



*Cost, Quality and Value of Public Health Services*

**Effects of Cross-Jurisdictional Resource Sharing  
on the Implementation, Scope and Quality of  
Public Health Services**

*Research In Progress Webinar*

*Wednesday, June 1, 2016*

*12:00-1:00pm ET/ 9:00-10:00am PT*

*Funded by the Robert Wood Johnson Foundation*

# Agenda

**Welcome: CB Mamaril, PhD**, RWJF [Systems for Action](#) National Coordinating Center, and Research Assistant Professor, University of Kentucky College of Public Health

Effects of Cross-Jurisdictional Resource Sharing on the Implementation, Scope and Quality of Public Health Services

**Presenters: Justeen Hyde, PhD**, Director of Research and Evaluation, Institute for Community Health [jhyde@challiance.org](mailto:jhyde@challiance.org) and **Debbie Humphries, PhD, MPH**, Clinical Instructor in Epidemiology, Yale School of Public Health [debbie.humphries@yale.edu](mailto:debbie.humphries@yale.edu)

**Commentary: Patrick (Pat) Libbey**, Co-director, [Center for Sharing Public Health Services](#), [pat-libbey@comcast.net](mailto:pat-libbey@comcast.net) and **Jennifer C. Kertanis, MPH**, Director, Farmington Valley Health District, Connecticut [jkertanis@fvhd.org](mailto:jkertanis@fvhd.org)

## Questions and Discussion

# Presenters



## **Justeen Hyde, PhD**

Director of Research and Evaluation,

[Institute for Community Health](#)

Instructor, Harvard Medical School

[jhyde@challiance.org](mailto:jhyde@challiance.org)



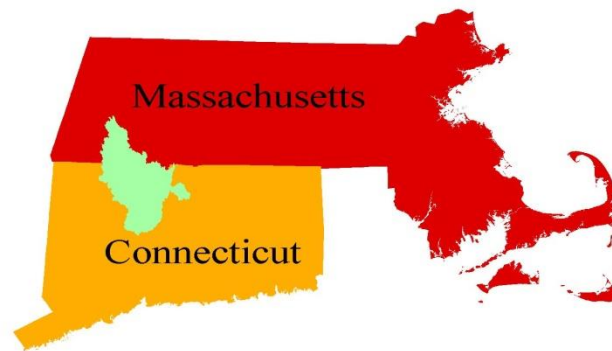
## **Debbie Humphries, PhD, MPH**

Clinical Instructor in Epidemiology

Yale School of Public Health

[debbie.humphries@yale.edu](mailto:debbie.humphries@yale.edu)

# Effects of Cross-Jurisdictional Resource Sharing on the Implementation, Scope and Quality of Public Health Services



**Debbie Humphries, PhD, MPH**  
Clinical Instructor  
Yale School of Public Health  
Connecticut

**Justeen Hyde, PhD**  
Director of Research and Evaluation  
Institute for Community Health  
Massachusetts

**CADH**

Connecticut Association  
of Directors of Health

# Overview of Presentation

- Introduce our research teams
- Overview of study
- Description of sample
- Strengths and challenges of service delivery models
- Comparison of retail food safety services between single and multi-jurisdictional models

# Research Team

	<b>Connecticut</b>	<b>Massachusetts</b>
Principal Investigators	Jennifer Kertanis	Justeen Hyde
Co-Investigators	Debbie Humphries	Geoff Wilkinson
Key Team Members	Elaine O'Keefe	Seth Eckhouse
	Steve Huleatt	Erin Cathcart
	Ashika Brinkley	Sam Wong
	Andrea Boissevain	Kelly Washburn
	Ethan Hahn	Kate Khanna

Collaborating Partner	Adam Atherly, Colorado PBRN
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# 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

