GP. Governmental public health and the economics of adaptation to population health strategies. IOM Population Health Roundtable Discussion Paper. 2014.

<http://www.iom.edu/Home/Global/Perspectives/2014/EconomicsOfAdaptation.aspx>

What Makes Population Health Strategies So Hard?

- Incentive compatibility → public goods
- Concentrated costs & diffuse benefits
- Time lags: costs vs. improvements
- Uncertainties about what works
- Asymmetry in information
- Difficulties measuring progress
- Weak and variable institutions & infrastructure
- Imbalance: resources vs. needs
- Stability & sustainability of funding



Leading models of integration

Summary Of Features And Components For Models Linking Medical Care And Social Support Services

	VBH	SCO	CCP	Mercy	GRACE	CMP	EDPP
INTERVENTION PROCESS							
Baseline health assessment	•	•	•	•	•	•	•
Social assessment	•	•	•	•	•	•	•
Individualized care plan	•	•	•	•	•	•	•
Interdisciplinary care team	•	•	•	•	•	•	•
Specialized intervention protocols	•				•	•	•
Specialized training for service providers	•	•	•	•	•		
Ongoing monitoring	•	•	•	•	•	•	
Coaching in self-management	•		•	•	•	•	•
Link to or communication with primary care physician or practice	•	•	•	•	•	•	•
Use of electronic health records	•	•	•	•	•	•	•
SERVICE							
Case management	•	•	•	•	•	•	•
Medication management	•	•	•	•	•	•	•
Mental health services	•	•			•		•
Referral to or arrangement for social or supportive services	•	•	•	•	•	•	•
Referral to or arrangement for medical services	•	•	•	•	•	•	•
Caregiver support					•		•

Gayle Shier, Michael Ginsburg, Julianne Howell, Patricia Volland and Robyn Golden
 Strong Social Support Services, Such As Transportation And Help For Caregivers,
 Can Lead To Lower Health Care Use And Costs
Health Affairs, 32, no.3 (2013):544-551

Can Public Health Infrastructure Help?

Organized programs, policies, and laws to prevent disease and injury and promote health on a population-wide basis

- Epidemiologic **surveillance & investigation**
 - Community health **assessment & planning**
 - Communicable disease control
 - Chronic disease and injury prevention
 - Health education and communication
 - Environmental health **monitoring and assessment**
 - Enforcement of health **laws and regulations**
 - Inspection and licensing
 - **Inform, advise, and assist** school-based, worksite-based, and community-based health programming
- ...and roles in **assuring access** to medical care



Public Health
Prevent. Promote. Protect.

Stimuli in the Affordable Care Act

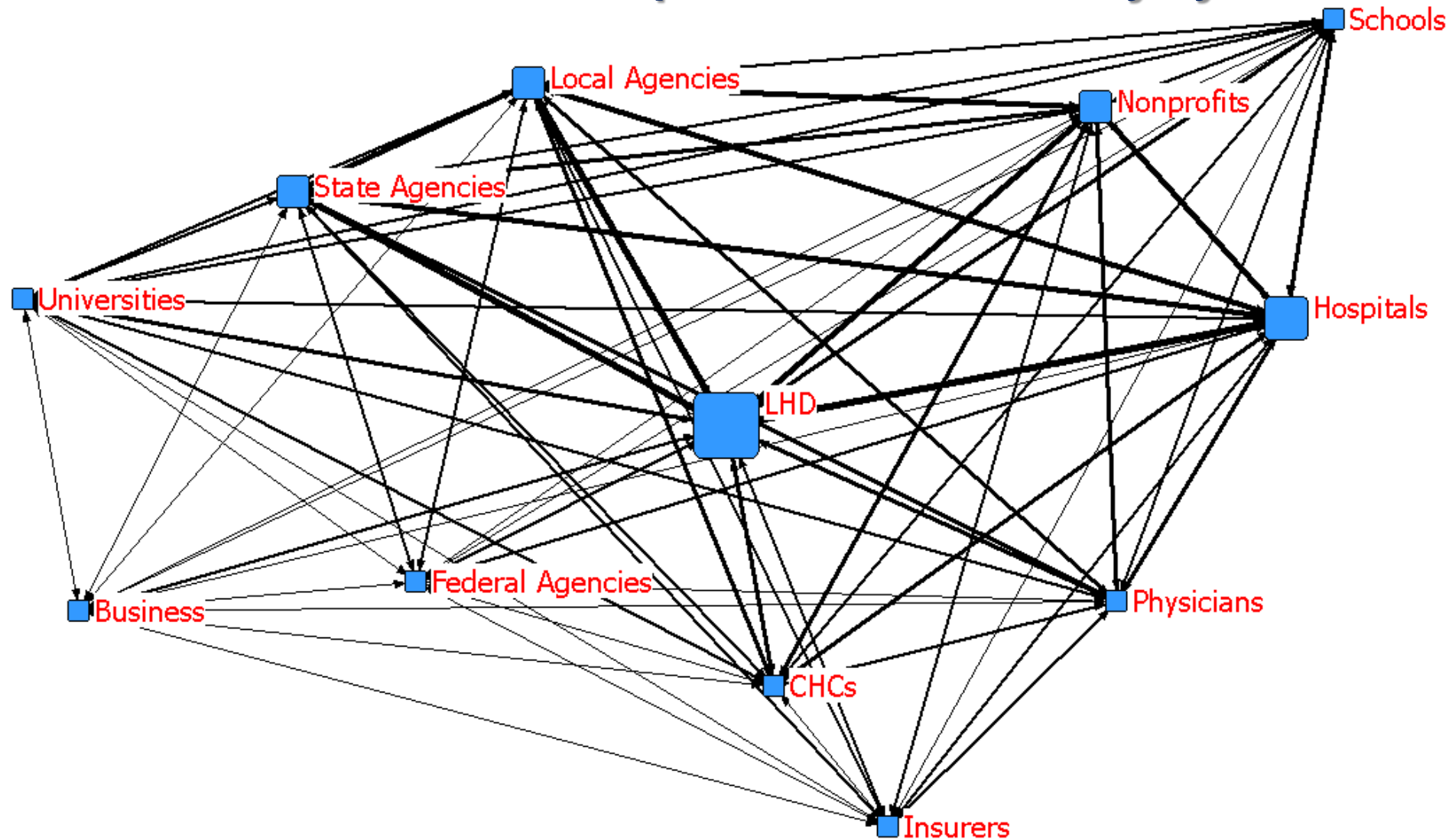
- ◆ \$10 billion Prevention & Public Health Fund
- ◆ \$10 billion CMMI demonstration programs
 - ACOs
 - Bundled payments
 - Shared savings
- ◆ Medicaid Health Home pilots
- ◆ CDC community health worker program
- ◆ Enhanced IRS requirements for hospital community benefits
- ◆ Minimum loss ratio incentives for health insurers
- ◆ CMS focus on hospital readmission prevention

Complexity in population health strategies



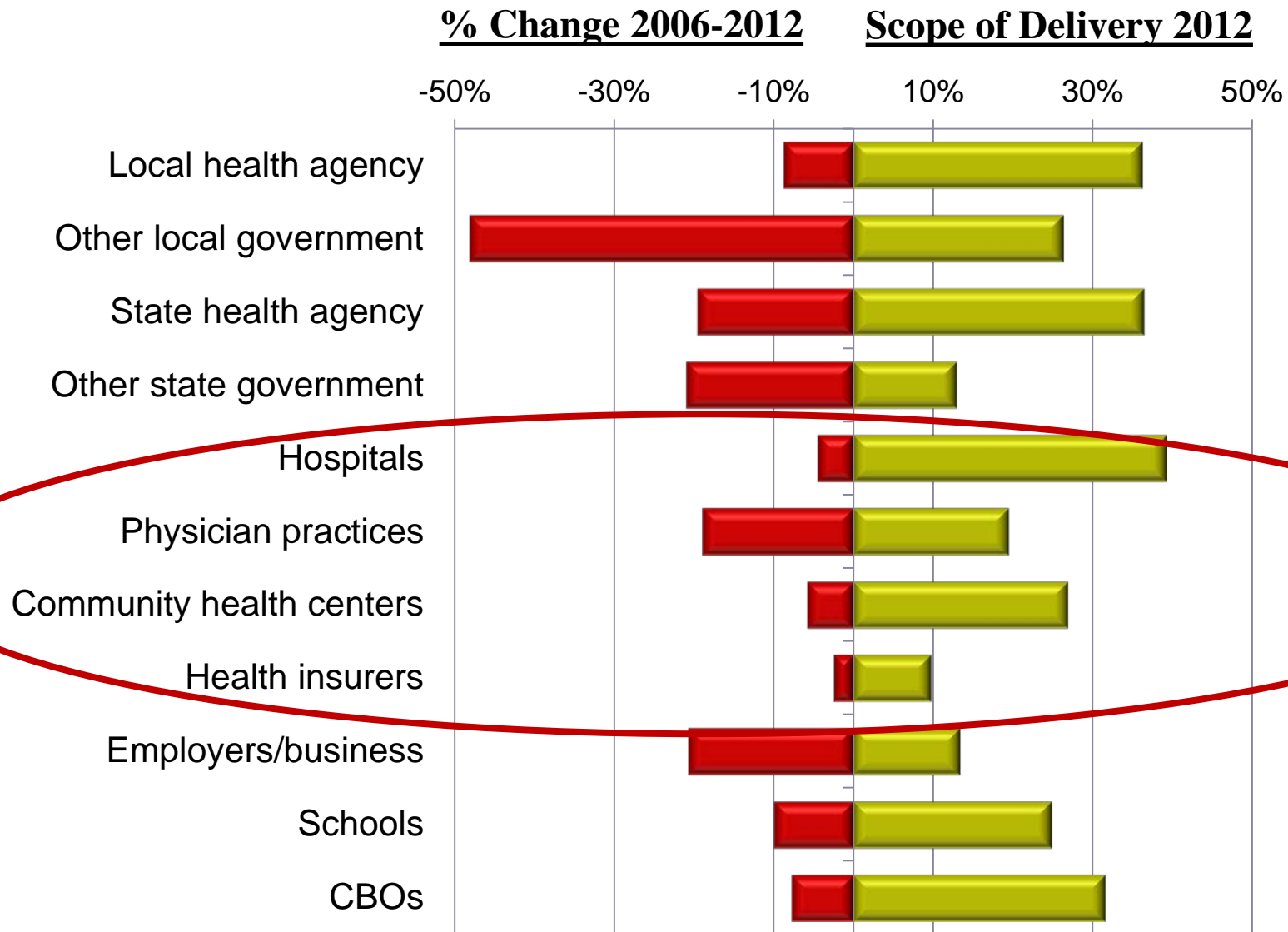
What does integration look like?

