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Understanding the Value of Multi-Sector Partnerships to Improve Population Health

Glen P. Mays, *University of Kentucky*

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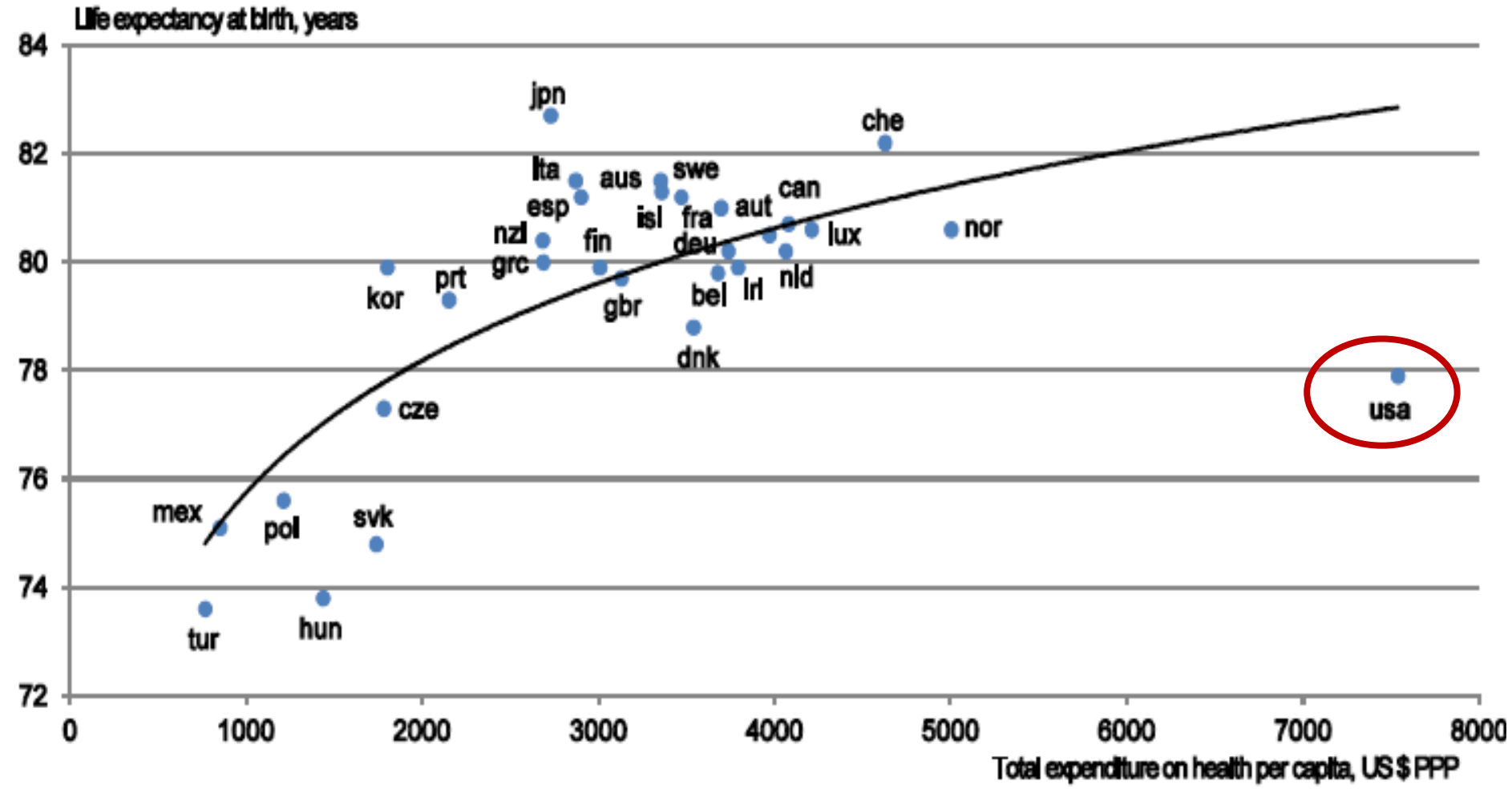
Center for Public Health Systems and Services Research

Systems for Action
National Coordinating Center
Systems and Services Research to Build a Culture of Health

