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Spring March 8, 2016

Integrating Health Services & Systems: What We Know, Think We Know, and Need to Learn

Glen P. Mays, *University of Kentucky*

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Integrating Health Services & Systems: What We Know, Think We Know, and Need to Learn

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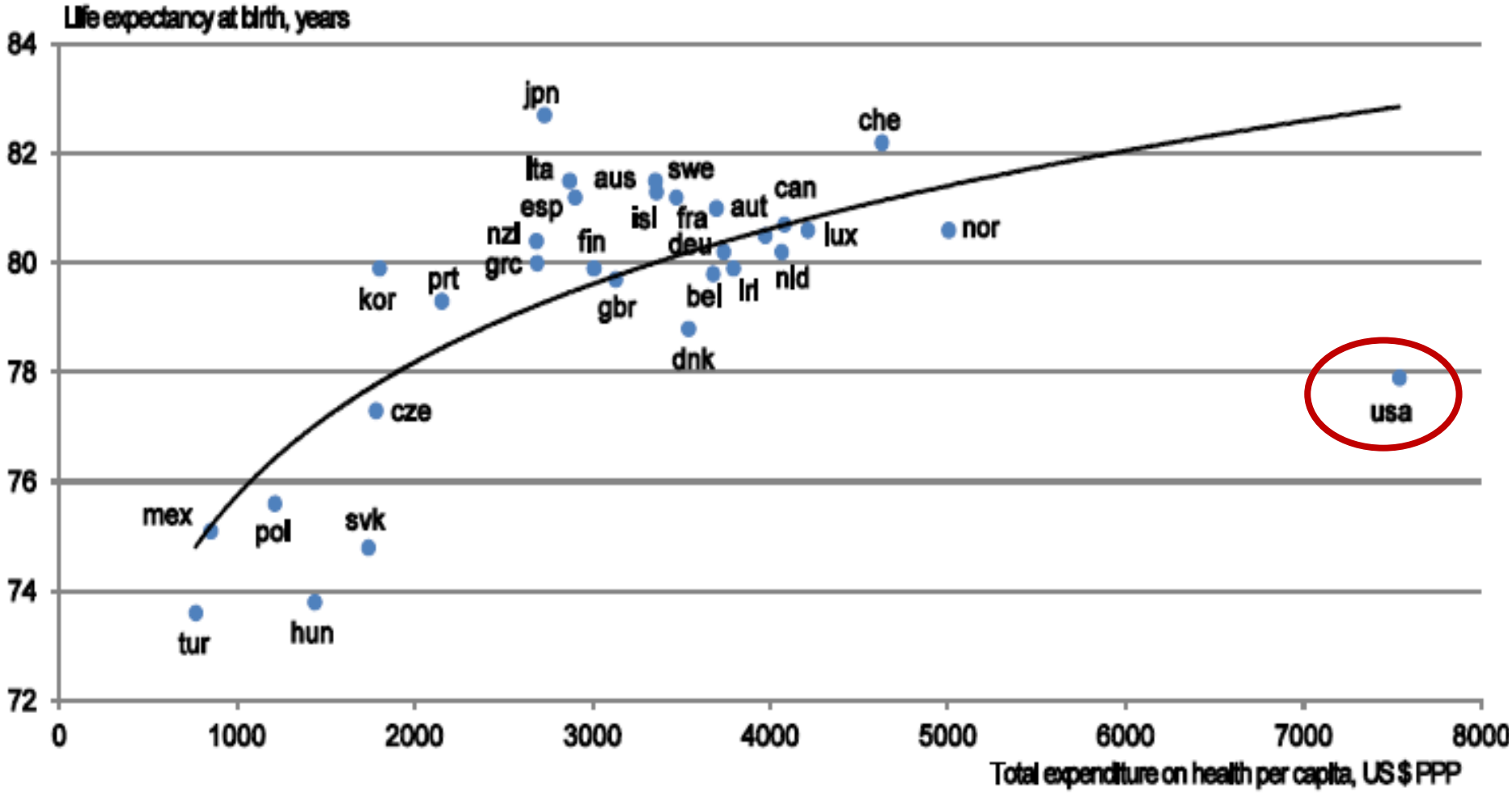
Healthy People in Healthy Communities Conference • 8 March 2016