Patterns of interaction in public health delivery systems

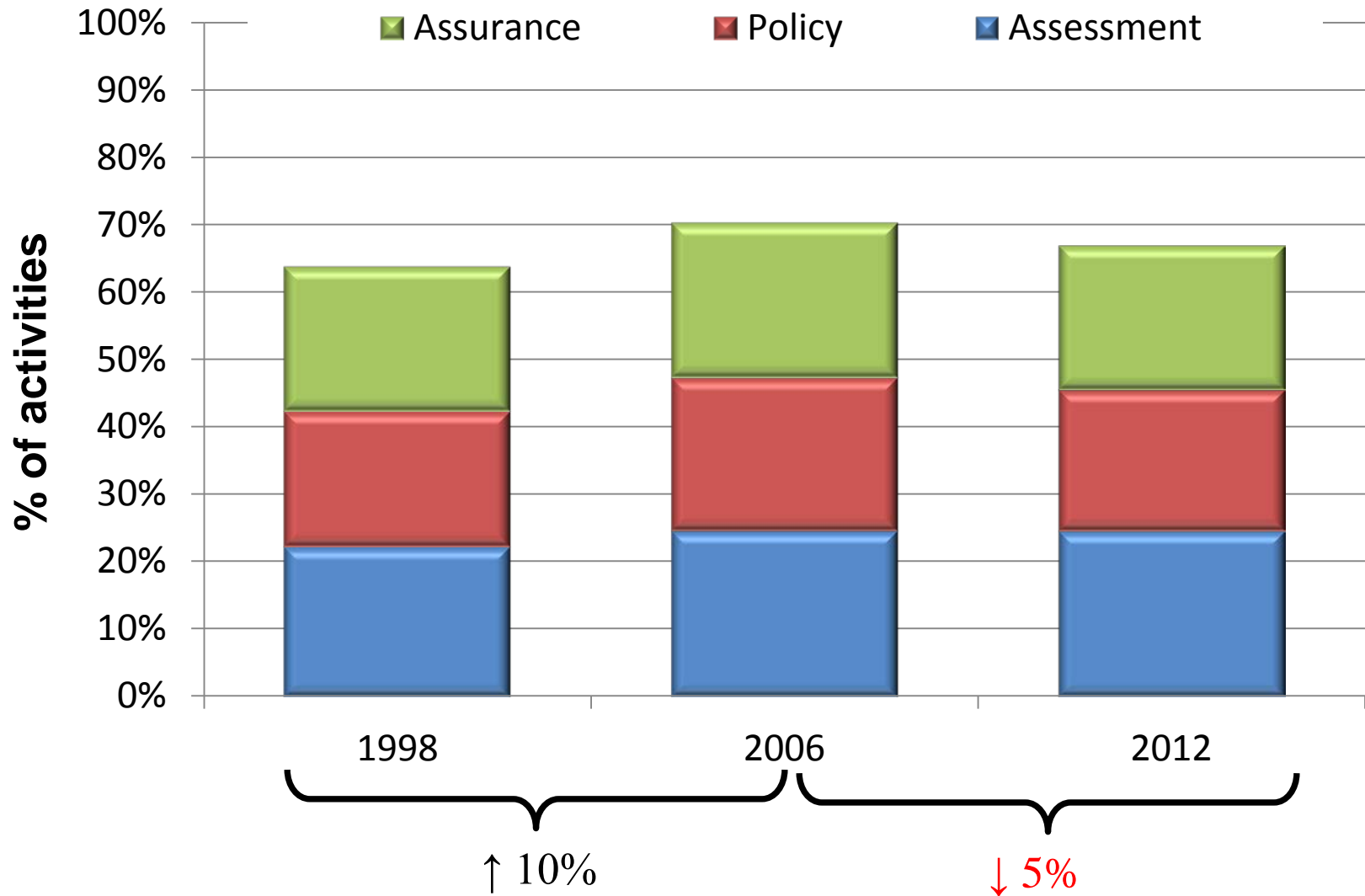


National Longitudinal Survey of Public Health Systems, 2012

Organizations engaged in local public health delivery



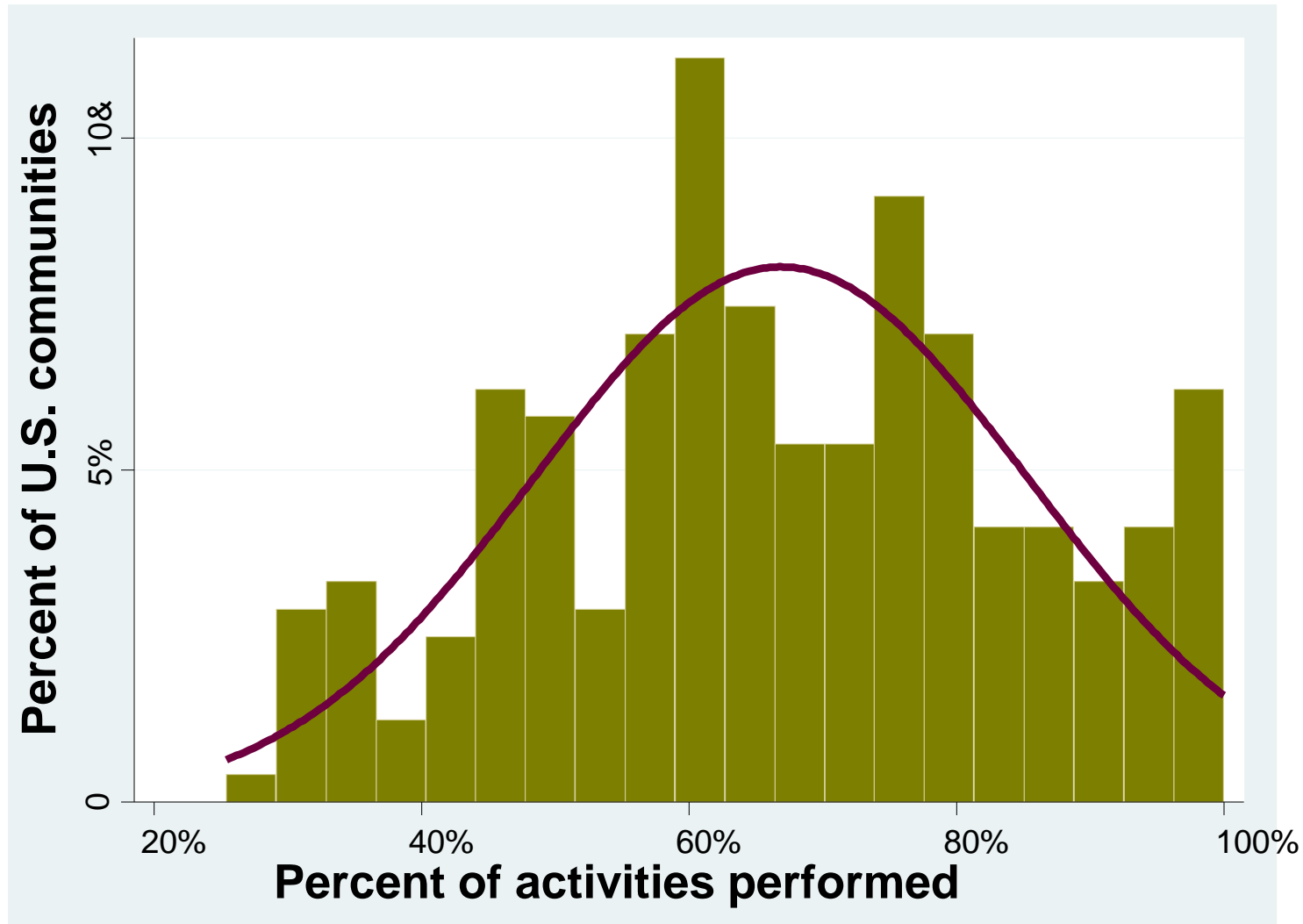
Delivery of recommended public health activities in U.S. communities



