Building a Culture of Health through Collective Actions Across Sectors & Systems

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publichealtheconomics.org
Losing ground in population health

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

- 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

Commonwealth Fund 2012
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
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**
- Fragmentation
- Variability in practice
- Resource constrained
- Limited reach
- Insufficient scale
- Limited public visibility & understanding
- Limited evidence base
- Slow to innovate & adapt

**Public Health**
- Fragmentation
- Resource constrained
- Limited reach
- Insufficient scale
- Limited public visibility & understanding
- Limited evidence base
- Slow to innovate & adapt

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**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

<table>
<thead>
<tr>
<th>Category</th>
<th>Cost to Medicare and Medicaid&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Total cost to US health care&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low (USD)</td>
<td>Midpoint (USD)</td>
</tr>
<tr>
<td>Failures of care delivery</td>
<td>$26</td>
<td>$36</td>
</tr>
<tr>
<td>Failures of care coordination</td>
<td>21</td>
<td>30</td>
</tr>
<tr>
<td>Overtreatment</td>
<td>67</td>
<td>77</td>
</tr>
<tr>
<td>Administrative complexity</td>
<td>16</td>
<td>36</td>
</tr>
<tr>
<td>Pricing failures</td>
<td>36</td>
<td>56</td>
</tr>
<tr>
<td><strong>Subtotal (excluding fraud and abuse)</strong></td>
<td>166</td>
<td>235</td>
</tr>
<tr>
<td><strong>Percentage of total health care spending</strong></td>
<td>6%</td>
<td>9%</td>
</tr>
</tbody>
</table>

<sup>a</sup> Cost to Medicare and Medicaid

<sup>b</sup> Total cost to US health care

http://www.healthaffairs.org/healthpolicybriefs/
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
A Framework for Building a Culture of Health

Action Area 1: Making Health a Shared Value
Action Area 2: Fostering Cross-Sector Collaboration to Improve Well-Being
Action Area 3: Creating Healthier, More Equitable Communities
Action Area 4: Strengthening Integration of Health Services and Systems

Outcome: Improved Population Health, Well-Being, and Equity

Foundational Capabilities for Population Health

- Engage stakeholders
- Assess needs & risks
- Identify evidence-based actions
- Develop shared priorities & plans
- Mobilize multi-sector implementation
- Monitor, evaluate, feed back

Catalytic functions to support multi-sector actions in health

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

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
What do we call systems that deliver a broad scope of foundational capabilities through dense networks of multi-sector relationships?

COMPREHENSIVE
Comprehensive Public Health Systems
One of RWJF’s Culture of Health National Metrics

- Implement a *broad scope* of population health activities
- Through *dense networks* of multi-sector relationships
- Including *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).

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
- 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
Variation in implementing foundational population health activities

National Longitudinal Survey of Public Health Systems
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

---

Cluster 1: High; High; High
Cluster 2: High; Low; High
Cluster 3: High; High; Mod
Cluster 4: Mod; High; Low
Cluster 5: Mod; High; Mod
Cluster 6: Low; High; Low
Cluster 7: Low; High; Mod

**Comprehensive** (High System Capital)
**Conventional**
**Limited**
Network density and scope of activities

Comprehensive Systems

Density of Contributing Organizations

Proportion of Activities Contributed

1998 2014
## Changes in system prevalence and coverage

<table>
<thead>
<tr>
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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>
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<td></td>
<td></td>
<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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<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>
</tr>
</tbody>
</table>

Equity in population health delivery systems
Delivery 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><strong>11.1%</strong></td>
</tr>
<tr>
<td>Other local government agencies</td>
<td>31.8%</td>
<td>33.2%</td>
<td><strong>4.4%</strong></td>
</tr>
<tr>
<td>State public health agencies</td>
<td>46.0%</td>
<td>34.3%</td>
<td><strong>-25.4%</strong></td>
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<tr>
<td>Other state government agencies</td>
<td>17.2%</td>
<td>12.3%</td>
<td><strong>-28.8%</strong></td>
</tr>
<tr>
<td>Federal government agencies</td>
<td>7.0%</td>
<td>7.2%</td>
<td><strong>3.7%</strong></td>
</tr>
<tr>
<td>Hospitals</td>
<td>37.3%</td>
<td>46.6%</td>
<td><strong>24.7%</strong></td>
</tr>
<tr>
<td>Physician practices</td>
<td>20.2%</td>
<td>18.0%</td>
<td><strong>-10.6%</strong></td>
</tr>
<tr>
<td>Community health centers</td>
<td>12.4%</td>
<td>29.0%</td>
<td><strong>134.6%</strong></td>
</tr>
<tr>
<td>Health insurers</td>
<td>8.6%</td>
<td>10.6%</td>
<td><strong>23.0%</strong></td>
</tr>
<tr>
<td>Employers/businesses</td>
<td>16.9%</td>
<td>15.3%</td>
<td><strong>-9.6%</strong></td>
</tr>
<tr>
<td>Schools</td>
<td>30.7%</td>
<td>25.2%</td>
<td><strong>-17.9%</strong></td>
</tr>
<tr>
<td>Universities/colleges</td>
<td>15.6%</td>
<td>22.6%</td>
<td><strong>44.7%</strong></td>
</tr>
<tr>
<td>Faith-based organizations</td>
<td>19.2%</td>
<td>17.5%</td>
<td><strong>-9.1%</strong></td>
</tr>
<tr>
<td>Other nonprofit organizations</td>
<td>31.9%</td>
<td>32.5%</td>
<td><strong>2.0%</strong></td>
</tr>
<tr>
<td>Other</td>
<td>8.5%</td>
<td>5.2%</td>
<td><strong>-38.4%</strong></td>
</tr>
</tbody>
</table>
Changes in organizational centrality by ACA Medicaid expansion status, 2012-2014

* p<0.05
Effects of ACA and accreditation on population health activities

Controlling for type of jurisdiction, population size and density, metropolitan area designation, income per capita, unemployment, poverty rate, racial composition, age distribution, physician and hospital availability, state and year fixed effects. Vertical lines are 95% confidence intervals. **N=1019 community-years**
Health effects attributable to multi-sector work

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
Economic effects attributable to multi-sector work

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.
Economic effects attributable to multi-sector work

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

Bottom Quartile  | Top Quartile  | Difference
--- | --- | ---
8.0 | 6.0 | 2.0
6.0 | 4.0 | 2.0
4.0 | 2.0 | 2.0
2.0 | 0.0 | 2.0
0.0 | -2.0 | 2.0
-2.0 | -4.0 | 2.0
-4.0 | -6.0 | 2.0
-6.0 | -8.0 | 2.0

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

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

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

- Mortality
- Medical costs

95% CI
Comprehensive systems do more with less

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

Next Generation Population Health Improvement

- Hospital community benefit regs
- Innovation Center Funding
- Funding constraints
- ACOs and PCMHs
- Employer wellness incentives
- Value-based payment
- Health insurance expansions
- Community Transformation Grants
- Health information exchange
- Public health Accreditation
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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Archive: works.bepress.com/glen_mays
Blog: publichealtheconomics.org