UNIVERSITY OF KENTUCKY
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

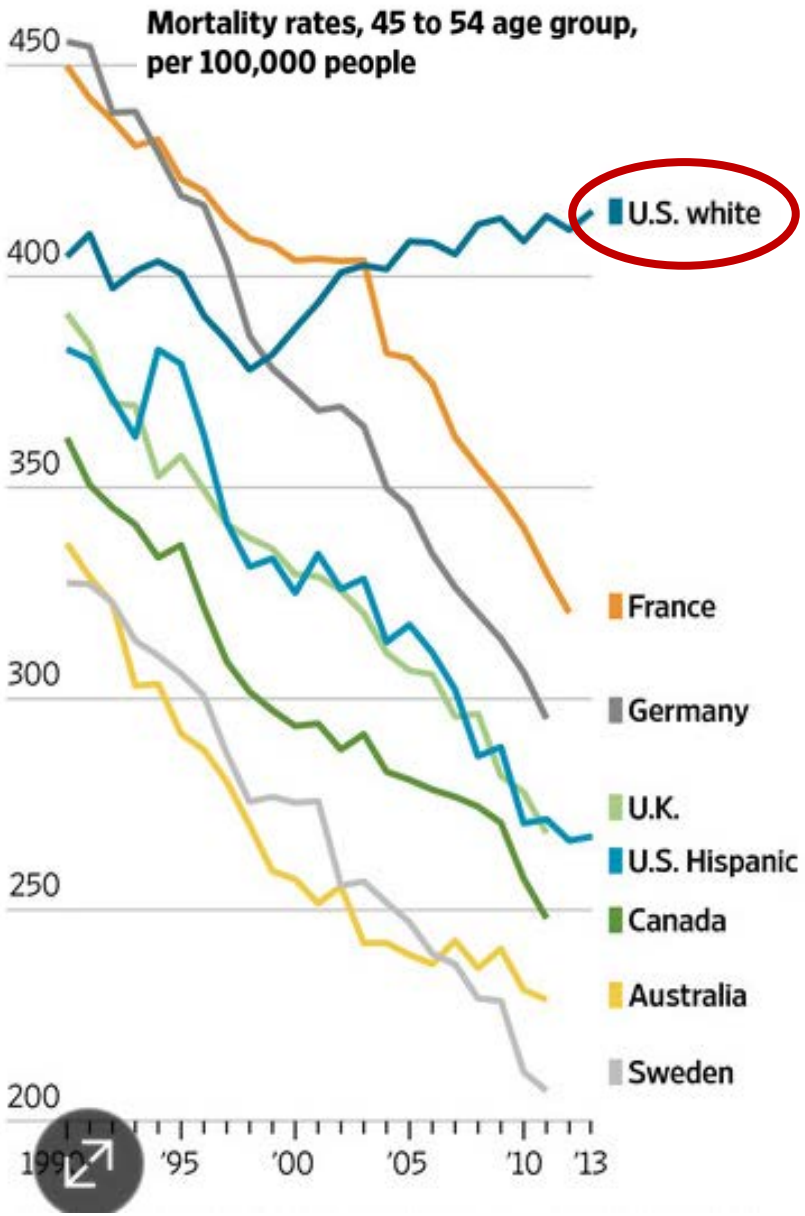


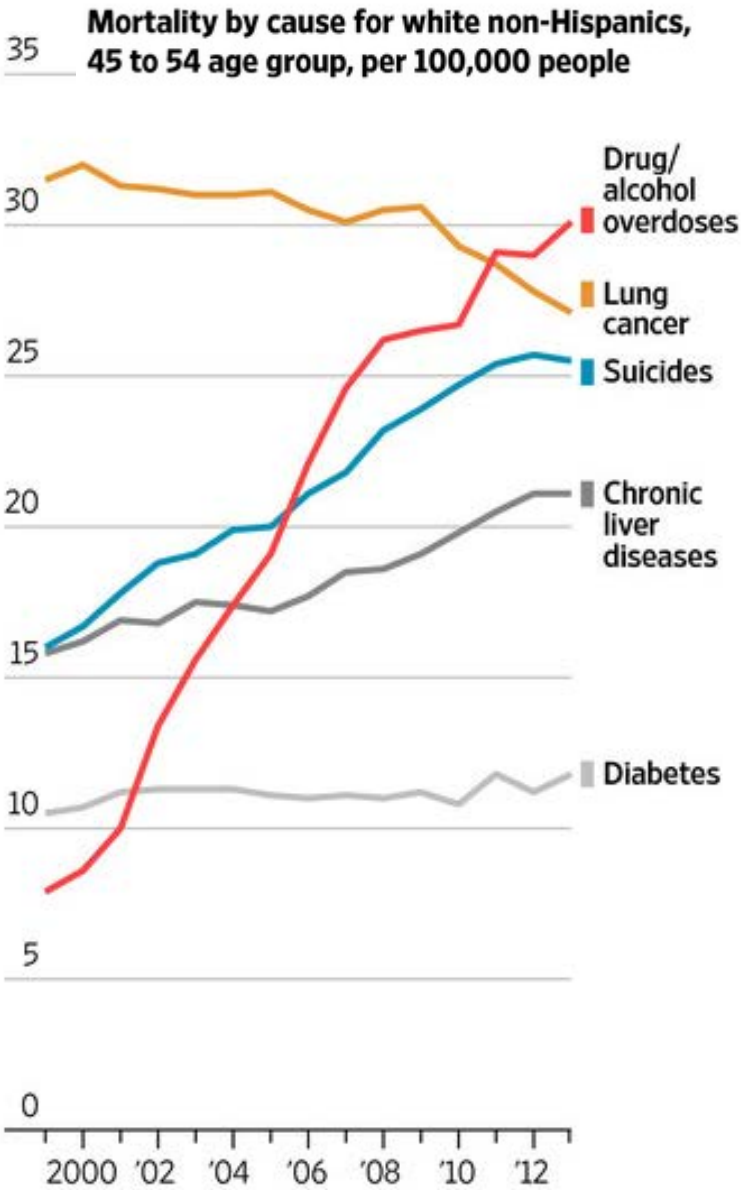
1. Or latest year available.

Source: OECD Health Data 2010.

WHO 2010

Losing ground in population health

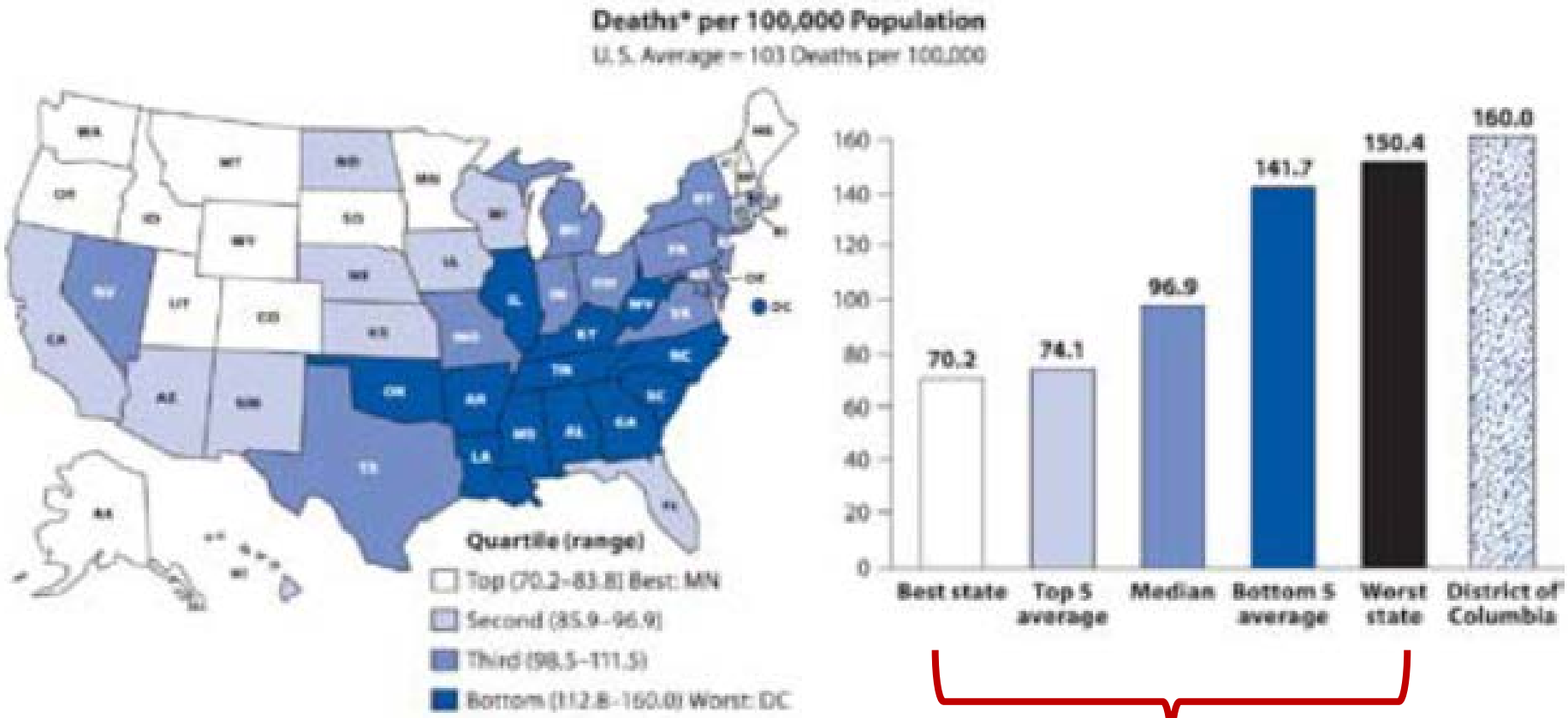




Case A, Deaton A. Proceedings of the National Academy of Sciences 2015

Losing ground in population health

Premature Deaths per 100,000 Residents



>100% Difference

Commonwealth Fund 2012

How do we support effective population health improvement strategies?

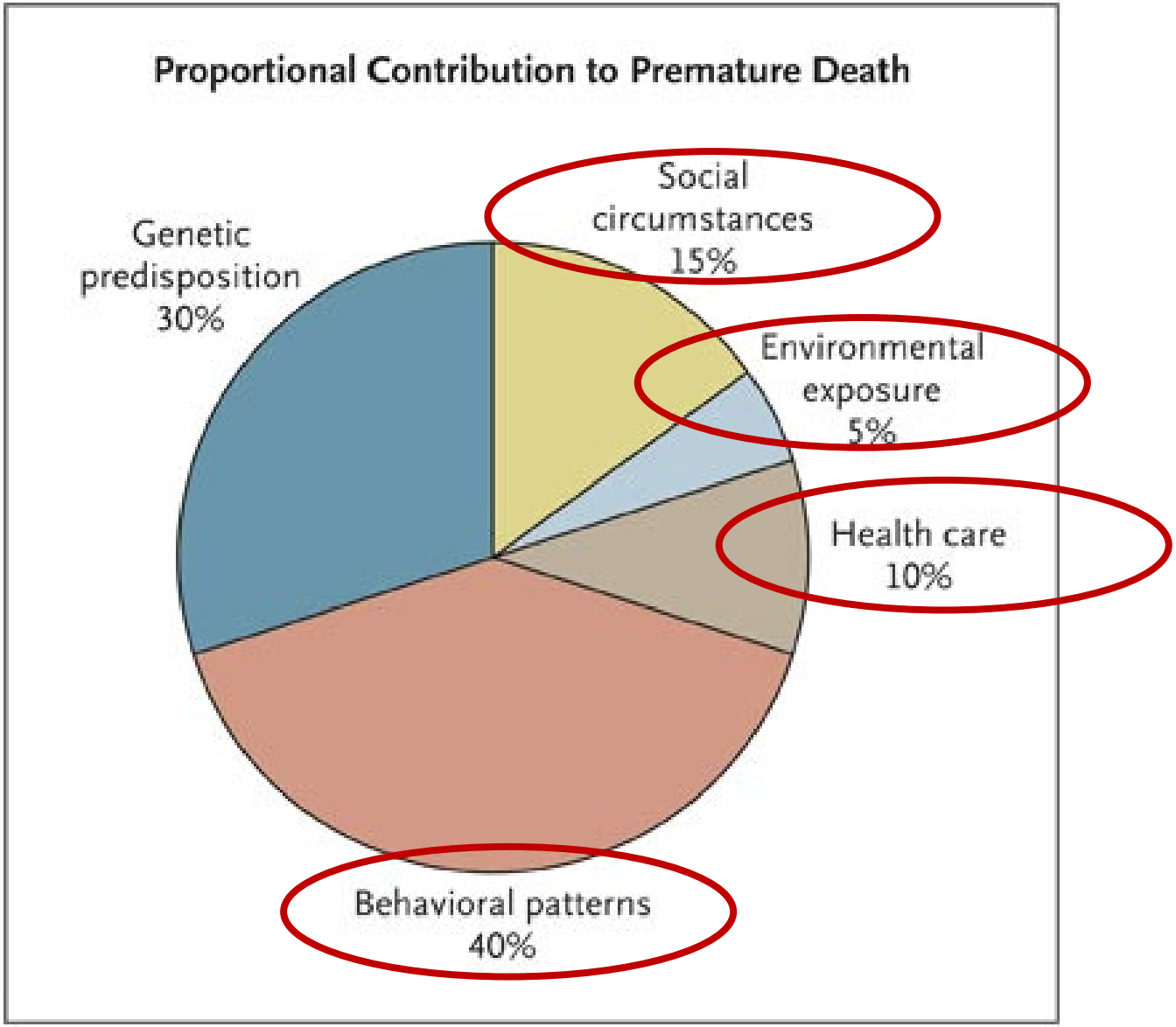
- Designed to achieve large-scale health improvement: neighborhood, city/county, region
- Target fundamental and often multiple determinants of health
- Mobilize the collective actions of multiple stakeholders in government & private sector

