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Organizing and Financing Population Health: Systems, Policies & Incentives

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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

Overview

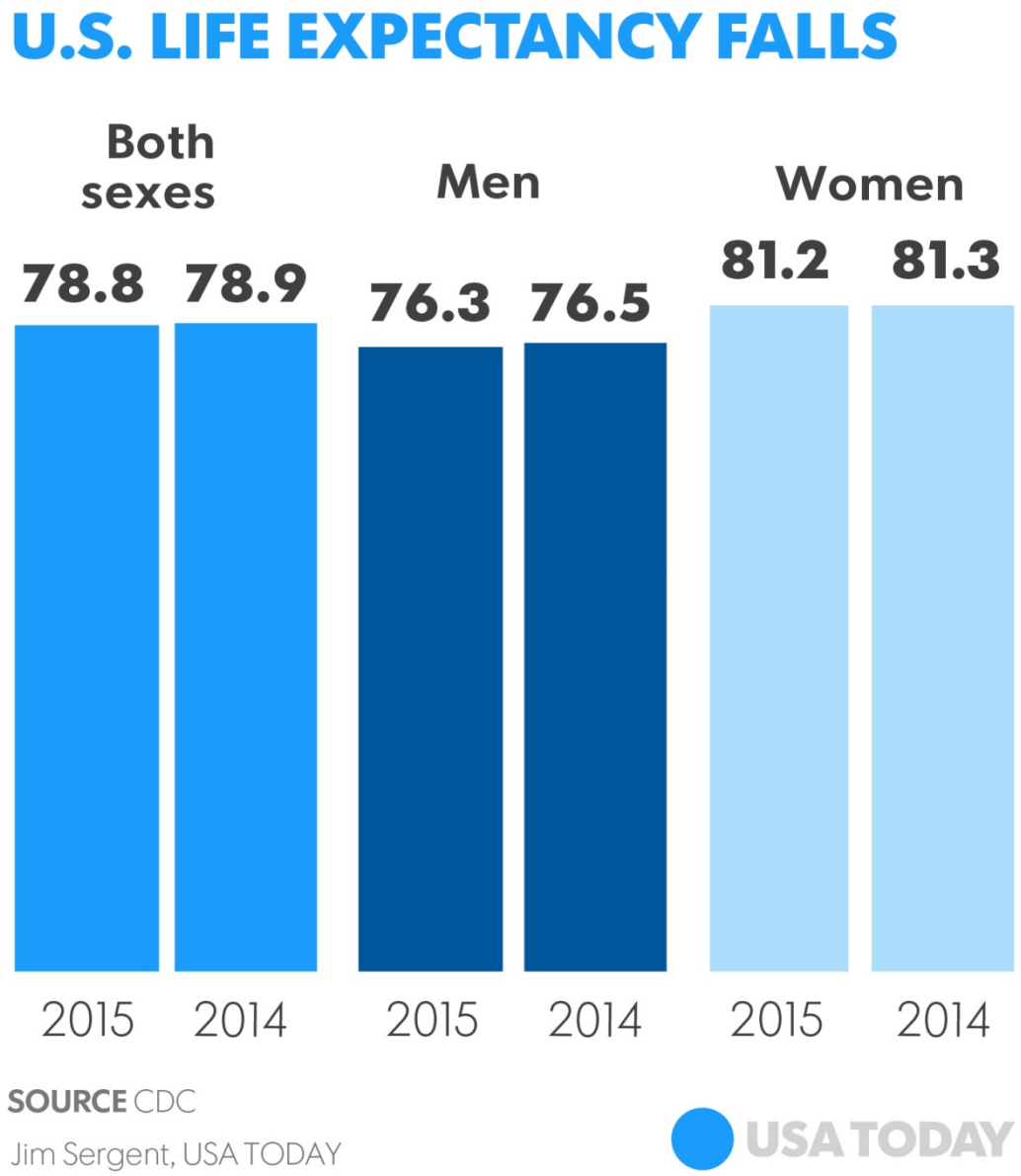
- Population health: concepts and key ingredients
- Social determinants of health
  - Key drivers
  - Policy & incentives
  - Services & supports
- Health systems & population health
  - Organization
  - Financing
  - Influence on population health
- Success stories & directions for the future

Part 1: Population Health

This section covers:
- ✓ Definitions
- ✓ Components & capabilities
- ✓ Benefits of population health approaches

- What's your definition?
- How is this different from "routine" public health?
- Why the increased attention?

Losing ground in population health



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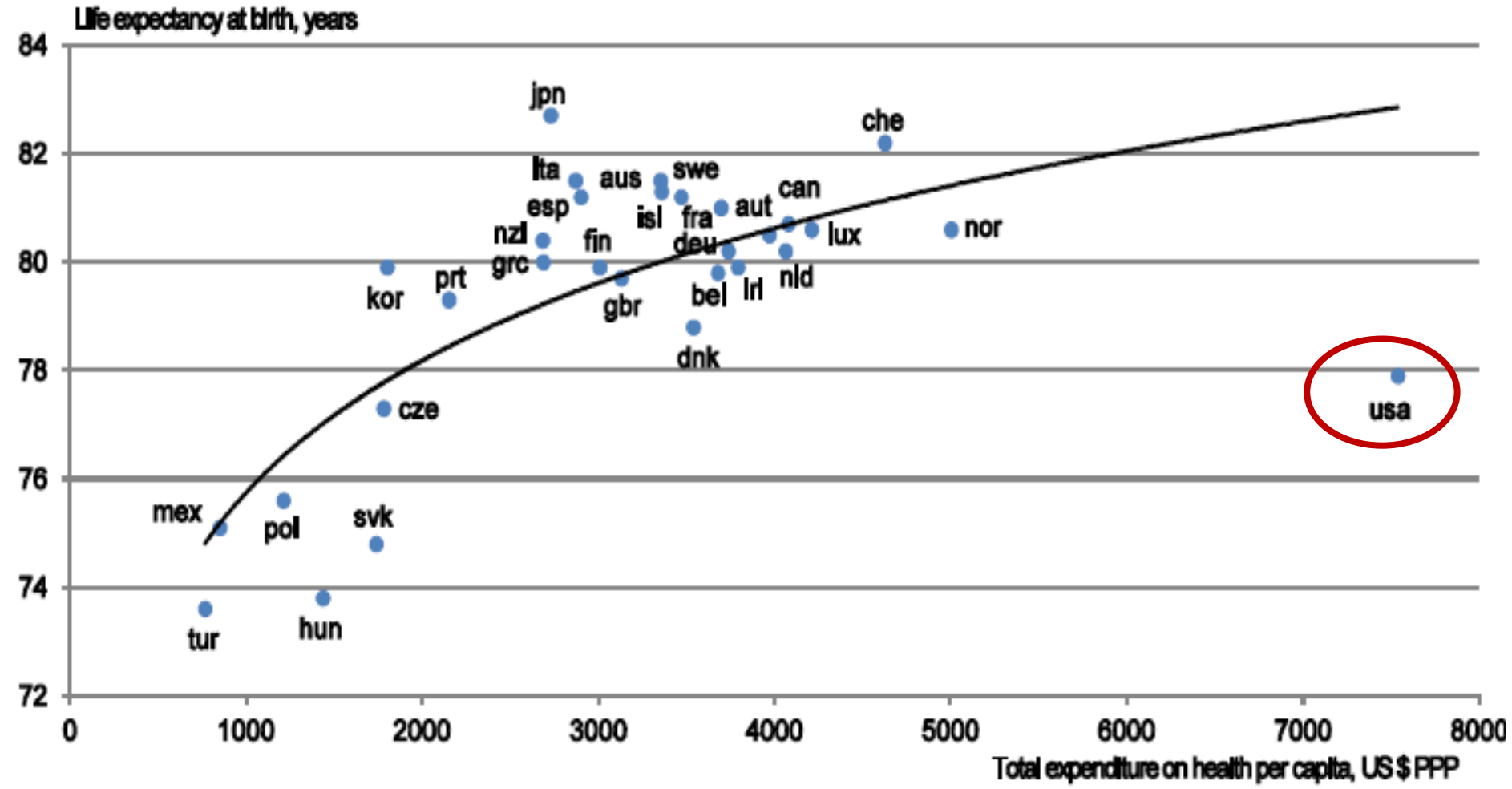
Losing ground in population health

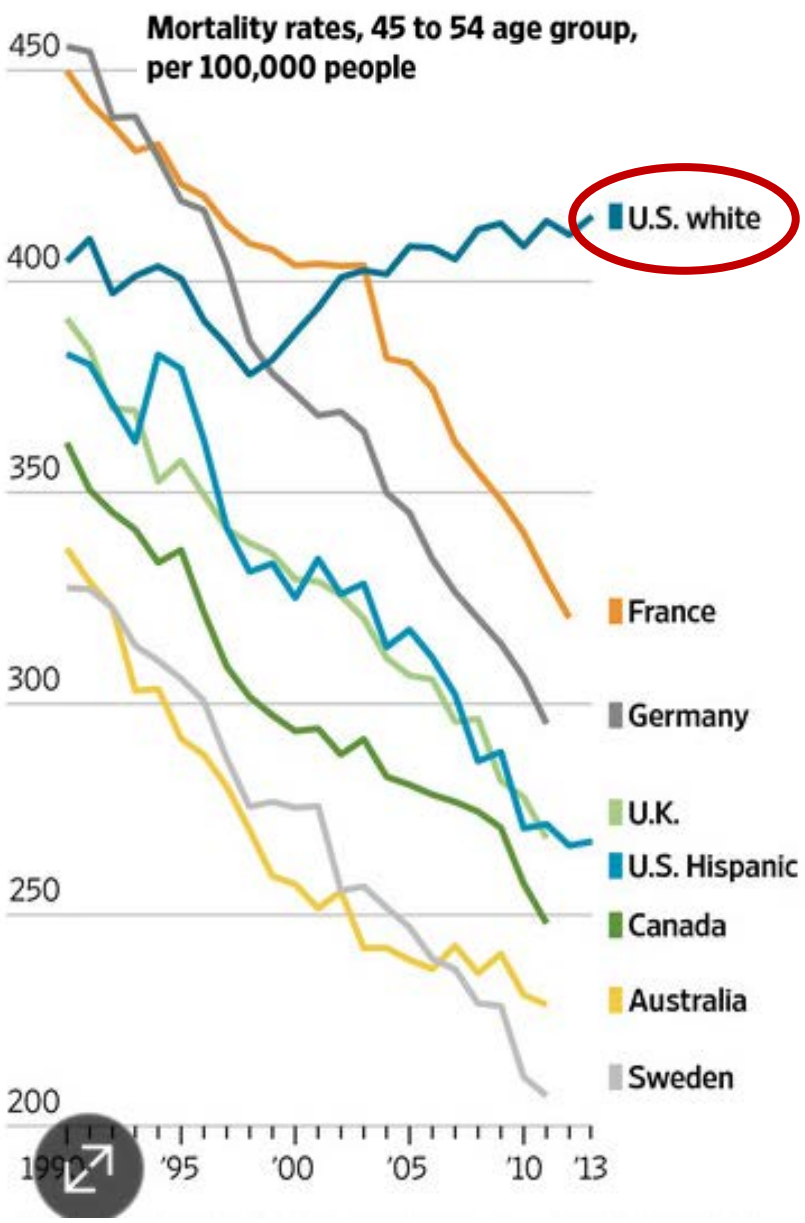


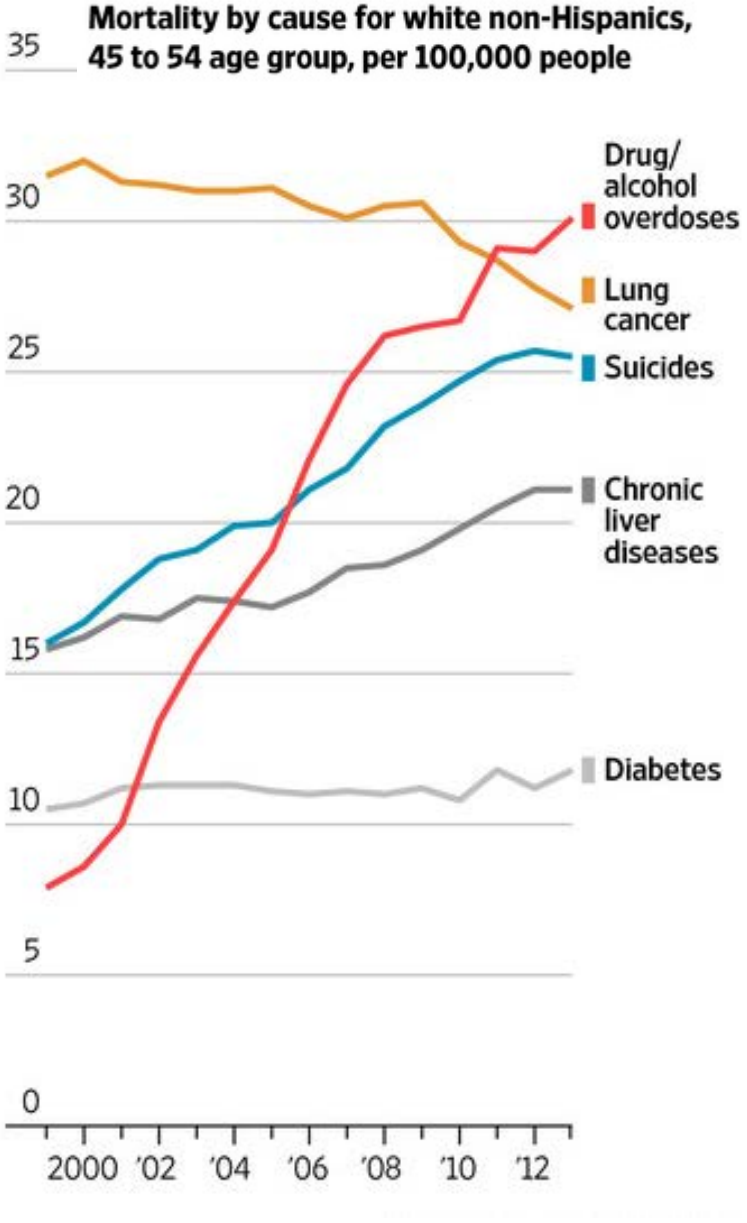
1. Or latest year available.

