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Hospital Contributions to Public Health Activities Before and After ACA: Incentives, Constraints & Crowd-out

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Hospital Contributions to Public Health Activities Before and After ACA: Incentives, Constraints & Crowd-Out

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Acknowledgements

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- Collaborators include Rachel Hogg, MA, Cezar Mamaril, PhD, Andrew Parks, MBA
Preventable disease burden and health spending

>75% of national 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 national health spending is allocated to public health and prevention

CDC 2008 and CMS 2011
Public Health in the Affordable Care Act

- **$19 billion** in new federal public health spending over 10 years (cut by $6B in 2012)
- Public Health and Prevention Trust Fund
- **Incentives** for hospitals, health insurers, employers to invest in public health and prevention
- **Research** on optimal public health delivery

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**Subtitle D—Support for Prevention and Public Health Innovation**

Patient Protection and Affordable Care Act of 2010

SEC. 4301. RESEARCH ON OPTIMIZING THE DELIVERY OF PUBLIC HEALTH SERVICES.

(a) IN GENERAL.—The Secretary of Health and Human Services (referred to in this section as the “Secretary”), acting through the
Hospital incentives for public health production

- Community benefit obligations for tax-exempt hospitals – valued at $12.6 billion in 2002
- Anticipated decline in demand for charity care under ACA, allowing hospitals to reallocate
- New ACA-imposed assessment, planning, and reporting requirements (information incentives)
- Economic and institutional incentives: competition, payment schema, costs, altruism
Public health activities

Organized programs, policies, and laws to prevent disease and injury and promote health on a population-wide basis

- Epidemiologic surveillance & investigation
- Community health assessment & planning
- Communicable disease control
- Chronic disease and injury prevention
- Health education and communication
- Environmental health assessment
- Enforcement of health laws and regulations
- Inspection and licensing
- Inform, advise, and assist school-based, worksite-based, and community-based health programming

...and roles in assuring access to medical care
Research questions of interest

To what extent do hospitals contribute to public health production?

How are hospital contributions changing in response to ACA implementation?

Which incentives drive hospital contributions?
  - Demand for charity care (crowd-out)
  - Competition (free rider)
  - Overall economic climate
Data: public health production

- National Longitudinal Survey of Public Health Systems
- Cohort of 360 communities with at least 100,000 residents
- Measured from local public health official’s perspective:
  - **Scope**: availability of 20 recommended public health activities
  - **Network**: types of organizations contributing to each activity
  - **Effort**: contributed by designated local public health agency
  - **Quality**: perceived effectiveness of each activity
Data: hospital charity care and competition

- **Medicare Cost Report** data files: hospital ownership, market share, uncompensated care
- **Area Resource File**: community and market characteristics
- **NACCHO Profile data**: public health agency characteristics
- Hospital data aggregated to hospital service areas (HSAs) and linked with survey data
Analytic Approach

**Dependent variables:**
- **Scope**: percent of activities contributed by hospitals, by *domain* and overall
- **Network influence**: hospital degree centrality, betweenness centrality

**Independent variables:**
- **Charity care demand**: percent uninsured, uncompensated care $ per capita
- **Competition**: Number of hospitals, market share of nonprofits, Herfindahl index
Analytic Approach

Estimation:

- Log-transformed Generalized Linear Latent and Mixed Models
- Account for repeated measures and clustering of public health jurisdictions within HSAs and states

\[
\ln(\text{HospitalProduction}_{ijt}) = \alpha_1 \ln(\text{CharityCare})_{ijt} + \\
\alpha_2 \ln(\text{Competition})_{ijt} + \beta_1 \text{Agency}_{ijt} + \beta_2 \text{Community}_{ijt} + \mu_j + \varphi_t + \epsilon_{ijt}
\]

All models control for type of jurisdiction, population size and density, metropolitan area designation, income per capita, unemployment, racial composition, age distribution, educational attainment, physician availability, public health agency governance, and public health agency expenditures per capita.
Results:
Delivery of recommended public health activities

% of activities

- **Assurance**
- **Policy**
- **Assessment**

1998 - 2006 - 2012

↑ 10%  ↓ 5%
Results: organizations contributing to local public health production

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

Local health agency
Other local government
State health agency
Other state government
Hospitals
Physician practices
Community health centers
Health insurers
Employers/business
Schools
CBOs

## Estimated Effects of Institutional and Market Incentives on Hospital Contributions

### Results from Multivariate GLLAMM Models

<table>
<thead>
<tr>
<th>Variable</th>
<th>Overall</th>
<th>Assessment</th>
<th>Policy</th>
<th>Assurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent residents uninsured</td>
<td>-0.190**</td>
<td>-0.309**</td>
<td>-0.215**</td>
<td>-0.010</td>
</tr>
<tr>
<td>Charity care costs/capita (1000s)</td>
<td>-0.265</td>
<td>0.073</td>
<td>-0.533</td>
<td>-0.441</td>
</tr>
<tr>
<td>Any hospitals located in the area</td>
<td>0.769**</td>
<td>0.736*</td>
<td>0.662*</td>
<td>1.113*</td>
</tr>
<tr>
<td>Number of hospitals</td>
<td>Any</td>
<td>-0.056**</td>
<td>-0.036</td>
<td>-0.070*</td>
</tr>
<tr>
<td>Market concentration (HHI index)</td>
<td>-0.050</td>
<td>0.026</td>
<td>-0.004</td>
<td>-0.232**</td>
</tr>
<tr>
<td>Market share of nonprofit hospitals</td>
<td>0.001</td>
<td>-0.060</td>
<td>-0.036</td>
<td>0.154*</td>
</tr>
</tbody>
</table>

**p<0.05    *p<0.10
Estimated Crowd-out Effect

Holding all other variables constant in the model
Projected Effects of ACA Coverage Expansions

- Reducing the uninsured population by half:
  - 17-23% increase in hospital production
  - 4-11% increase in total supply of PH activities
- Effects are concentrated in assessment and policy development domains
- Possible adverse effects of market concentration on assurance activities
Conclusions

- Increases in charity care demand appear to crowd out hospital contributions to public health production.
- Expansions in coverage under ACA may induce increases in hospital contributions.
- Focus on assessment may limit opportunities for expanding public health delivery.
Limitations and Next Steps

- Hospital contributions as viewed by local public health officials
- Time period captures only early effects of ACA
- Study focuses on extensive rather than intensive margins of hospital production.
For More Information

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