Losing ground in population health

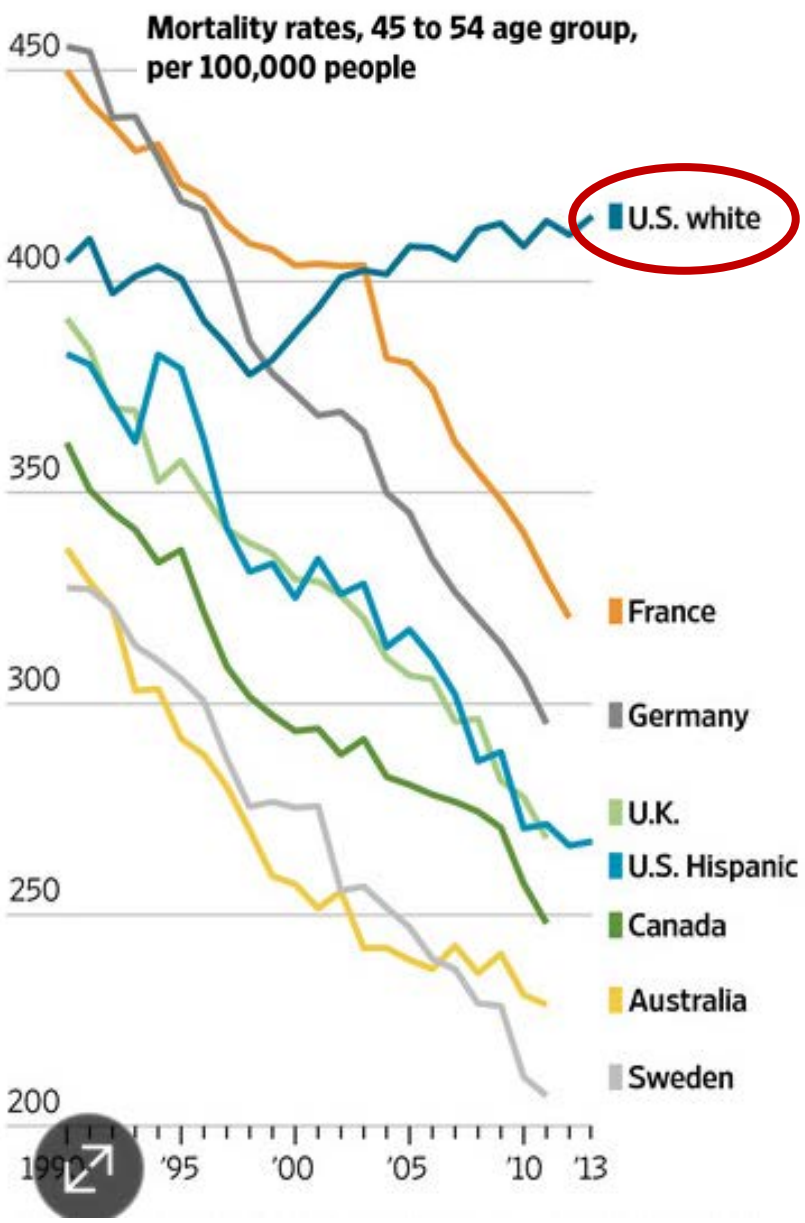


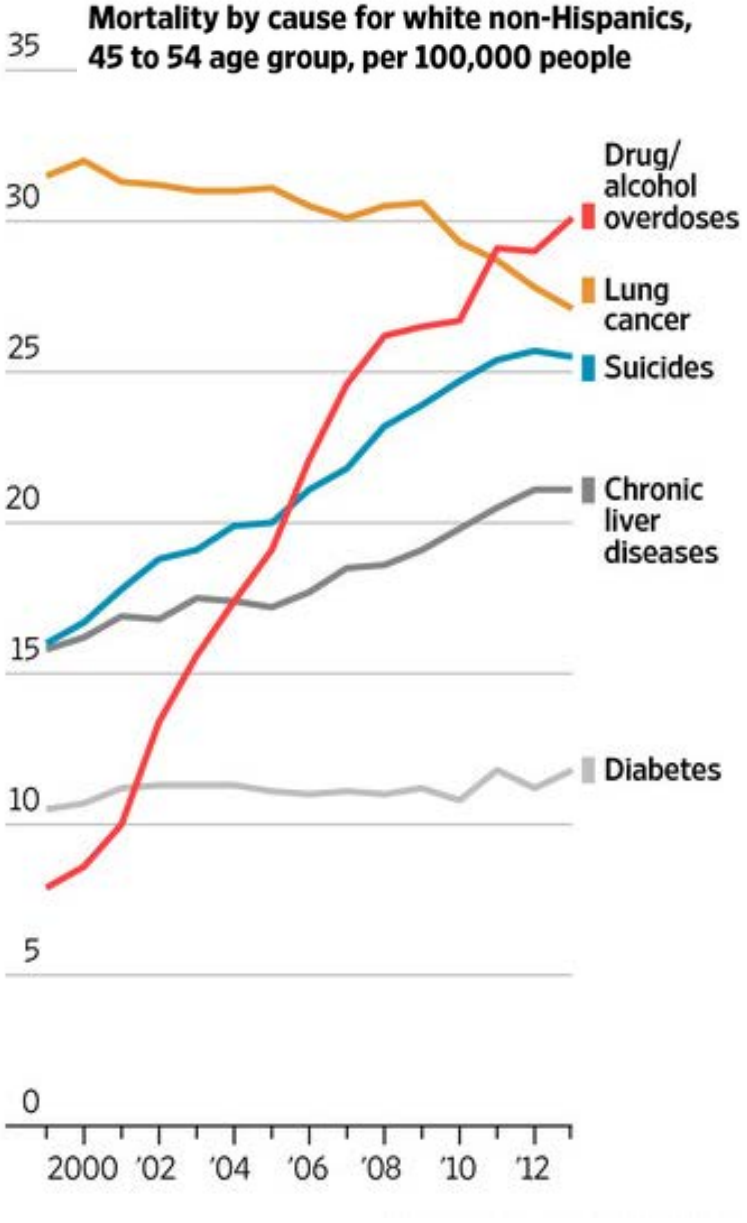
1. Or latest year available.

Source: OECD Health Data 2010.

WHO 2010

Losing ground in population health

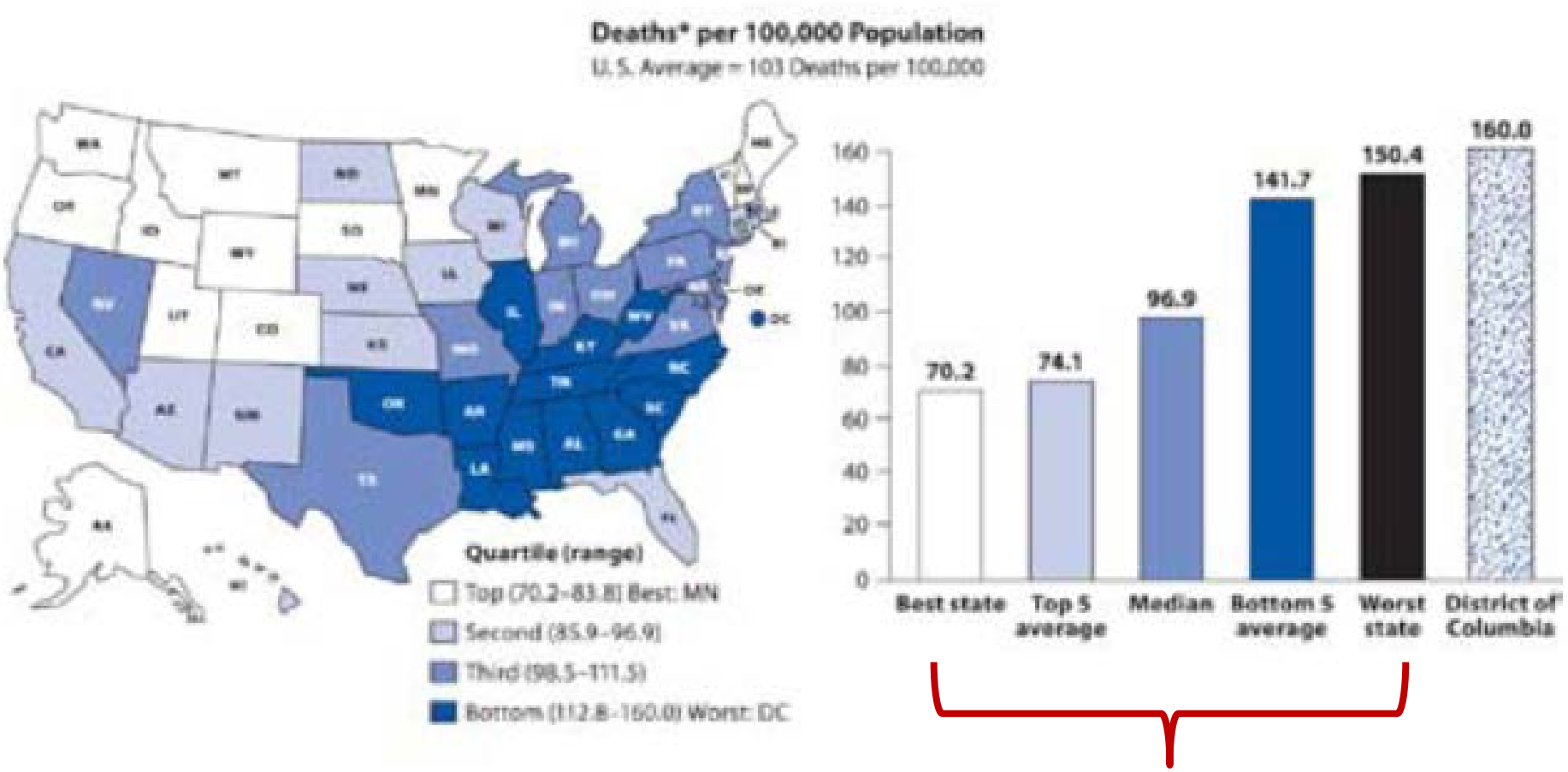




Case A, Deaton A. Proceedings of the National Academy of Sciences 2015

Losing ground in population health

Premature Deaths per 100,000 Residents



>100% Difference

Commonwealth Fund 2012

Missed opportunities in prevention

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

CDC Guide to Community Preventive Services 2014

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

CDC 2008 and CMS 2011

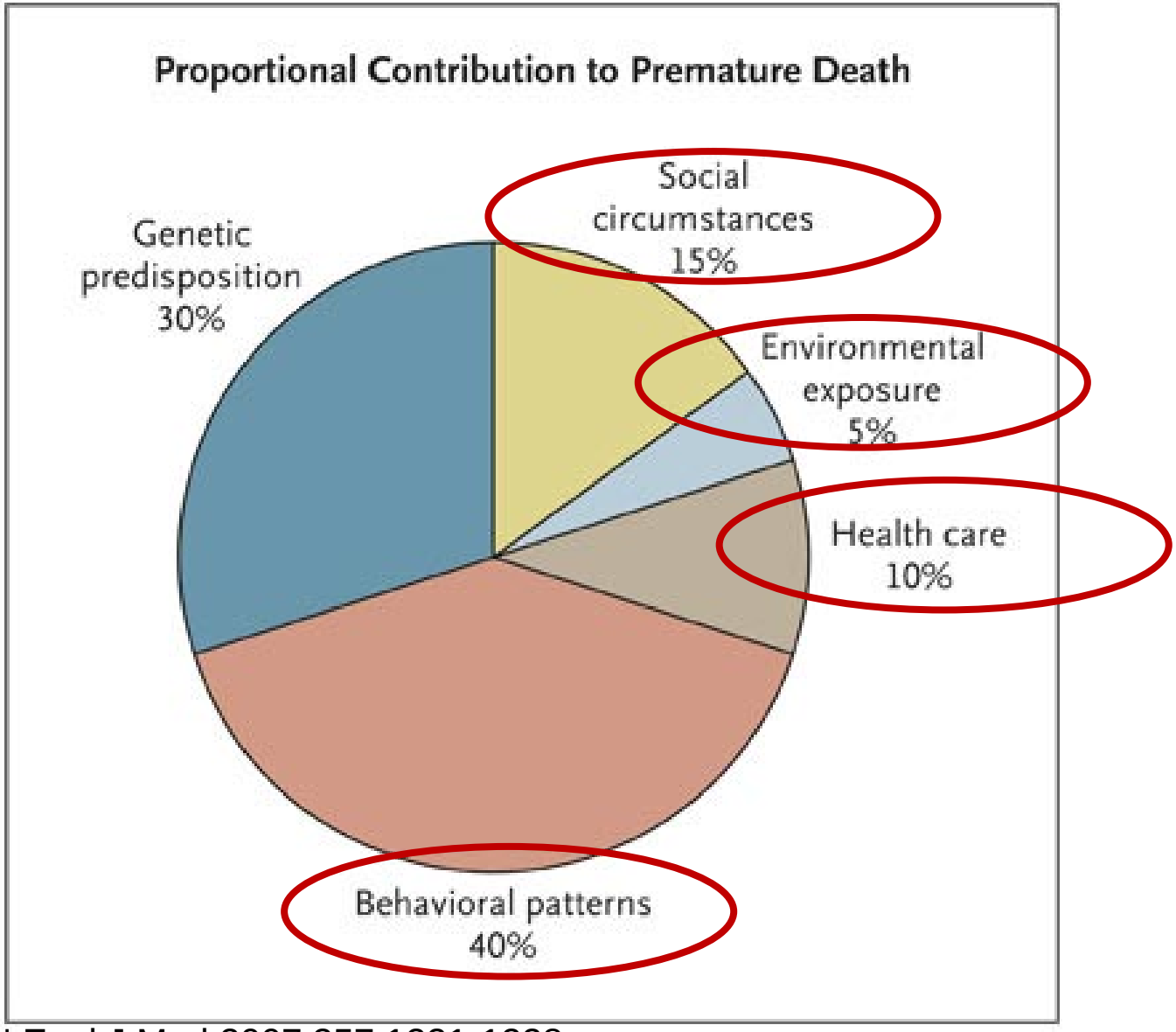
How do we support effective population health improvement strategies?