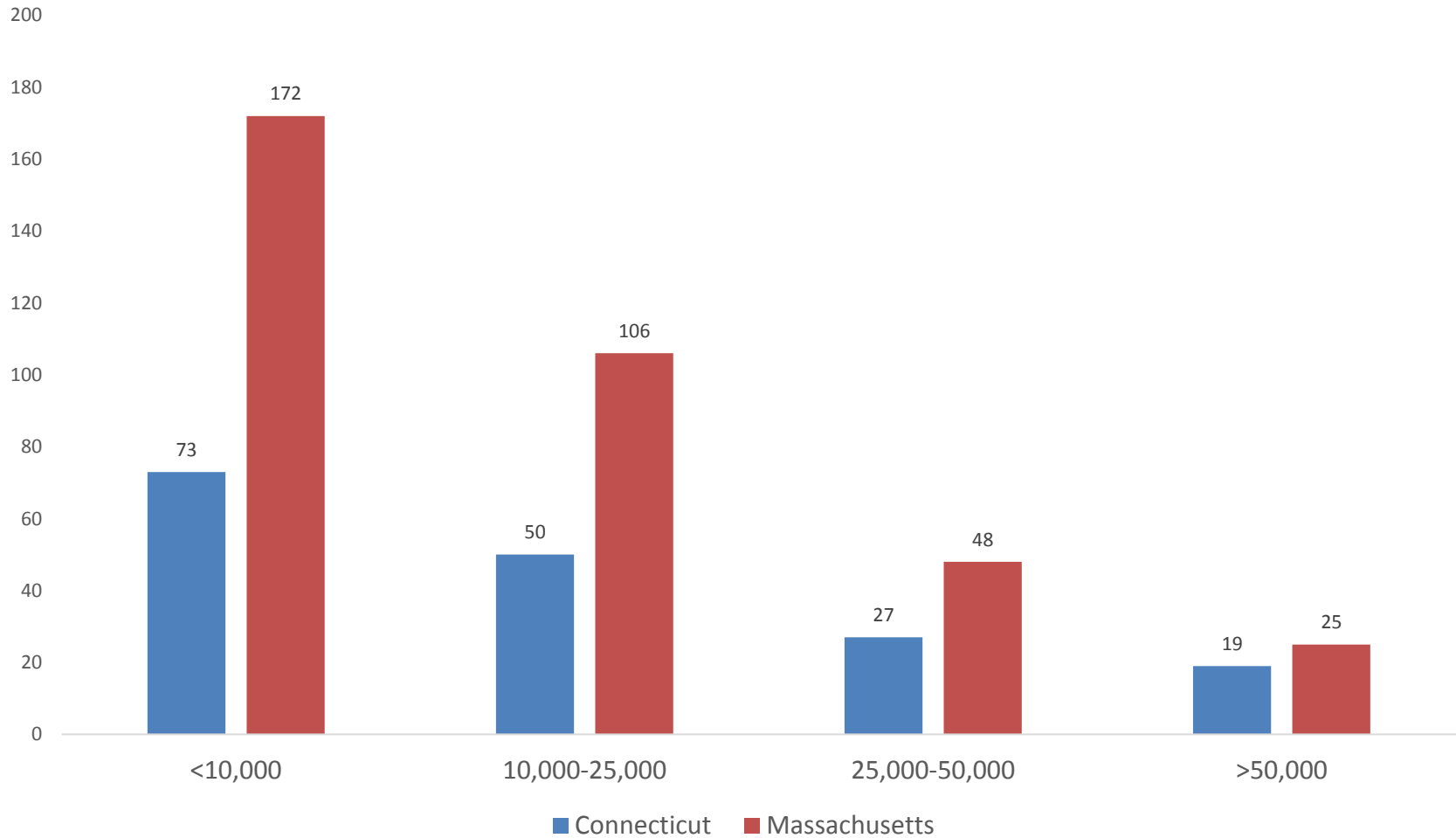
# CT and MA at a glance:

	<b>Massachusetts</b>	<b>Connecticut</b>
Population	6.7 million	3.6 million
Number of towns/municipalities	351	169
Number of Health Departments/ Boards of Health	351	74
Type of Departments	Municipal 292 (83.2%)  Multi-jurisdictional 9 (16.8%)	Municipal 53 (31.4%) Full time 29 Part-time 24 District 21 (68.6%)