Source: OECD Health Data 2010.

WHO 2010

Losing ground in population health





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

Defining population health strategies

- Designed to achieve large-scale health improvement: neighborhood, city/county, region
- Improve the mean and reduce the variance (equity)
- 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

How are populations defined?

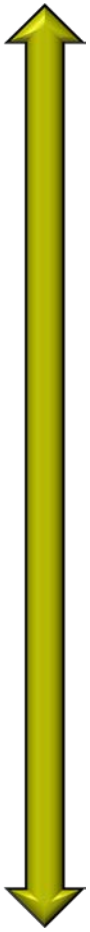
Perspective

Provider

Payor

Sponsor

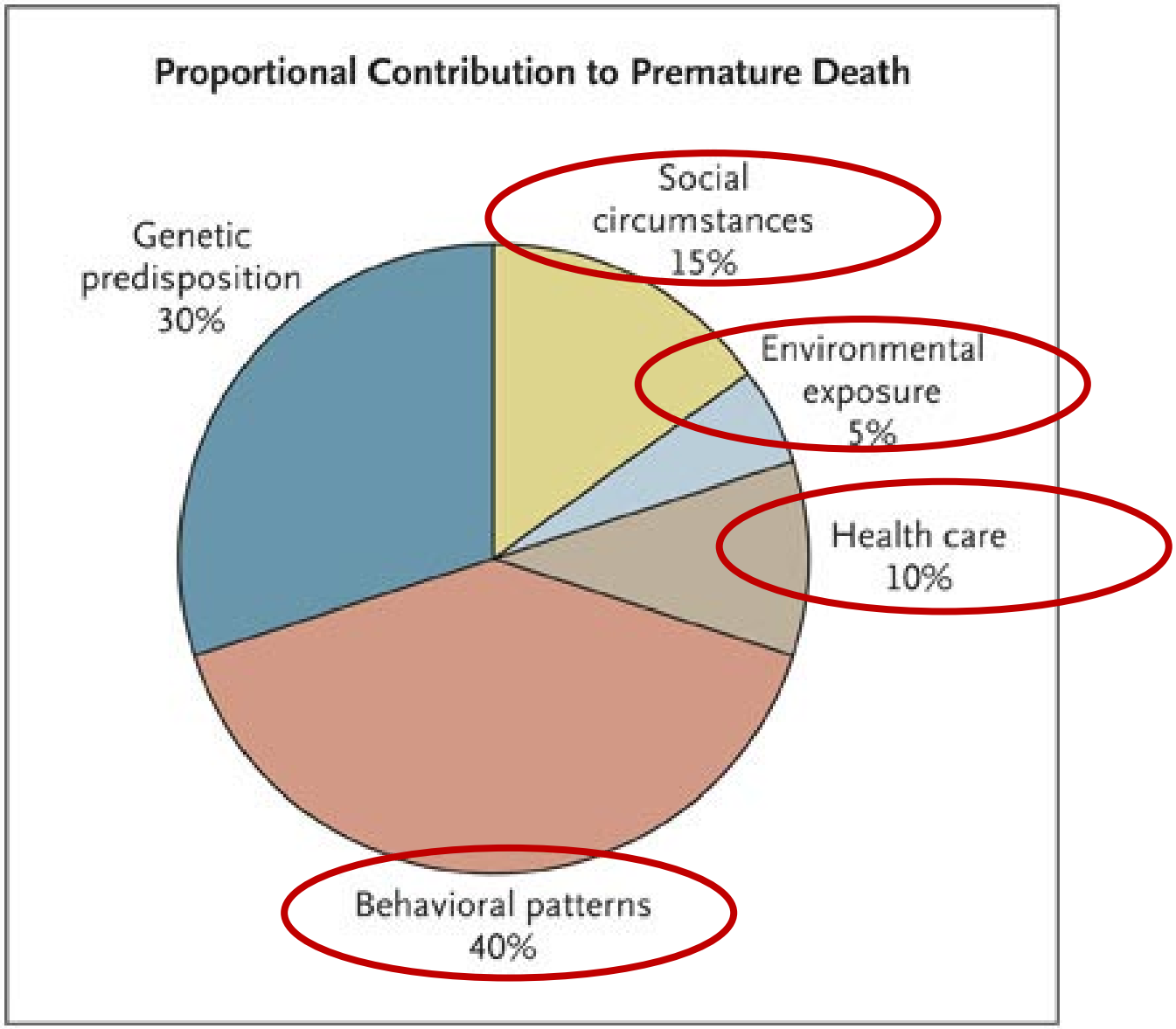
Societal



Method

- Assignment: patients assigned to a source of care
- Attribution: patients receiving services at a source of care
- Enrollment: persons enrolled in a source of coverage
- Contract or affiliation: employer, worksite, school, church, association, etc.
- Total population: residence within a neighborhood, community, or region

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

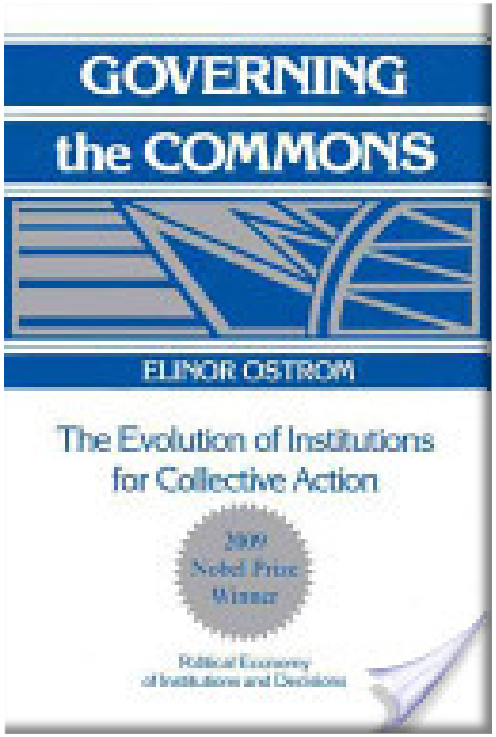
Waste & inefficiency

Inequitable outcomes

Limited population health impact

Challenge: overcoming collective action problems across systems & sectors

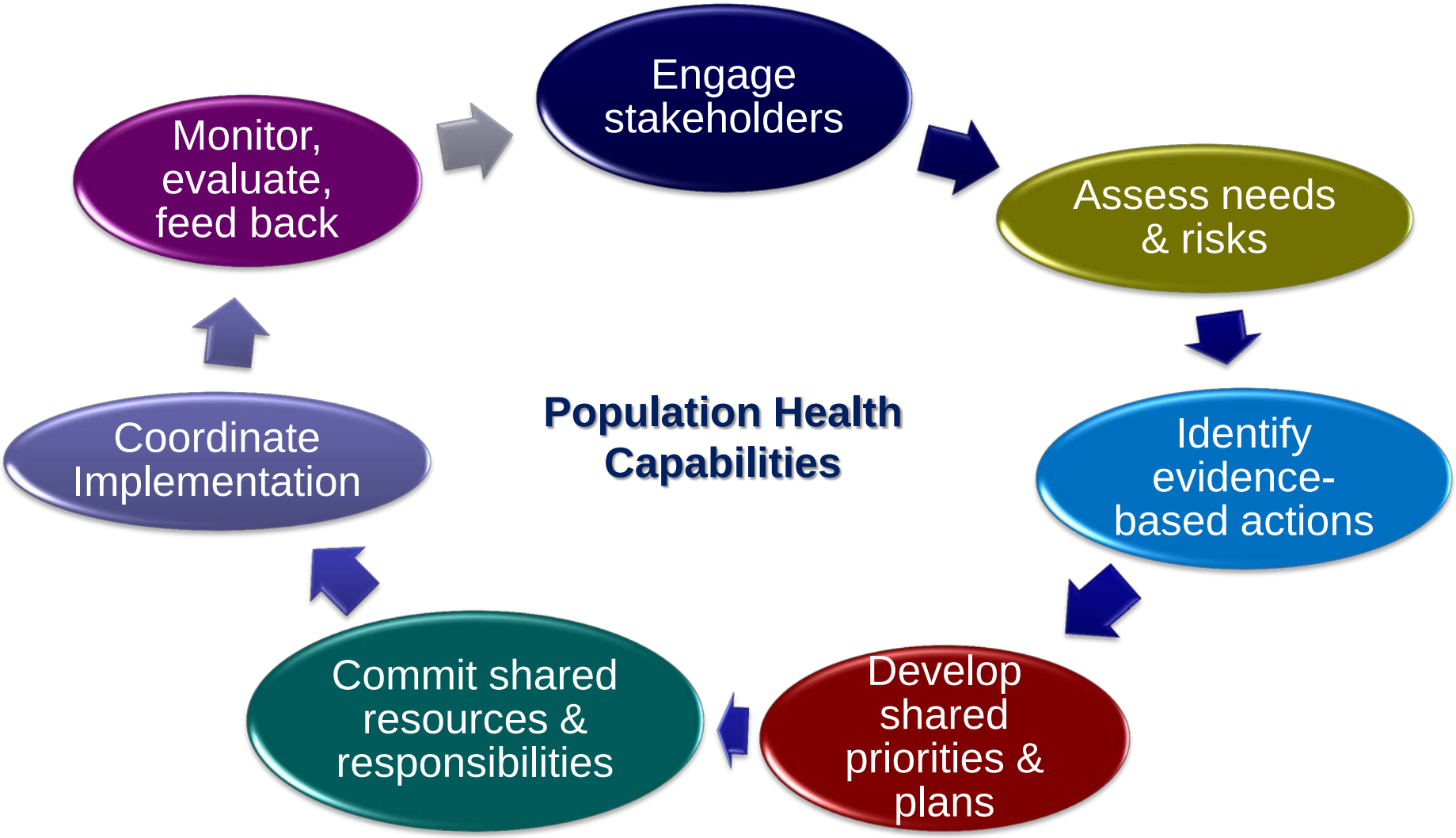
- Incentive compatibility → public goods
- Concentrated costs & diffuse benefits
- Time lags: costs vs. improvements
- Uncertainties about what works
- Asymmetry in information
- Difficulties measuring progress
- Weak and variable institutions & infrastructure
- Imbalance: resources vs. needs
- Stability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



Ostrom E. 1994

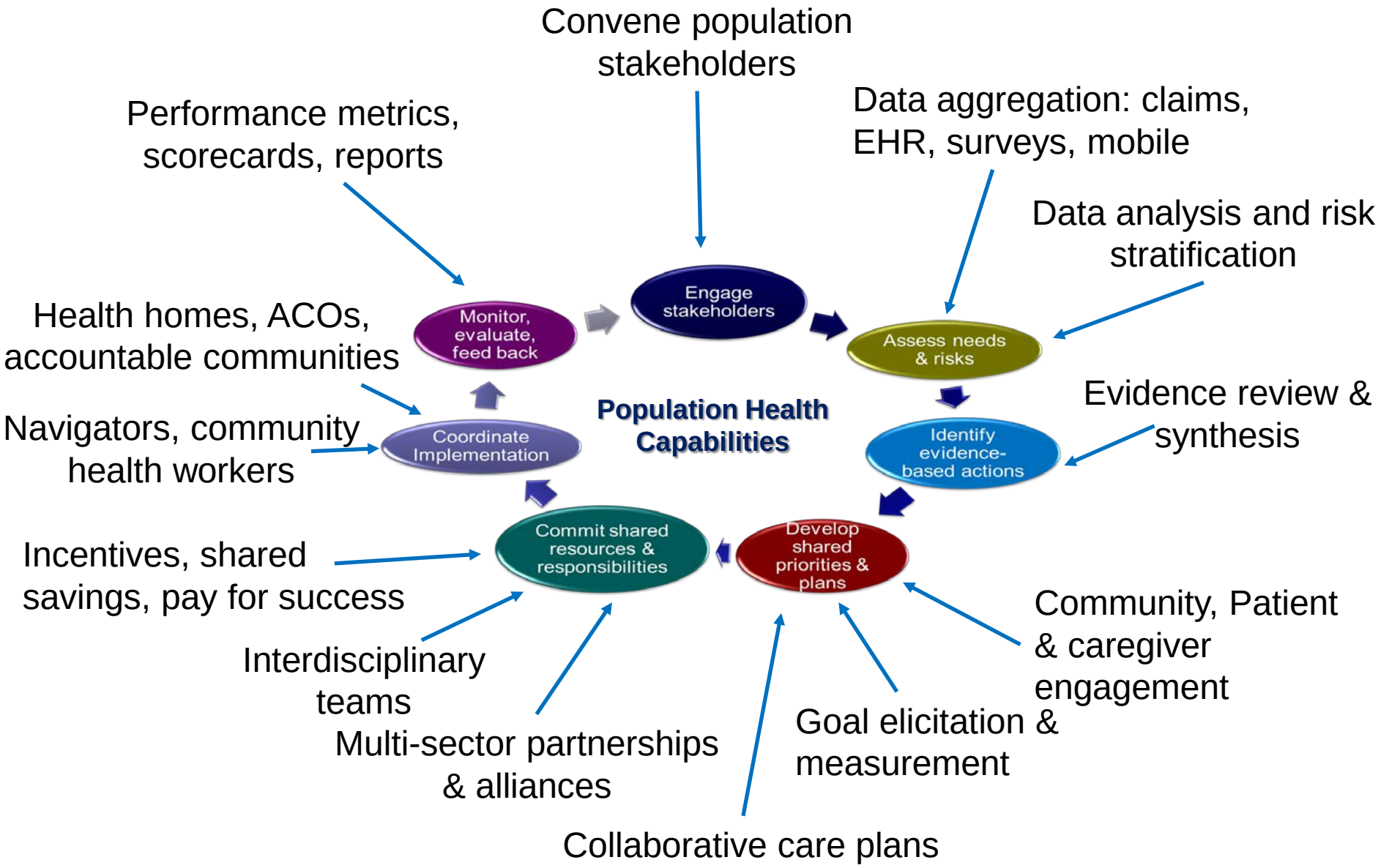
Q: How do we build robust, coordinated systems that support population-wide improvements in health status?