National Longitudinal Survey of Public Health Systems, 2012

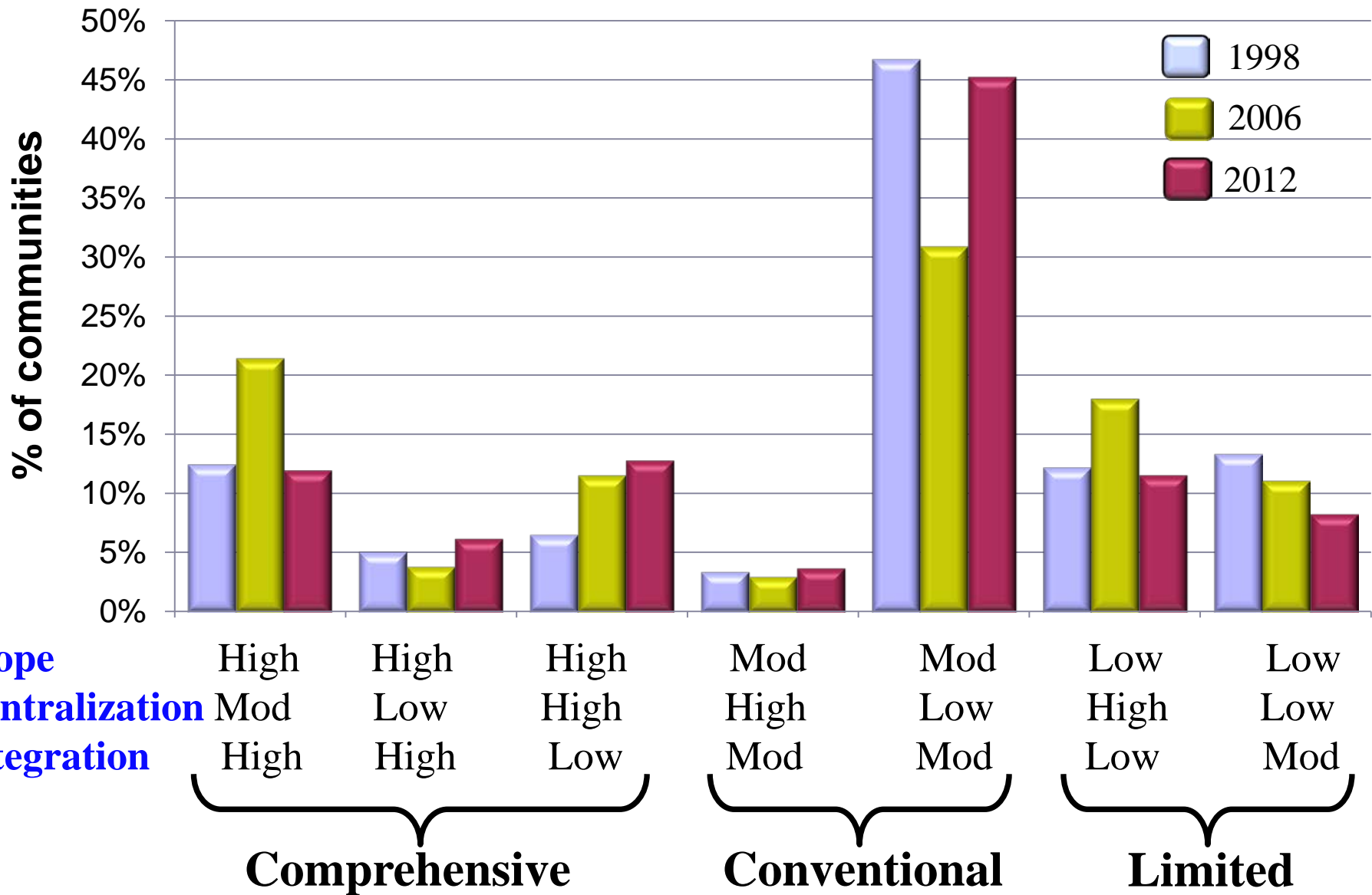
Variation in Scope of Public Health Delivery

Delivery of recommended public health activities, 2012



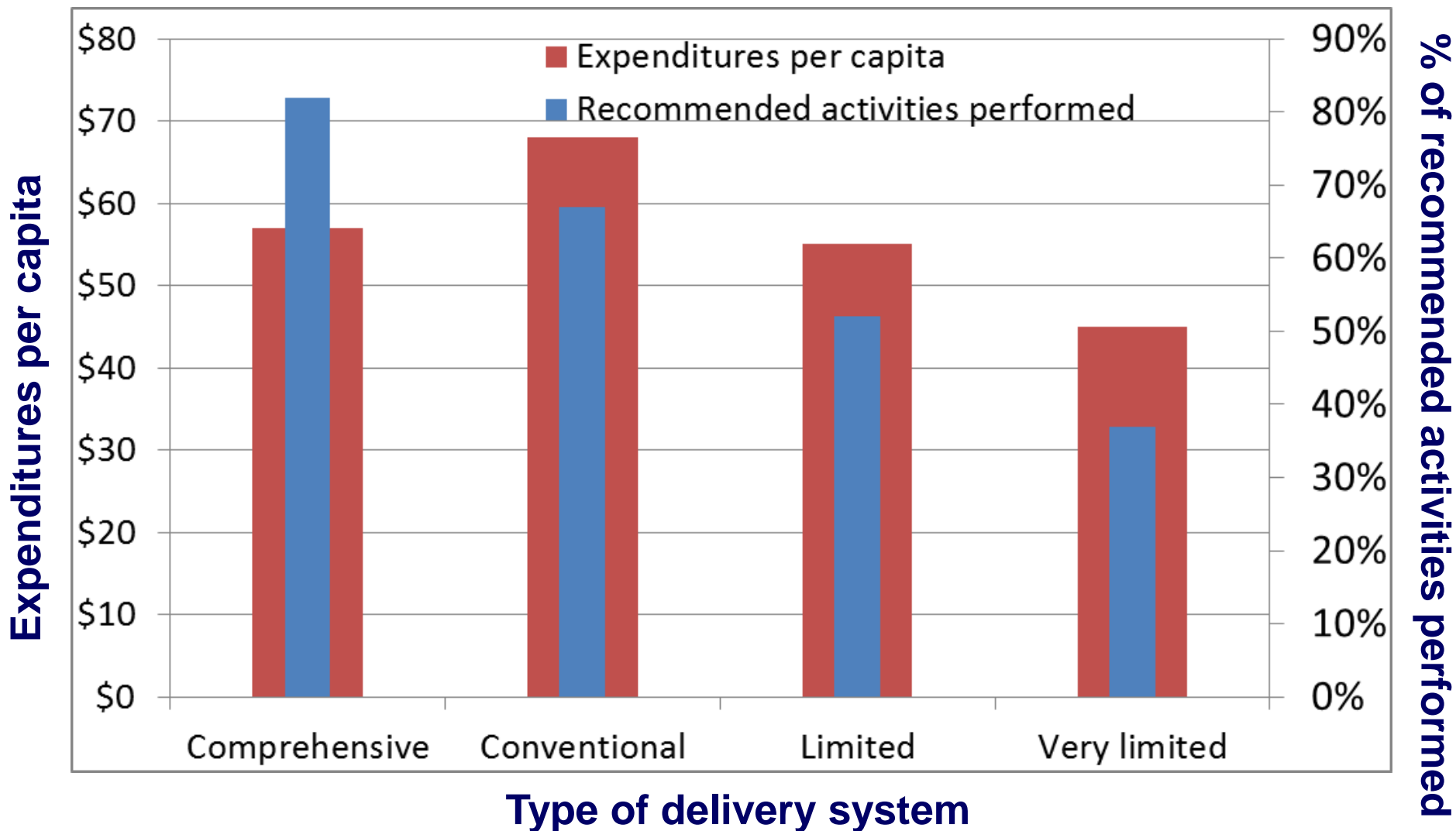
National Longitudinal Survey of Public Health Systems, 2012

Seven types of public health delivery systems



Source: Mays et al. 2010; 2012

Integrated systems do more with less

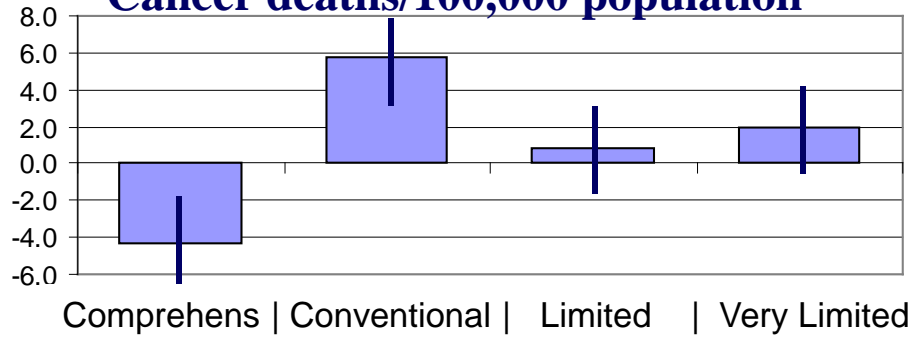


National Longitudinal Survey of Public Health Systems, 2012

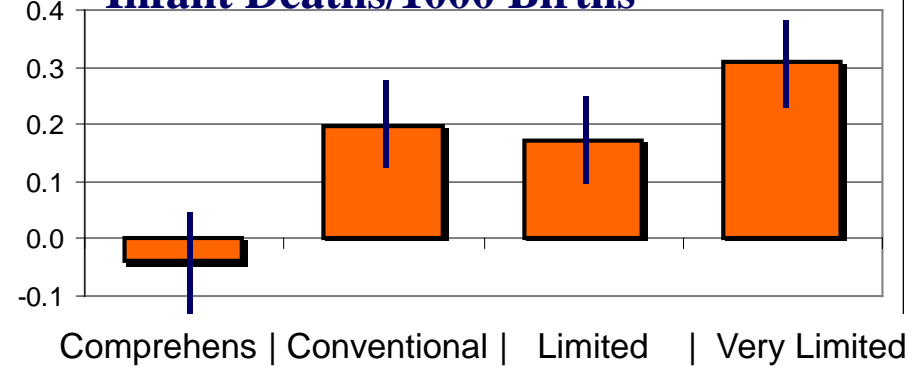
Integrated systems achieve better health outcomes

Percent Changes in Preventable Mortality Rates Attributable to Delivery System Type