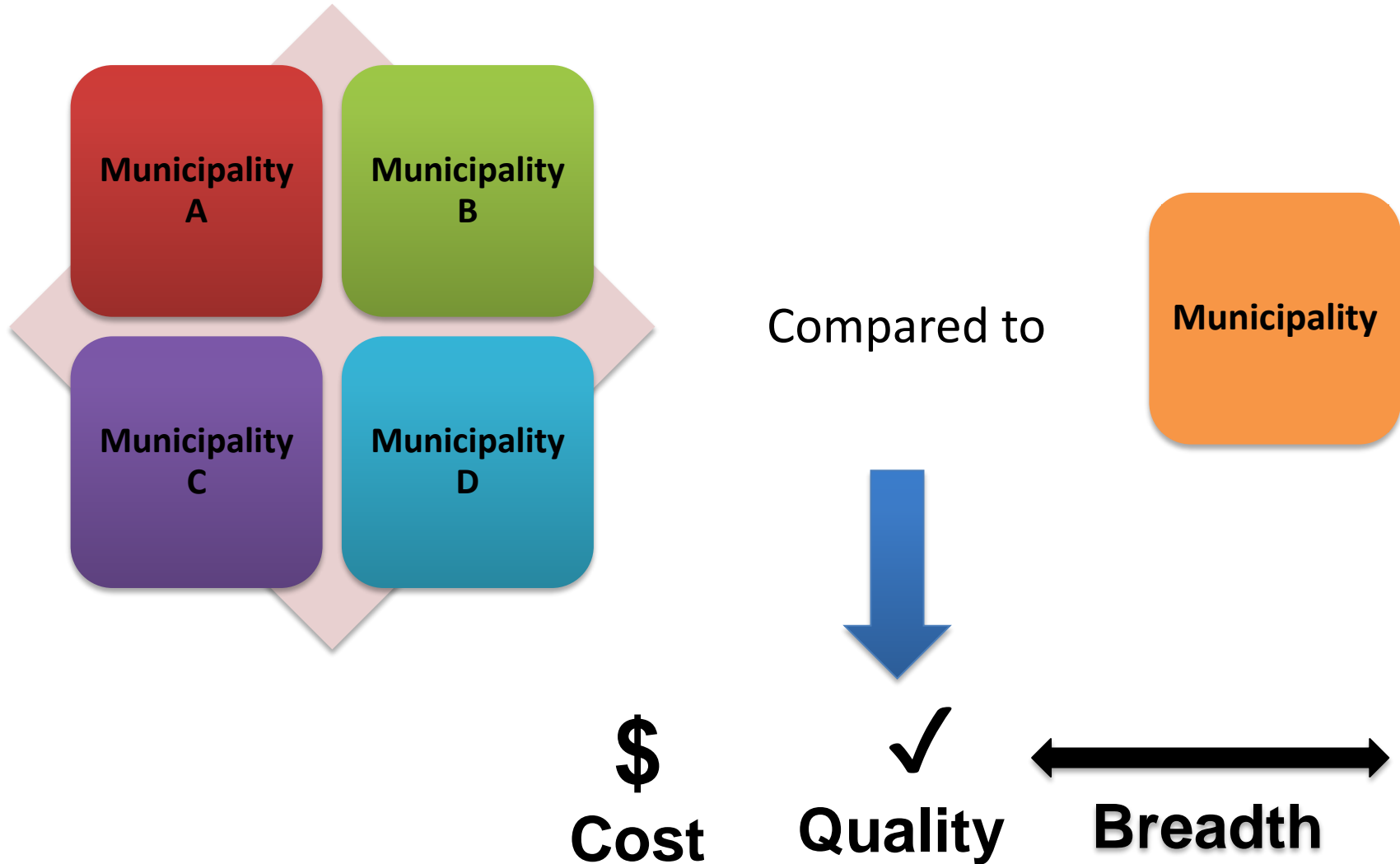
# Municipal Characteristics in Each State

Total # Municipalities, by Population Strata



# Key Research Question

How do different organizational models impact the quality, breadth, and cost of local public health services?



# Three focus areas

- Retail Food Safety (standard required service)
- Enteric diseases (standard required service)
- Obesity Prevention (community-wide public health issue)

# Methodology

- Mixed Method Study
  - Census data
    - Municipal characteristics
  - State reported data
    - Retail food inspections
    - Communicable disease
  - In-person semi-structured interviews, conducted separately in MA and CT
    - Health Directors or their designees