Widely recommended activities to support multi-sector initiatives in population health



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

Core Components of Population Health Capabilities



A useful lens for studying multi-sector pop health work

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 density***: organizations contributing to each activity
  - ***Network centrality***: strongest central actor
  - ***Quality***: perceived effectiveness of each activity

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

Comprehensive System Capital

One of RWJF's Culture of Health National Metrics

- ***Broad scope*** of population health activities
- ***Dense network*** of multi-sector relationships
- ***Central actors*** to coordinate actions

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%

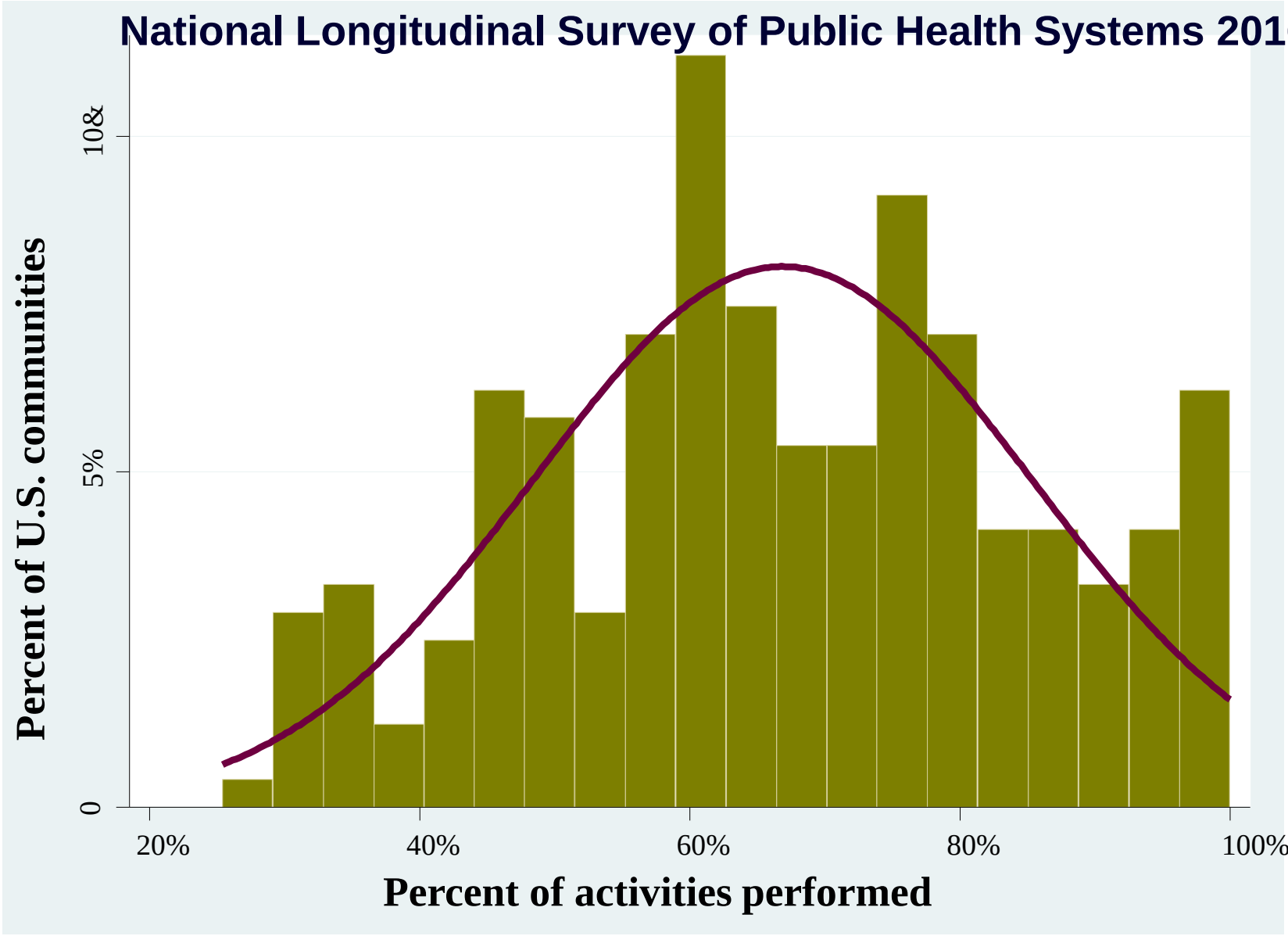
of population served by a comprehensive public health system

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

Data linkages expand analytic possibilities

- **Area Health Resource File**: health resources, demographics, socioeconomic status, insurance coverage
- **NACCHO Profile data**: public health agency institutional and financial characteristics
- **CMS Impact File & Cost Report**: hospital ownership, market share, uncompensated care
- **Dartmouth Atlas**: Area-level medical spending (Medicare)
- **CDC Compressed Mortality File**: Cause-specific death rates by county
- **Equality of Opportunity Project (Chetty)**: local estimates of life expectancy by income
- **National Health Interview Survey**: individual-level health
- **HCUP**: area-level hospital and ED use, readmissions

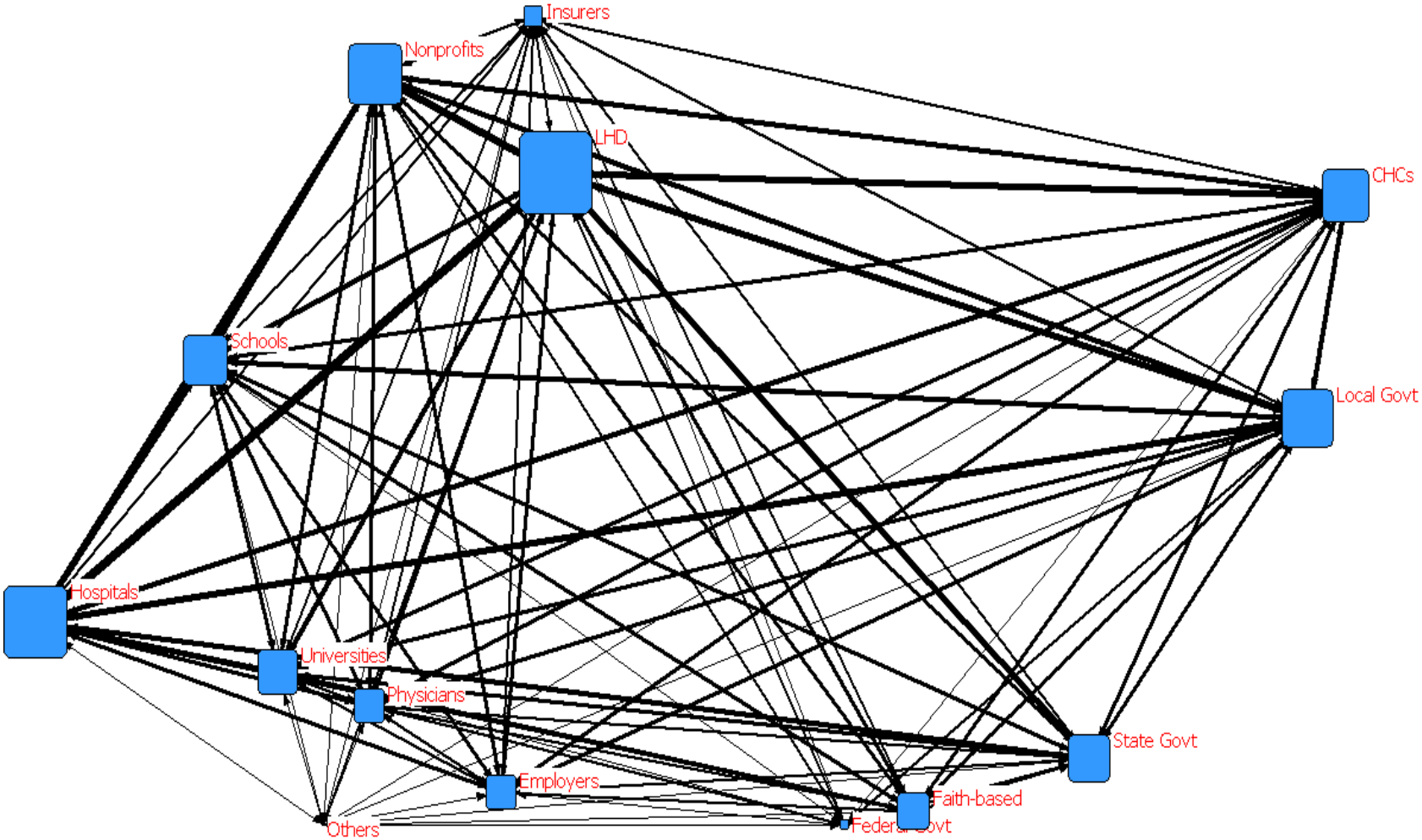
Variation in implementing foundational population health activities



Implementation of foundational activities, 1998-2016

	Activity	1998	2016	% Change
Assessment	1. Conduct periodic assessment of community health status and needs	71.5%	87.1%	21.8%
	2. Survey community for behavioral risk factors	45.8%	71.1%	55.2%
	3. Investigate adverse health events, outbreaks and hazards	98.6%	100.0%	1.4%
	4. Conduct laboratory testing to identify health hazards and risks	96.3%	96.1%	-0.2%
	5. Analyze data on community health status and health determinants	61.3%	72.7%	18.6%
	6. Analyze data on preventive services use	28.4%	39.0%	37.3%
Policy/Planning	7. Routinely provide community health information to elected officials	80.9%	84.0%	3.8%
	8. Routinely provide community health information to the public	75.4%	82.3%	9.1%
	9. Routinely provide community health information to the media	75.2%	89.0%	18.3%
	10. Prioritize community health needs	66.1%	83.6%	26.5%
	11. Engage community stakeholders in health improvement planning	41.5%	68.8%	65.7%
	12. Develop a community-wide health improvement plan	81.9%	87.9%	7.3%
	13. Allocate resources based on community health plan	26.2%	41.9%	59.9%
	14. Develop policies to address priorities in community health plan	48.6%	56.8%	16.9%
	15. Maintain a communication network among health-related organizations	78.8%	85.3%	8.2%
Assurance	16. Link people to needed health and social services	75.6%	50.0%	-33.8%
	17. Implement legally mandated public health activities	91.4%	92.4%	1.1%
	18. Evaluate health programs and services in the community	34.7%	37.9%	9.4%
	19. Evaluate public health agency capacity and performance	56.3%	56.1%	-0.3%
	20. Monitor and improve implementation of health programs and policies	47.3%	46.4%	-1.9%
	Mean performance of assessment activities (#1-6)	67.0%	77.7%	15.9%
	Mean performance of policy and planning activities (#7-15)	63.9%	75.5%	18.3%
	Mean performance of implementation and assurance activities (#16-20)	61.1%	56.6%	-7.3%
	Mean performance of all activities	63.8%	67.6%	6.0%

Mapping who contributes to population health

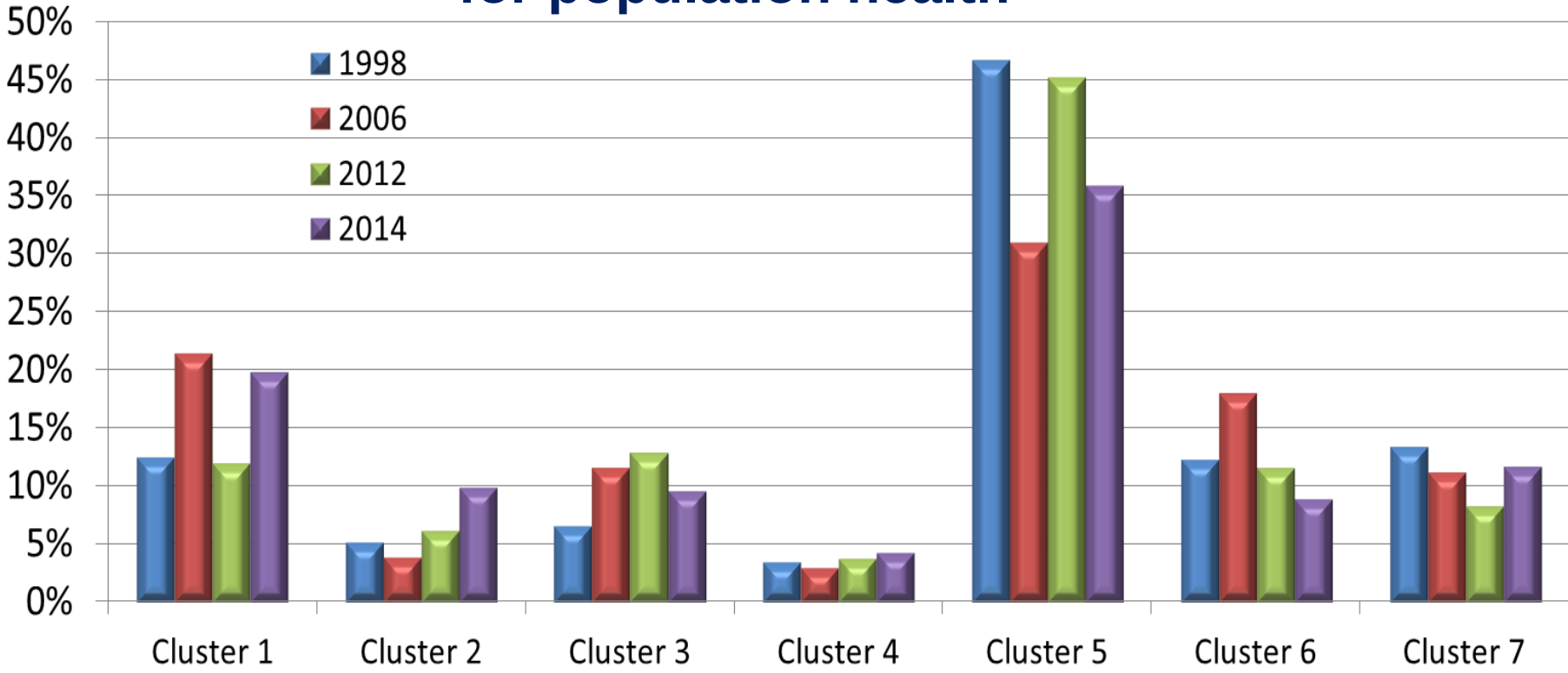


Node size = degree centrality

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.