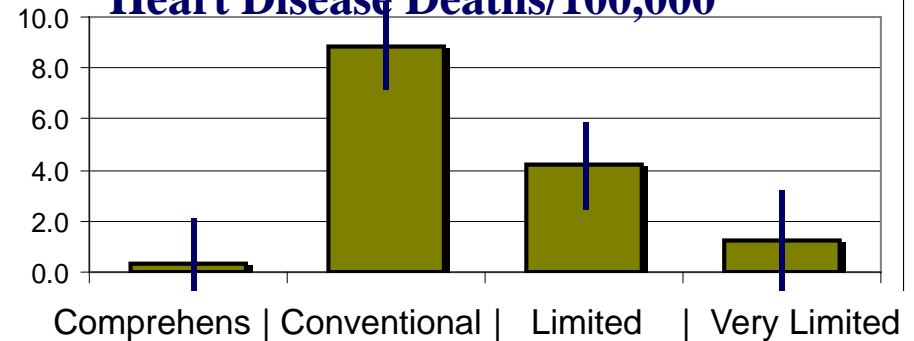
Cancer deaths/100,000 population



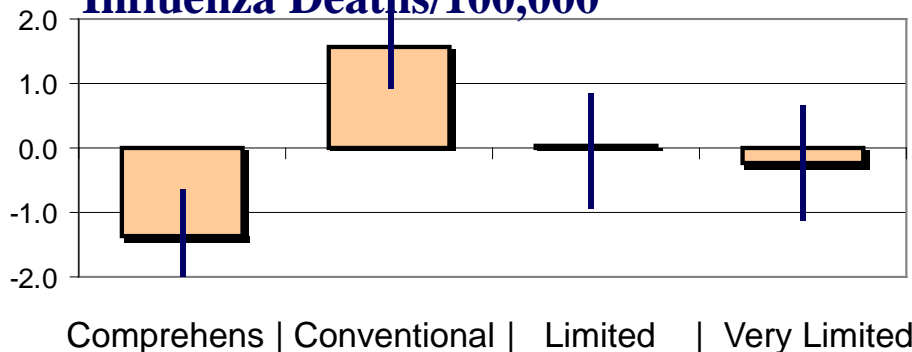
Infant Deaths/1000 Births



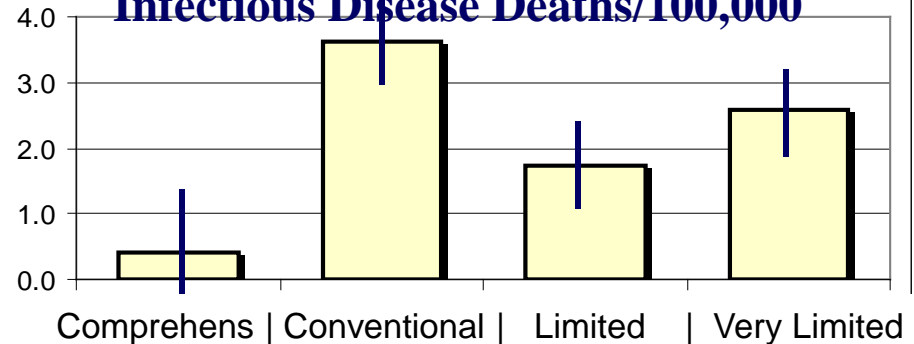
Heart Disease Deaths/100,000



Influenza Deaths/100,000



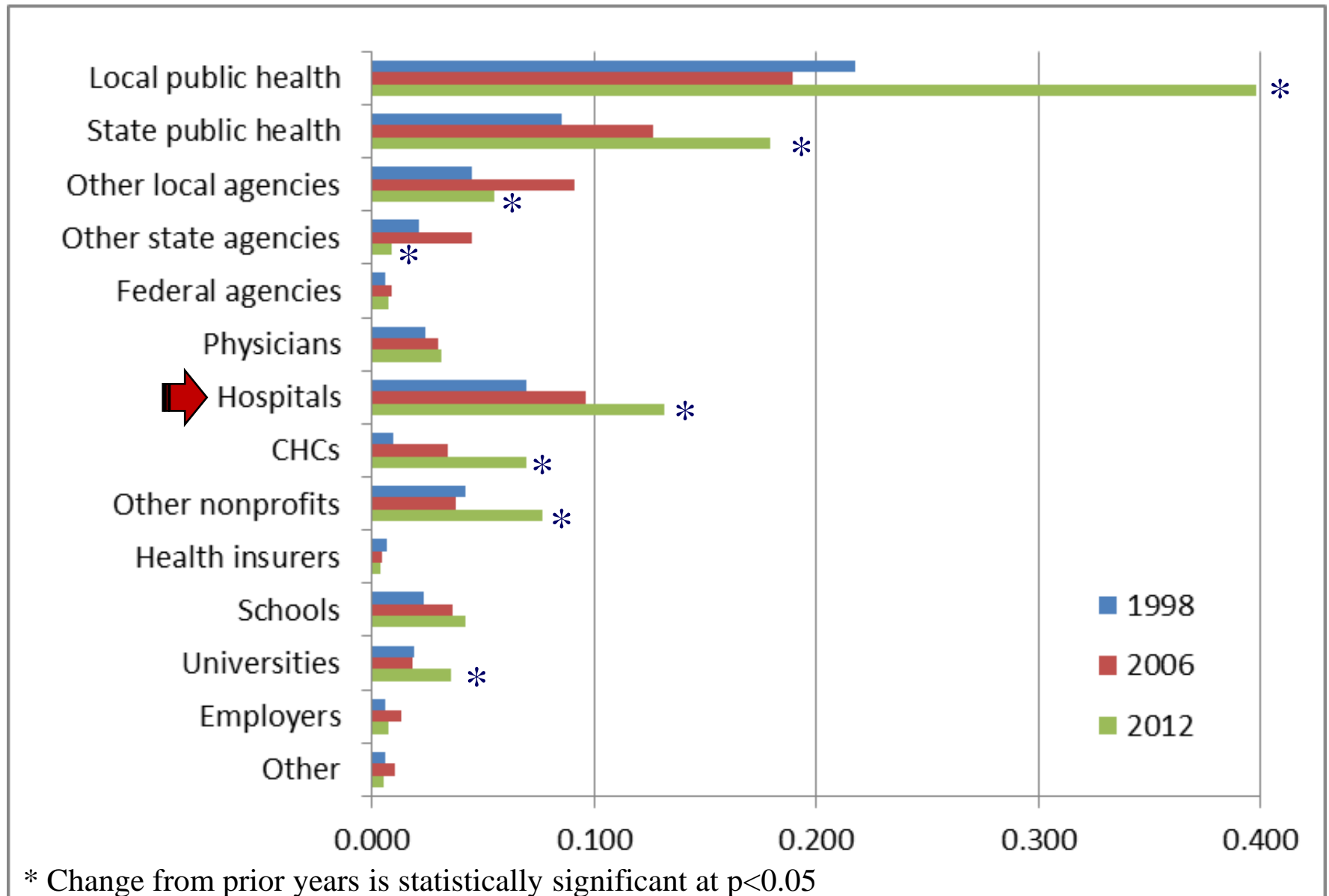
Infectious Disease Deaths/100,000



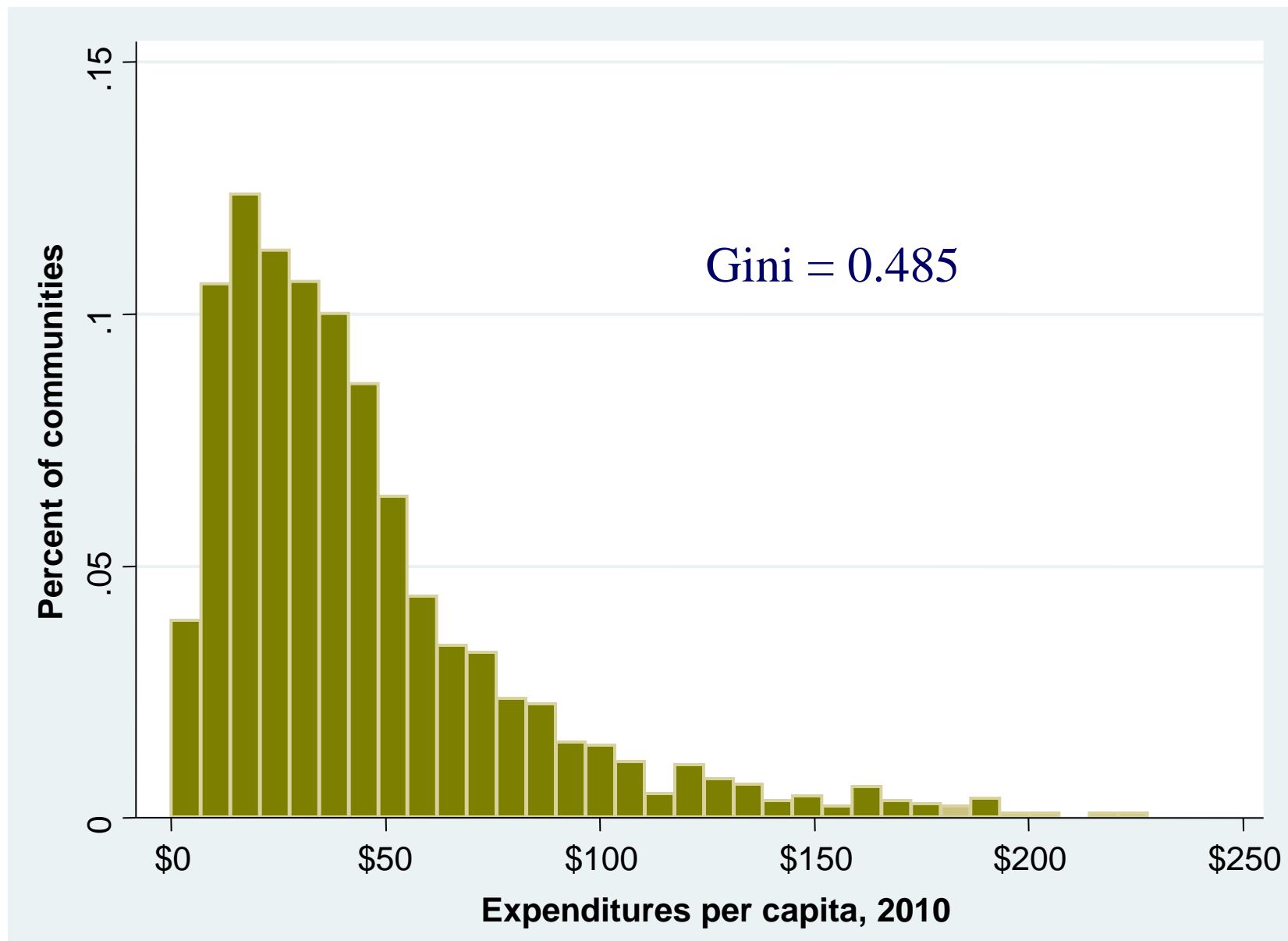
Fixed-effects models control for population size, density, age composition, poverty status, racial composition, and physician supply