# Sampling

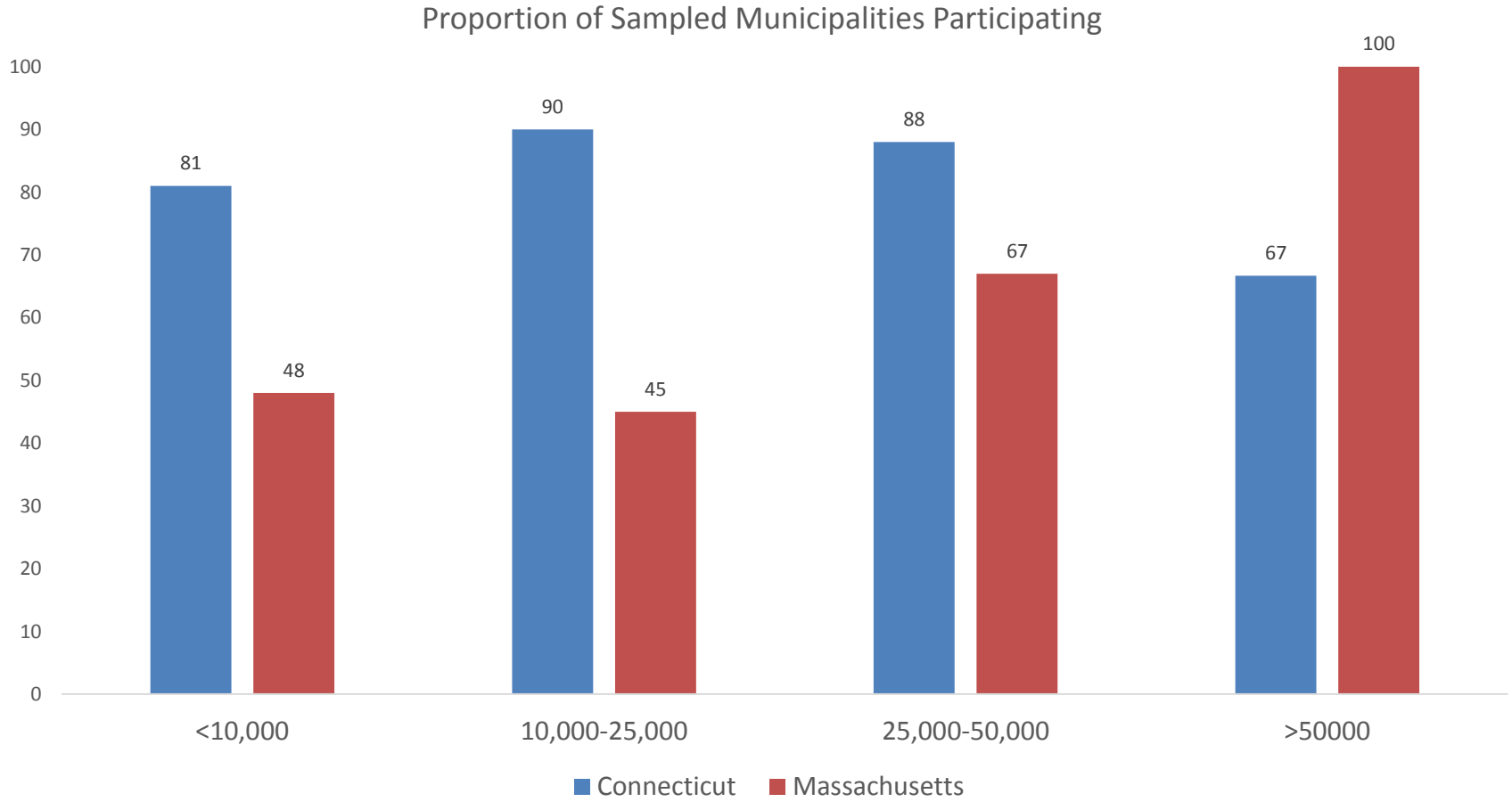
Stage 1: Selection of municipalities with comprehensive shared service models

- MA: All comprehensive shared service departments were recruited for participation
- CT: Randomly selected eight districts covering 39 municipalities

Stage 2: Selection of single municipalities for participation by stratifying on population size of municipalities in the shared service models, and randomly selecting single municipalities from matching strata

- MA: six strata  
(<1,000; 1-5,000; 5-10,000; 10-25,000; 25-50,000; >50,000)
- CT: four strata  
(<10,000; 10-25,000; 25-50,000; >50,000)

# Response Rate by Population Strata



# Questionnaire

- Closed ended questions
  - Does your municipality/region require on-going training for persons who perform food inspections? Yes, No, Not sure
  - Has your municipality or district completed a community health assessment in the last 3 years? Yes, No
    - (If yes) What role did the health department play in the community health assessment? No role, Minor collaborator, Major collaborator, Co-lead, Lead
- Open ended questions
  - What do you see as the strengths of your current public health service delivery model?
  - In your experience, what are the top 3 or 4 factors that influence municipal appropriations for local public health services?