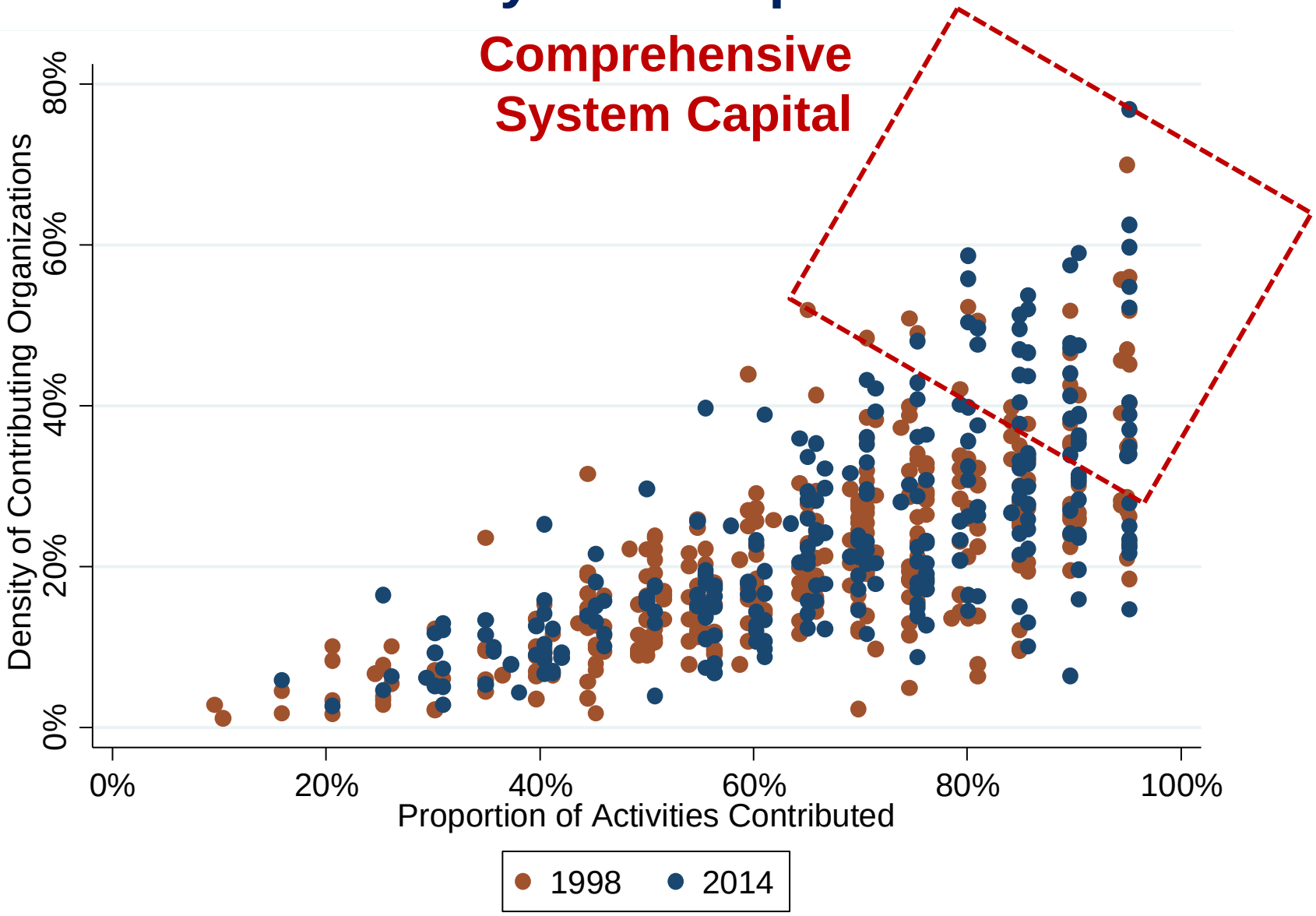
Classifying multi-sector delivery systems for population health



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

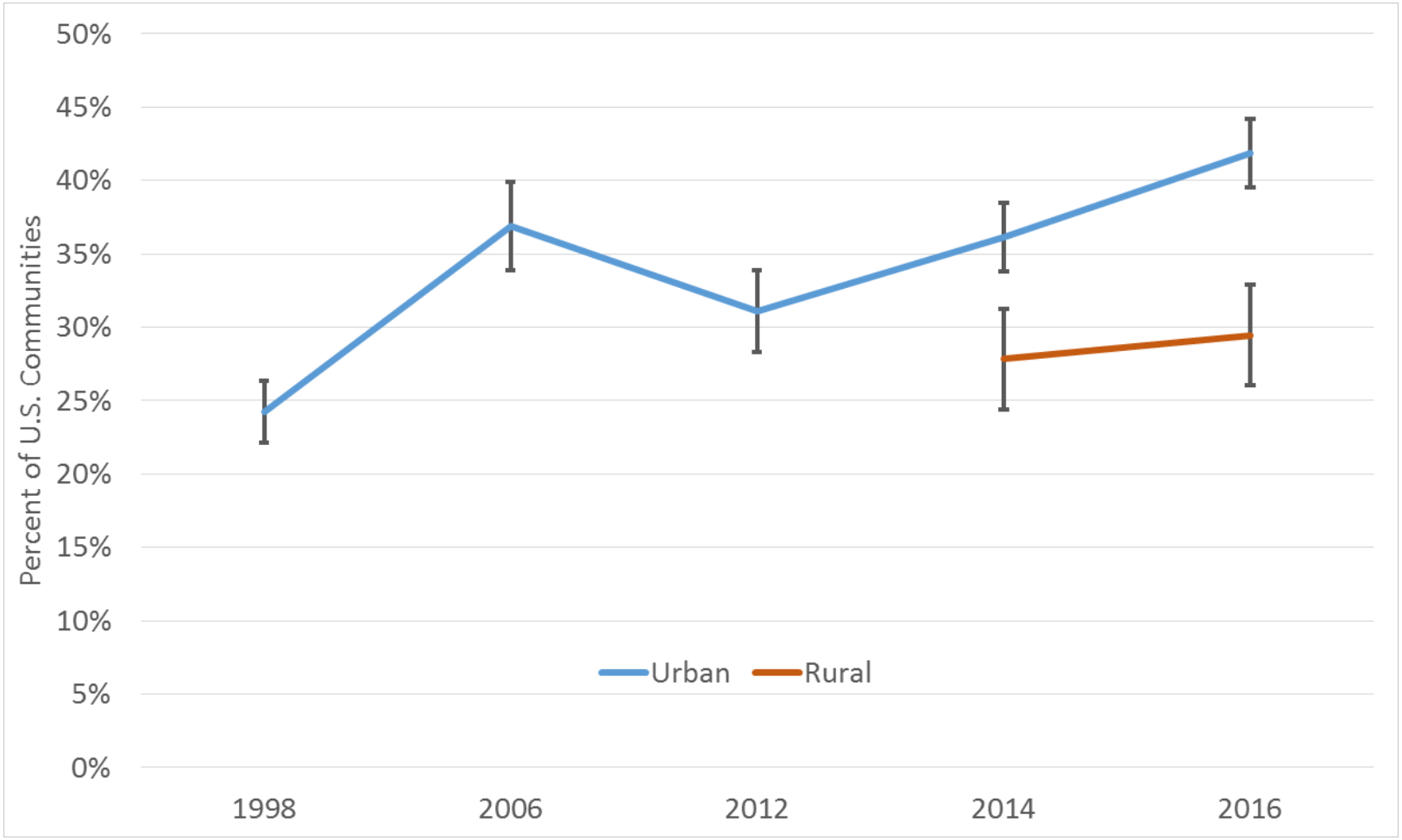
Mays GP et al. Understanding the organization of public health delivery systems: an empirical typology. *Milbank Q.* 2010;88(1):81–111.

Network density and scope of activities



Mays GP et al. *Health Affairs* 2016

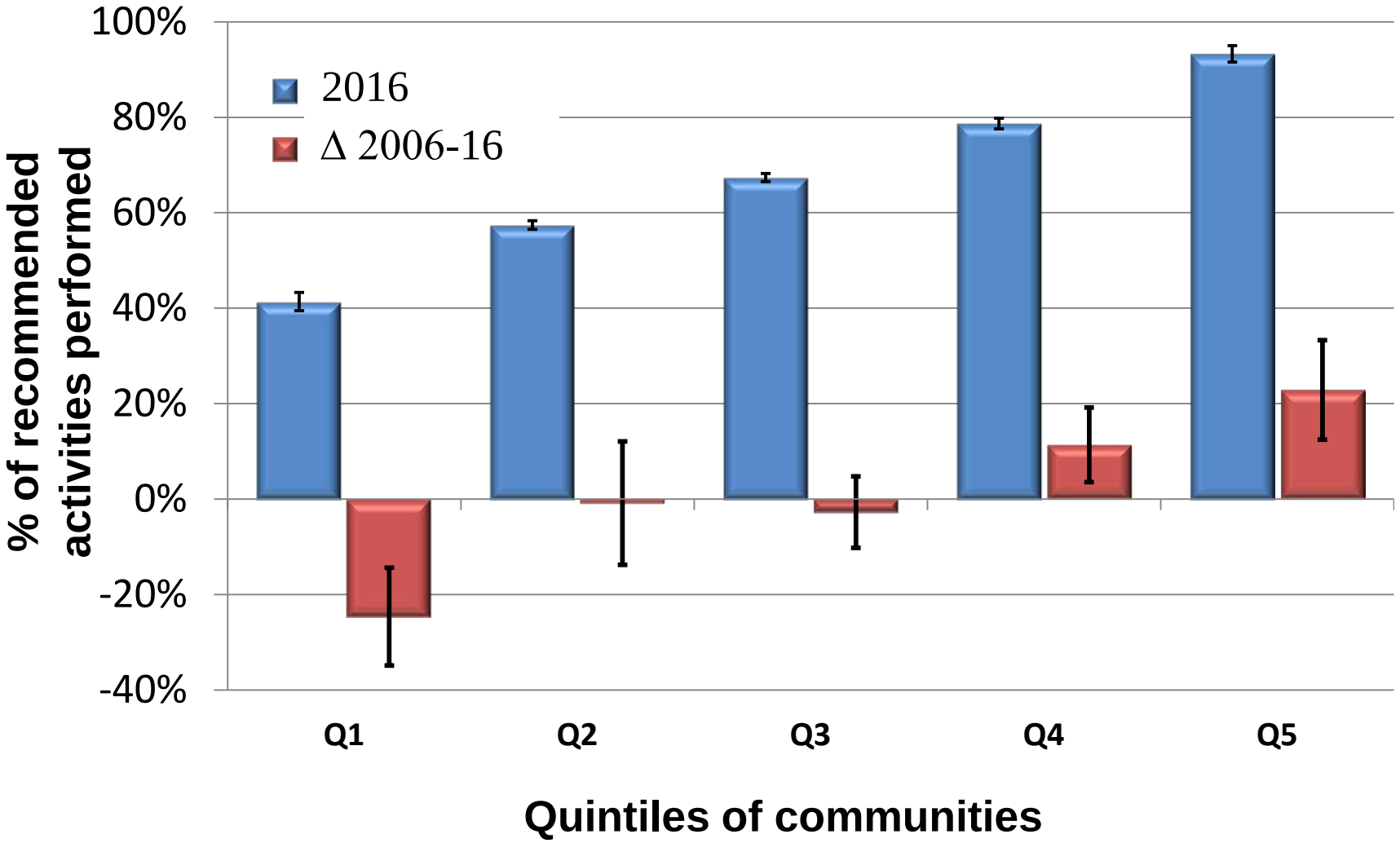
Variation and change in comprehensive system capital



Organizational contributions to foundational activities, 1998-2016

Type of Organization	% of Recommended Activities Contributed 1998	2016	Percent Change
Local public health agencies	60.7%	67.5%	11.1%
Other local government agencies	31.8%	33.2%	4.4%
State public health agencies	46.0%	34.3%	-25.4%
Other state government agencies	17.2%	12.3%	-28.8%
Federal government agencies	7.0%	7.2%	3.7%
Hospitals	37.3%	46.6%	24.7%
Physician practices	20.2%	18.0%	-10.6%
Community health centers	12.4%	29.0%	134.6%
Health insurers	8.6%	10.6%	23.0%
Employers/businesses	16.9%	15.3%	-9.6%
Schools	30.7%	25.2%	-17.9%
Universities/colleges	15.6%	22.6%	44.7%
Faith-based organizations	19.2%	17.5%	-9.1%
Other nonprofit organizations	31.9%	32.5%	2.0%
Other	8.5%	5.2%	-38.4%