  - Resource commitments

  - Infrastructure requirements

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 ⟷ **Social Services & Supports** ⟷ **Public Health**

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

- 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

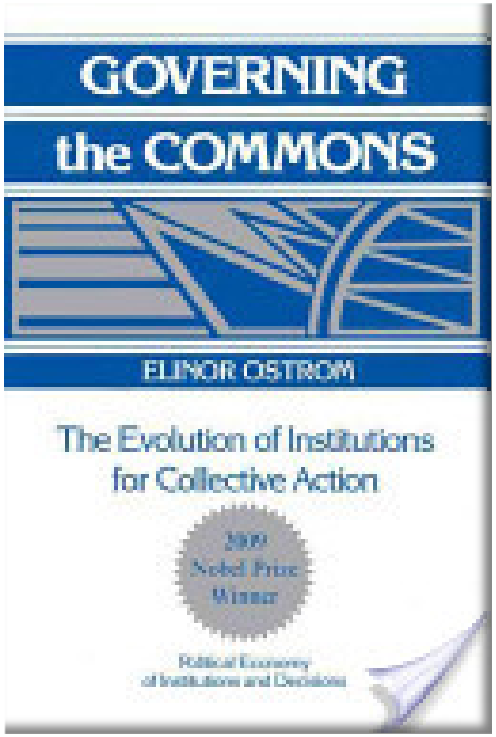
Estimates of Waste in US Health Care Spending in 2011, by Category

	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/

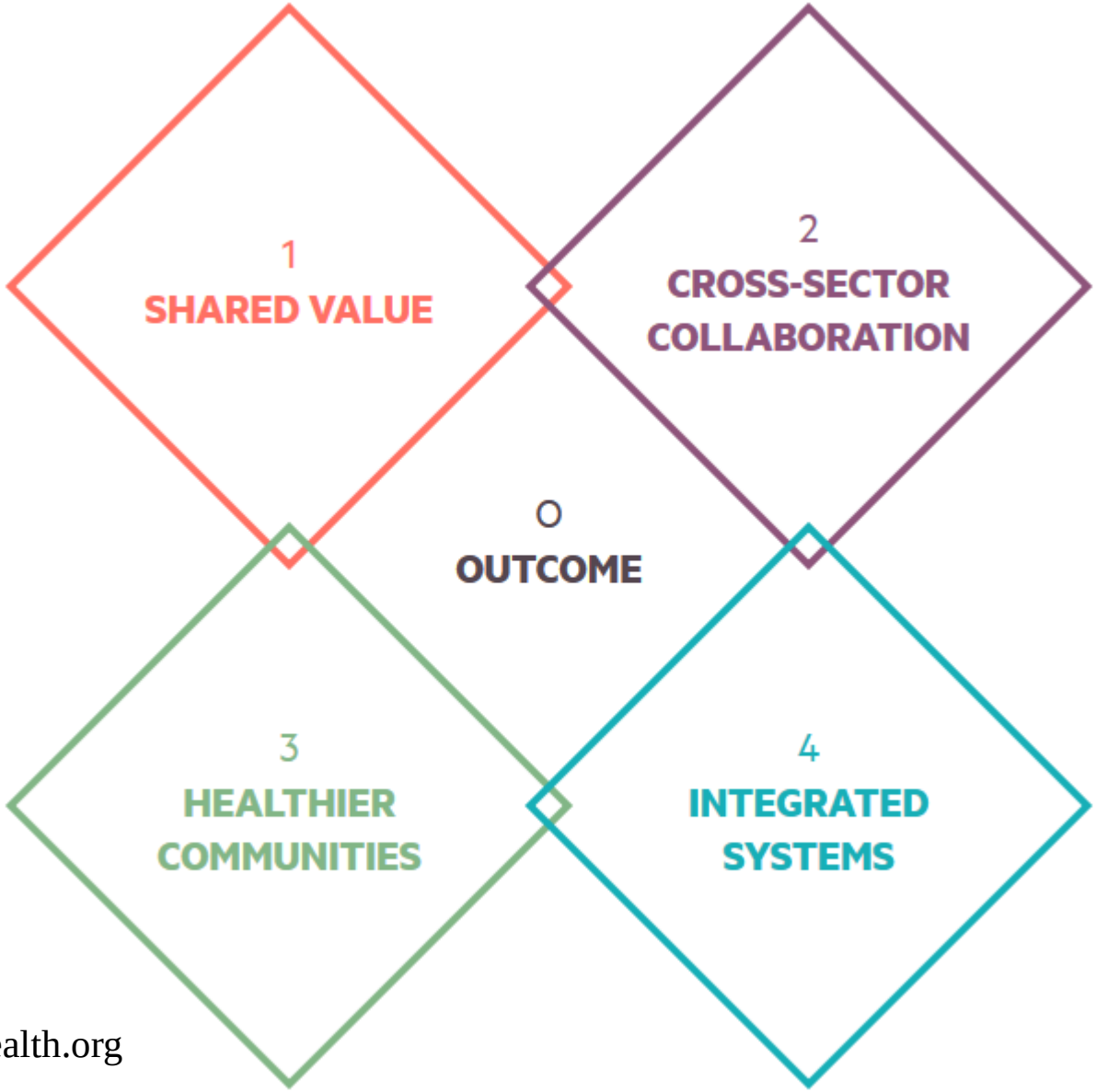
Challenge: overcoming collective action problems across systems & sectors

