Strategies to Achieve Alignment, Collaboration, and Synergy across Delivery and Financing Systems

Optimizing Governmental Health and Social Spending Interactions

Research In Progress Webinar
Wednesday, April 10, 2019
12:00-1:00 pm ET/ 9:00 am-10:00 am PT

Funded by the Robert Wood Johnson Foundation
Agenda

Welcome:  Shana Moore, PhD
Director of Dissemination and Research Development
RWJF Systems for Action National Coordinating Center
University of Kentucky College of Public Health

Presenters:  David Bishai, MD, PhD, MPH
Professor
Population, Family and Reproductive Health
Johns Hopkins Bloomberg School of Public Health

Beth Resnick, DrPH, MPH
Assistant Dean for Practice and Training & Senior Scientist
Dept. of Health Management and Policy
Johns Hopkins Bloomberg School of Public Health

Commentary:  Marie Flake, MPH
Special Projects, Systems Transformation
Office of the Secretary
Washington State Department of Health

Q & A:  Moderated by Dr. Shana Moore.
Beth Resnick, DrPH, MPH
Assistant Dean for Practice and Training & Senior Scientist
Dept. of Health Management and Policy
Johns Hopkins Bloomberg School of Public Health
David Bishai, MD, PhD, MPH
Professor, Population, Family and Reproductive Health
Johns Hopkins Bloomberg School of Public Health
Marie Flake, MPH
Special Projects, Systems Transformation
Office of the Secretary
Washington State Department of Health
Research Team

Johns Hopkins Bloomberg School of Public Health
David Bishai, MD, PhD, MPH
Beth Resnick, DrPH, MPH
JP Leider, PhD
Natalia Alfonso, MS

Partner
Mac McCullough, PhD, MPH - Arizona State University & Maricopa County Department of Public Health
Agenda

1. Background on the project
2. Findings
3. Practice & Policy Implications
Research Aims:

1. Produce a database of state and local spending allocations relevant to health

2. Understand how state and local governmental spending impact public health
   a. Does spending respond to public health crises?
   b. What types of spending affect population health measures?

3. Better inform resource allocation practices and policies

*our prior work to develop free publically available data on state public health spending is available at:

https://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/36741
State and Local Government Spending:

Fundamental questions:
- How much are state and locals governments spending on public health and social services?
- What is the impact of this spending?
Part 1 Methods
Data Source: Census of Governments

A U.S. Census Bureau program that collects financial data from state/local governments
• State data available annually
• Local data available every 5 years
• Multiple categories, sub-categories of spending

Examples: Police, Sewerage, Solid Waste Management, Environmental, Education, Housing, Hospital Health, Other health

Source: U.S. Census of Governments  http://www.census.gov/govs/cog/
Census State Finance Division Data

• Basis of Public Health Activity estimate in National Health Expenditure Accounts
• Reported by every state (except CA)
• Includes spending by all state agencies (not just health departments)
• Highly detailed line item expenditures that allow parsing by activity
Census State Finance Division Data

Limitations

- Inconsistencies across states in accounting for local public health spending and intergovernmental state to local transfers
- Incomplete data prior to 2008
- Census coding inconsistencies
- Lack of awareness of Census data by state and local practitioners
- Uncertain alignment with state and other spending reports
We recoded the Census State Finance Division Data using the foundational public health services as a framework.
Adding More Detail to Current Public Health Spending Estimates

• Current estimates mix clinical services carried out in public sector (e.g. behavioral health care with population level activities.
  • This may obscure attempts to connect population health spending and population health outcomes

• Systematically disaggregated Census estimates to categorize public health spending estimates according to Foundational Public Health Services CMS’s Public Health Activity Estimate frameworks
Part 2 Descriptive Analysis
State spending in the Census Public Health Activity estimate (2000-2013)
Trends in State Spending

State Spending on Maternal/Child Health

State Spending on Chronic Diseases and Injury

State Spending on Communicable Diseases

State Spending on Environmental Health

State Spending on Foundational Capabilities

State Spending on Foundational Capabilities
Part 3: Analytical Results

Does spending respond to health problems?

Does spending improve population health?
America’s Epidemics—Did states respond?