Bridging capital in public health delivery systems

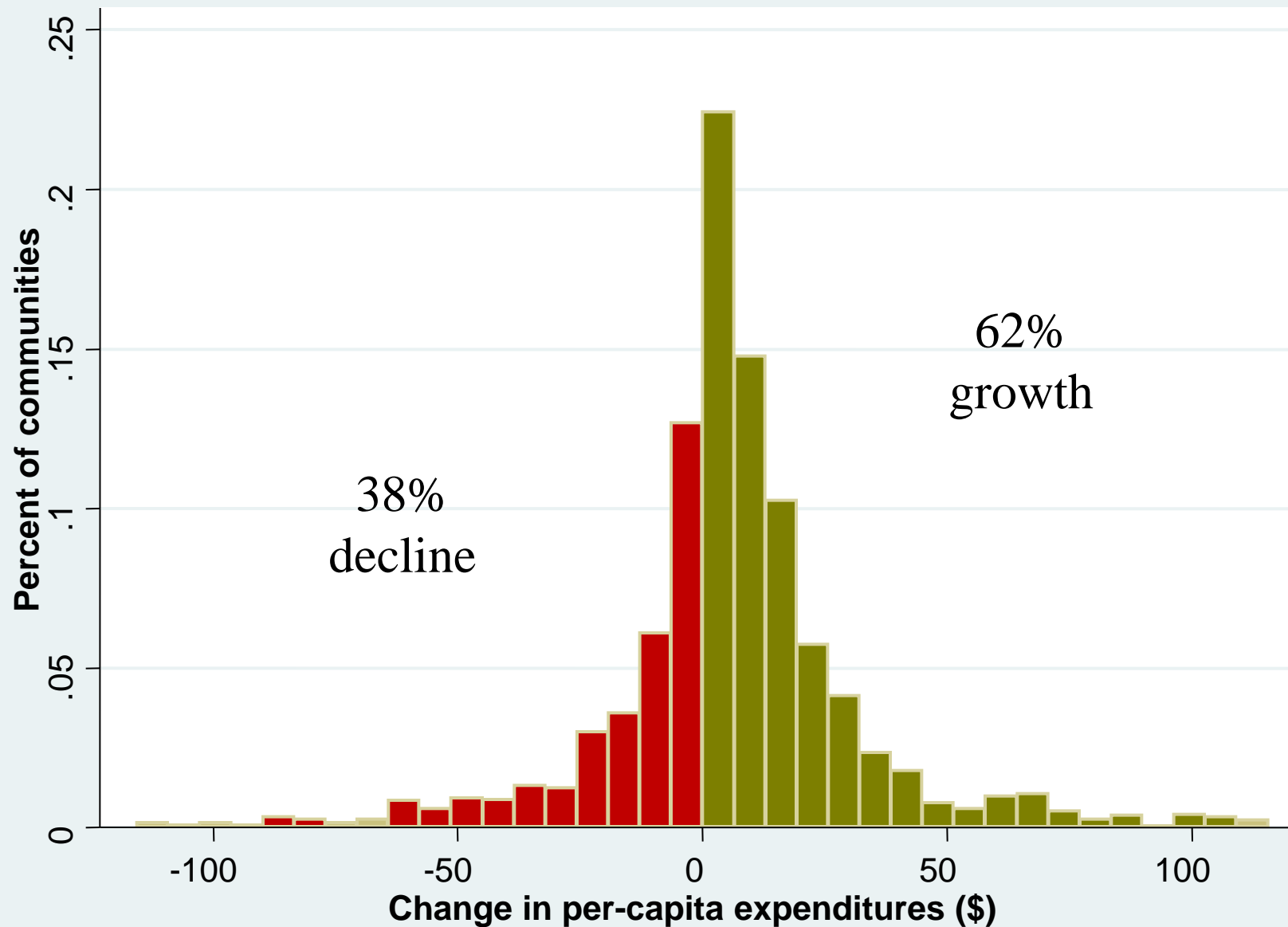
Trends in betweenness centrality



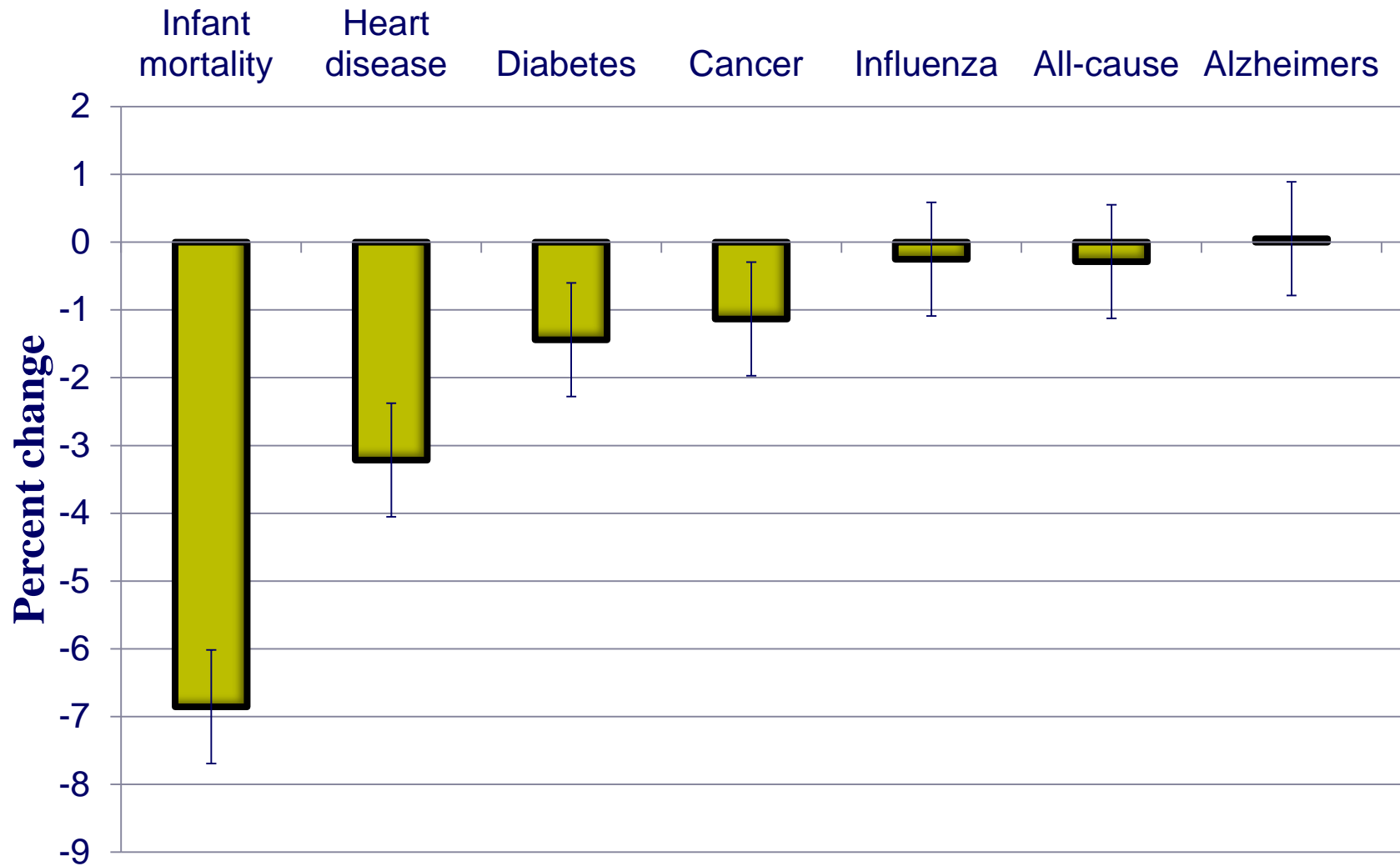
Variation in Local Public Health Spending



Changes in Local Public Health Spending 1993-2010



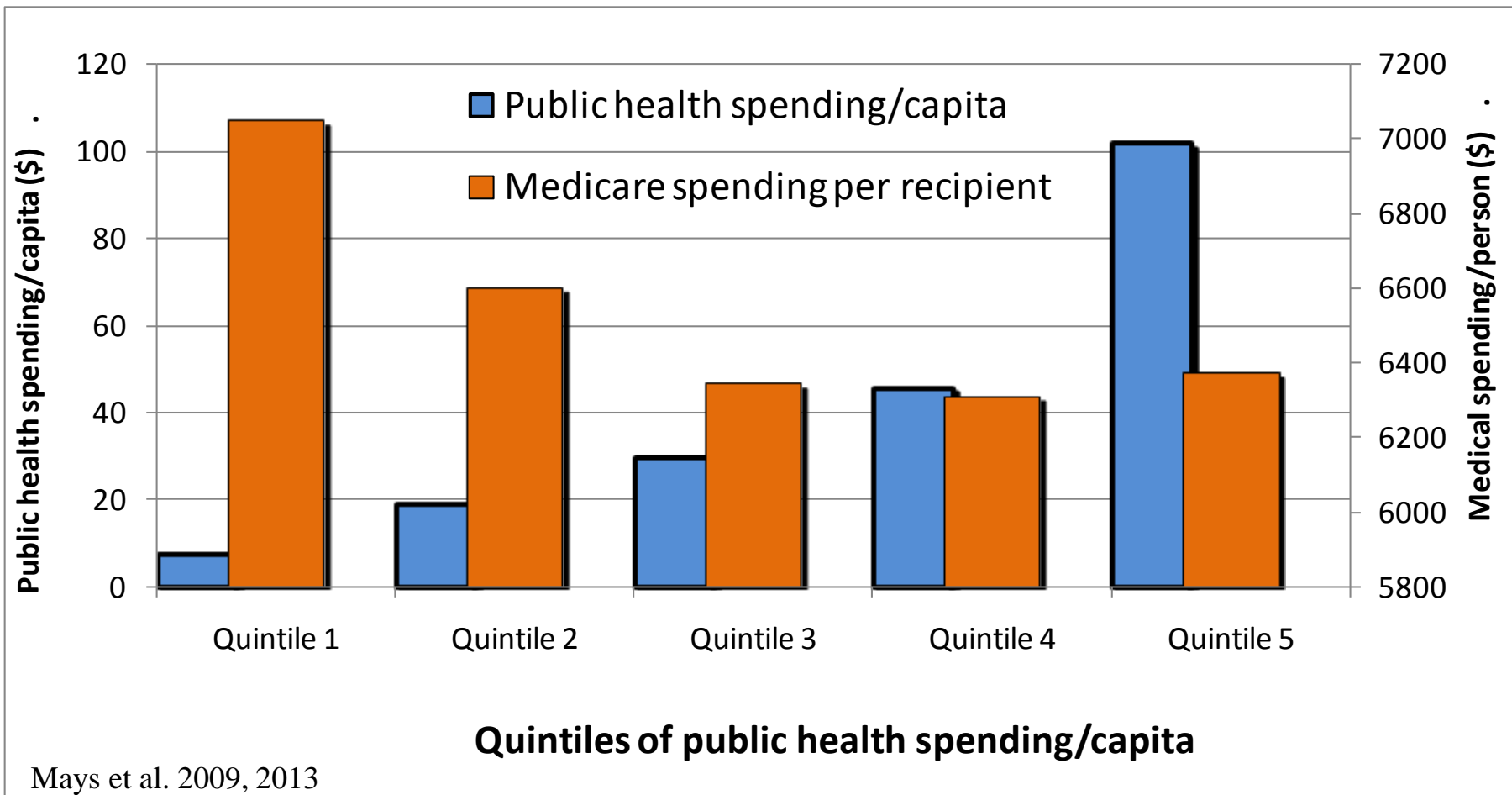
Mortality reductions attributable to investments in public health delivery, 1993-2008