- 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

Creating a Culture of Health

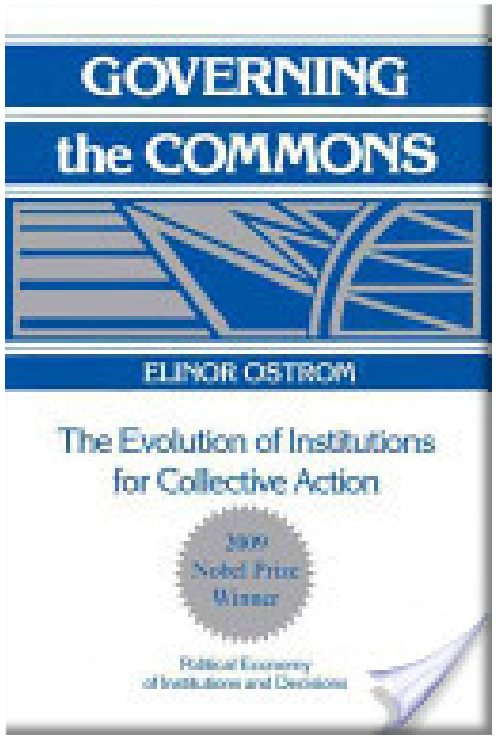


http://www.cultureofhealth.org

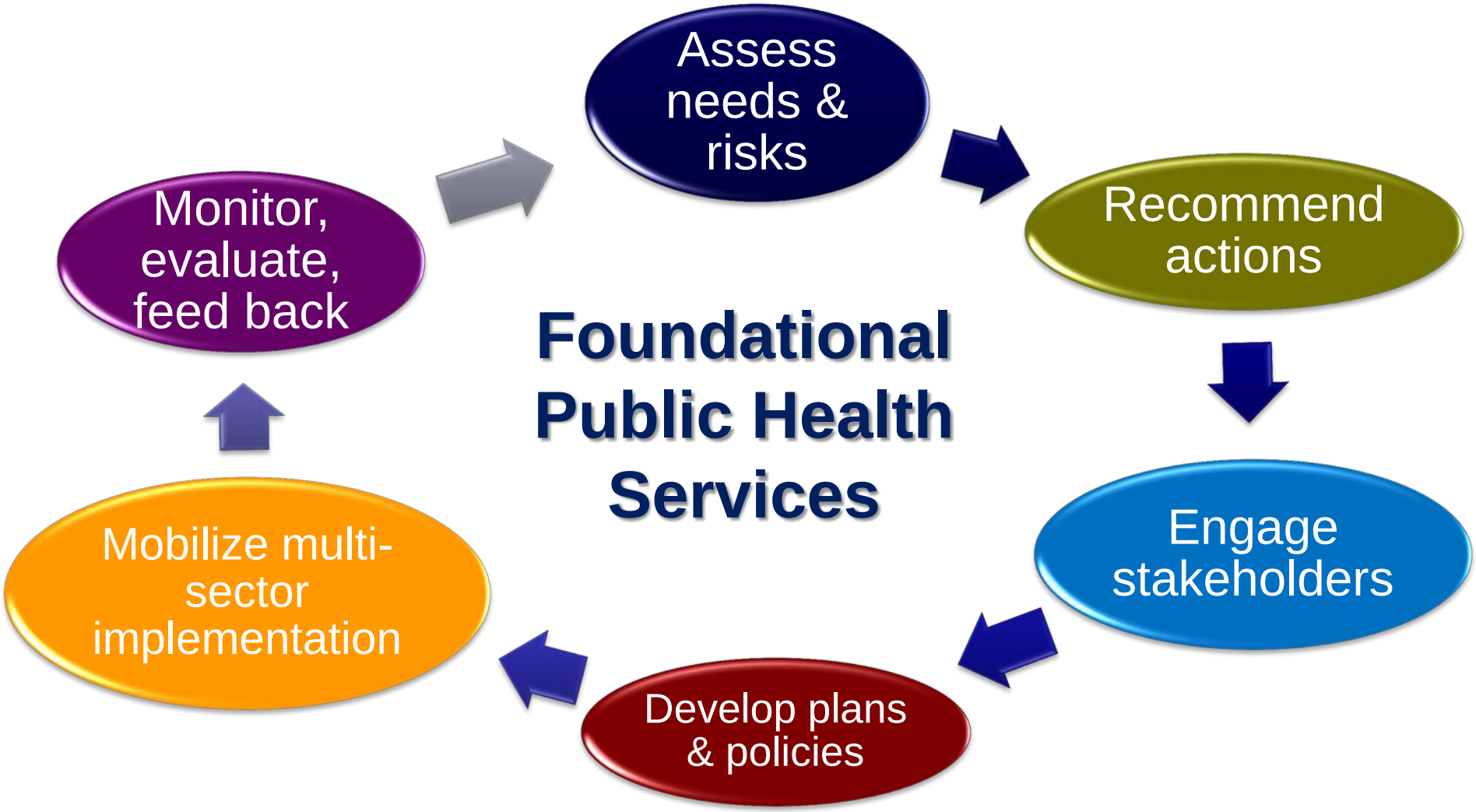
What services and supports are needed to support collective actions in health?

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



Can public health help solve collective action problems?

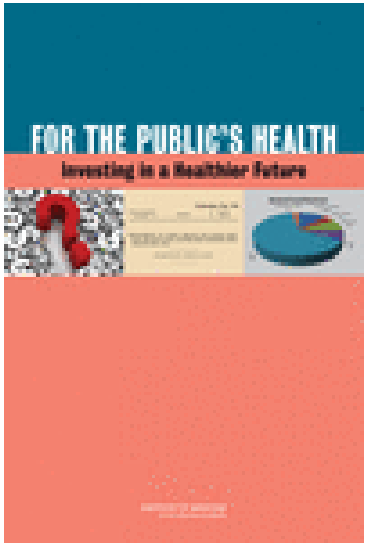


National Academy of Sciences Institute of Medicine: ***For the Public's Health: Investing in a Healthier Future.*** Washington, DC: National Academies Press; 2012.

How do we deploy foundational public health services across the US?

2012 Institute of Medicine Recommendations

- Identify the components and **costs of a minimum package** of public health services
  - Foundational capabilities
  - Basic programs
- Create shared **federal-state financing**
- Identify how to implement these services in every U.S. state and community
- 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.

What do we call a system that delivers a broad scope of foundational public health services 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 the benefits of Comprehensive Public Health Systems?

- Greater concordance with national recommendations
  - IOM Core Functions
  - Essential Public Health Services
  - PHAB national accreditation standards
  - Foundational Public Health Services
- Fewer governmental resources per capita: more for less
- Over time, larger gains in population health

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

- Which organizations contribute to the implementation of core public health services and supports 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?

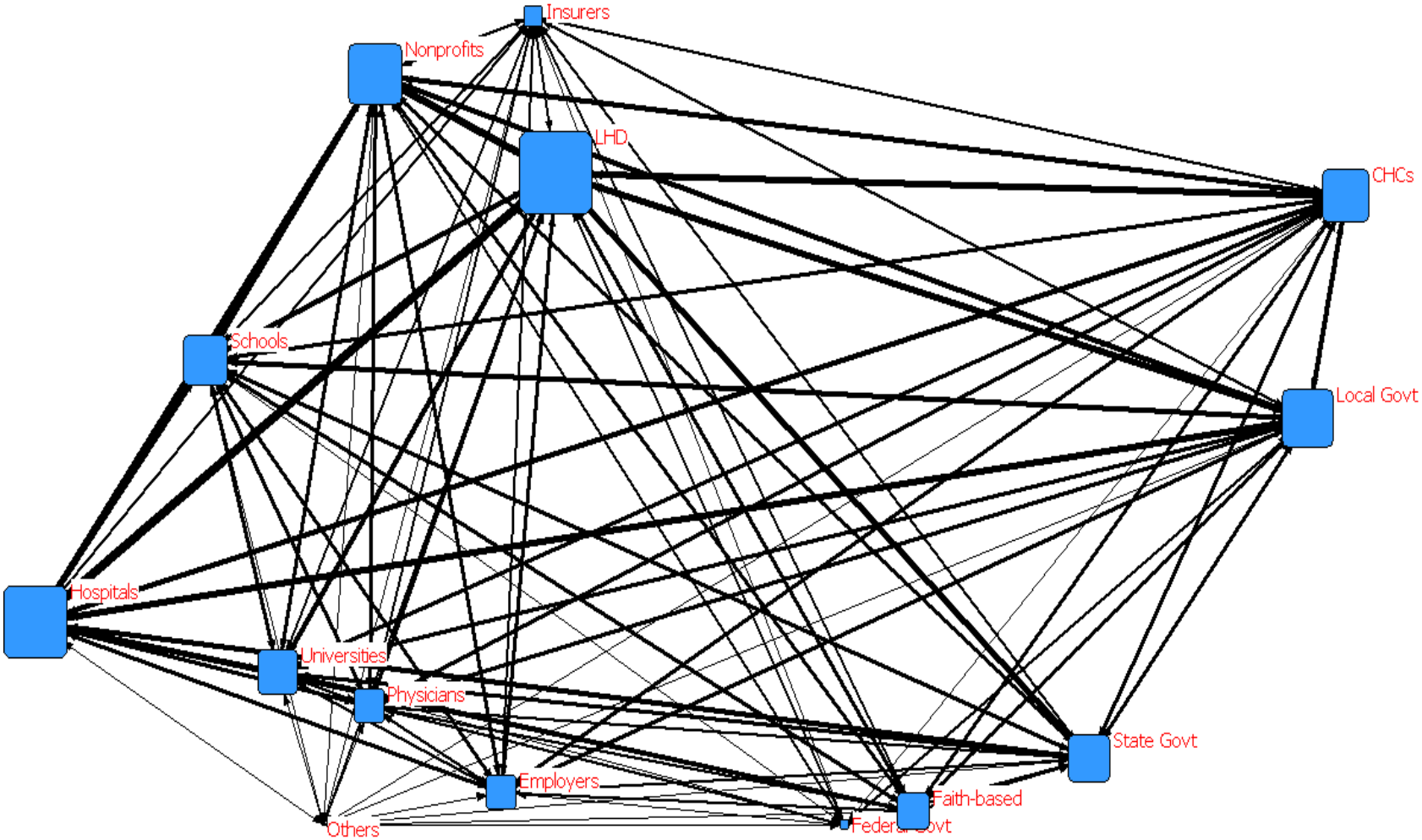
What do we know about multi-sector work in public health?