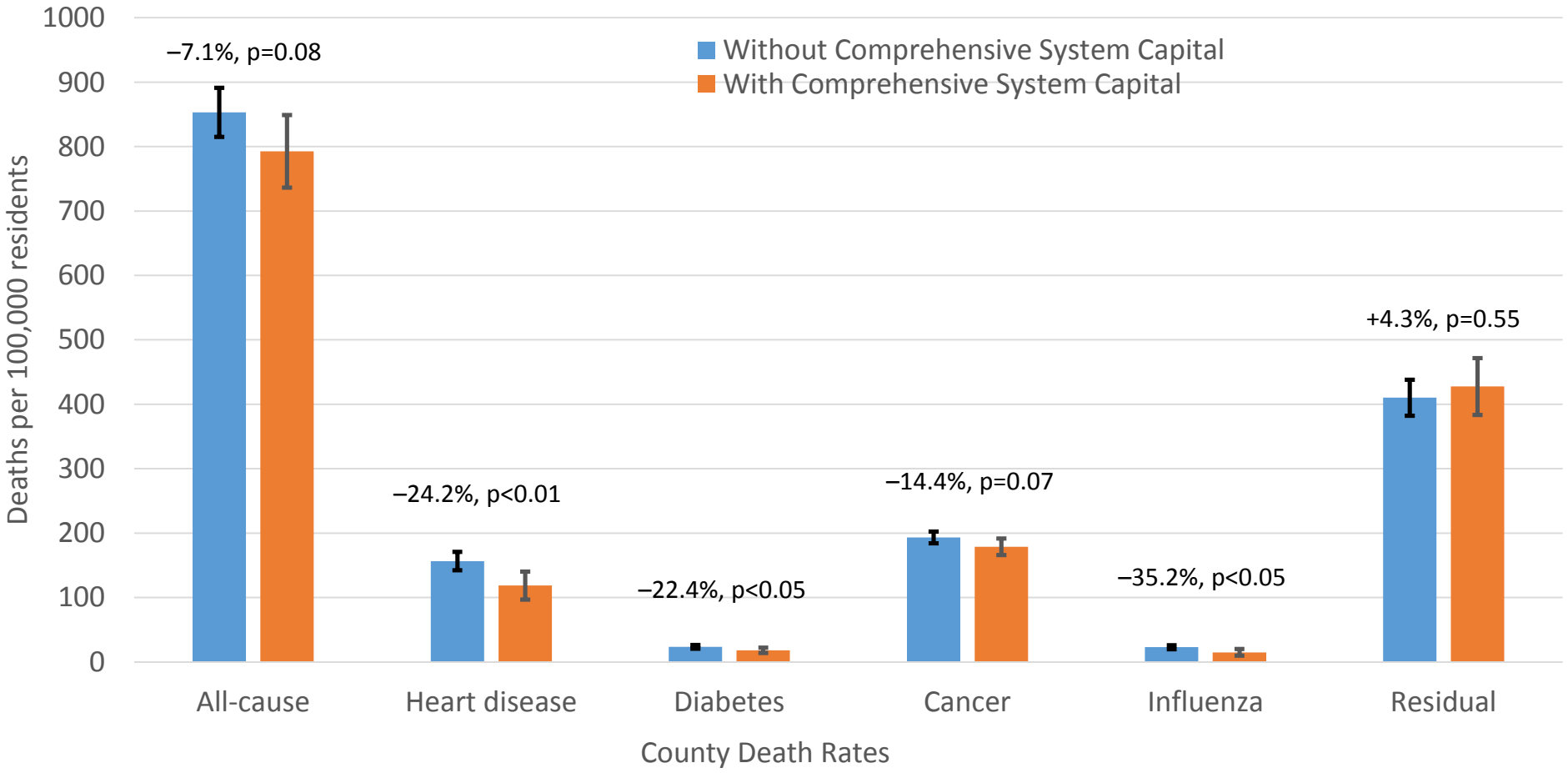
Inequities in the implementation of population health activities



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

Health effects attributable to system capital

Impact of Comprehensive Systems on Mortality, 1998-2014

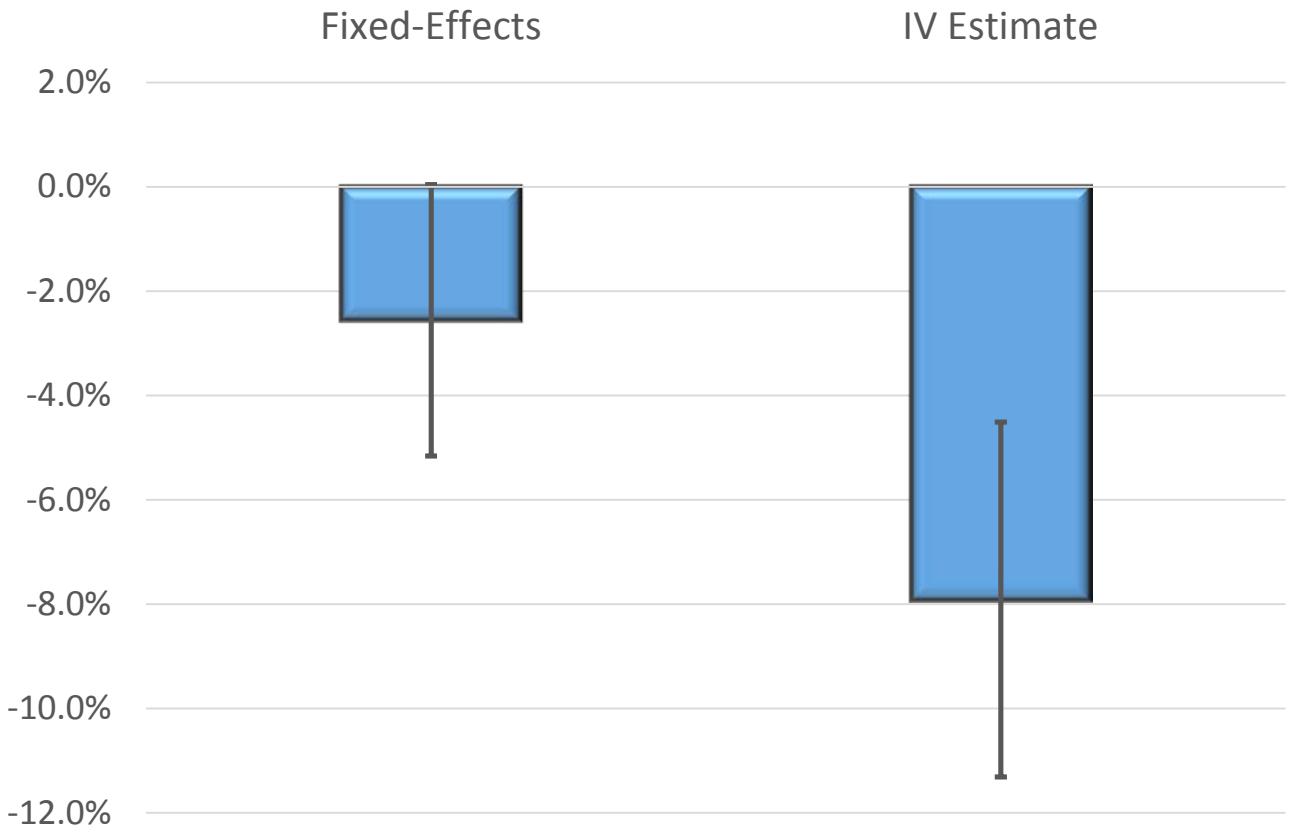


Fixed-effects instrumental variables estimates controlling for racial composition, unemployment, health insurance coverage, educational attainment, age composition, and state and year fixed effects. N=1019 community-years

Mays GP et al. *Health Affairs* 2016

Economic effects attributable to system capital

Impact of Comprehensive Systems on Medical Spending (Medicare) 1998-2014

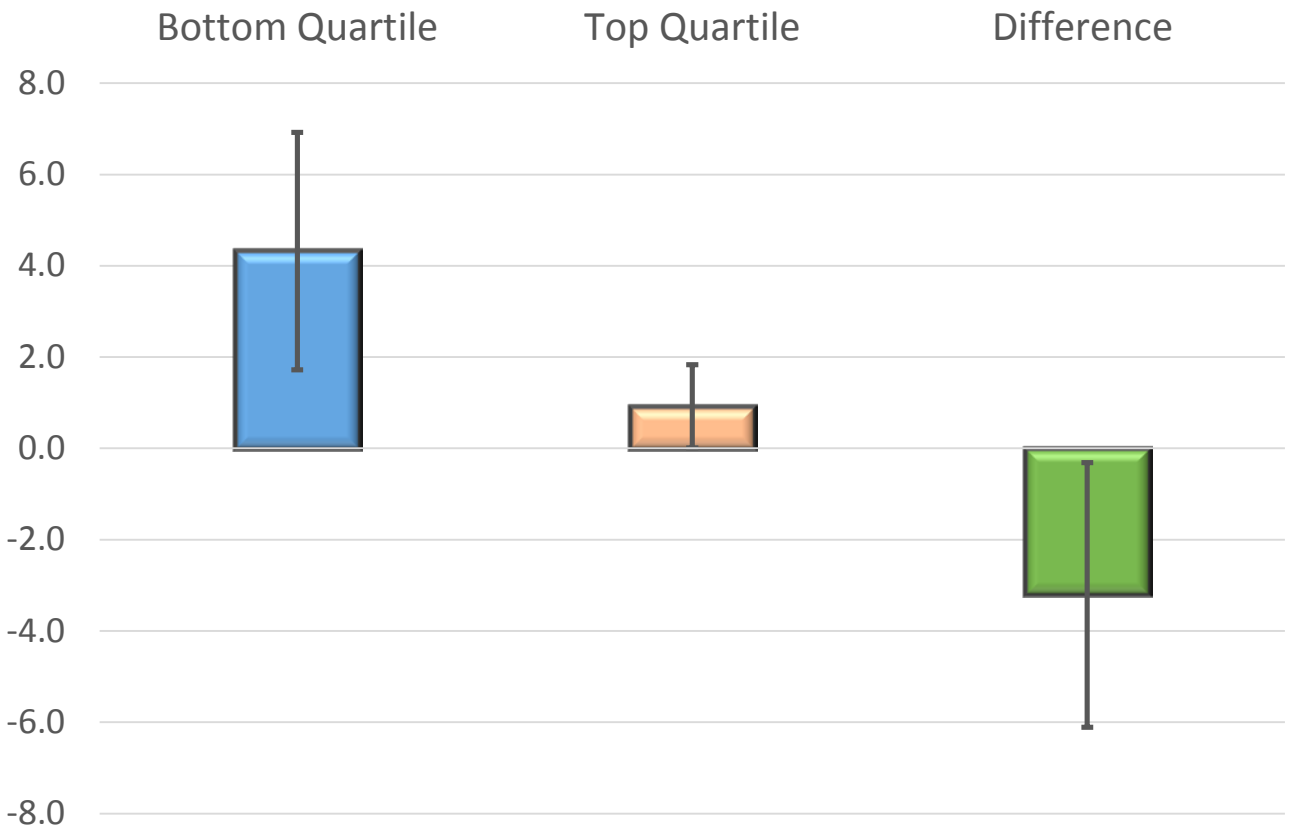


Models also control for racial composition, unemployment, health insurance coverage, educational attainment, age composition, and state and year fixed effects. N=1019 community-years. Vertical lines are 95% confidence intervals

Mays GP et al. *Health Services Research* 2017

Economic effects attributable to system capital

Impact of Comprehensive Systems on Life Expectancy by Income (Chetty), 2001-2014



Models also control for racial composition, unemployment, health insurance coverage, educational attainment, age composition, and state and year fixed effects. N=1019 community-years. Vertical lines are 95% confidence intervals

Mays GP et al. *forthcoming* 2017

RECAP Part 1: Population Health

This section covers:

- ✓ Definitions
- ✓ Components & capabilities
- ✓ Benefits of population health approaches

RECAP: What's population health?

- Designed to achieve large-scale health improvement: neighborhood, city/county, region
- Improve the mean and reduce the variance (equity)
- Target fundamental and often multiple determinants of health
- Mobilize the collective actions of multiple stakeholders in government & private sector
    - Infrastructure
    - Information
    - Incentives

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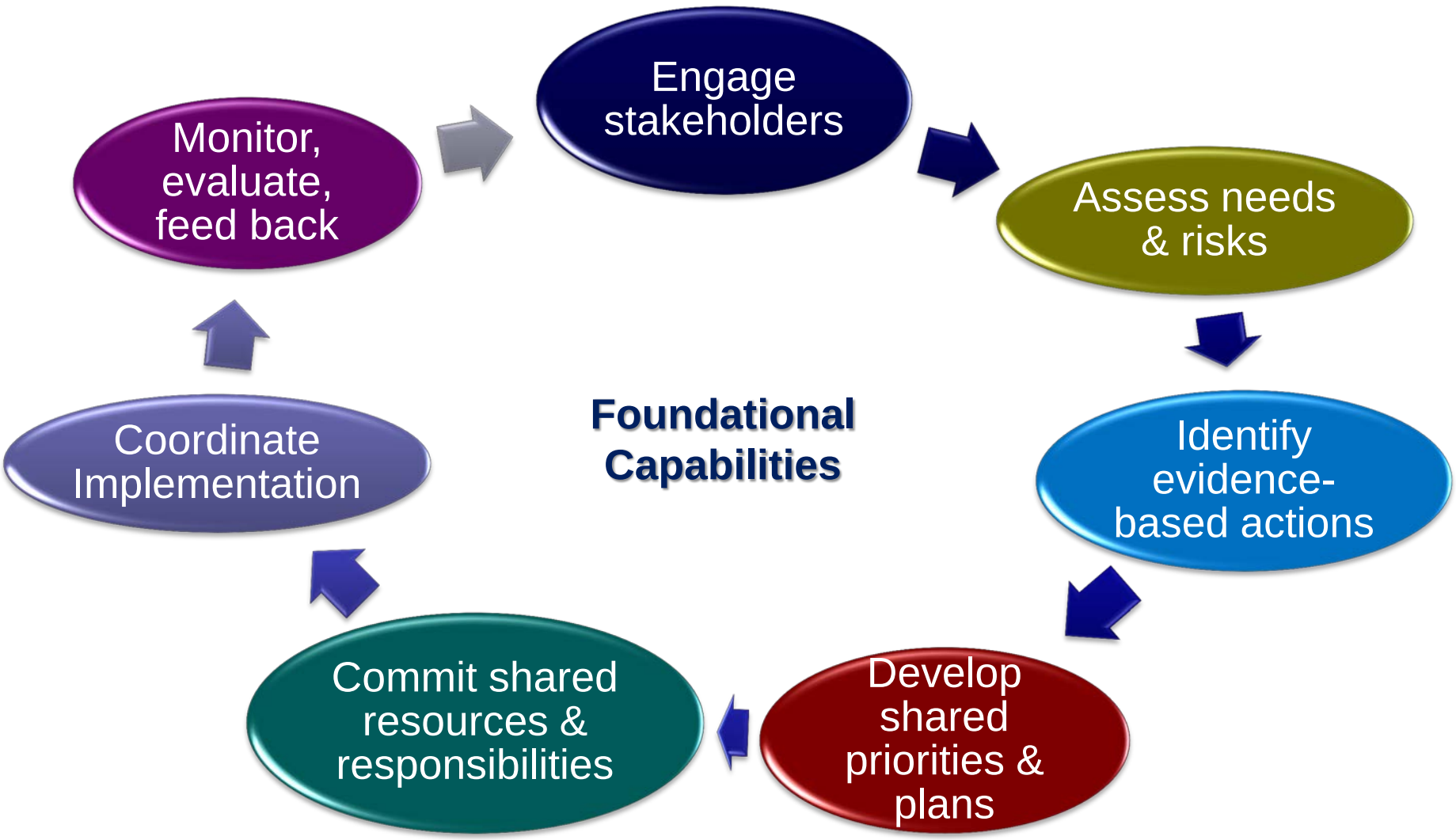
RECAP: How to support pop health initiatives?