- 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

  - Infrastructure
  - Information
  - Incentives

Mays GP. Governmental public health and the economics of adaptation to population health strategies. ***National Academy of Medicine Discussion Paper.*** 2014. http://nam.edu/wp-content/uploads/2015/06/EconomicsOfAdaptation.pdf

Multiple systems & sectors drive health…



Schroeder SA. N Engl J Med 2007;357:1221-1228

…But existing systems often fail to connect

Medical Care

- Fragmentation
- Duplication
- Variability in practice
- Limited accessibility
- Episodic and reactive care
- Insensitivity to consumer values & preferences
- Limited targeting of resources to community needs

Social Services & Supports

Public Health

- Fragmentation
- Variability in practice
- Resource constrained
- Limited reach
- Insufficient scale
- Limited public visibility & understanding
- Limited evidence base
- Slow to innovate & adapt

Waste & inefficiency

Inequitable outcomes

Limited population health impact

…Resulting in significant economic & social burden

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%

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

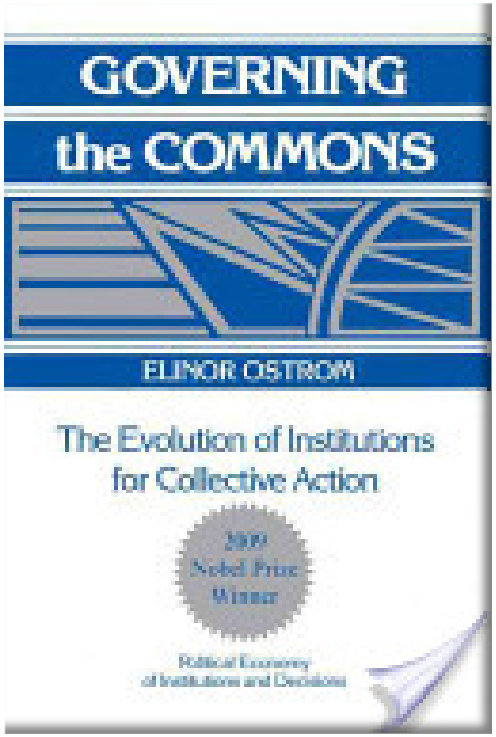
The connection between social needs and medical outcomes

- 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 that can add health and economic value

Shier et al. *Health Affairs* 2013

Challenge: overcoming collective action problems across systems & sectors

- 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

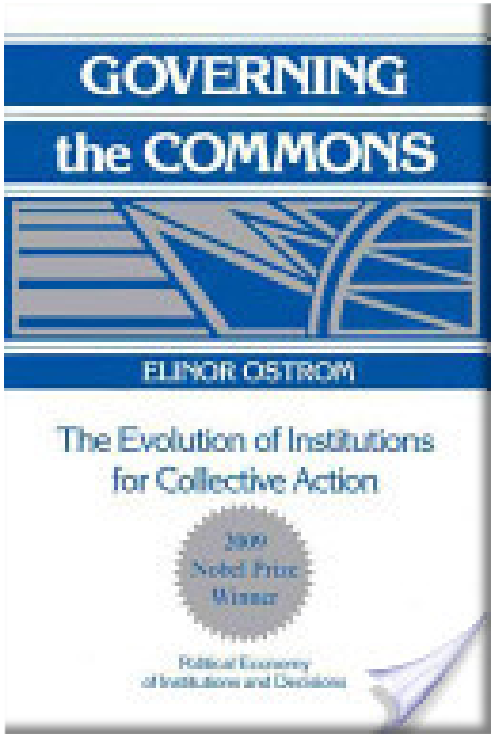


Ostrom E. 1994

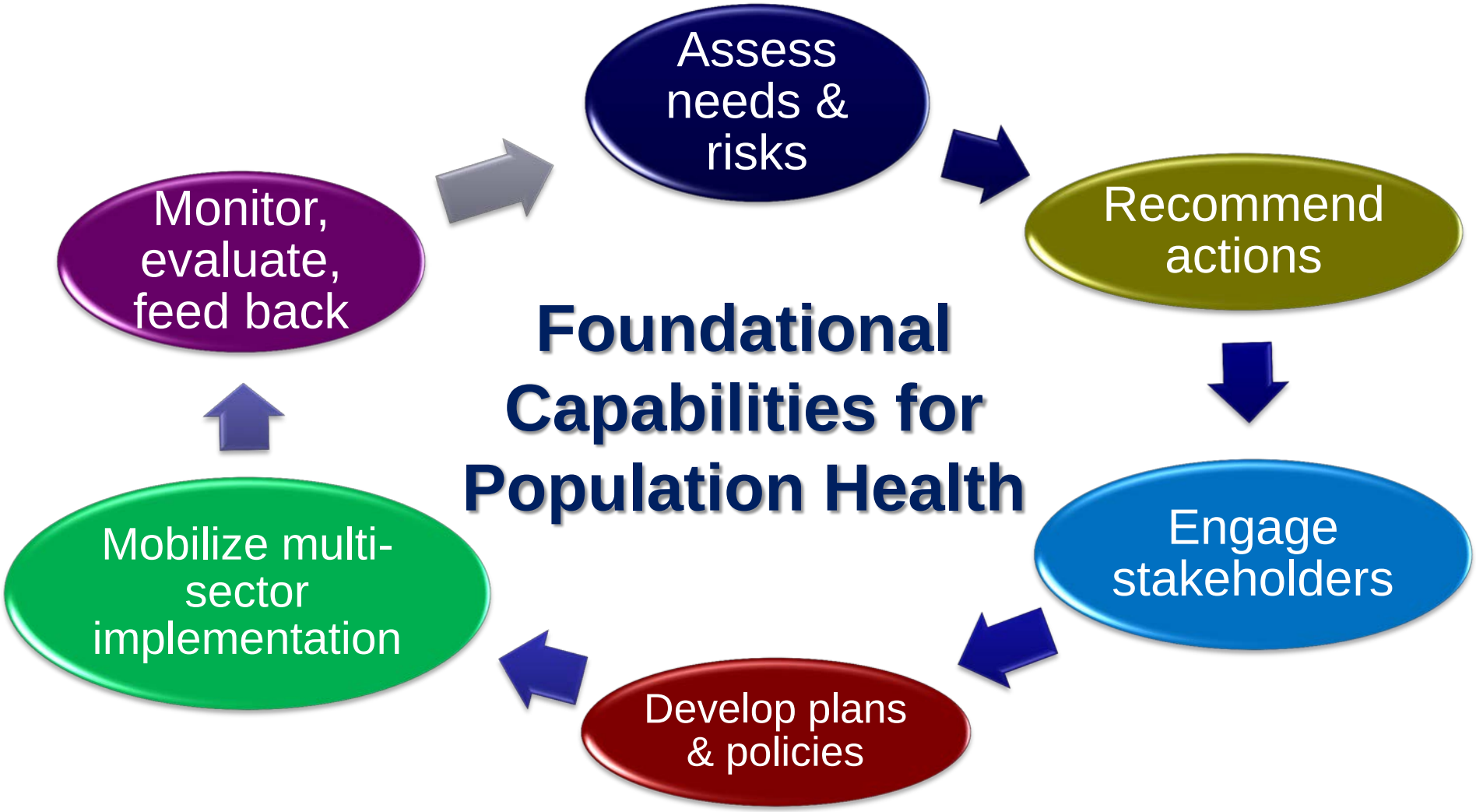
What services and supports are needed to support collective actions in health?