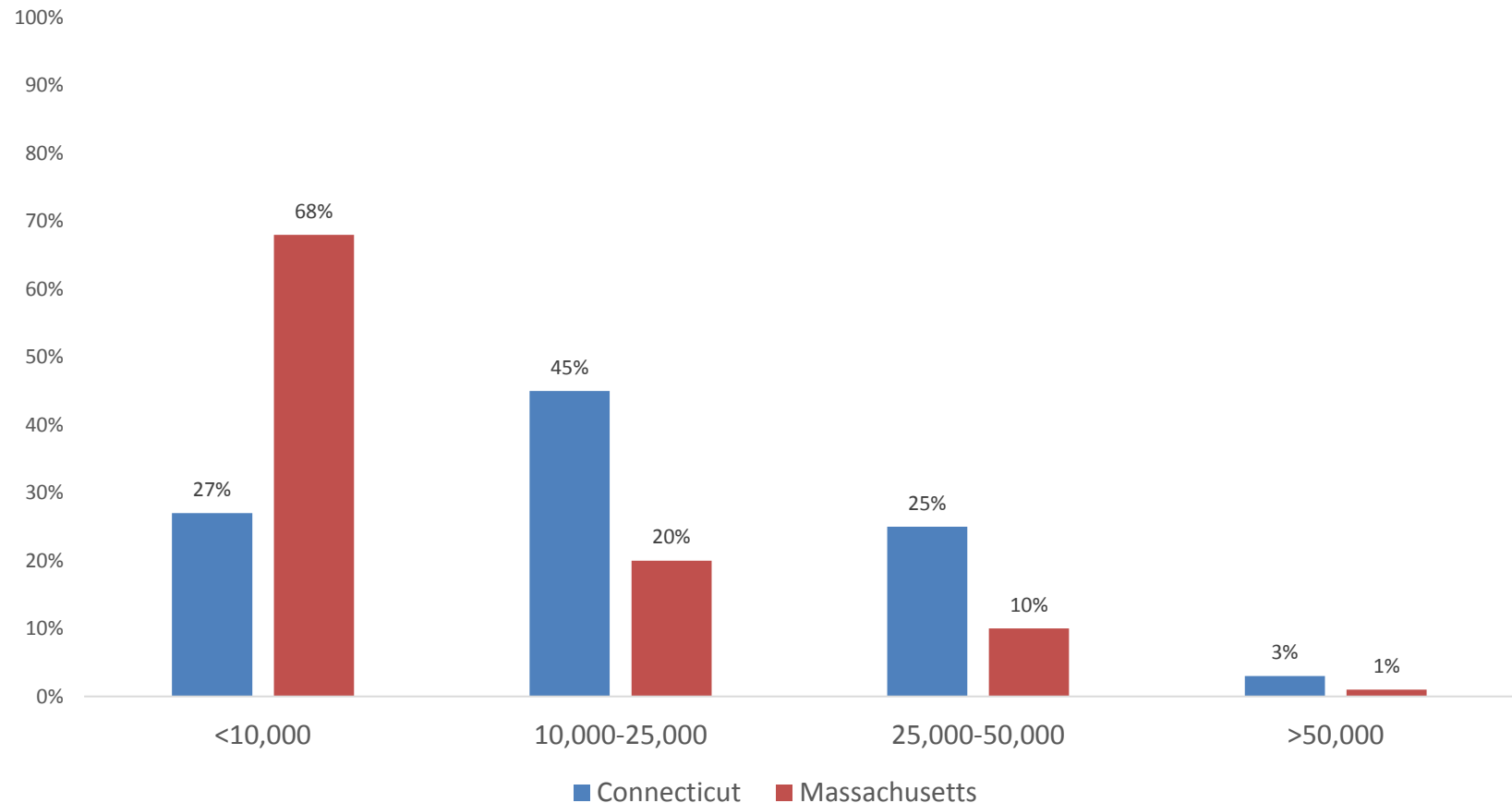
# Data Management

- Quantitative data entered into excel, then transferred to Stata for analysis
- Interviews were transcribed in full, coded, and analyzed for key themes