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

RECAP: Benefits of pop health approaches?

- 7% reduction in mortality
- 8% reduction in medical costs
- 3 year reduction in life expectancy inequity

EXERCISE Part 1: Population Health

1. Choose a pop health problem to tackle in your community.

2. Specify the organizations most important to engage in this work.

3. What incentives can be leveraged to get these organizations to the table?

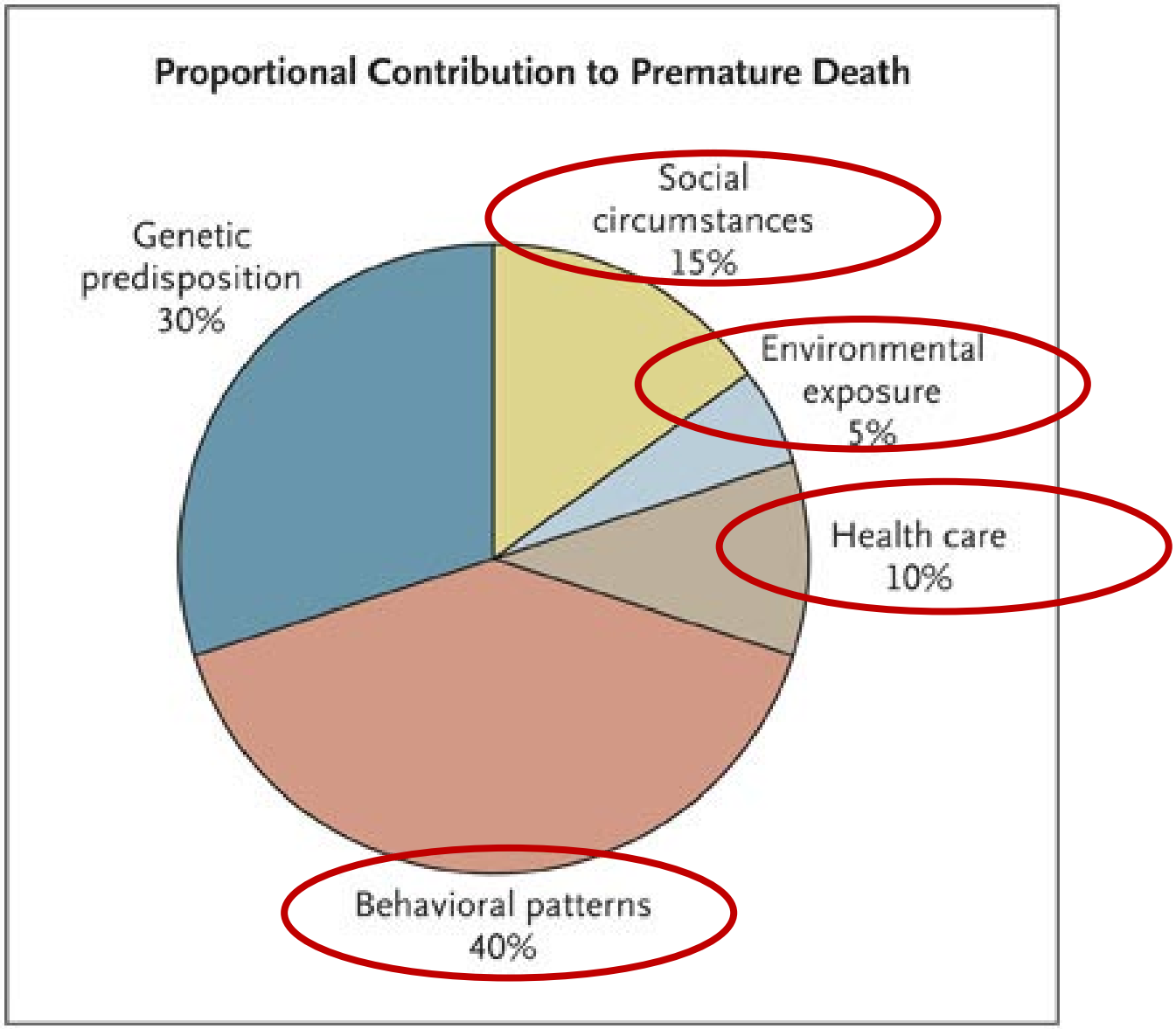
4. Which of the 7 Pop Health Capabilities will be most challenging for your community to realize?

Part 2: Social Determinants of Health

This section covers:
- ✓ Key drivers
- ✓ Potential solutions: policies, services & supports

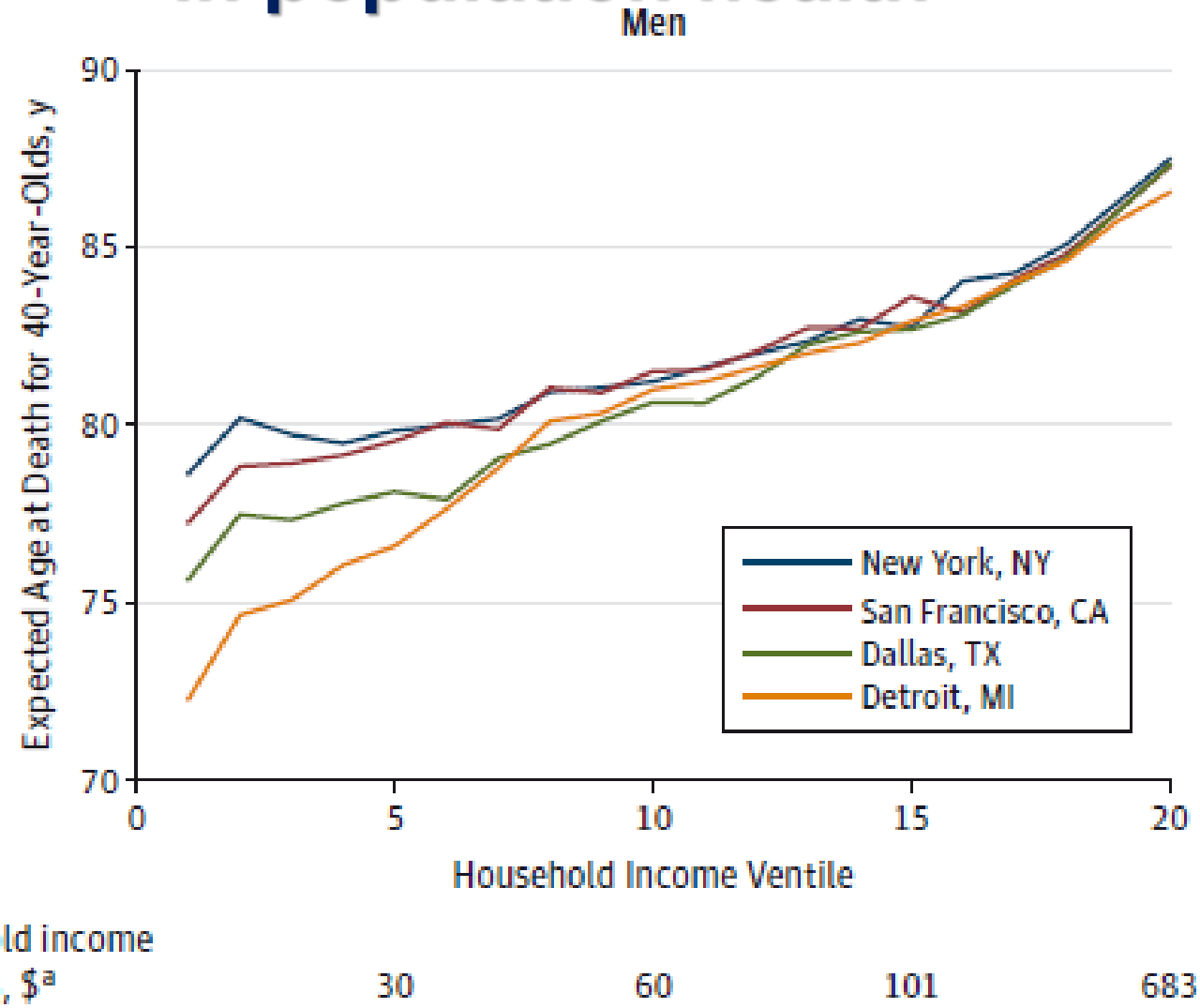
- What are social determinants?
- Who is responsible for them?
- Who has opportunity to intervene on them?

Multiple systems & sectors drive health…



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

Geographic & socioeconomic inequities in population health

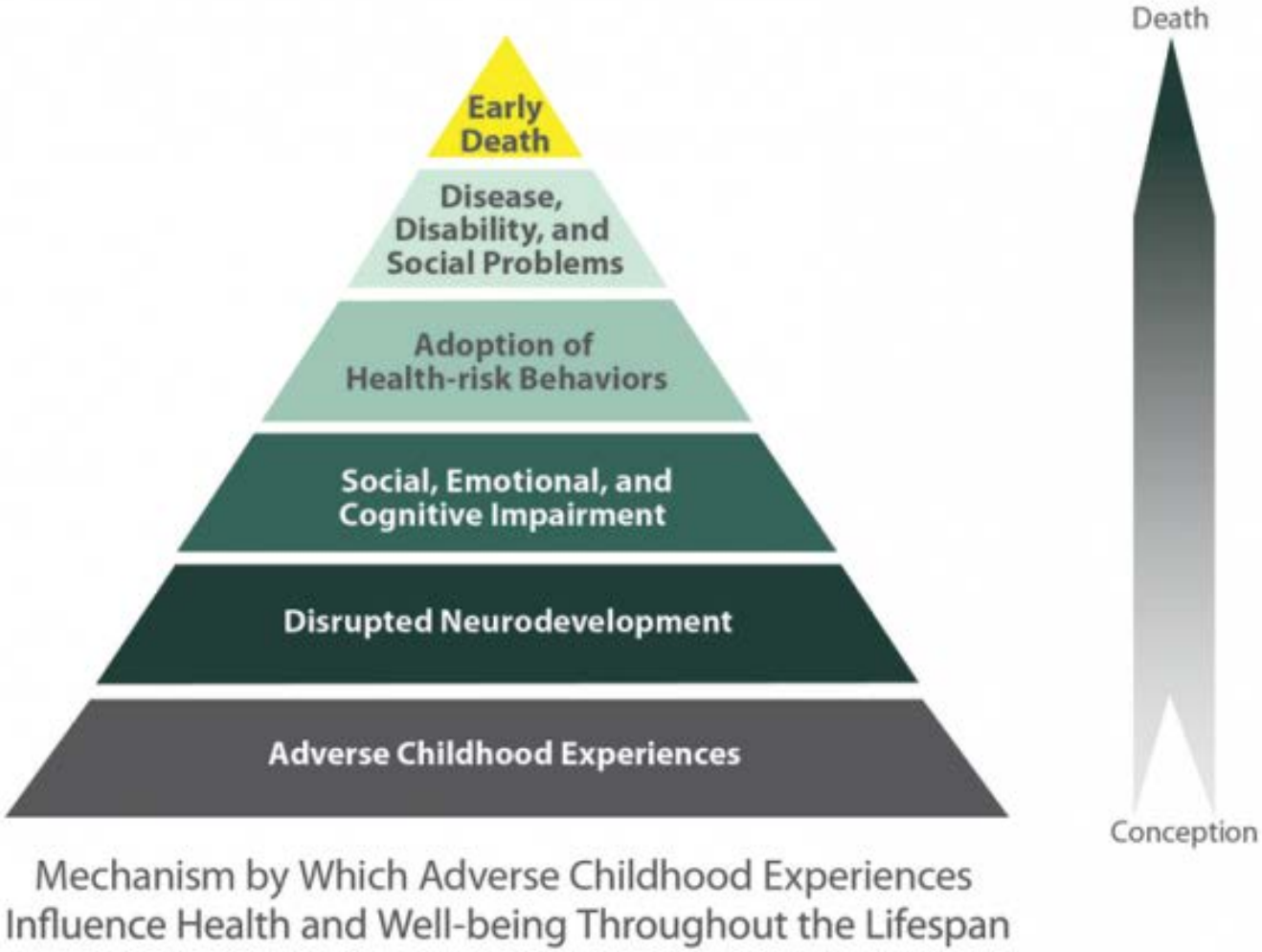


Chetty et al. JAMA 2016

Social, economic & environmental circumstances

- Childhood experiences
- Family & caregiver support
- Education
- Housing
- Nutrition and food security
- Transportation
- Job opportunities & risks
- Income & financial assistance
- Social support
- Bias and discrimination
- Neighborhood segregation
- Cultural & recreational resources
- Interpersonal & community violence
- Criminal justice involvement
- Civic engagement
- Environmental exposures
- Disability support
- Mental health & substance abuse services