Need a chief health strategist for communities & populations:

- Articulate population health needs & priorities
- Engage community stakeholders
- Plan with clear roles & responsibilities
- Recruit & leverage resources
- Develop and enforce policies
- Ensure coordination across sectors
- Promote equity and target disparities
- Support evidence-based practices
- Monitor and feed back results
- Ensure transparency & accountability: resources, results, ROI



Catalytic functions to support multi-sector actions in health



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

What do we call a system that delivers a broad scope of foundational capabilities through a dense network of multi-sector relationships?

COMPREHENSIVE

One of RWJF's 41 Culture of Health National Metrics

Access to public health

Overall, 47.2 percent of the population is covered by a comprehensive public health system. Individuals are more likely to have access if they are non-White (51.5 percent vs. 45.5 percent White) or live in a metropolitan area (48.7 percent vs. 34.1 percent in nonmetropolitan areas).

47.2%

of population served by a comprehensive public health system

http://www.cultureofhealth.org/en/integrated-systems/access.html

What do we know about multi-sector work in population health?

- Which organizations contribute to the implementation of population health activities in local communities?
- How do these contributions change over time?

  Recession | Recovery | ACA implementation

- What are the health and economic effects attributable to these multi-sector activities?

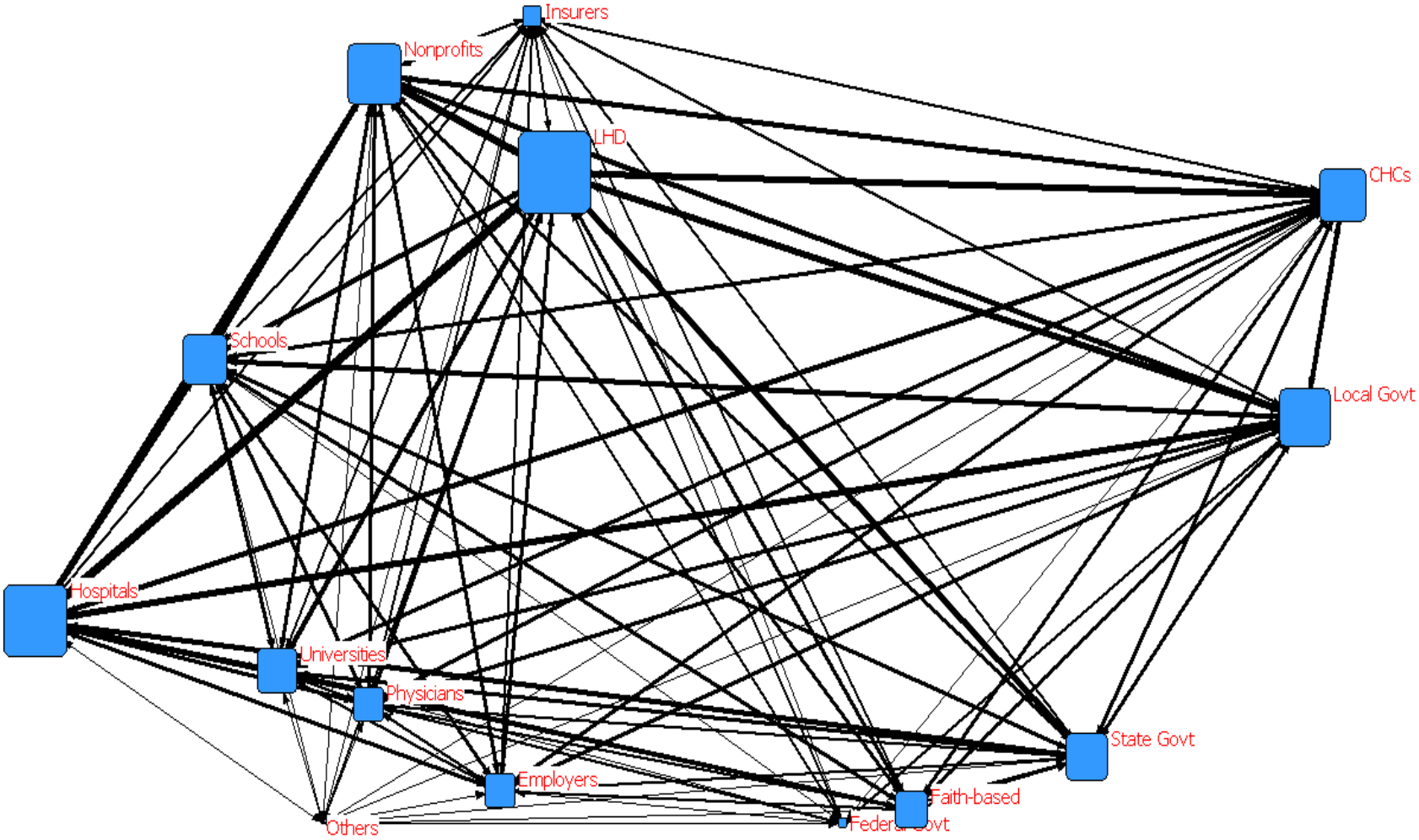
What do we know about multi-sector work in public health?

National Longitudinal Survey of Public Health Systems

- Cohort of 360 communities with at least 100,000 residents
- Followed over time: 1998, 2006, 2012, 2014**, 2016
- Local public health officials report:
  - ***Scope***: availability of 20 recommended population health activities
  - ***Network***: organizations contributing to each activity
  - ***Centrality of effort***: contributed by governmental public health agency
  - ***Quality***: perceived effectiveness of each activity

