Presenter Disclosures

Debbie Humphries

• The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

  None
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**Grant Title:** The Effects of Cross-Jurisdictional Resource Sharing on the Implementation, Scope, and Quality of Public Health Services
Effects of Cross-Jurisdictional Resource Sharing on the Implementation, Scope and Quality of Public Health Services

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Massachusetts
Connecticut

CADH
Connecticut Association of Directors of Health
Overview

• Connecticut and Massachusetts
  – Both home rule states
  – Municipal responsibility for local public health

• Shared concern with equitable delivery of local public health services

• Mix of service delivery models
  – Independent
  – Partial and Comprehensive shared service
  – Districts
### CT and MA at a glance:

<table>
<thead>
<tr>
<th></th>
<th>Massachusetts</th>
<th>Connecticut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>6.7 million</td>
<td>3.6 million</td>
</tr>
<tr>
<td>Number of towns/municipalities</td>
<td>351</td>
<td>169</td>
</tr>
<tr>
<td>Number of Health Departments/Boards of Health</td>
<td>351</td>
<td>74</td>
</tr>
<tr>
<td>Type of Departments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal</td>
<td>292 (83.2%)</td>
<td>53 (31.4%)</td>
</tr>
<tr>
<td>Multi-jurisdictional</td>
<td>9 (16.8%)</td>
<td>Full time 29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Part-time 24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>District 21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>68.6%</td>
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</table>
Key Research Question
How do different organizational models impact the quality, breadth, and cost of local public health services?

Municipality A

Municipality B

Municipality C

Municipality D

Compared to

$\text{Cost}$

$\checkmark\text{Quality}$

$\text{Breadth}$
Methodology

Mixed Method Study

– Census data
  • Municipal characteristics
– State (and local) reported data
  • Retail food inspections
– In-person semi-structured interviews, conducted separately in MA and CT
  • Health Directors or their designees

Sampling

– Stratified to identify independent jurisdictions that had similar population sizes to sharing jurisdictions
  • MA: All comprehensive shared service departments were recruited for participation
  • CT: Randomly selected eight districts covering 39 municipalities
  • Final sample: 15 sharing; 54 independent
Three focus areas for presentation

Highlight similarities and differences by service delivery model

– Core Public Health Services
– Public Health staff
– Retail Food Safety (standard required service)
18 core services assessed

• Slightly more core services provided by public health staff in independent health departments than sharing health departments (16.8 vs. 15.5; p=0.099)
Public Health Staff

Sharing departments have lower public health staff FTE/1000 population than independent departments

- Shared 0.14 FTE/1000;
- Independent 0.22 FTE/1000; p value 0.07).

Training varies significantly (p=0.01):

- Directors of shared service models more likely to have public health training and MPH degrees (93.3% vs. 50%);
- Directors in independent models more likely to have a bachelor’s degree (33.3% vs. 6.7%) or
- MD/PhD (16.7% vs. 0%).
Food Safety Inspections

• No significant differences in number of inspections per 1000 population in either CT or MA
  • More food service establishments (FSE) per 1000 population in MA.
• In CT, independent jurisdictions have a higher proportion of required inspections conducted (97% vs. 67%);
• In MA, no differences in the number of required inspections conducted
Quality of Food Safety Inspections

Quality indicators included:

- * Formally trained food safety inspectors;
- Opportunities for and requirements to take part in ongoing training on food inspections;
- * Use of a standard inspection reporting form;
- Written standard operating procedures;
- Written policies for responding to complaints;
- * Equipment needed for food inspections;
- Annual inspection program evaluation

* Most common across both models
Sharing departments are more likely to have 5 or more of the quality indicators (p= 0.064) (73% vs. 46%)
Food Service Cost Model

• Questions asked:
  – Staff Costs
  – Indirect Rate
  – Overhead Rate

• Answered by all respondents:
  – Staff costs
Cost Estimates

- The total number of inspections for Sharing and Independent departments is significantly different (p<0.001).
- The cost per FSI is not significantly different for Sharing and Independent departments.
Predictors of Total FSI Staff Cost

- Ordinary Least Squares regression with total staff cost for food safety inspections (FSI) as dependent variable

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>p value</th>
<th>95% CI</th>
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<tbody>
<tr>
<td># of FSI</td>
<td>79.3</td>
<td>&lt;0.0001</td>
<td>41.3</td>
</tr>
<tr>
<td>(# of FSI)^2</td>
<td>-0.0201</td>
<td>0.001</td>
<td>-0.032</td>
</tr>
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- State and resource sharing were insignificant in the model
- Other significant control variables included unemployment and population density
Conclusions

• Sharing departments have fewer staff 1000 population, and are more likely to have directors with public health training

• Sharing departments have more indicators of higher quality inspections.

• Primary driver of inspection staffing costs is the total number of inspections being conducted
  – There is a non-linear relationship between cost per inspection and number of inspections;
  – Minimum cost per inspection is reached above the total number of inspections conducted by all but one of jurisdictions sampled
  – Service sharing status is not significant other than as a contributor to total number of inspections.
Contributions to the Field

• This adds to limited research on effective and efficient service delivery models for small and mid-size jurisdictions

• This extends previous research on cost of local public health services by exploring potential variations in cost by jurisdiction size and service delivery model
## Research Team

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<thead>
<tr>
<th></th>
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<th>Massachusetts</th>
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<tr>
<td>Principal Investigators</td>
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<td>Justeen Hyde</td>
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<td>Co-Investigators</td>
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<td>Adam Atherly, Colorado PBRN</td>
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