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 public 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

Average public health system structure in 2014

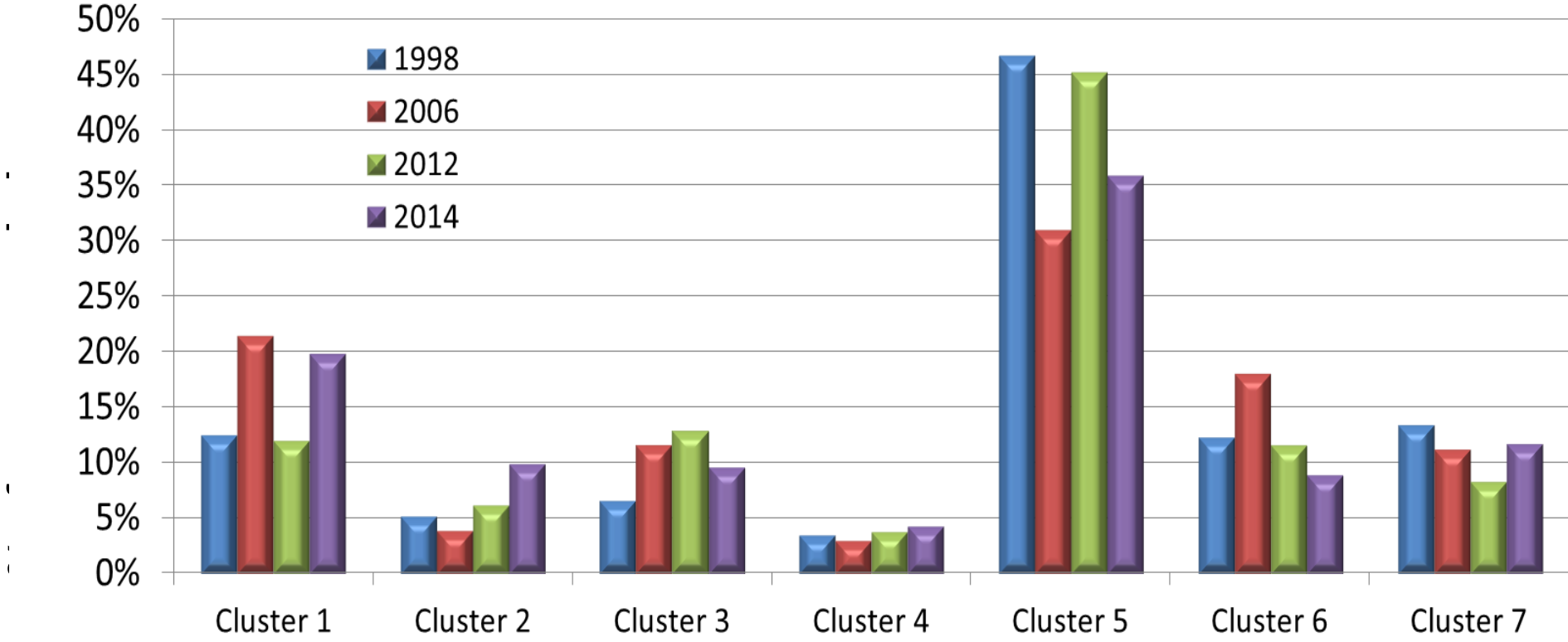


Node size = degree centrality

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.

Prevalence of Public Health System Configurations 1998-2014

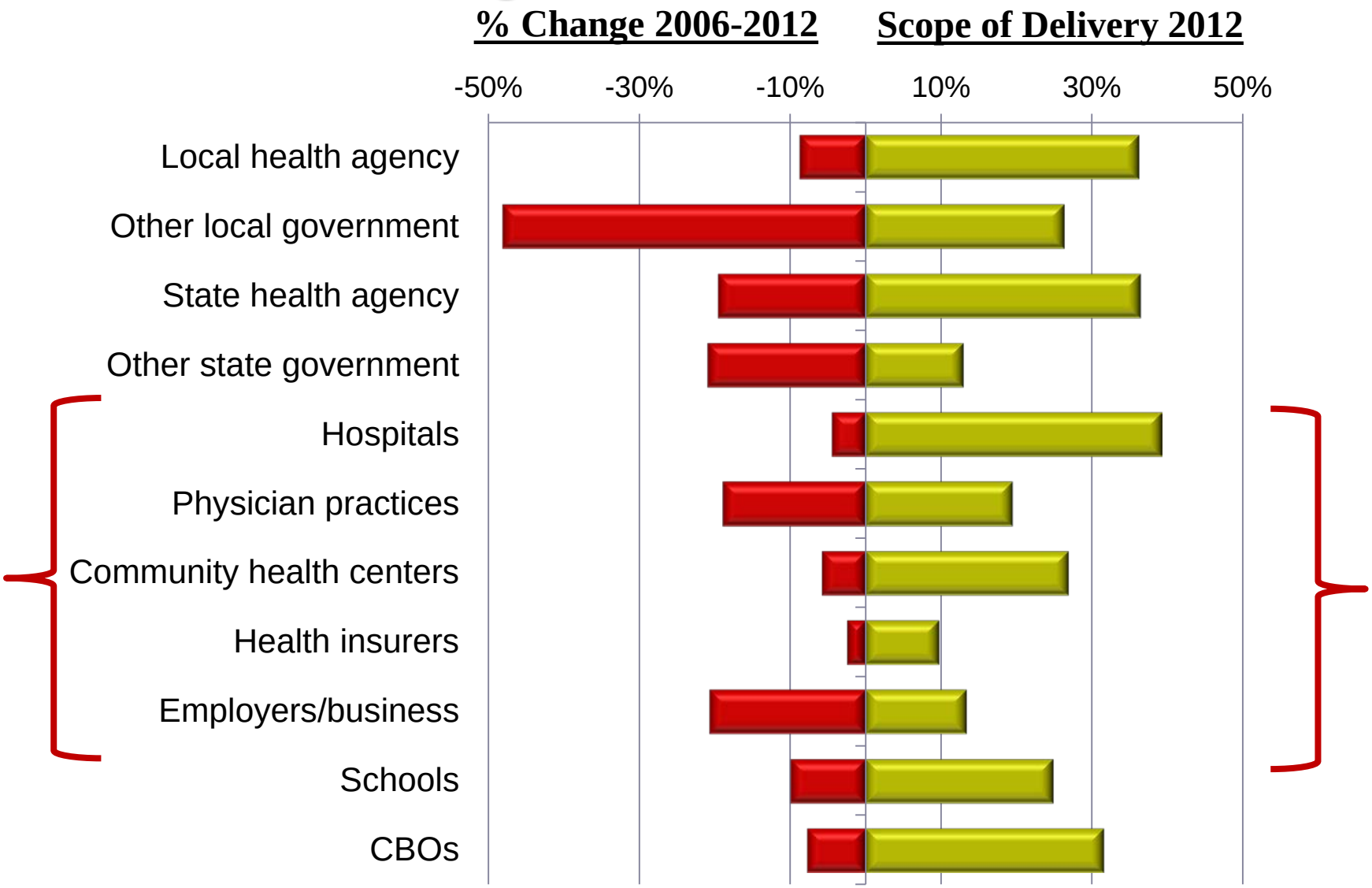


	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7
Scope	High	High	High	Mod	Mod	Low	Low
Centrality	Mod	Low	High	High	Low	High	Low
Density	High	High	Mod	Mod	Mod	Low	Mod
	Comprehensive (High System Capital)			**Conventional**		**Limited**	