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

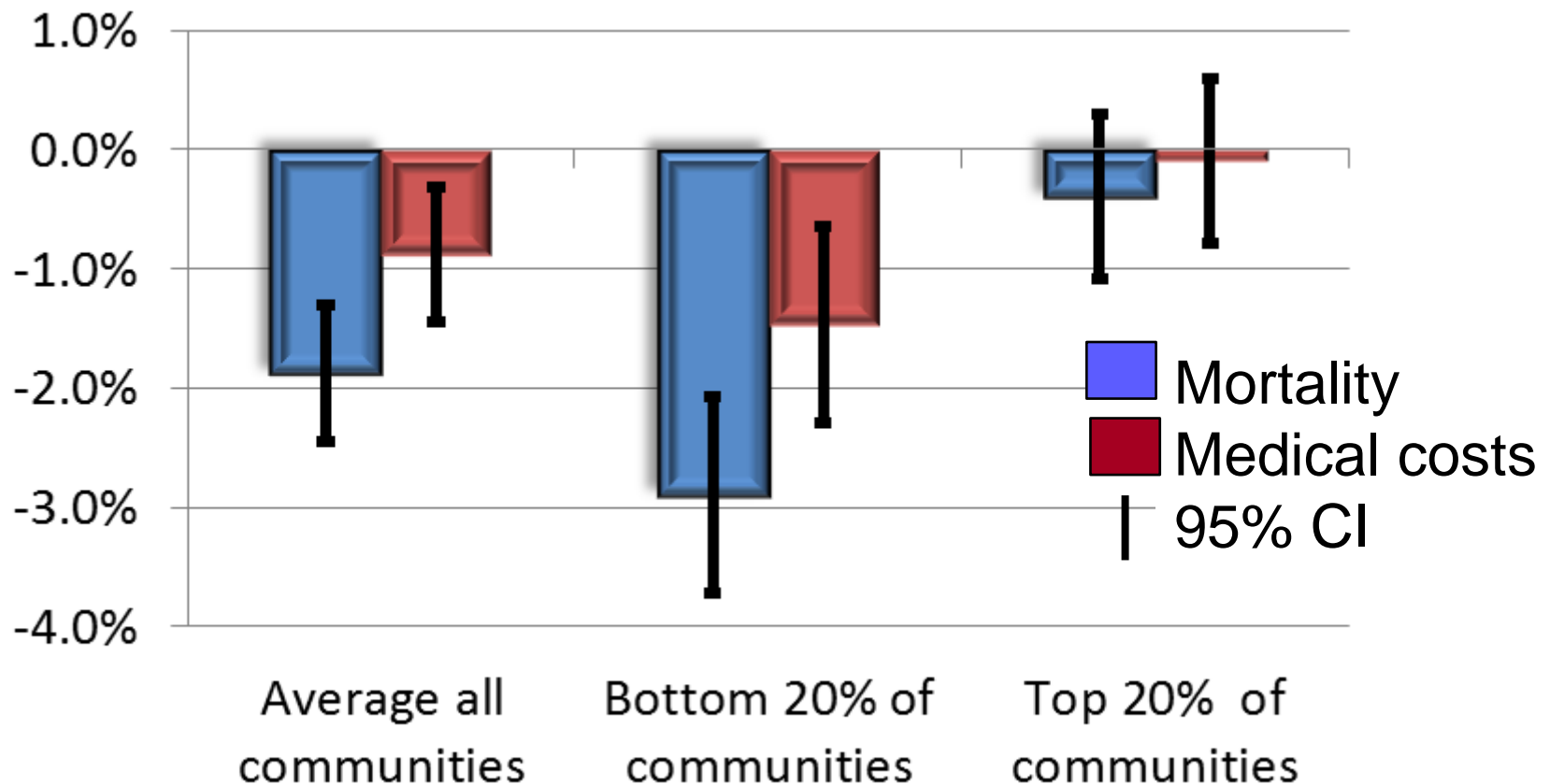
Medical cost offsets attributable to investments in public health delivery, 1993-2008

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



Community-specific estimates of public health spending on heart disease mortality

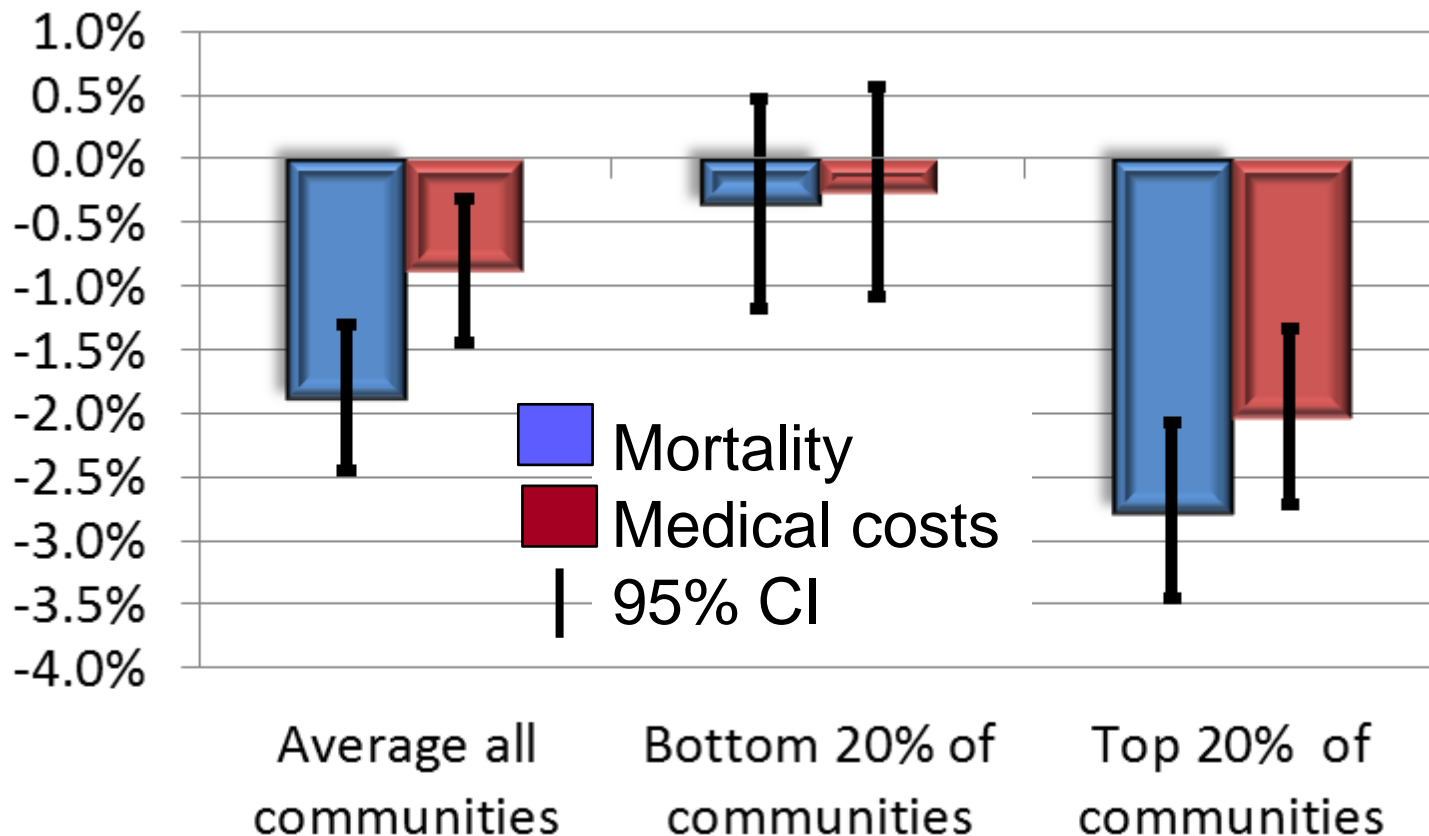
Impact in Low-Income vs. High Income Communities



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

Community-specific estimates of public health spending on heart disease mortality

Impact in Communities with Low vs. High Public Health Infrastructure



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

New incentives & infrastructure are in play



Some Promising Examples

Hennepin Health ACO

- Partnership of county health department, community hospital, and FQHC
- Accepts full risk payment for all medical care, public health, and social service needs for Medicaid enrollees
- Fully integrated electronic health information exchange
- Heavy investment in care coordinators and community health workers
- Savings from avoided medical care reinvested in public health initiatives
 - Nutrition/food environment
 - Physical activity



Some Promising Examples

Massachusetts Prevention & Wellness Trust Fund

- \$60 million invested from nonprofit insurers and hospital systems
- Funds community coalitions of health systems, municipalities, businesses and schools
- Invests in community-wide, evidence-based prevention strategies with a focus on reducing health disparities
- Savings from avoided medical care are expected to be reinvested in the Trust Fund activities