Adverse child experiences are key mechanisms

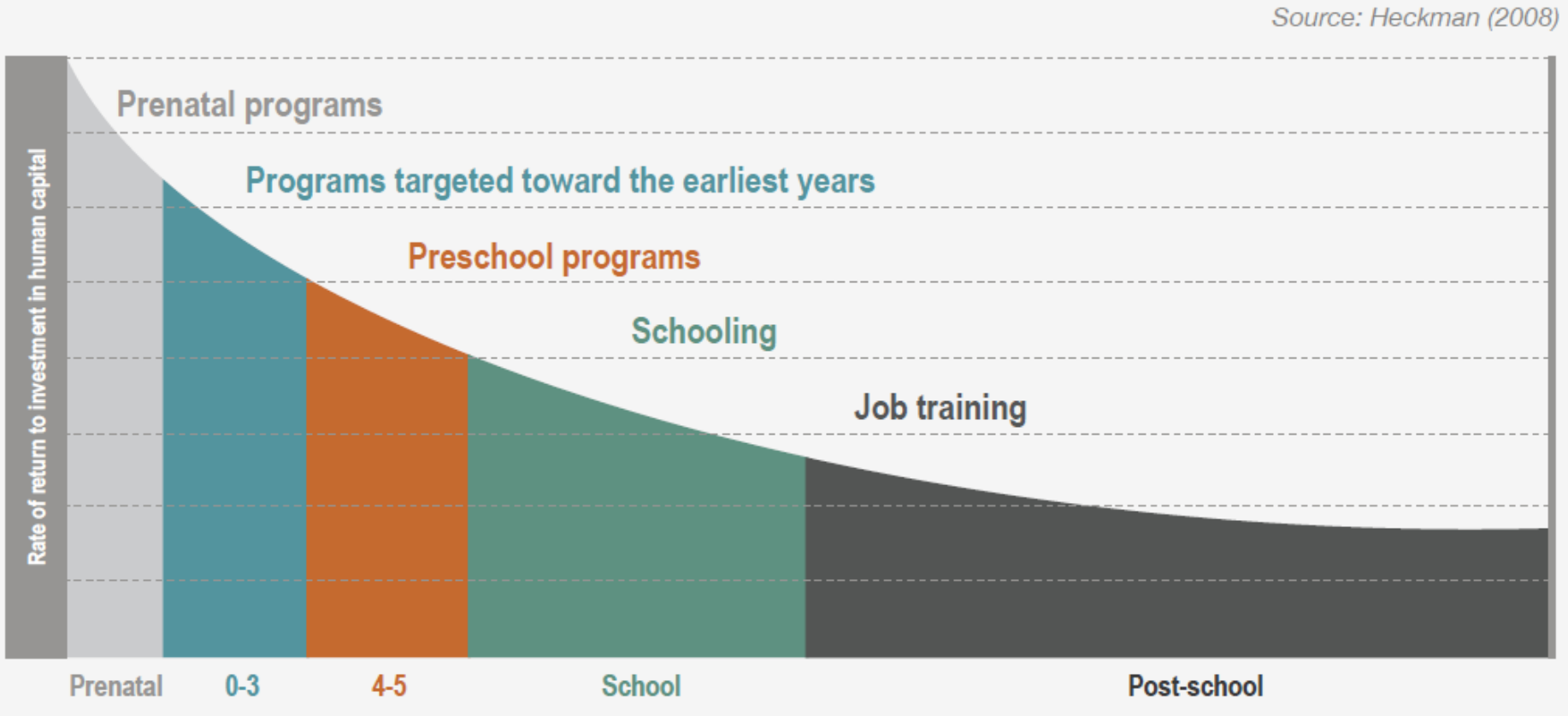


Mechanism by Which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan

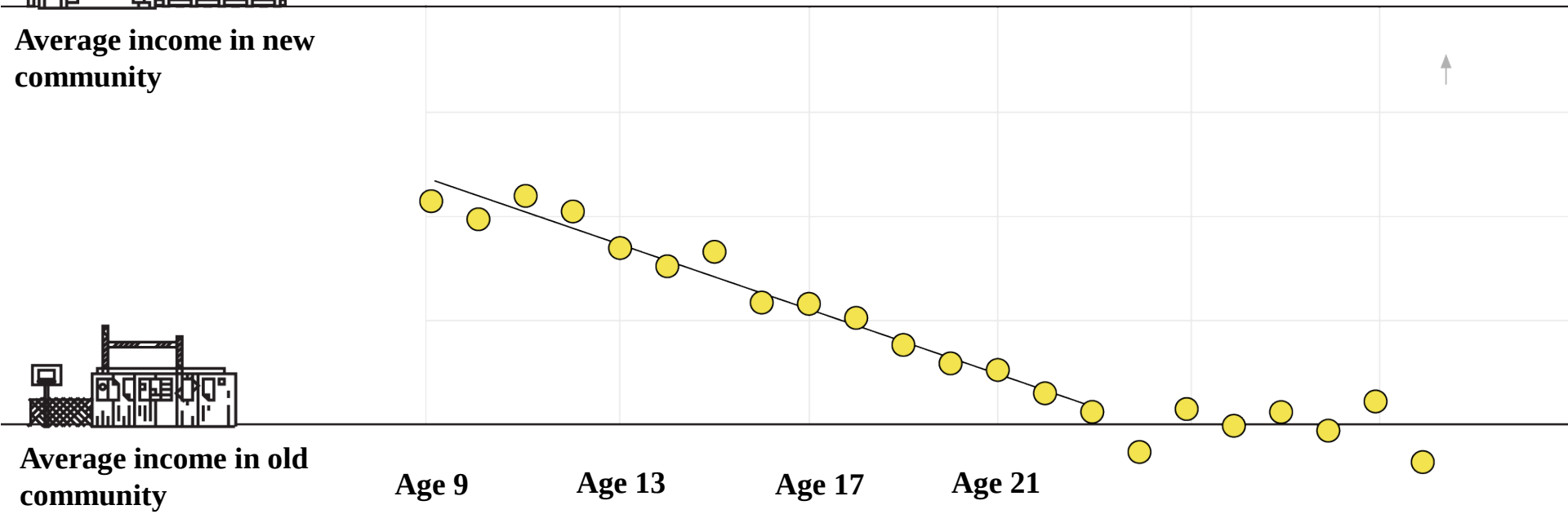
Source: Felitti et al. AJPM; 1998

The role of early child education

- Lower risky behaviors
- Lower crime
- Higher earnings
- Lower obesity & heart disease
- Higher parental investments



The role of neighborhood effects: Moving to Opportunity Trial



Neighborhood Mediators

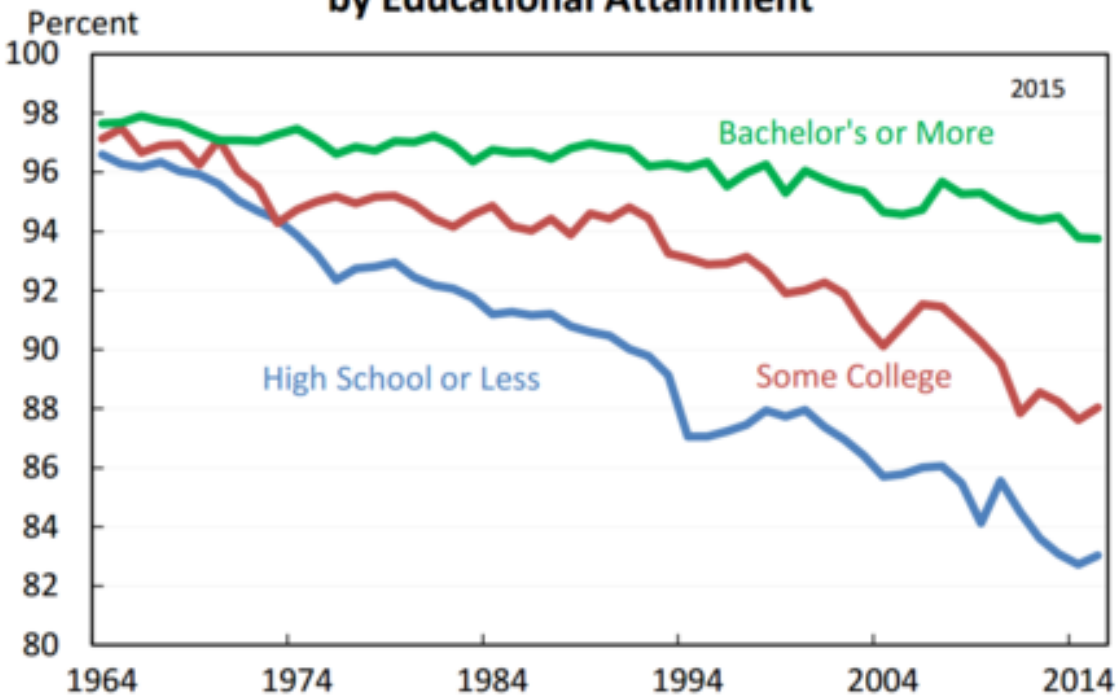
- School quality
- Neighborhood integration
- Civic engagement

Source: Raj Chetty, 2015. www.equalityofopportunity.org

The role of labor force detachment

- Higher disability
- Lower family formation
- Lower social interaction
- Higher substance abuse & mental disorders
- Lower child engagement (men)
- Higher corrections involvement

Figure 9: Prime-Age Male Labor Force Participation by Educational Attainment



Source: Bureau of Labor Statistics, Current Population Survey (Annual Social and Economic Supplement); CEA calculations.

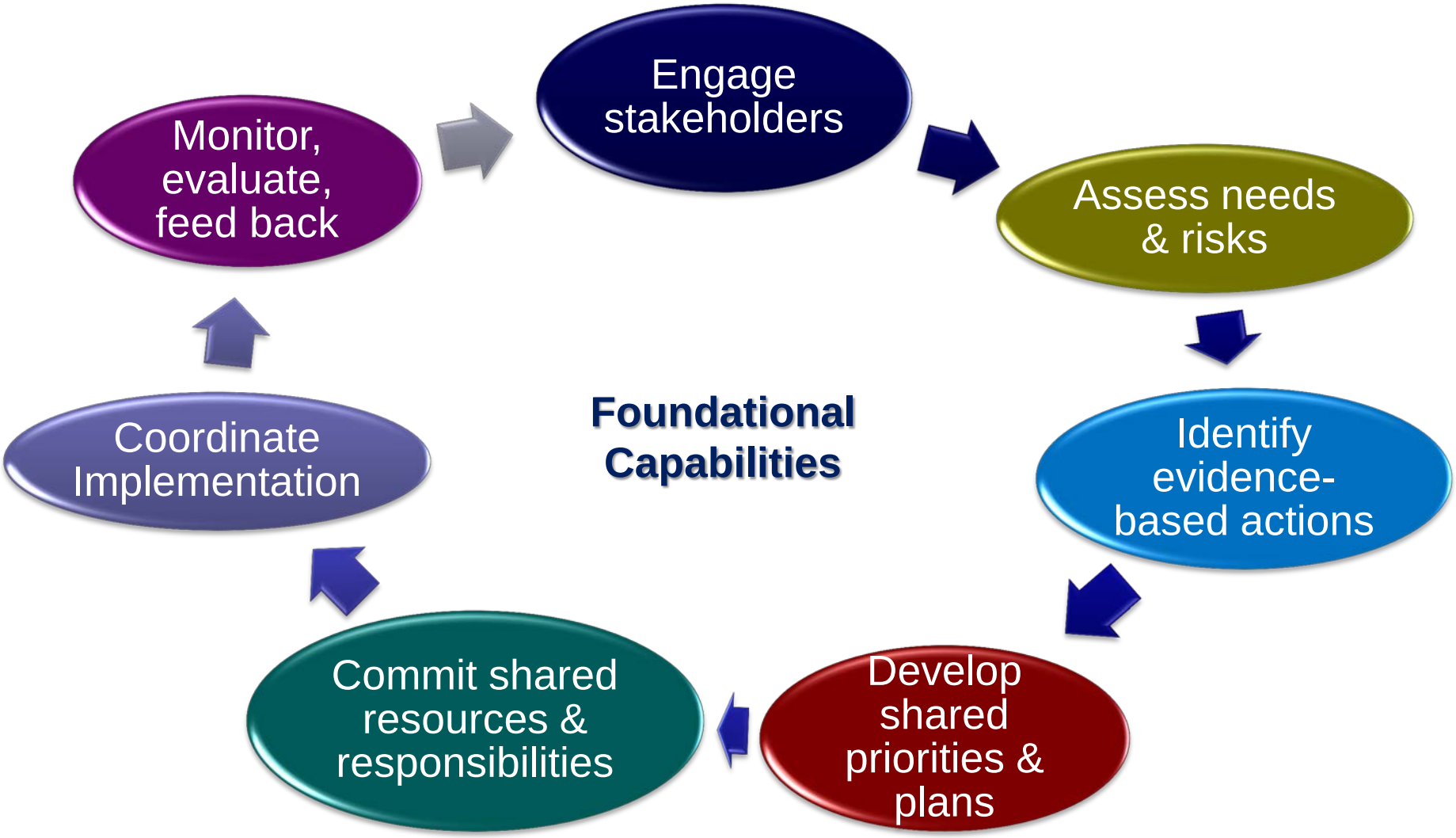
Interventions for SDOH

- Evidence-based family planning
- High quality early childhood education
- Nurse home visiting
- Housing First programs
- School-based violence prevention
- Housing integration policies
- Public transportation expansion
- Earned income tax credit
- Work incentives benefit coordination
- Substance abuse treatment
- Post-release employment assistance

https://www.cdc.gov/sixeighteen

https://www.cdc.gov/policy/hst/hi5

REMEMBER: How to integrate SDOH interventions into pop health initiatives?