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%

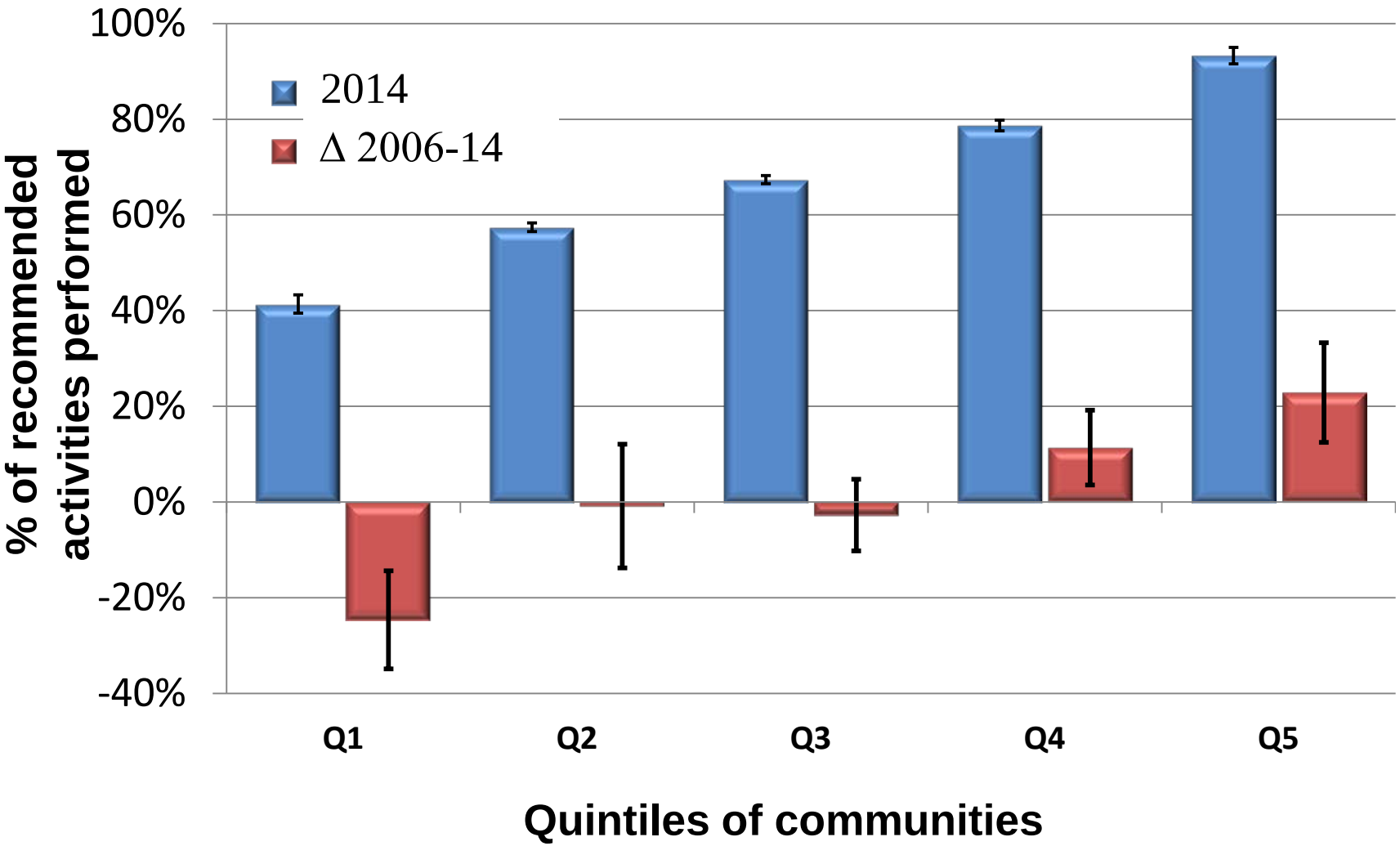
Changes in intensive and extensive margins during the Great Recession



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 Delivery

Delivery of recommended public health activities, 2006-14



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

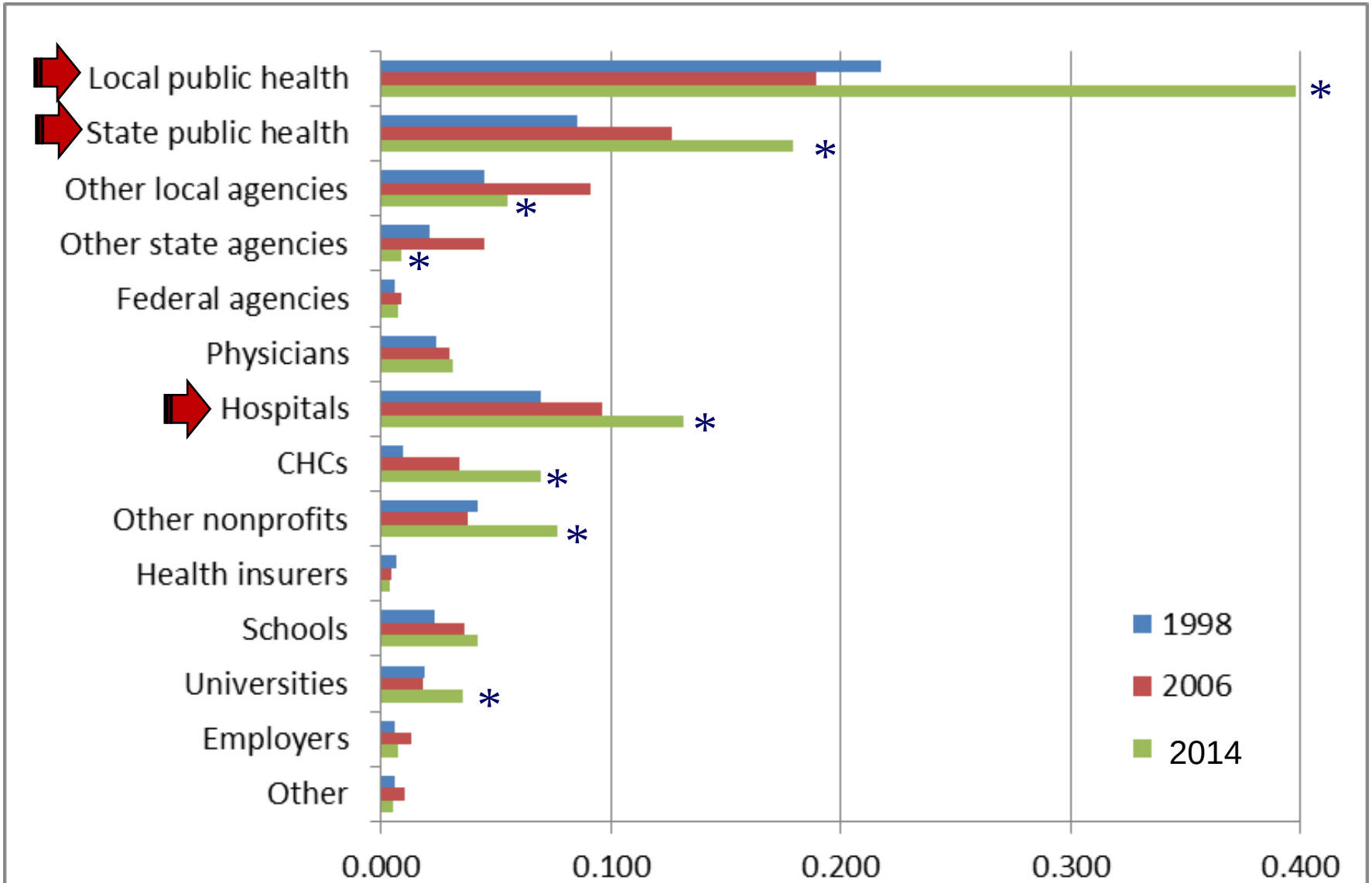
Organizational contributions to recommended public health activities, 1998-2014

% 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.

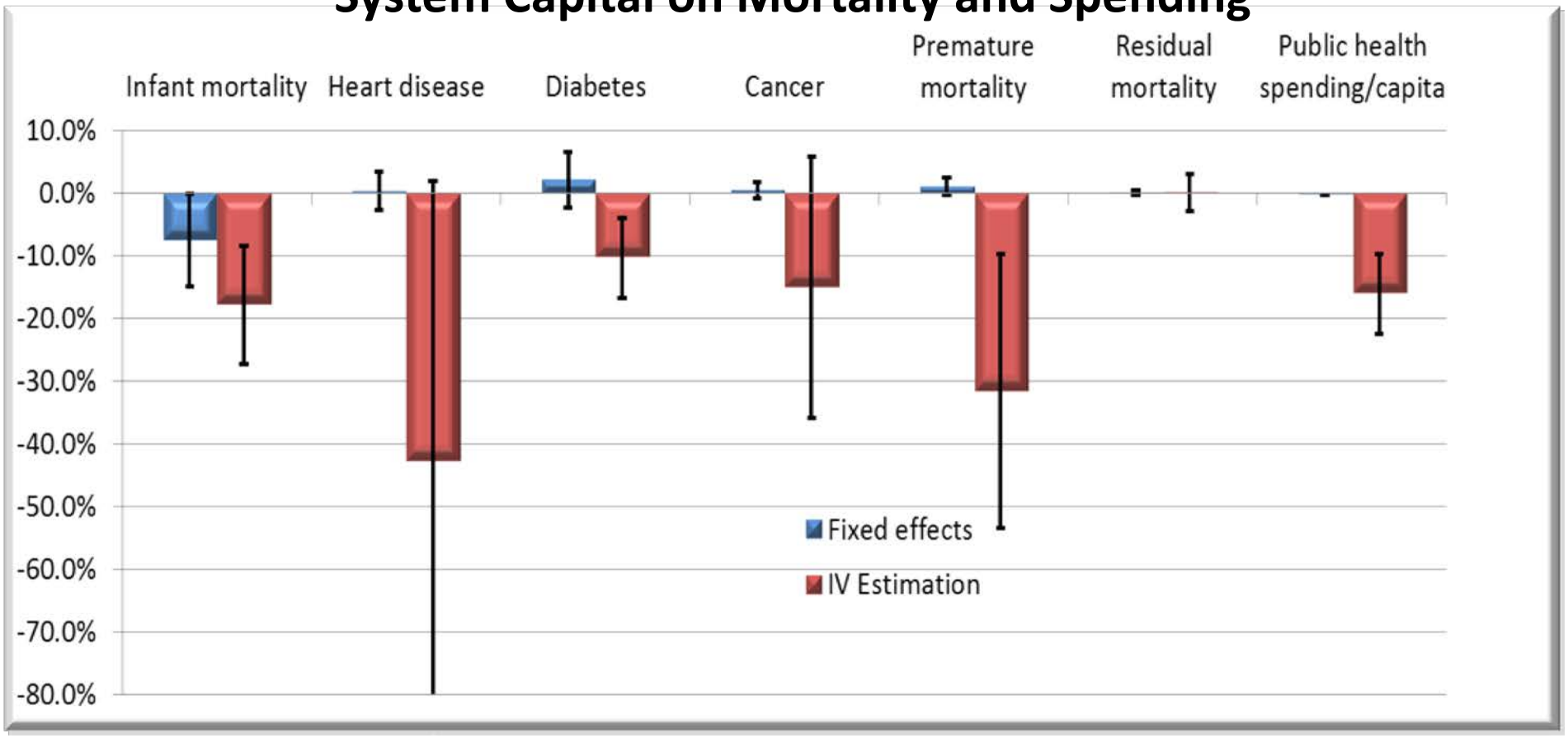
Bridging capital in public health delivery systems
Trends in betweenness centrality