- South Dakota: Alcohol
- Idaho: Suicide
- Alabama: Drugs
If age-adjusted death rates go up, does spending go up one year later?
Scatter plots of change in spending vs. change
# Regress State Behavioral Health Spending vs Last Year’s Deaths from Alcohol, Suicide, Drugs

<table>
<thead>
<tr>
<th></th>
<th>Spending</th>
<th>Spending</th>
<th>Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Adjusted Death Rate</td>
<td>-0.077</td>
<td>-0.269</td>
<td>-0.844*</td>
</tr>
<tr>
<td>High school completion</td>
<td>680.7</td>
<td>702</td>
<td>--143545***</td>
</tr>
<tr>
<td>State Median Income</td>
<td>0.0054***</td>
<td>0.0089***</td>
<td>0.3602***</td>
</tr>
<tr>
<td>Proportion Black</td>
<td>432.7</td>
<td>479.2</td>
<td>46436.8</td>
</tr>
<tr>
<td>Proportion Hispanic</td>
<td>47.05</td>
<td>75.7</td>
<td>-25014.3***</td>
</tr>
<tr>
<td>Proportion Urban</td>
<td>718.6***</td>
<td>493.4</td>
<td>-3773.3***</td>
</tr>
<tr>
<td>Constant</td>
<td>-13.8</td>
<td>-17.7</td>
<td>-3.63***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Variables Differenced</th>
<th>Variables w Moving Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Variables w Moving Average Yes
Multi-sectoral spending and health
### Classifying Unobserved Variables

<table>
<thead>
<tr>
<th>Social Spending Index</th>
<th>Infrastructure Spending Index</th>
<th>Law and Order Spending Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Non-Hospital Health</td>
<td>- Highways</td>
<td>- Police Protection</td>
</tr>
<tr>
<td>- Public Welfare</td>
<td>- Fire Protection</td>
<td>- Judicial</td>
</tr>
<tr>
<td>- Education</td>
<td>- Sewerage</td>
<td></td>
</tr>
<tr>
<td>- Libraries</td>
<td>- Solid Waste Management</td>
<td></td>
</tr>
<tr>
<td>- Parks &amp; Recreation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Natural Resources</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Economics Stress (control variable):** poverty, unemployment, county total revenue
Structural Equation Modeling

- **Exogenous variables** - measured
  - County spending in 12 sectors
  - Life expectancy at birth
  - Poverty, unemployment, total government revenue

- **Endogenous variables** - unobserved
  - County spending index type (social, infrastructure, law & order)
  - Economic Stress
Infrastructure

- Sewerage: 4.4
- Fire Protection: 4.2
- Solid Waste Mgmt: 3.8
- Highways: 5.1

Relationships:
- $\varepsilon_5: 0.70$
- $\varepsilon_7: 0.47$
- $\varepsilon_4: 1$
- $\varepsilon_8: 0.92$

Infrastructure:
- $\varepsilon_5: 0.24$
- $\varepsilon_7: 0.3$
- $\varepsilon_4: 0.15$
- $\varepsilon_8: 0.14$
Social investment

Law and order

- Police Protection
- Judicial & Legal
- Housing
Economic stress in 2002 or 2007

Life expectancy at birth in 2005 or 2010
Key Spending Analysis Findings

• 49% of state public health spending goes to clinical care, behavioral health, and services for the disabled
• Large variations across states and counties
• Trends from 2008 to 2013 were flat despite epidemics of alcohol, suicide, and drugs
  • No apparent spending response to recent epidemics
• County spending on social services more beneficial to life expectancy than spending on infrastructure
• County spending on law and order less beneficial to life expectancy

Public Health Practice & Policy Implications

Marie Flake, BSN, MPH  
Special Projects / Foundational Public Health Services  
Systems Transformation I Office of the Secretary  
Washington State Department of Health  
Marie.Flake@doh.wa.gov  
360-236-4063

For more information on Washington State Efforts:  
Foundational Public Health Services – [www.doh.wa.gov/fphs](http://www.doh.wa.gov/fphs)  
Budgeting, Accounting and Reporting System (BARS) – COA for LHJs in Washington State
Thank you!
Upcoming Webinars

Archives

http://systemsforaction.org/research-progress-webinars

Upcoming

April 24, 2019, 12 p.m., ET
Systems for Action Individual Research Project
**Strengthening the Carrying Capacity of Local Health and Social Service Agencies to Absorb Increased Hospital/Clinical Referrals**
Danielle Varda, PhD, University of Colorado Denver, and Katie Edwards, MPA, The Nonprofit Centers Network

May 8, 2019, 12 p.m., ET
Systems for Action Individual Research Project
**Linking Medical Homes to Social Service Systems for Medicaid Populations**
Sarah Hudson Scholle, DrPH, MPH, and Keri Christensen, MS, National Committee on Quality Assurance

May 22, 2019, 12 p.m., ET
Systems for Action Collaborating Research Center
**The Comprehensive Care, Community, and Culture Program**
David Meltzer, MD, PhD, Center for Health and the Social Science, and Harold Pollack, PhD, School of Social Service Administration, The University of Chicago
Acknowledgements

*Systems for Action* is a National Program Office of the Robert Wood Johnson Foundation and a collaborative effort of the Center for Public Health Systems and Services Research in the College of Public Health, and the Center for Poverty Research in the Gatton College of Business and Economics, administered by the University of Kentucky, Lexington, Ky.