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

EXERCISE Part 2: SDOH

1. Choose a pop health problem to tackle in your community.

2. Identify SDOHs connected to your problem of interest.

3. What intervention strategies appear promising for these SDOH?

4. Which organizations can be engaged in supporting SDOH intervention strategies?

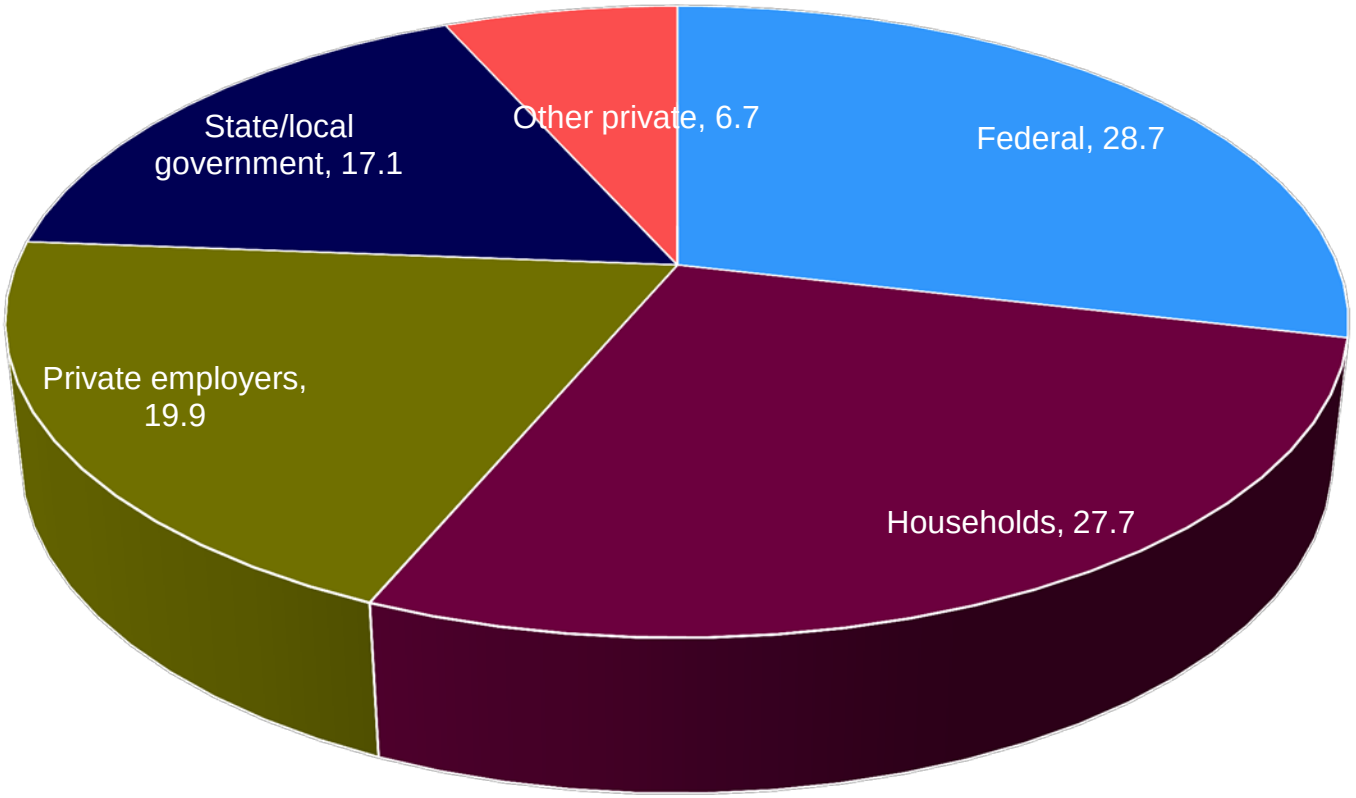
Part 3: Health Systems & Population Health

This section covers:

- ✓ Organization & financing mechanisms
- ✓ Strategies for engagement in population health approaches

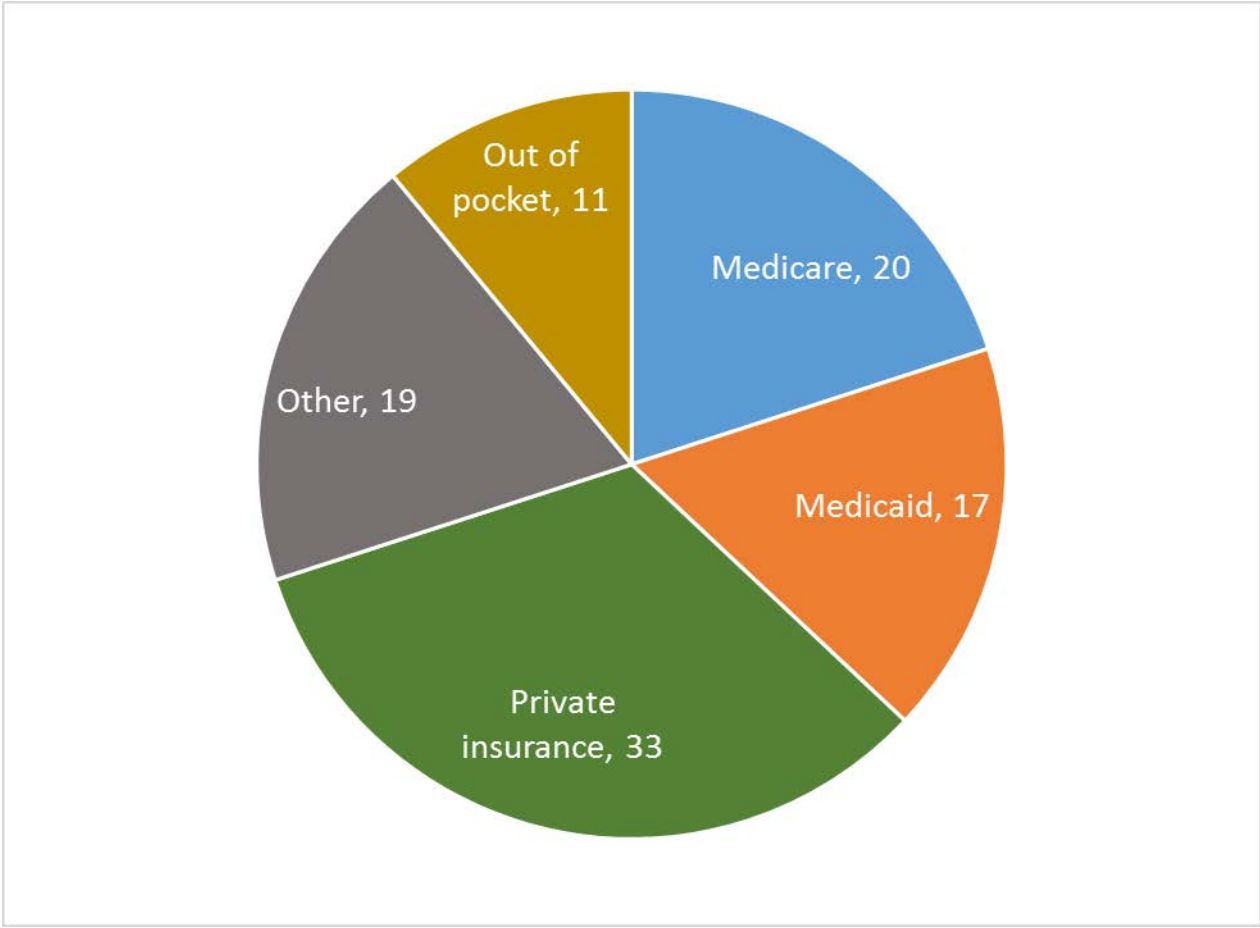
- Why should health systems care about population health?
- Where do systems find the resources for population health approaches?

Who pays in the health system?



CMS National Health Expenditure Accounts, 2017

Who pays in the health system?



CMS National Health Expenditure Accounts, 2017

Drivers of health spending

>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

Costly 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%

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

Health system organizational trends

- Health plan consolidation: commercial, Medicare (30%), Medicaid (76%)
- Hospital and health system consolidation
- Physician employment
- Post-acute care integration
- Accountable care organization formation

Health system financing trends

- Transition from fee-for-service to value-based payment models
- Bundled payment
- Shared savings
- Risk-based payments
- Penalties and withholds for readmissions, quality
- Global budgets (MD, VT)
- Accountable health community tests

ACA incentives & infrastructure for population health activities

- Coverage expansion: ability to redeploy charity-care resources
- Hospital community benefit requirements
- Insurer and employer incentives
- Value-based payment models for hospitals, physicians
- CMS Innovation Center demonstrations
- Prevention & Public Health Fund
- National public health accreditation standards

Connecting 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

Where navigators and connectors can add value

- ***Targeting***: identifying individuals with unmet health and social needs
  - Reaching hard to reach (urban & rural settings)
  - Mitigating “woodwork” effects
- ***Tailoring***: matching services and supports to consumer needs, preferences, values
  - Education & self-management support
  - Direct service provision
  - Referral
  - Care coordination & navigation

Key components of leading models

	VBH	SCO	COP	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	•	•	•	•	•	•	•

Shier et al. *Health Affairs* 2013

Key components of leading models

	VBH	SCO	COP	Mercy	GRACE	CMP	EDPP
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					•		•

Shier et al. *Health Affairs* 2013

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

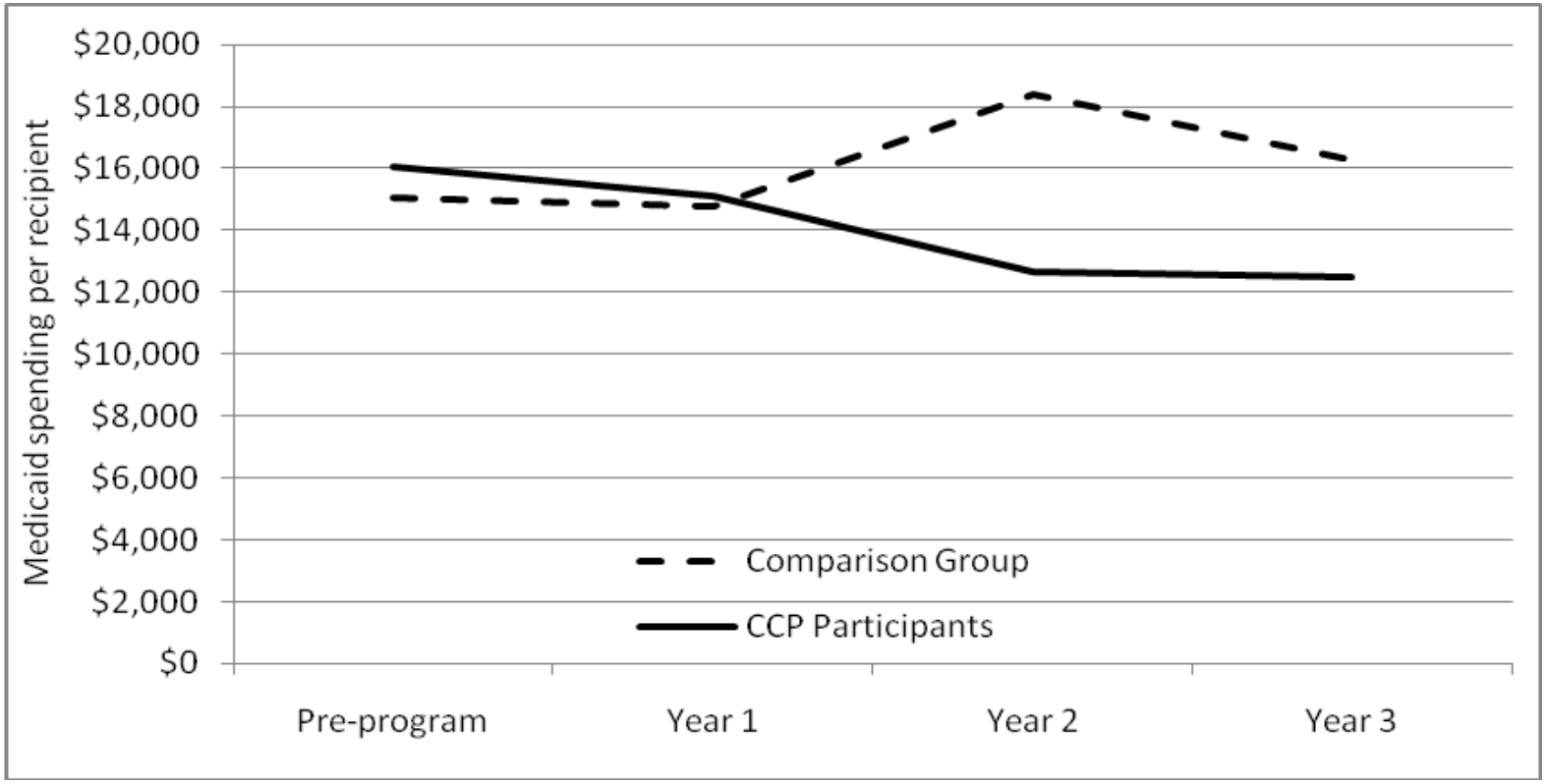
Economic impact of Arkansas CCP

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



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 prevention initiatives
  - Nutrition/food environment
  - Physical activity

Some Promising Examples

Chicago's Comprehensive Care, Culture & Community Pgrm

- Partnership of University of Chicago, physician practices, CBOs
- Targets low income, frequently hospitalized patients
- "Comprehensivist" physicians provide all care for patients
- CHW links patients to community resources and cultural programs
- Savings from avoided medical care reinvested in community resources

Some Promising Examples

Indy's Population Health Predictive Analytics Program

- Partnership of safety net hospital and clinics, and public health agency
- Incorporates population health and social determinants measures into the electronic health record
- Predictive analytics and EHR prompts notify clinicians of high risk conditions
- Public health nurses are added to the care team to link patients with needed resources

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

Maryland Global Budgets and Health Enterprise Zones

- CMS waiver for global capitated hospital budgets
- Community coalitions develop targeted plans for community health investments in geographic zones with high health disparities
- Tax credit incentives for health providers who operate in zones
- Savings from avoided medical care are expected to be reinvested in the community coalition activities

Getting to sustainable financing

Structural element	Function
1. Strong multi-sector governance model	Do I have a seat at the table?
2. Clear goals, activities, division of responsibility	What are we buying?
3. Clarity on implementation costs	What is the investment?
4. Credible estimates of health & economic outcomes	What are the returns?
5. Robust evaluation and monitoring systems	How will we know success?

Willingness to Pay

Financing sources & models

- Dedicated state and local government allocations (CO, OH, OR, WA)
- Medicaid administrative match/claiming (ME, AR, OR)
- Hospital community benefit allocations (MA, ME, MI)
- AHC/ACO shared savings models (WA, MN, MD)
- Community health trusts (MA)
- Public/private joint ventures (KY, OH, NC)

EXERCISE Part 3: Health Systems

1. Choose a pop health problem to tackle in your community.

2. Identify the health system actors relevant to your problem of interest.

3. What incentives do these health systems face for engaging in the problem?

4. What financing mechanisms could be leveraged for addressing the problem?

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

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