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

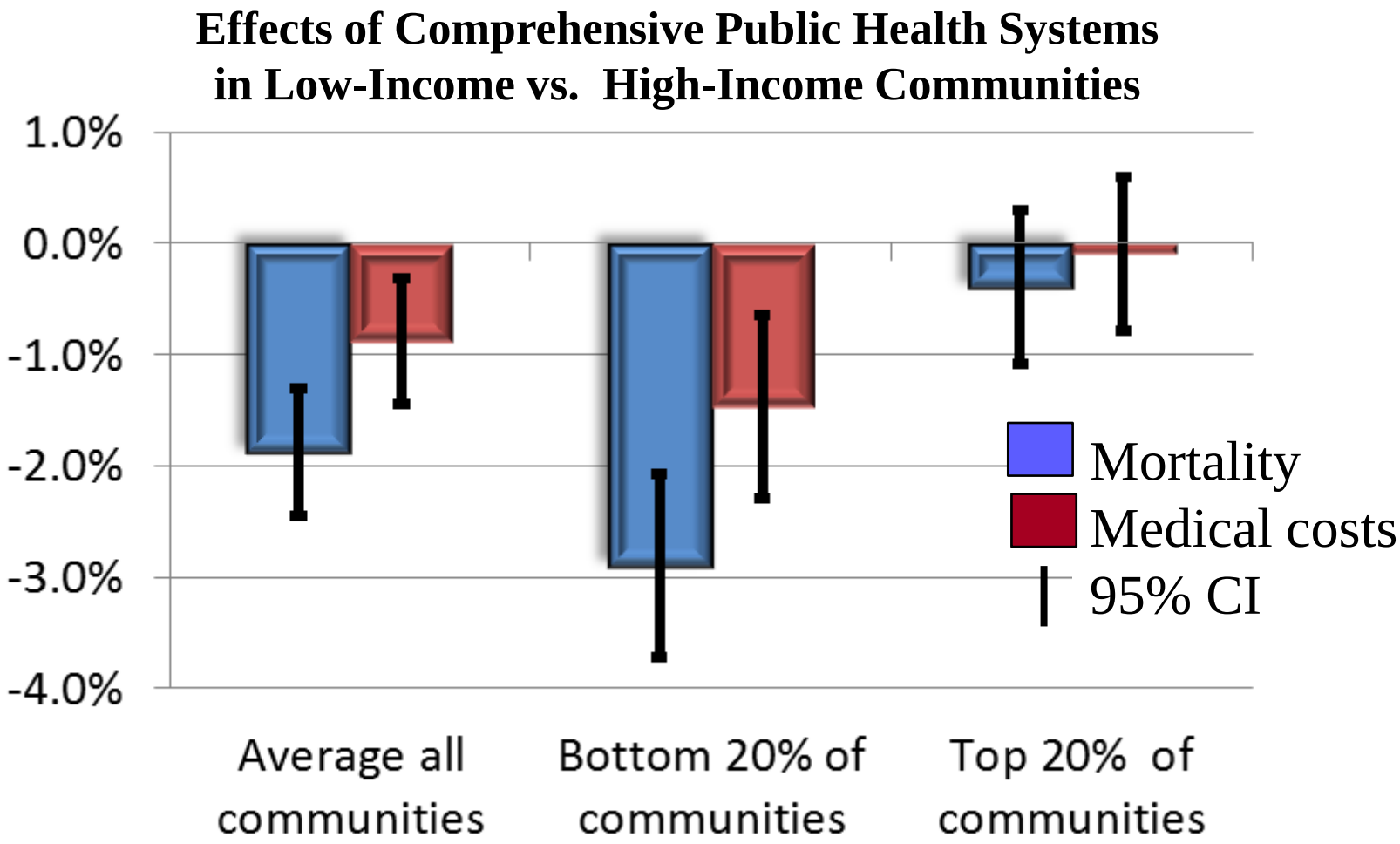
Health and economic impact of comprehensive systems

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



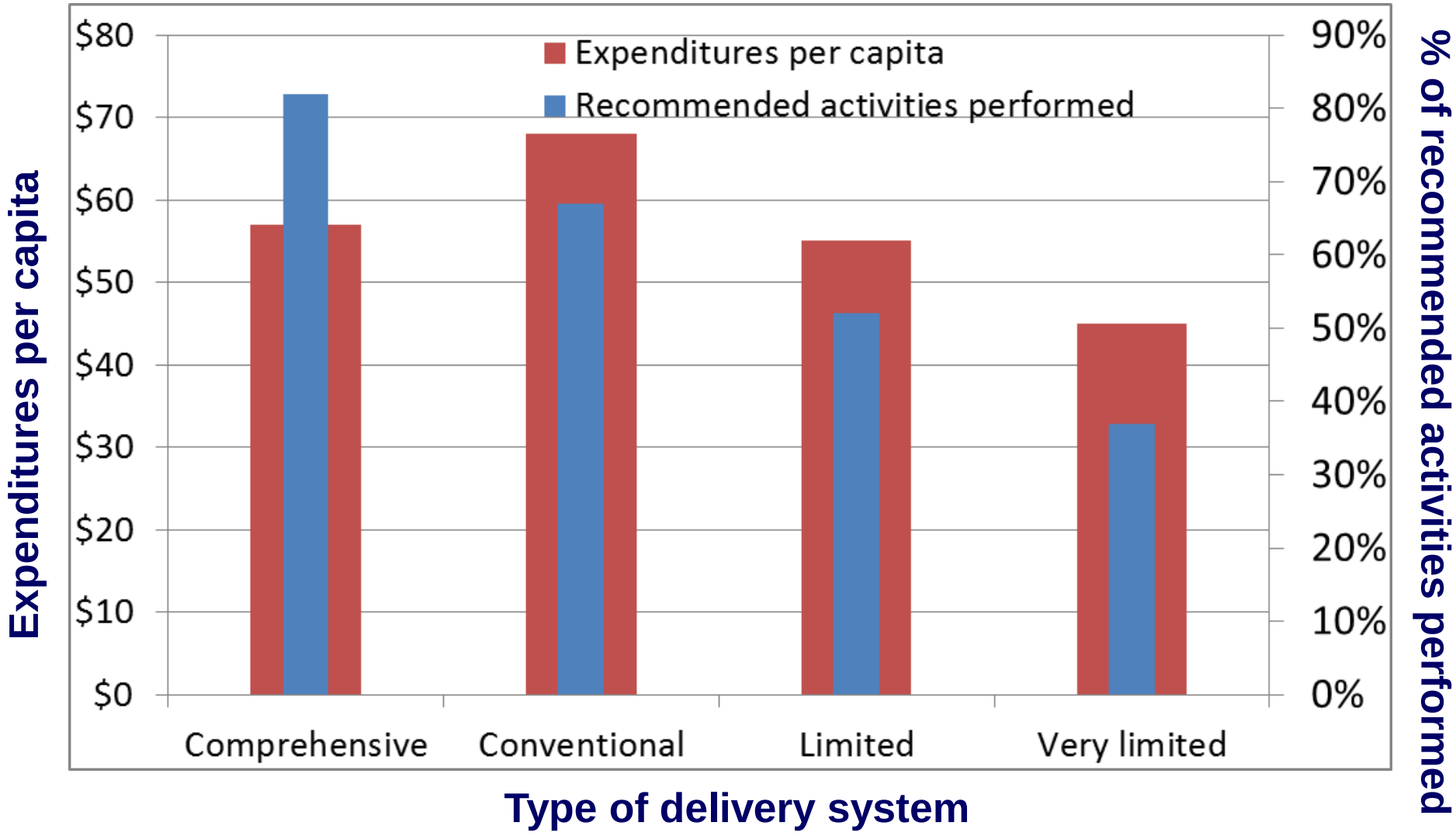
Models also control for racial composition, unemployment, health insurance coverage, educational attainment, age composition, and state and year fixed effects. N=779 community-years **p<0.05 *p<0.10