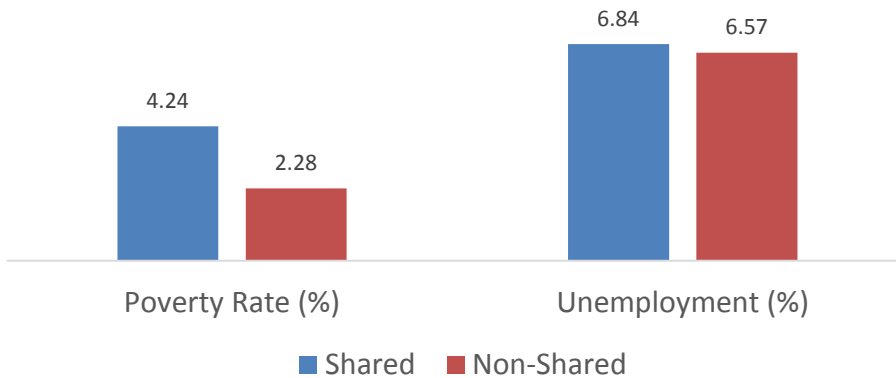
# Participant Municipality Demographics

Proportion of Municipalities Surveyed

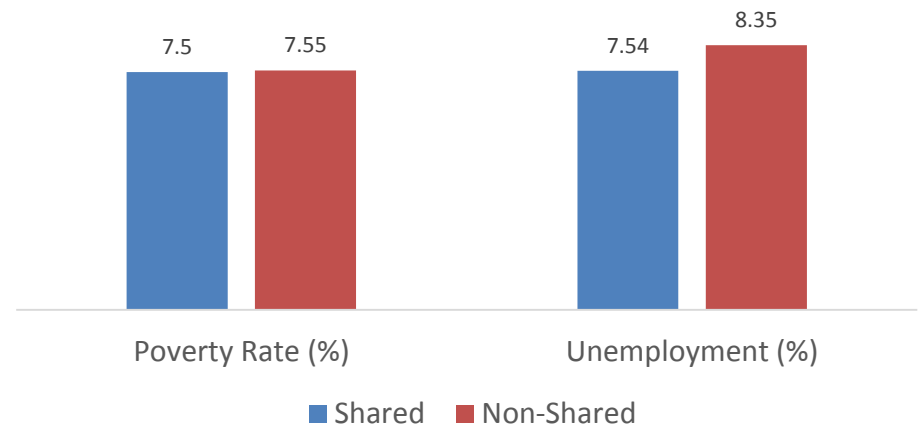


# Demographics (cont.)

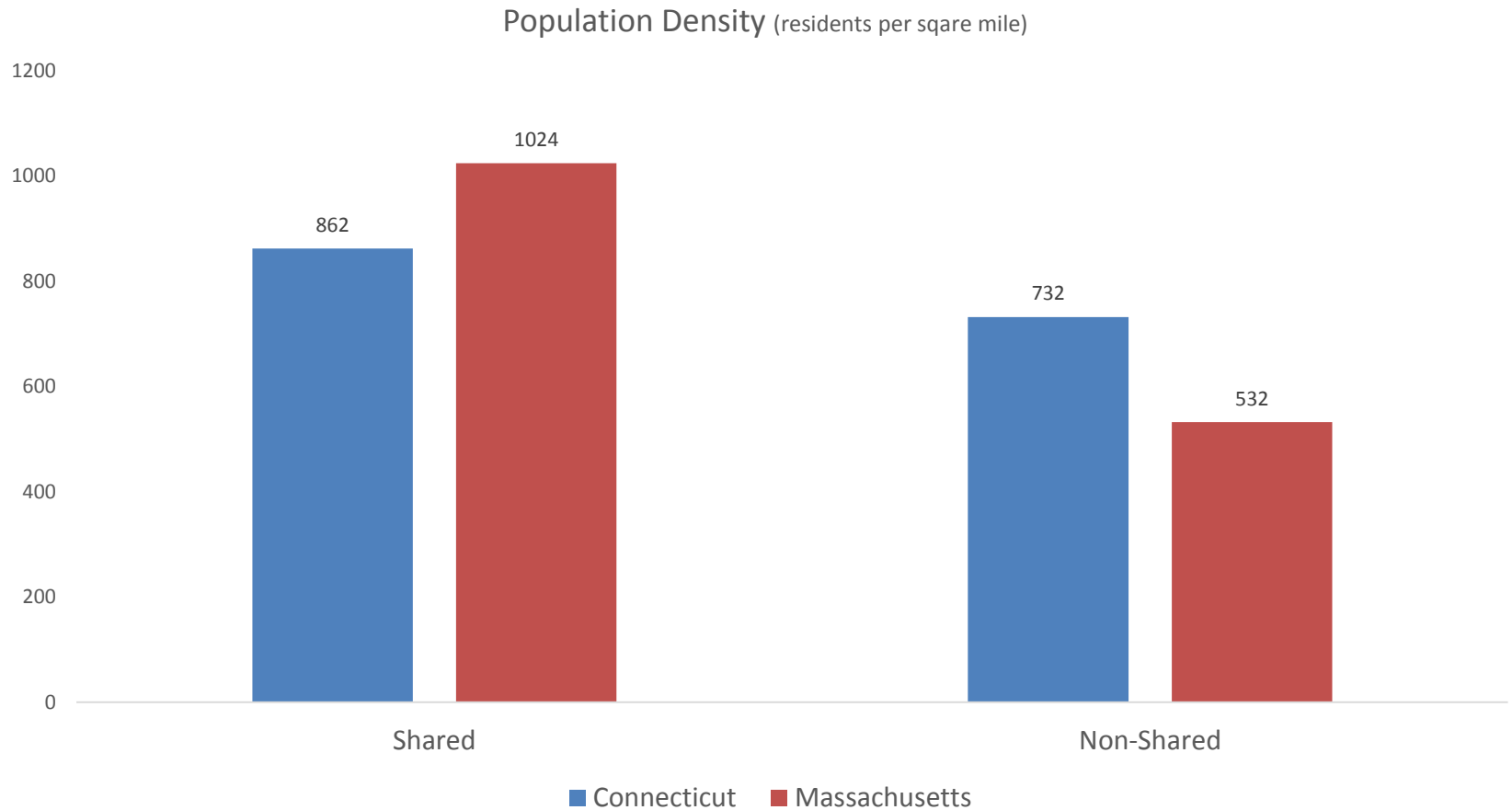
## Connecticut



## Massachusetts



# Demographics (cont.)



# Perceptions of Service Delivery Model Single Municipality Departments

Strengths	Challenges
Ability to be responsive to local needs	Lack of capacity to fulfill responsibilities
Deep knowledge of municipality	Limited budgets
Flexibility to share services with other departments or towns as needed	Lack of resources to provide non-mandated community programs
Interoperability across municipal departments in small towns	Difficulty hiring and retaining qualified staff
Freedom to make decisions without getting “bogged down” in bureaucracy	Political environments within towns change with election cycles
	Small number of staff who are responsible for services in multiple areas

# Perceptions of Service Delivery Model

## Single Municipality Departments

Strengths	
Ability to be responsive to local needs	<p><i>“One of the strengths is that we are a local health department. We are in touch with the municipality, meaning that we are in the same town, we are part of the local government. (Single – CT)</i></p>
Deep knowledge of municipality	Lack of
Flexibility to share services with other departments or towns as needed	mandated community programs
Interoperability across municipal departments in small towns	Difficulty hiring and retaining qualified staff
Freedom to make decisions without getting “bogged down” in bureaucracy	Political environments within towns change with election cycles
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# Perceptions of Service Delivery Model

## Single Municipality Departments

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Ability to be responsive to local needs	Lack of capacity to fulfill responsibilities
Deep knowledge of municipality	Limited budgets
Flexibility to share services with other departments or towns as needed	Lack of resources to provide non-mandated community programs
Interoperability across municipal departments in small towns	Difficult to have a qualified staff
Freedom to make decisions without getting “bogged down” in bureaucracy	<p><i>As being a standalone, we're able to make decisions without having to involve too many people so we need to make these major decisions nothing gets bogged down. (Single – MA)</i></p>
	Small size means responsible for multiple areas

# Perceptions of Service Delivery Model Single Municipality Departments

	Challenges
