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

Glen P. Mays
University of Kentucky, glen.mays@cuanschutz.edu

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

Glen Mays, PhD, MPH
Scutchfield Professor of Health Services & Systems Research
University of Kentucky

glen.mays@uky.edu
@GlenMays
publichealtheconomics.org

Healthy People in Healthy Communities Conference • 8 March 2016
Losing ground in population health

Life expectancy at birth, years

Total expenditure on health per capita, US $ PPP

1. Or latest year available.
Source: OECD Health Data 2010.

WHO 2010
Losing ground in population health

Mortality rates, 45 to 54 age group, per 100,000 people

Mortality by cause for white non-Hispanics, 45 to 54 age group, per 100,000 people

U.S. white

Drug/alcohol overdoses
Lung cancer
Suicides
Chronic liver diseases
Diabetes

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
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

Multiple systems & sectors drive health...

Proportional Contribution to Premature Death

- Genetic predisposition: 30%
- Behavioral patterns: 40%
- Social circumstances: 15%
- Environmental exposure: 5%
- Health care: 10%

...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

<table>
<thead>
<tr>
<th>Estimates of Waste in US Health Care Spending in 2011, by Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost to Medicare and Medicaid</strong></td>
</tr>
<tr>
<td><strong>Low</strong></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Failures of care delivery</td>
</tr>
<tr>
<td>Failures of care coordination</td>
</tr>
<tr>
<td>Overtreatment</td>
</tr>
<tr>
<td>Administrative complexity</td>
</tr>
<tr>
<td>Pricing failures</td>
</tr>
<tr>
<td><strong>Subtotal (excluding fraud and abuse)</strong></td>
</tr>
<tr>
<td><strong>Percentage of total health care spending</strong></td>
</tr>
</tbody>
</table>

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
Can public health help solve collective action problems?

Foundational Public Health Services

- Assess needs & risks
- Recommend actions
- Engage stakeholders
- Develop plans & policies
- Mobilize multi-sector implementation
- Monitor, evaluate, feed back

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

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
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

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
- 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)

Prevalence of Public Health System Configurations 1998-2014

Comprehensive (High System Capital)

Conventional

Limited
Changes in system prevalence and coverage

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Comprehensive systems</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of communities</td>
<td>24.2%</td>
<td>36.9%</td>
<td>31.1%</td>
<td>32.7%</td>
<td>25.7%</td>
</tr>
<tr>
<td>% of population</td>
<td>25.0%</td>
<td>50.8%</td>
<td>47.7%</td>
<td>47.2%</td>
<td>36.6%</td>
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<tr>
<td><strong>Conventional systems</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>% of communities</td>
<td>50.1%</td>
<td>33.9%</td>
<td>49.0%</td>
<td>40.1%</td>
<td>57.6%</td>
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<tr>
<td>% of population</td>
<td>46.9%</td>
<td>25.8%</td>
<td>36.3%</td>
<td>32.5%</td>
<td>47.3%</td>
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<tr>
<td><strong>Limited systems</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of communities</td>
<td>25.6%</td>
<td>29.2%</td>
<td>19.9%</td>
<td>20.6%</td>
<td>16.7%</td>
</tr>
<tr>
<td>% of population</td>
<td>28.1%</td>
<td>23.4%</td>
<td>16.0%</td>
<td>19.6%</td>
<td>16.1%</td>
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</tbody>
</table>
Changes in intensive and extensive margins during the Great Recession

Equity in Delivery
Delivery of recommended public health activities, 2006-14

Organizational contributions to recommended public health activities, 1998-2014

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

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

Effects of Comprehensive Public Health Systems in Low-Income vs. High-Income Communities

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

<table>
<thead>
<tr>
<th>Category</th>
<th>Mortality</th>
<th>Medical costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average all communities</td>
<td>-2.0%</td>
<td>-1.0%</td>
</tr>
<tr>
<td>Bottom 20% of communities</td>
<td>-3.0%</td>
<td>-2.0%</td>
</tr>
<tr>
<td>Top 20% of communities</td>
<td>-4.0%</td>
<td>-3.0%</td>
</tr>
</tbody>
</table>

95% CI
Comprehensive systems do more with less

<table>
<thead>
<tr>
<th>Type of delivery system</th>
<th>Expenditures per capita</th>
<th>% of recommended activities performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive</td>
<td>$60</td>
<td>90%</td>
</tr>
<tr>
<td>Conventional</td>
<td>$70</td>
<td>80%</td>
</tr>
<tr>
<td>Limited</td>
<td>$50</td>
<td>60%</td>
</tr>
<tr>
<td>Very limited</td>
<td>$40</td>
<td>50%</td>
</tr>
</tbody>
</table>
New incentives & infrastructure are in play

- Next Generation Population Health Improvement
- Value-based payment
- Hospital community benefit reg
- Health insurance expansions
- Innovation Center Funding
- Funding constraints
- ACOs and PCMHs
- Employer wellness incentives
- Public health Accreditation
- Community Transformation Grants
- Health information exchange
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

Glen P. Mays, Ph.D., M.P.H.
glen.mays@uky.edu
@GlenMays

Email: systemsforaction@uky.edu
Web: www.systemsforaction.org
    www.publichealthsystems.org
Journal: www.FrontiersinPHSSR.org
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References