Some Promising Examples

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
- ROI \$2.92



Source: Felix, Mays et al. *Health Affairs* 2011

www.visionproject.org

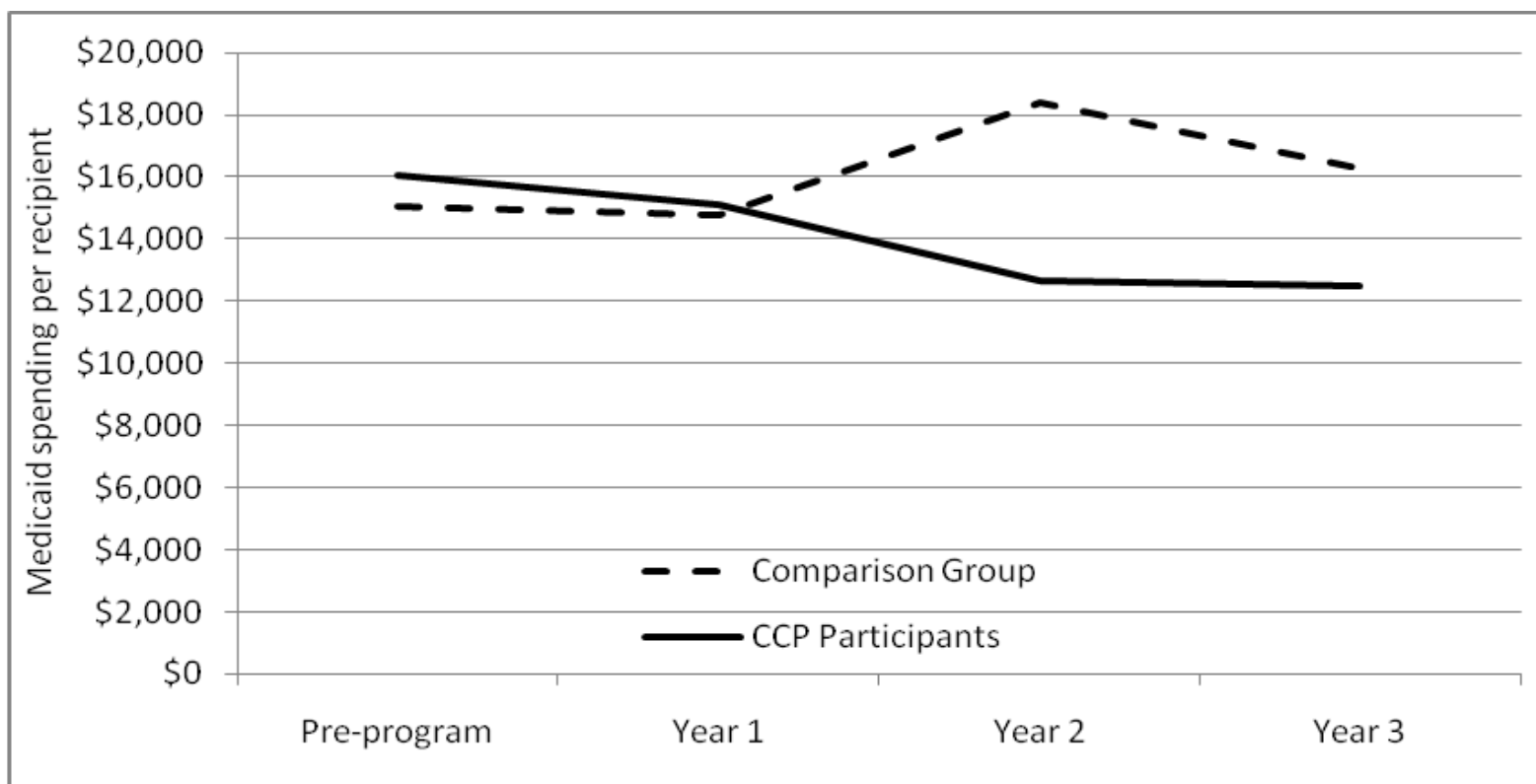
Leading models of integration

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

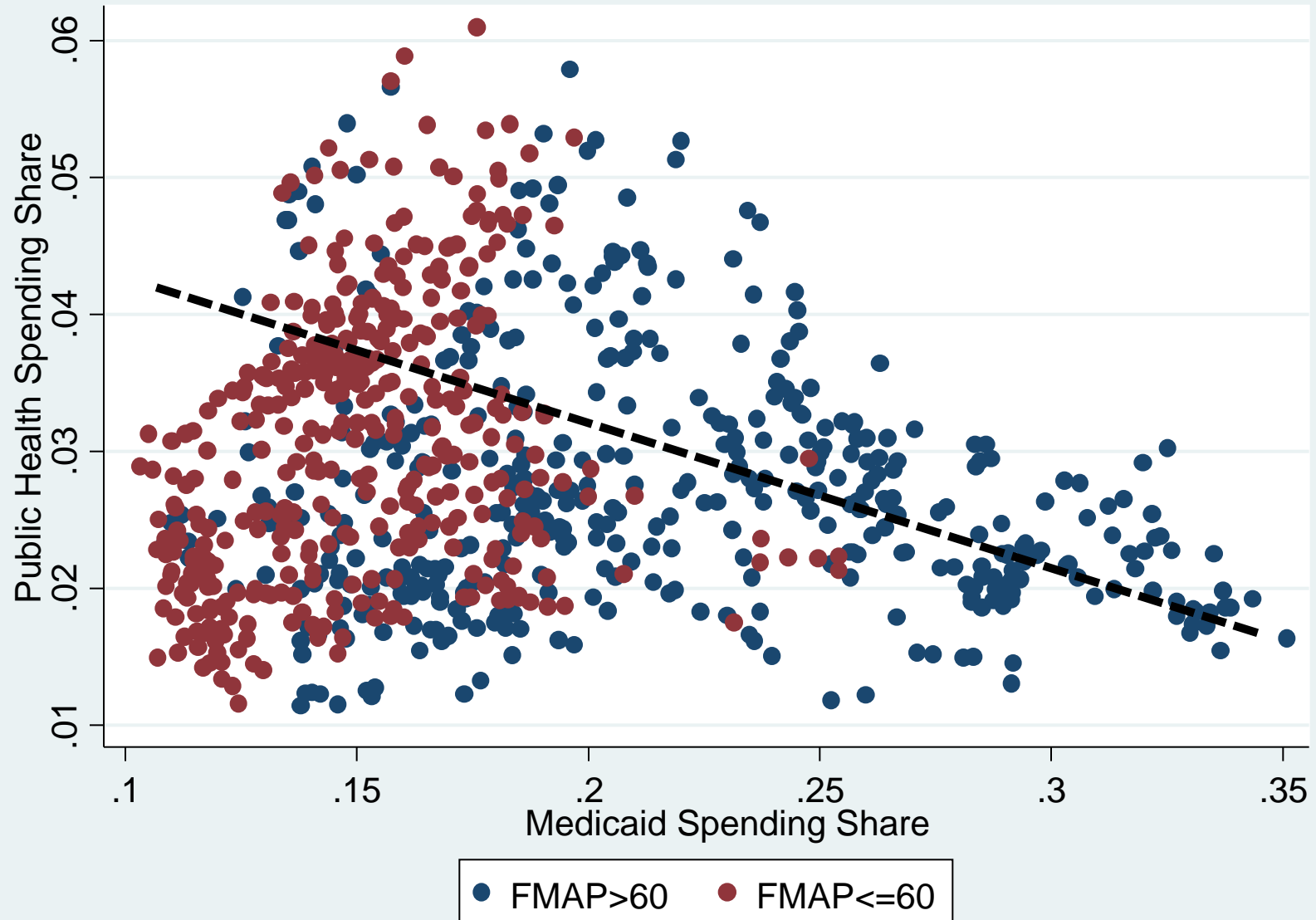
THE CARE SPAN

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

HealthAffairs



A cautionary note: Crowd out in Medicaid and Public Health Spending



Results: Estimated Crowd Out Effects

Effects of 10% Growth in Medicaid Spending Share on Public Health Spending Share

<u>Model</u>	<u>Coeff.</u>	<u>S.E.</u>		<u>Per Capita Δ</u>
State PH spending	-0.82	0.31	***	-13.1%
Local PH spending	-0.77	0.38	***	-14.8%

***p<0.01

Projected Health Effects of Crowd Out

- At median levels of crowd-out:
 - 12.3% increase in infant mortality rate
 - 5.5% increase in cardiovascular mortality rate
 - 2.7% increase in diabetes mortality rate
 - 1.9% increase in cancer mortality rate
- Reduce or fully offset the direct mortality gains from increases in health insurance coverage (e.g. Sommers et al 2014)

Using 10-year mortality effect estimates from Mays and Smith, *Health Affairs* 2011

Understanding costs, resource requirements and value in public health delivery

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



Why a stronger focus on costs?

“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**.”

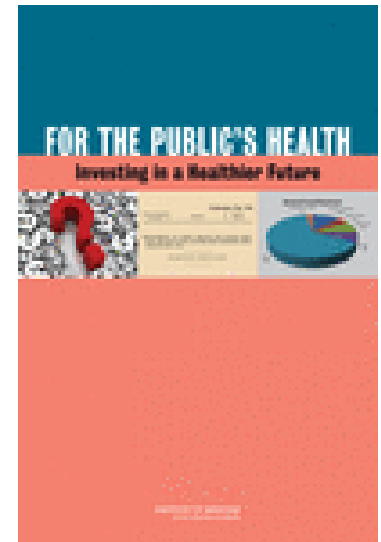


— R.S. Kaplan and M.E. Porter, The big idea: how to solve the cost crisis in health care. *Harvard Business Review*, 2011.

Toward a deeper understanding of costs & returns

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.

Defining what to cost:

Washington Public Health
Improvement Partnership

FOUNDATIONAL PUBLIC HEALTH SERVICES	FOUNDATIONAL CAPABILITIES	Foundational Programs	Additional Important Services
		Communicable Disease Control	Chronic Disease & Injury Prevention
		Environmental Public Health	Maternal/Child/Family Health
		Access/Linkage with Clinical Health Care	Vital Records
		← ACROSS ALL PROGRAMS →	
		Assessment (surveillance and epidemiology)	
		Emergency preparedness and response (all hazards)	
		Communications	
FOUNDATIONAL PUBLIC HEALTH SERVICES	FOUNDATIONAL CAPABILITIES	Policy development and support	
		Community partnership development	
		Business competencies	

Washington's Cost Estimates (preliminary)

Estimated Cost of Providing Foundational Public Health Services Statewide

Services Ranked By Cost	Total Estimated Cost of FPHS	State Dept. of Health	Local Health Jurisdictions	<div> <div></div> State DOH <div></div> LHJs </div>	
<u>Foundational Capabilities</u>	75,700,000	27,750,000	47,945,000	37%	63%
A. Assessment	11,350,000	5,410,000	5,935,000	48%	52%
B. Emergency Preparedness and Response	10,825,000	3,620,000	7,205,000	33%	67%
C. Communication	3,960,000	750,000	3,210,000	19%	81%
D. Policy Development and Support	4,415,000	1,115,000	3,300,000	25%	75%
E. Community Partnership Development	4,885,000	860,000	4,025,000	18%	82%
F. Business Competencies	40,265,000	15,995,000	24,270,000	40%	60%
<u>Foundational Programs</u>	252,290,000	134,890,000	117,405,000	53%	47%
A. Communicable Disease Control	33,760,000	9,010,000	24,750,000	27%	73%
B. Chronic Disease and Injury Prevention	24,855,000	12,590,000	12,265,000	51%	49%
C. Environmental Public Health	95,800,000	33,760,000	62,045,000	35%	65%
D. Maternal/Child/Family Health	25,175,000	13,765,000	11,410,000	55%	45%
E. Access/Linkage with Clinical Health Care	65,585,000	62,145,000	3,440,000	95%	5%
F. Vital Records	7,115,000	3,620,000	3,495,000	51%	49%
Total Cost	327,990,000	162,640,000	165,350,000	50%	50%

Source: DOH, 2013; Participating LHJs, 2013; and BERK, 2013.