** Expanded sample of 500 communities<100,000 added in 2014 wave

Mapping who contributes to population health

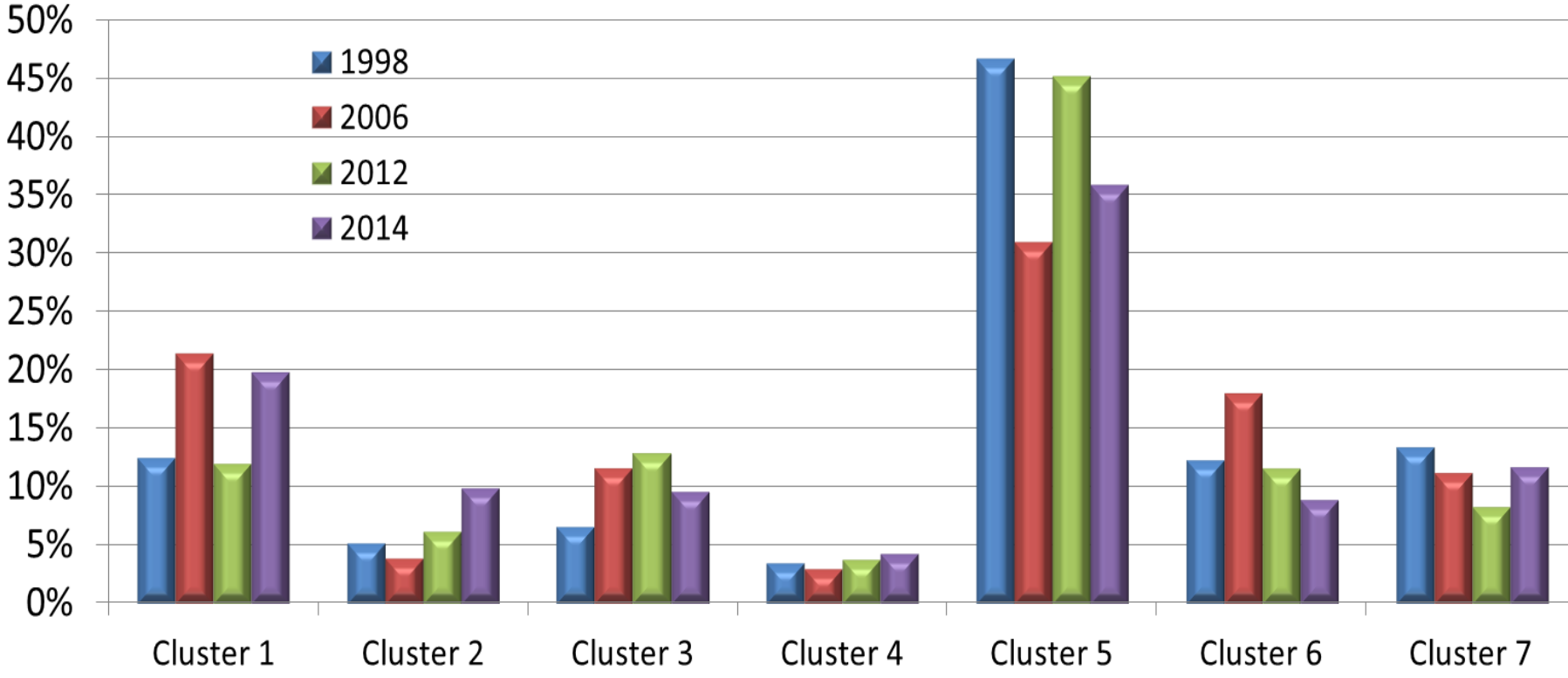


Node size = degree centrality

Line size = % activities jointly contributed (tie strength)

Mays GP et al. Understanding the organization of public health delivery systems: an empirical typology. *Milbank Q.* 2010;88(1):81–111.

Classifying multi-sector delivery systems for population health 1998-2014



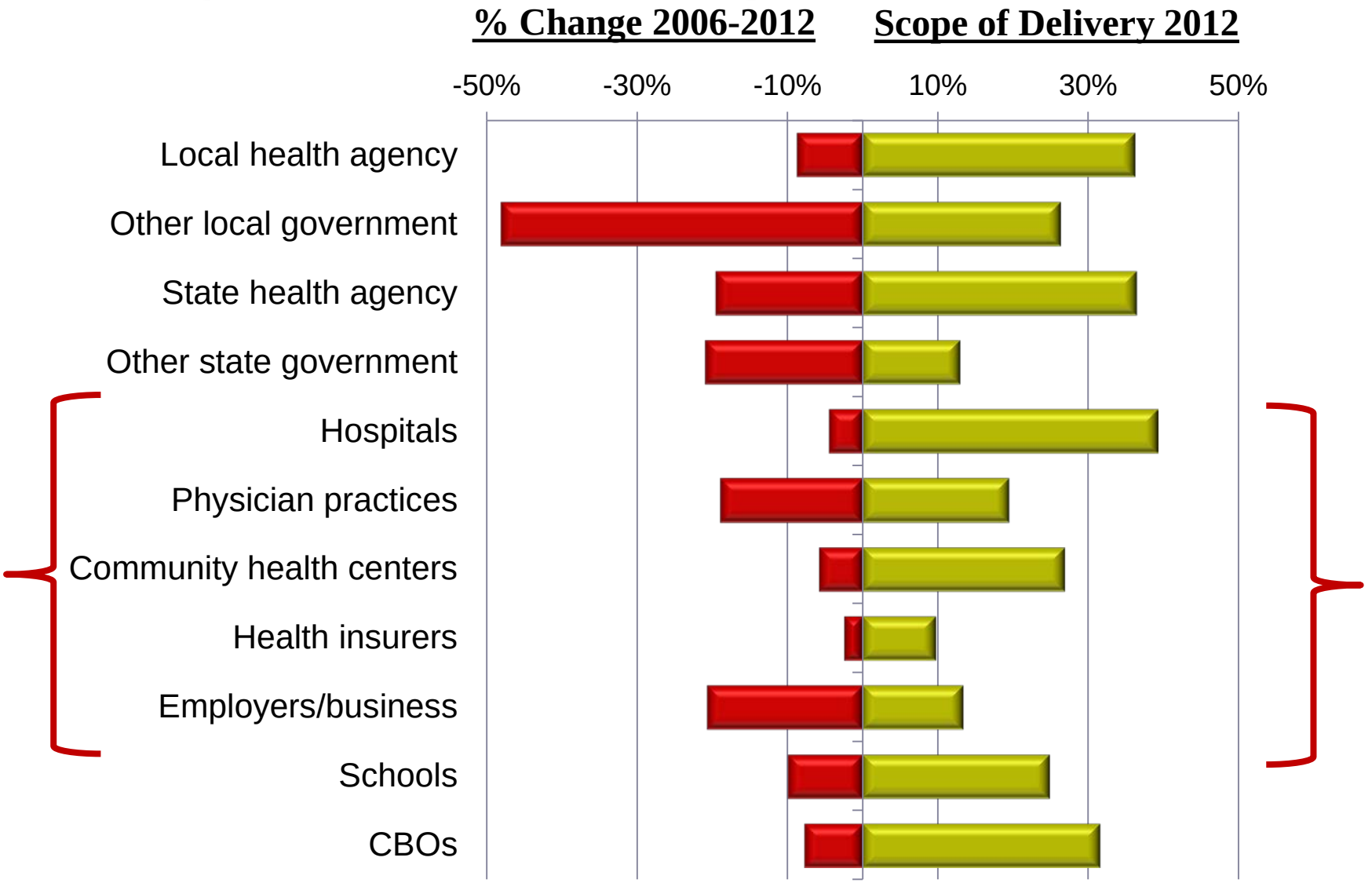
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7
Scope	High	High	High	Mod	Mod	Low	Low
Centrality	Mod	Low	High	High	Low	High	Low
Density	High	High	Mod	Mod	Mod	Low	Mod
	Comprehensive (High System Capital)			**Conventional**		**Limited**	

Changes in system prevalence and coverage

System Capital Measures	1998	2006	2012	2014	2014 (<100k)
Comprehensive systems					
% of communities	**24.2%**	**36.9%**	**31.1%**	**32.7%**	**25.7%**
% of population	**25.0%**	**50.8%**	**47.7%**	**47.2%**	**36.6%**
Conventional systems					
% of communities	50.1%	33.9%	49.0%	40.1%	57.6%
% of population	46.9%	25.8%	36.3%	32.5%	47.3%
Limited systems					
% of communities	25.6%	29.2%	19.9%	20.6%	16.7%
% of population	28.1%	23.4%	16.0%	19.6%	16.1%

Mays GP, Hogg RA. Economic shocks and public health protections in US metropolitan areas. Am J Public Health. 2015;105 Suppl 2:S280-7.