<p><i>“Demographically with the people there is a lot of public health services that need to be delivered. But me being a one man show having to go out and do all the state mandated inspections, it is a little difficult to tackle programs for the residents in the community on my own. Again, we don’t have a lot of money to do that. (MA-Single)</i></p>	<p>Lack of capacity to fulfill responsibilities</p> <p>Limited budgets</p> <p>Lack of resources to provide non-mandated community programs</p> <p>Difficulty hiring and retaining qualified staff</p>
<p>Freedom to make decisions without getting “bogged down” in bureaucracy</p>	<p>Political environments within towns change with election cycles</p>
	<p>Small number of staff who are responsible for services in multiple areas</p>

# Perceptions of Service Delivery Model Multi-jurisdictional Departments

Strengths	Challenges
Ability to hire expert, qualified staff	Balancing good customer service with efficiencies in service delivery
Greater capacity to provide community health programs/services	Geographic spread of municipalities
Ability to focus upstream on prevention and policies	Splitting time across municipalities and developing working relationships
Entrepreneurial potential in having flexibility to use funding to try new programs, staffing patterns, etc.	Navigating political differences across municipalities
Nimbleness in staffing that allows municipalities to get what they need	Municipalities have different populations and needs
Consistency in service delivery	Residents and political leaders do not think or plan regionally



# Perceptions of Service Delivery Model

## Multi-jurisdictional Departments

Strengths	
Ability to hire expert, qualified staff	Balance of expertise
Greater capacity to provide community health programs/services	Geographic proximity
Ability to focus upstream on prevention and policies	Splitting time between municipalities and developing working relationships
Entrepreneurial potential in having flexibility to use funding to try new programs, staffing patterns, etc.	Navigating political differences across municipalities
Nimbleness in staffing that allows municipalities to get what they need	Municipalities have different populations and needs
Consistency in service delivery	Residents and political leaders do not think or plan regionally

*Expertise is a big one. We have full time epidemiologists on staff, a full-time communicable disease coordinator, and administrative and finance team. We have a big staff with depth and capacity to respond... (Multi-CT)*