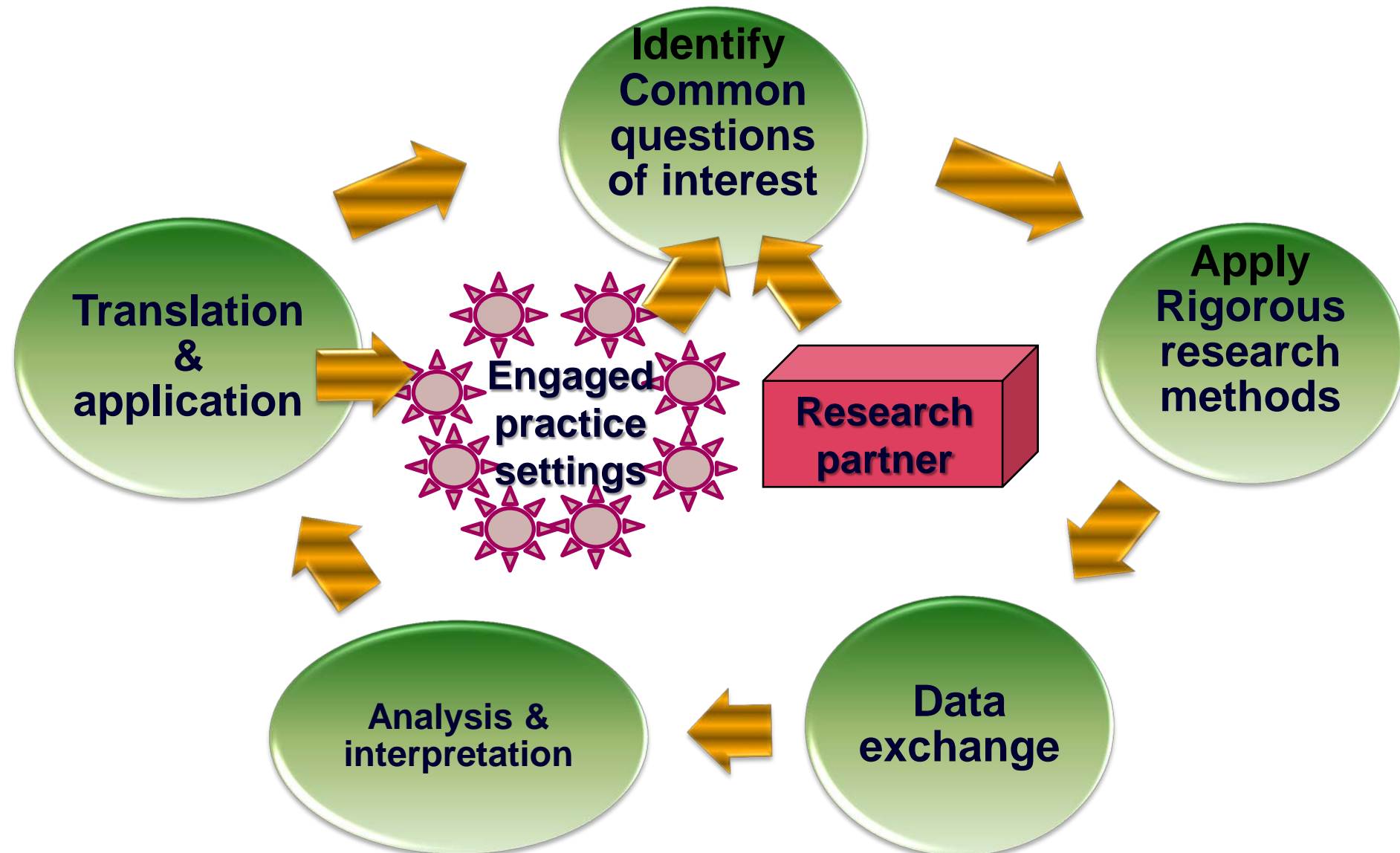
Local per capita: \$24.0 State per capita: \$23.6

Source: Washington Public Health Improvement Partnership. Foundational Public Health Services Preliminary Cost Estimation Model. 2013.

How Can Evidence & Community-Engaged Research Help?

- Identify common interests, incentives & problems
- Mitigate asymmetries in power & information
- Use theory, evidence & experience to design strategies with high probability of success
- Measure progress & provide feedback
 - Fail fast
 - Continuously improve
- Evaluate health & economic impact

PBRNs as Mechanisms for Community-Engaged Scholarship & Learning



PBRNs and Research Translation

Local Health Departments Engaged in Research Implementation & Translation Activities During Past 12 months

<u>Activity</u>	<u>PBRN Agencies</u>		<u>National Sample</u>		
	<u>Percent/Mean</u>		<u>Percent/Mean</u>		
Identifying research topics	94.1%		27.5%		***
Planning/designing studies	81.6%		15.8%		***
Recruitment, data collection & analysis	79.6%		50.3%		**
Disseminating study results	84.5%		36.6%		**
Applying findings in own organization	87.4%		32.1%		**
Helping others apply findings	76.5%		18.0%		***
Research implementation composite	84.04	(27.38)	30.20	(31.38)	**
N	209		505		

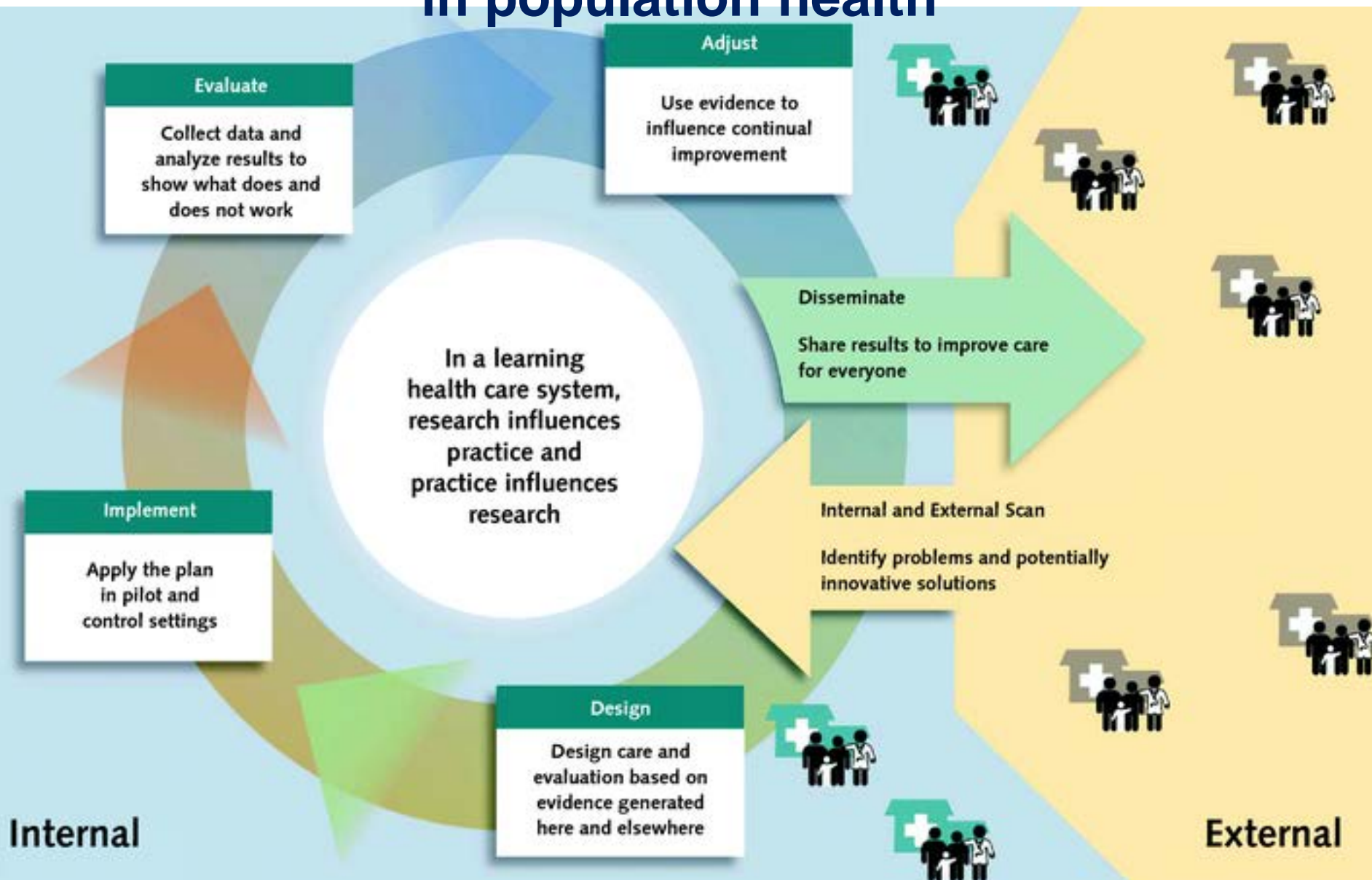
Mays et al. American Journal of Preventive Medicine 2013.

Finding the connections



- Act on aligned incentives
- Exploit the disruptive policy environment
- Innovate, prototype, study – then scale
- Pay careful attention to shared governance, decision-making, and financing structures
- Demonstrate value and accountability to the public

Toward a “rapid-learning system” in population health



More Information



Supported by The Robert Wood Johnson Foundation

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