Integrating Delivery and Financing Systems Across Sectors to Build a Culture of Health

Glen P. Mays, University of Kentucky

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systemsforaction.org

AcademyHealth Annual Research Meeting • Boston, MA • 26 June 2015
A Framework for Building a Culture of Health

Mission: Widen the lens beyond health care & public health systems

Rigorous research to identify novel mechanisms for aligning delivery and financing systems in medical care, public health, and social & community services in ways that improve health and wellbeing, achieve efficiencies in resource use, and reduce inequities.

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Wide lens: implicated sectors

- Public health
- Medical care: ACOs, PCMCs, AHCs
- Income support
- Nutrition and food security
- Education and workforce development
- Housing
- Transportation
- Criminal justice
- Child and family services
- Community development and finance
Study **novel mechanisms** for aligning systems and services across sectors

- Innovative alliances and partnerships
- Inter-governmental and public-private ventures
- New financing and payment arrangements
- Incentives for individuals, organizations & communities
- Governance and decision-making structures
- Information exchange and decision support
- New technology: m-health, tele-health
- Community engagement, public values and preferences
- Innovative workforce and staffing models
- Cross-sector planning and priority-setting
S4A Program Structure

Collaborating Research Centers

University of Chicago

Arizona State University

Indiana University – Purdue University Indianapolis

CRC

partners

National Coordinating Center
University of Kentucky

NCC

Collaborative Research Project

Individual Research Projects

IRP
Signature research projects

- **University of Chicago**: Randomized trial of a Comprehensive Care, Community and Culture program

- **Arizona State University**: Analysis of medical, mental health, and criminal justice system interactions for persons with behavioral health disorders

- **IUPUI**: Evaluating integration and decision support strategies for a community-based safety net health care and public health system

- **University of Kentucky**: Measuring multi-sector contributions to public health services and impact on population health.
Understanding the Value of Multi-Sector Work to Improve Population Health

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Losing ground in population health

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

WHO 2010
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

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
Foundational Capabilities for Population Health

Catalytic functions to support multi-sector actions in health

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

Questions of interest

- Which organizations contribute to the implementation of population health activities in local communities?
- How do these contributions change over time?
- What are the health and economic effects attributable to these multi-sector activities?

Recession  |  Recovery  |  ACA implementation
Guided by Culture of Health Action Framework
A useful lens for studying multi-sector work

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 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
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
Mapping who contributes to population health

Node size = degree centrality
Line size = % activities jointly contributed (tie strength)

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

Scope
- High
- Mod
- Low

Centrality
- High
- Mod
- Low

Density
- High
- Mod
- Low

Comprehensive
- Comprehensive (High System Capital)

Conventional

Limited

1998

2006

2012

2014
Comprehensive Public Health Systems
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
## Changes in system prevalence and coverage

<table>
<thead>
<tr>
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</thead>
<tbody>
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<td><strong>Comprehensive systems</strong></td>
<td></td>
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<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>
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<tr>
<td>% of population</td>
<td>25.0%</td>
<td>50.8%</td>
<td>47.7%</td>
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<td>36.6%</td>
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<td><strong>Conventional systems</strong></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>
</tr>
<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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<td><strong>Limited systems</strong></td>
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<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>
</tr>
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</table>

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

<table>
<thead>
<tr>
<th>% Change 2006-2012</th>
<th>Scope of Delivery 2012</th>
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<tbody>
<tr>
<td>-50%</td>
<td>10%</td>
</tr>
<tr>
<td>-30%</td>
<td>30%</td>
</tr>
<tr>
<td>-10%</td>
<td>50%</td>
</tr>
</tbody>
</table>

#### Local health agency

-50%

#### Other local government

-30%

#### State health agency

-10%

#### Other state government

10%

#### Hospitals

30%

#### Physician practices

50%

#### Community health centers

-50%

#### Health insurers

-30%

#### Employers/business

-10%

#### Schools

10%

#### CBOs

30%

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Equity in population health delivery systems
Implementation of recommended population health activities

### Organizational contributions to population health activities, 1998-2014

<table>
<thead>
<tr>
<th>Type of Organization</th>
<th>1998</th>
<th>2014</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local public health agencies</td>
<td>60.7%</td>
<td>67.5%</td>
<td>11.1%</td>
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<tr>
<td>Other local government agencies</td>
<td>31.8%</td>
<td>33.2%</td>
<td>4.4%</td>
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<tr>
<td>State public health agencies</td>
<td>46.0%</td>
<td>34.3%</td>
<td>-25.4%</td>
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<tr>
<td>Other state government agencies</td>
<td>17.2%</td>
<td>12.3%</td>
<td>-28.8%</td>
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<tr>
<td>Federal government agencies</td>
<td>7.0%</td>
<td>7.2%</td>
<td>3.7%</td>
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<tr>
<td>Hospitals</td>
<td>37.3%</td>
<td>46.6%</td>
<td>24.7%</td>
</tr>
<tr>
<td>Physician practices</td>
<td>20.2%</td>
<td>18.0%</td>
<td>-10.6%</td>
</tr>
<tr>
<td>Community health centers</td>
<td>12.4%</td>
<td>29.0%</td>
<td>134.6%</td>
</tr>
<tr>
<td>Health insurers</td>
<td>8.6%</td>
<td>10.6%</td>
<td>23.0%</td>
</tr>
<tr>
<td>Employers/businesses</td>
<td>16.9%</td>
<td>15.3%</td>
<td>-9.6%</td>
</tr>
<tr>
<td>Schools</td>
<td>30.7%</td>
<td>25.2%</td>
<td>-17.9%</td>
</tr>
<tr>
<td>Universities/colleges</td>
<td>15.6%</td>
<td>22.6%</td>
<td>44.7%</td>
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<td>Faith-based organizations</td>
<td>19.2%</td>
<td>17.5%</td>
<td>-9.1%</td>
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<tr>
<td>Other nonprofit organizations</td>
<td>31.9%</td>
<td>32.5%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Other</td>
<td>8.5%</td>
<td>5.2%</td>
<td>-38.4%</td>
</tr>
</tbody>
</table>
Health effects attributable to multi-sector work

Fixed effects IV Estimates on Mortality, 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
Economic effects attributable to multi-sector work

Fixed effects and IV Estimates of Comprehensive System Capital Effects 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.
Economic effects attributable to multi-sector work

Fixed effects Estimates of Comprehensive System Capital Effects 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.
Conclusions: What we know and still need to learn

- Large potential benefits of integrated multi-sector work on population health
- Inequities in population health activities are large
- Integration requires support
  - Infrastructure
  - Institutions
  - Incentives
- Sustainability and resiliency are not automatic
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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