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

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

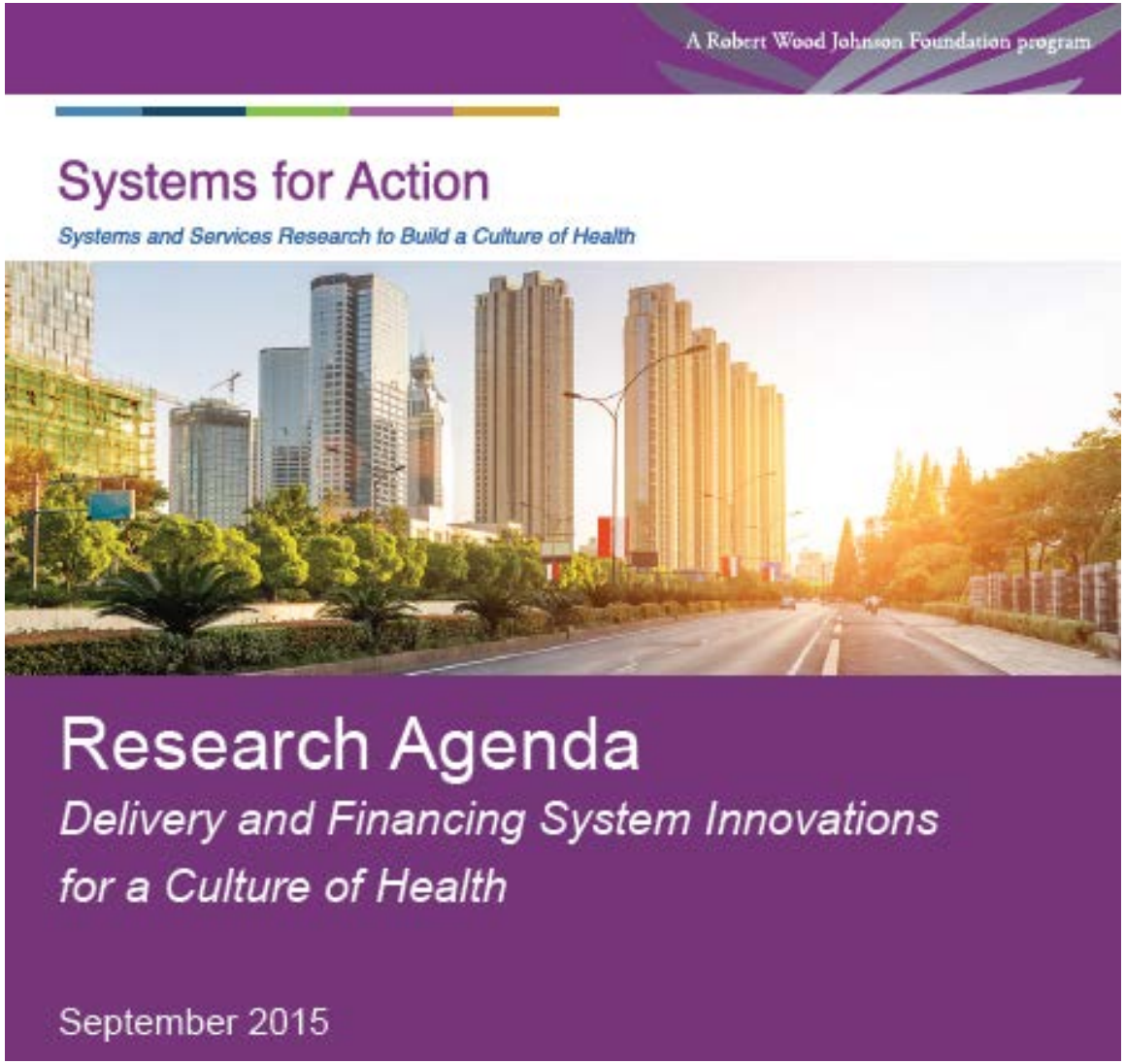
www.visionproject.org

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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References

Mays GP, Hogg RA. Economic shocks and public health protections in US metropolitan areas. **Am J Public Health**. 2015;105 Suppl 2:S280-7. PMCID: PMC4355691.

Hogg RA, Mays GP, Mamaril CB. Hospital contributions to the delivery of public health activities in US metropolitan areas: National and Longitudinal Trends. **Am J Public Health**. 2015;105(8):1646-52. PubMed PMID: 26066929.

Smith SA, Mays GP, Felix HC, Tilford JM, Curran GM, Preston MA. Impact of economic constraints on public health delivery systems structures. **Am J Public Health**. 2015;105(9):e48-53. PMID: 26180988.

Ingram RC, Scutchfield FD, Mays GP, Bhandari MW. The economic, institutional, and political determinants of public health delivery system structures. **Public Health Rep**. 2012;127(2):208-15. PMCID: PMC3268806.

Mays GP, Smith SA. Evidence links increases in public health spending to declines in preventable deaths. **Health Affairs.** 2011 Aug;30(8):1585-93. PMC4019932

Mays GP, Scutchfield FD. Improving public health system performance through multiorganizational partnerships. **Prev Chronic Dis**. 2010;7(6):A116. PMCID: PMC2995603

Mays GP, Scutchfield FD, Bhandari MW, Smith SA. Understanding the organization of public health delivery systems: an empirical typology. **Milbank Q**. 2010;88(1):81-111. PMCID: PMC2888010.

Mays GP, Smith SA. Geographic variation in public health spending: correlates and consequences. **Health Serv Res**. 2009 Oct;44(5 Pt 2):1796-817. PMC2758407.

Mays GP, Smith SA, Ingram RC, Racster LJ, Lamberth CD, Lovely ES. Public health delivery systems: evidence, uncertainty, and emerging research needs. **Am J Prev Med**. 2009;36(3):256-65. PMID: 19215851.

Mays GP, McHugh MC, Shim K, Perry N, Lenaway D, Halverson PK, Moonesinghe R. Institutional and economic determinants of public health system performance. **Am J Public Health**. 2006;96(3):523-31. PubMed PMID: 16449584; PMC1470518.

Mays GP, Halverson PK, Baker EL, Stevens R, Vann JJ. Availability and perceived effectiveness of public health activities in the nation's most populous communities. **Am J Public Health**. 2004;94(6):1019-26. PMCID: PMC1448383.

Mays GP, Halverson PK, Stevens R. The contributions of managed care plans to public health practice: evidence from the nation's largest local health departments. **Public Health Rep**. 2001;116 Suppl 1:50-67. PMCID: PMC1913663.

Mays GP, Halverson PK, Kaluzny AD, Norton EC. How managed care plans contribute to public health practice. **Inquiry**. 2001;37(4):389-410. PubMed PMID: 11252448.

Halverson PK, Mays GP, Kaluzny AD. Working together? Organizational and market determinants of collaboration between public health and medical care providers. **Am J Public Health**. 2000;90(12):1913-6. PMCID: PMC1446432.

Roper WL, Mays GP. The changing managed care-public health interface. **JAMA**.1998;280(20):1739-40. PubMed PMID: 9842939.

Mays GP, Halverson PK, Kaluzny AD. Collaboration to improve community health: trends and alternative models. **Jt Comm J Qual Improv**. 1998 Oct;24(10):518-40.PubMed PMID: 9801951.

Halverson PK, Mays GP, Kaluzny AD, Richards TB. Not-so-strange bedfellows: models of interaction between managed care plans and public health agencies. **Milbank Q.** 1997;75(1):113-38. PMCID: PMC2751038