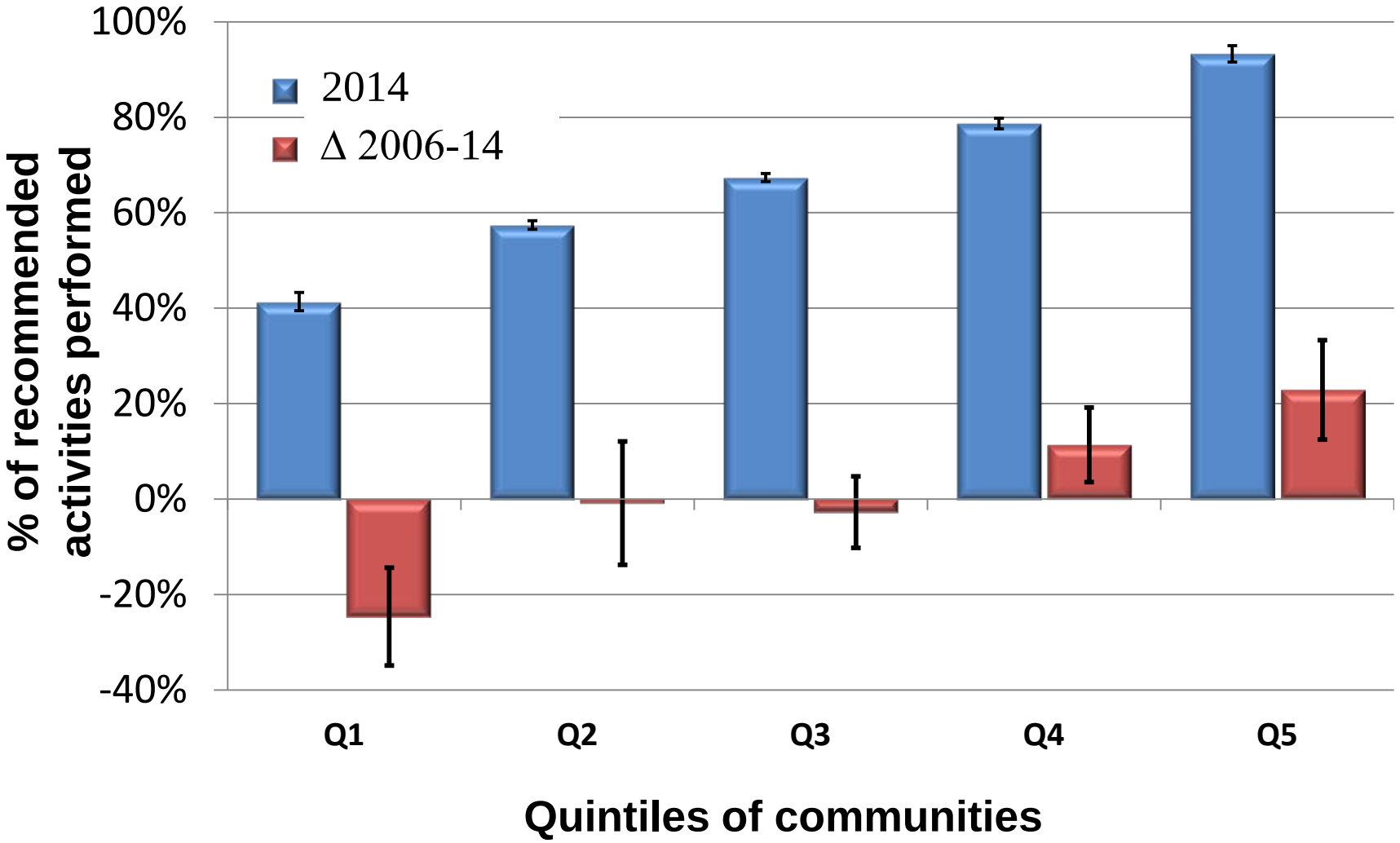
Changes in intensive and extensive margins of system capital during the Great Recession



Mays GP, Hogg RA. Economic shocks and public health protections in US metropolitan areas. Am J Public Health. 2015;105 Suppl 2:S280-7.

Equity in population health delivery systems

Delivery of recommended population health activities



Mays GP, Hogg RA. Economic shocks and public health protections in US metropolitan areas. Am J Public Health. 2015;105 Suppl 2:S280-7.

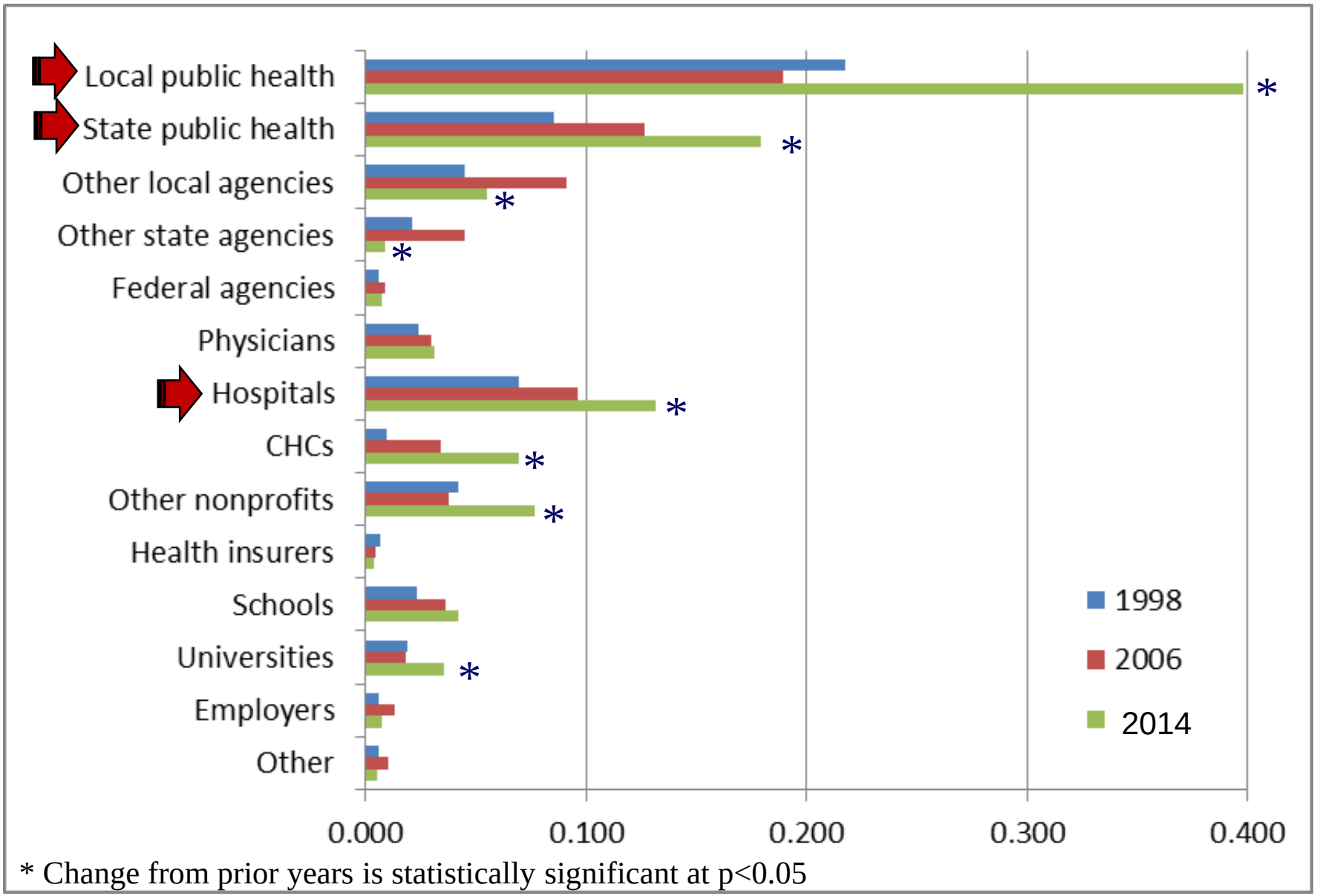
Organizational contributions to recommended population health activities, 1998-2014

% of recommended activities performed

Type of Organization	1998	2006	2012	2014
Local public health agency	60.7%	66.5%	62.0%	67.4%
Other local govt agencies	31.8%	50.8%	26.3%	32.7%
State public health agency	46.0%	45.3%	36.4%	34.0%
Other state govt agencies	17.2%	16.4%	13.0%	12.7%
Federal agencies	7.0%	12.0%	8.7%	7.1%
Hospitals	37.3%	41.1%	39.3%	47.2%
Physician practices	20.2%	24.1%	19.5%	18.0%
Community health centers	12.4%	28.6%	26.9%	28.3%
Health insurers	8.6%	10.0%	9.8%	11.1%
Employers/business	25.5%	16.9%	13.4%	15.0%
Schools	30.7%	27.6%	24.9%	24.7%
Universities/colleges	15.6%	21.6%	21.2%	22.2%
Faith-based organizations	24.0%	19.2%	15.7%	16.8%
Other nonprofits	31.9%	34.2%	31.6%	33.6%
Other organizations	8.5%	8.8%	5.4%	5.4%

Mays GP, Hogg RA. Economic shocks and public health protections in US metropolitan areas. Am J Public Health. 2015;105 Suppl 2:S280-7.

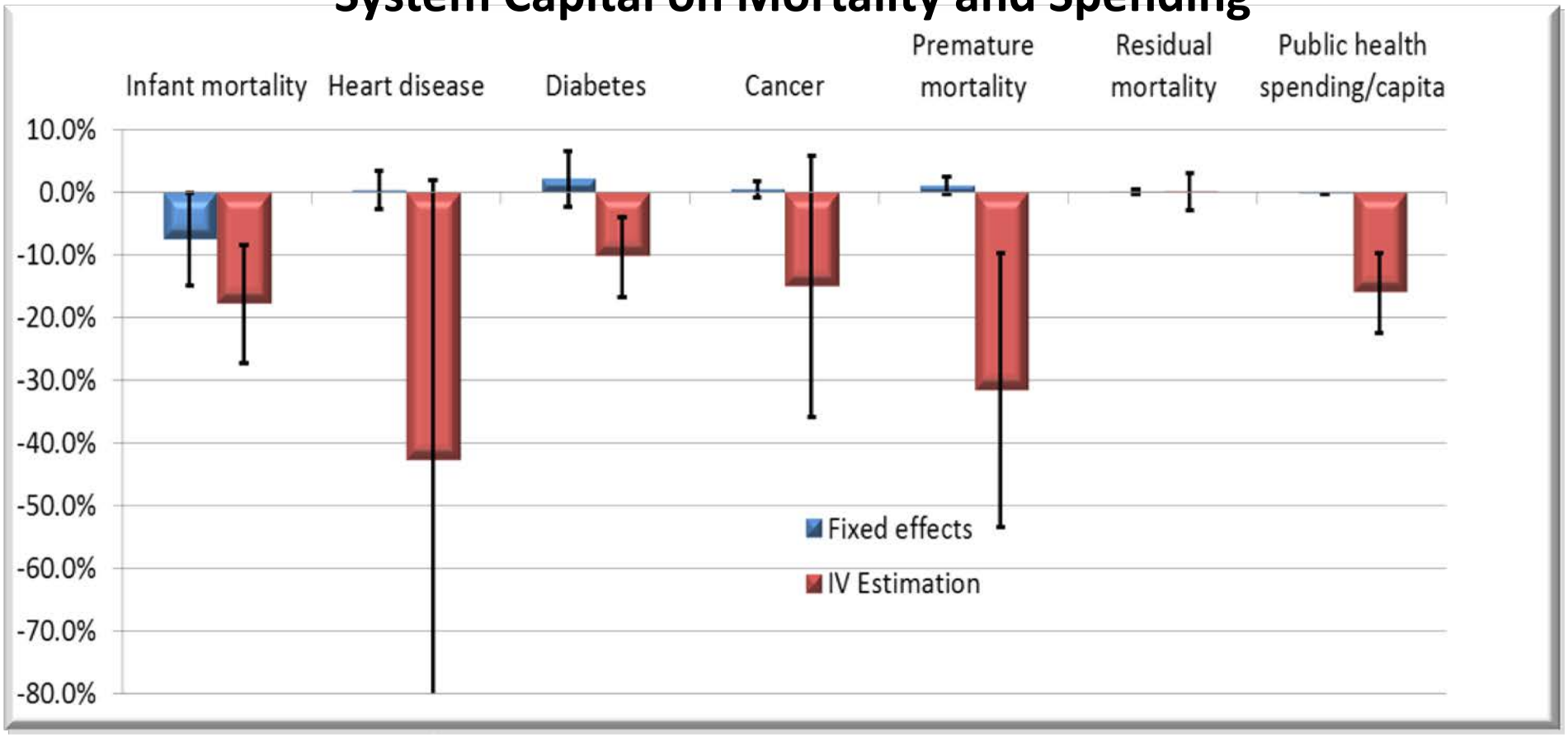
Bridging capital in multi-sector delivery systems
Trends in betweenness centrality



* Change from prior years is statistically significant at $p<0.05$

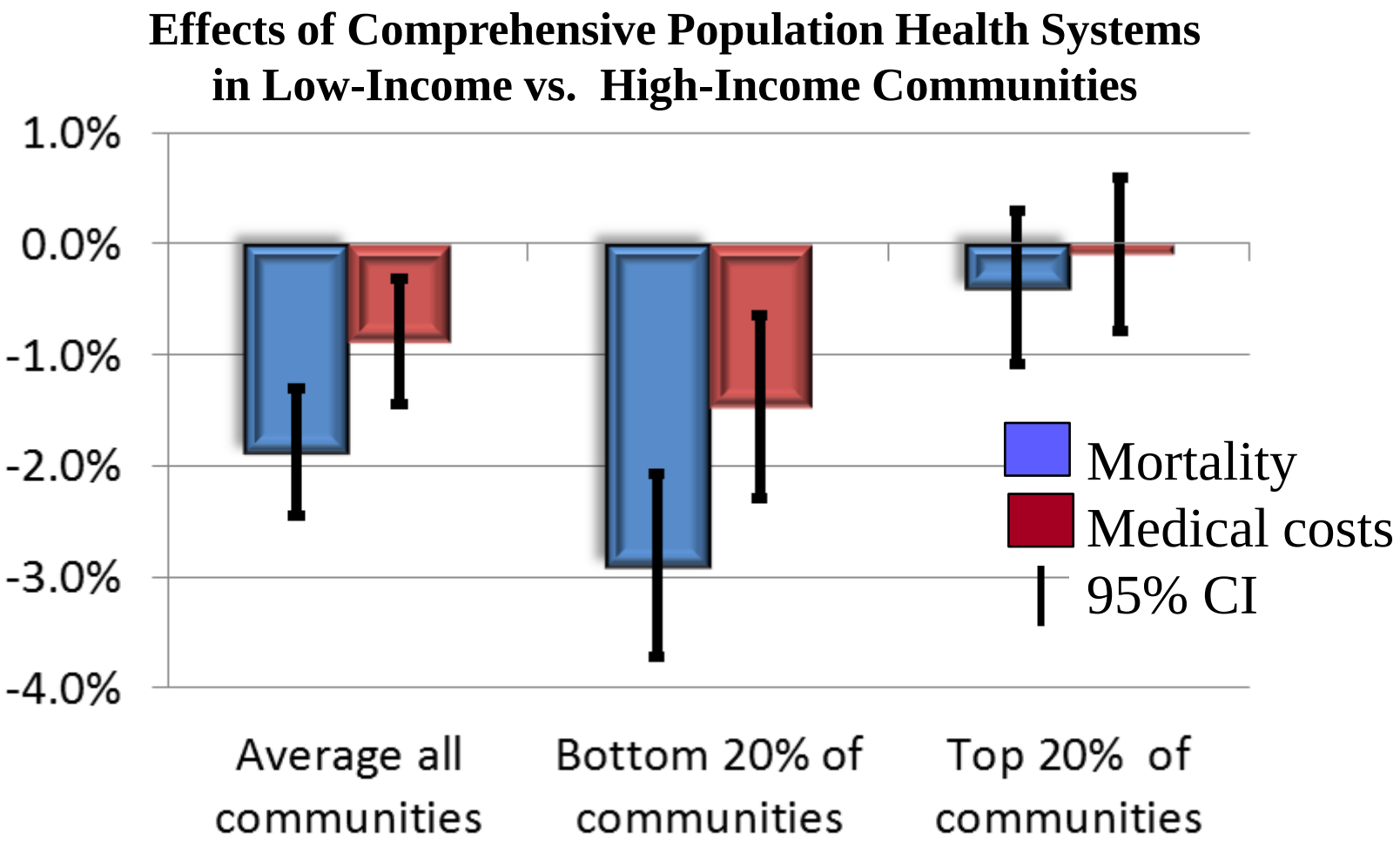
Health and economic impact of comprehensive systems

Fixed Effects and IV Estimates: Effects of Comprehensive System Capital on Mortality and Spending



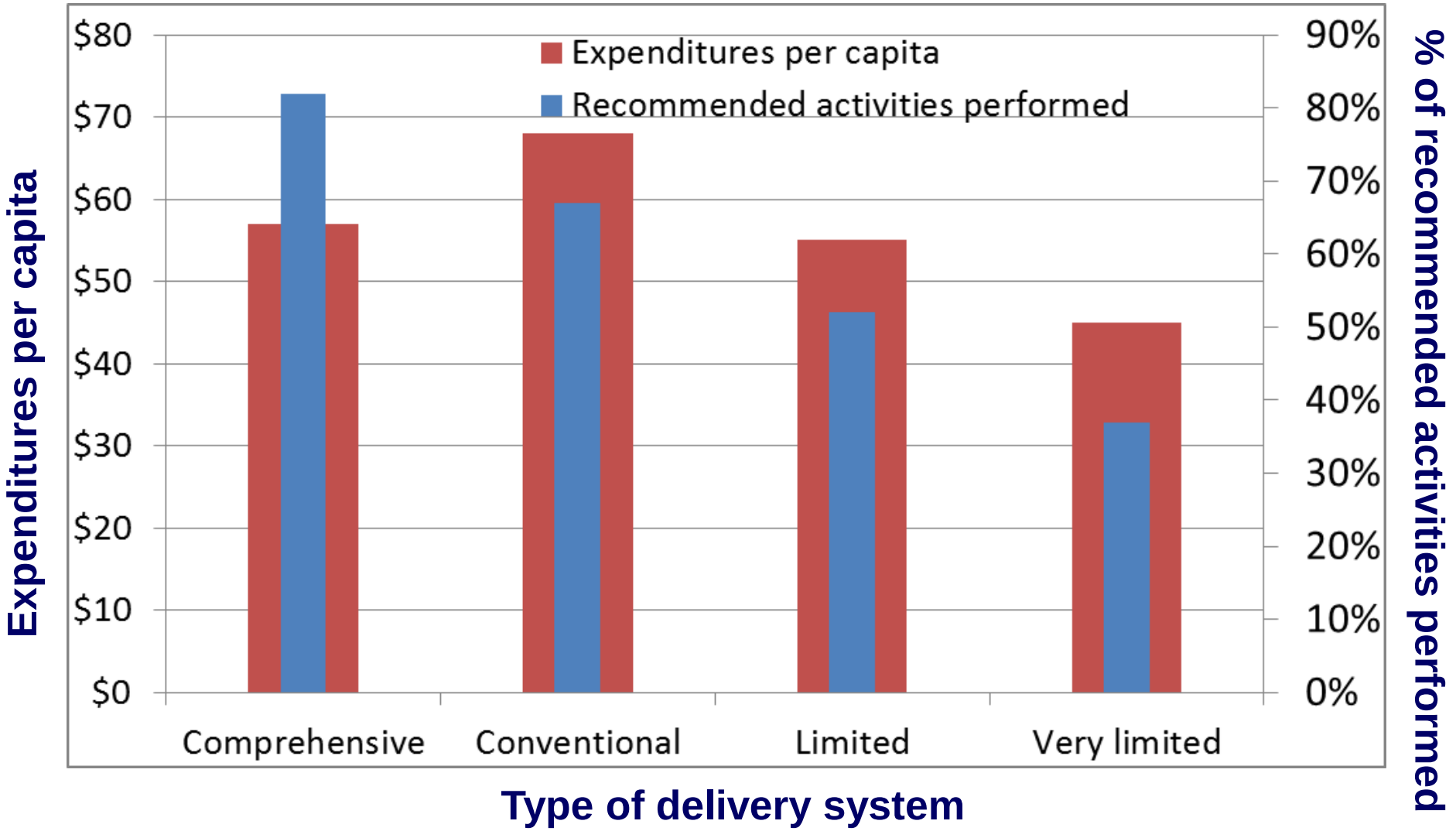
Models also control for racial composition, unemployment, health insurance coverage, educational attainment, age composition, and state and year fixed effects.
N=779 community-years **p<0.05 *p<0.10

Making the case for equity: larger gains in low-resource communities



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

Comprehensive systems do more with less



New incentives & infrastructure are in play

Some Promising Examples

Hennepin Social 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

http://content.healthaffairs.org/content/33/11/1975.abstract

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

www.visionproject.org

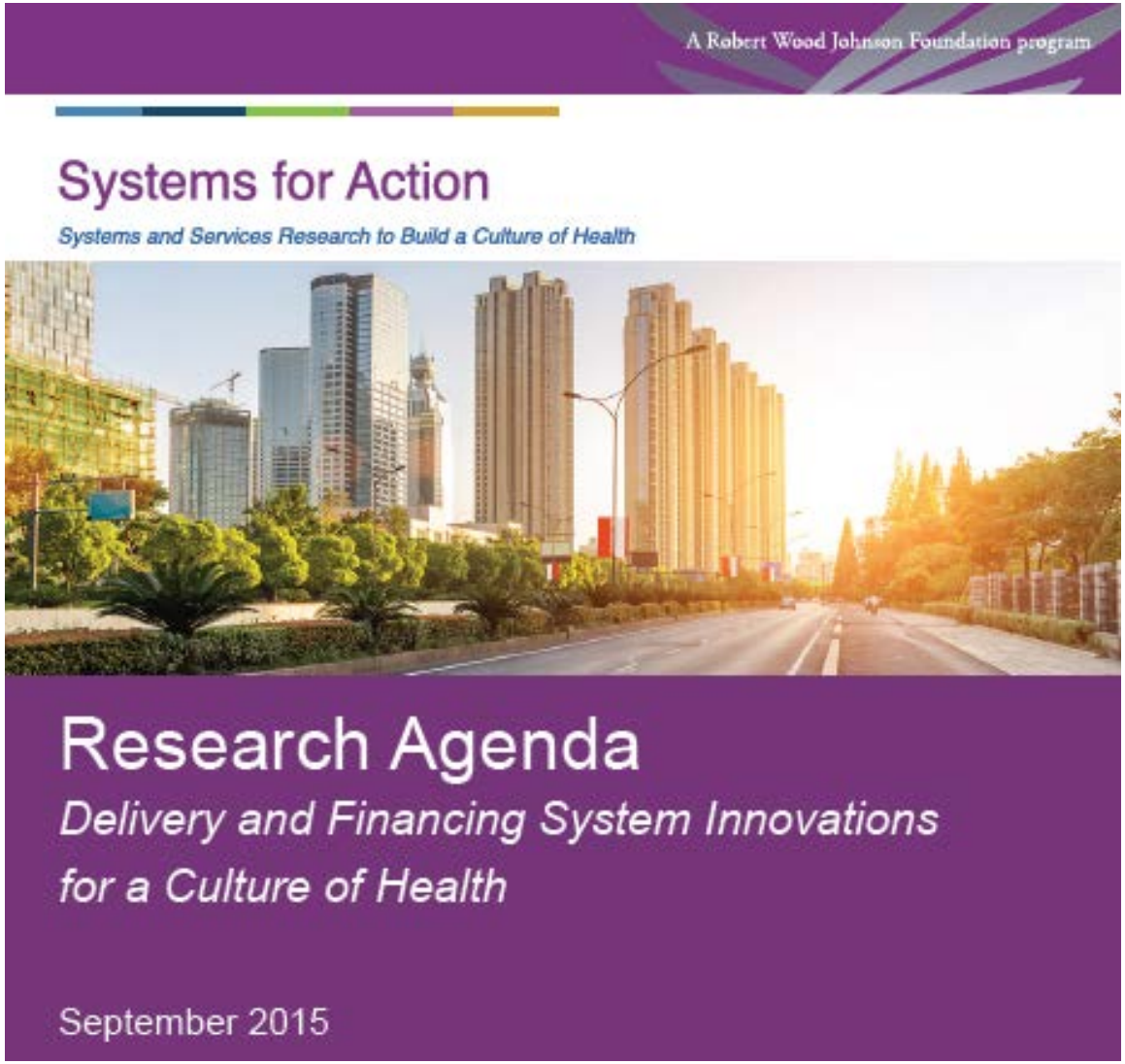
Source: Felix, Mays et al. *Health Affairs* 2011

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

New research program focuses on delivery and financing system alignment



http://www.systemsforaction.org

Conclusions: What we know and still need to learn

- Large potential benefits of system integration
- Inequities in integration are real & problematic
- Integration requires support
  - Infrastructure
  - Institutions
  - Incentives
- Sustainability and resiliency are not automatic

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

For More Information

Systems for Action

National Coordinating Center

Systems and Services Research to Build a Culture of Health

Supported by The Robert Wood Johnson Foundation

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Blog: publichealtheconomics.org

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