# Perceptions of Service Delivery Model Multi-jurisdictional Departments

Strengths	Challenges
Ability to hire expert, qualified staff	Balancing good customer service with efficiencies in service delivery
Greater capacity to provide community health programs/services	Geographic spread of municipalities
Ability to focus upstream on prevention and policies	<p>...and ... municipalities</p> <p>Our strengths is that we're providing more than just environmental health... On their own, these towns very rarely get to provide community health programs, education, community health assessments...they just don't get to it. So they are getting the full spectrum of public health services that they normally would not have on a regular basis. (Multi-MA)</p>
Entrepreneurial potential in having flexibility to use funding to try new programs, staffing patterns, etc.	
Nimbleness in staffing that allows municipalities to get what they need	
Consistency in service delivery	Res... think or p...

# Perceptions of Service Delivery Model

## Multi-jurisdictional Departments

*I would say a challenge, it's not so much our model but the rural nature of our district is it's just a challenge geographically driving... I mean that comes down to efficiency but you have to balance out against responsiveness and satisfaction just as well.*

As (Multi-MA)  
preventive.

Entrepreneurial potential in having flexibility to use funding to try new programs, staffing patterns, etc.

Nimbleness in staffing that allows municipalities to get what they need

Consistency in service delivery

### Challenges

Balancing good customer service with efficiencies in service delivery

Geographic spread of municipalities

Splitting time across municipalities and developing working relationships

Navigating political differences across municipalities

Municipalities have different populations and needs

Residents and political leaders do not think or plan regionally

# Perceptions of Service Delivery Model Multi-jurisdictional Departments

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Ability to hire expert, qualified staff	Balancing good customer service with efficiencies in service delivery
Greater capacity to provide community health programs/services	Geographic spread of municipalities
Ability to focus upstream on prevention and policies	Splitting time across municipalities and developing working relationships
<p>Ent <i>We serve six municipalities, so we serve six elected officials, six building inspectors and six social agencies. There is a huge volume of personnel that we deal with which is very distinct from a part-time health department or when serving one municipality. (Multi-CT)</i></p>	Navigating political differences across municipalities
Co	Municipalities have different populations and needs
	Residents and political leaders do not think or plan regionally

# Observations about similarities and differences between CT and MA

## Single municipality

- Smaller independent municipalities in CT tend to be wealthier than in MA
  - Difference in reported capacity to hire qualified staff

## Multi-municipality

- CT districts and a few MA shared services are stand alone entities
  - Affects day-to-day involvement in municipal decisions
  - Affects relationships across towns
  - Allows for some distance from political fluctuations

# Food Service Cost Model

- Questions asked:
  - Staff Costs
  - Indirect Rate
  - Overhead Rate
- Answered by all respondents:
  - Staff costs

# Food Safety Inspections

- No significant differences in number of inspections per 1000 population

- In CT, non-sharing jurisdictions have a higher proportion of required inspections conducted; no difference in MA

	Connecticut		Massachusetts	
	Shared	Non-Shared	Shared	Non-Shared
	mean (standard deviation)			
Total Food Service Establishments (per 1,000 population)	4.69 (0.94)	4.67 (1.80)	6.00 (3.19)	7.14 (3.88)
Total # Inspections (per 1,000 population)	8.31 (1.48)	10.43 (4.84)	9.49 (4.26)	11.17 (7.05)
Total # Required Inspections (per 1,000 population)	12.73 (2.88)	12.30 (4.78)	9.99 (3.99)	12.79 (8.46)
Proportion of Required Inspections Conducted	67.4 (15.0)	94.0 (36.8)	93.9 (15.7)	92.4 (31.2)
Proportion of Inspection Violations	6.3 (7.3)	6.4 (4.7)	24.5 (36.0)	16.2 (23.7)

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# Food Safety Inspections

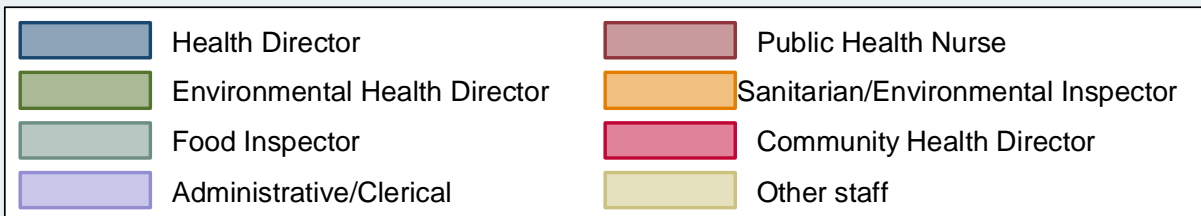
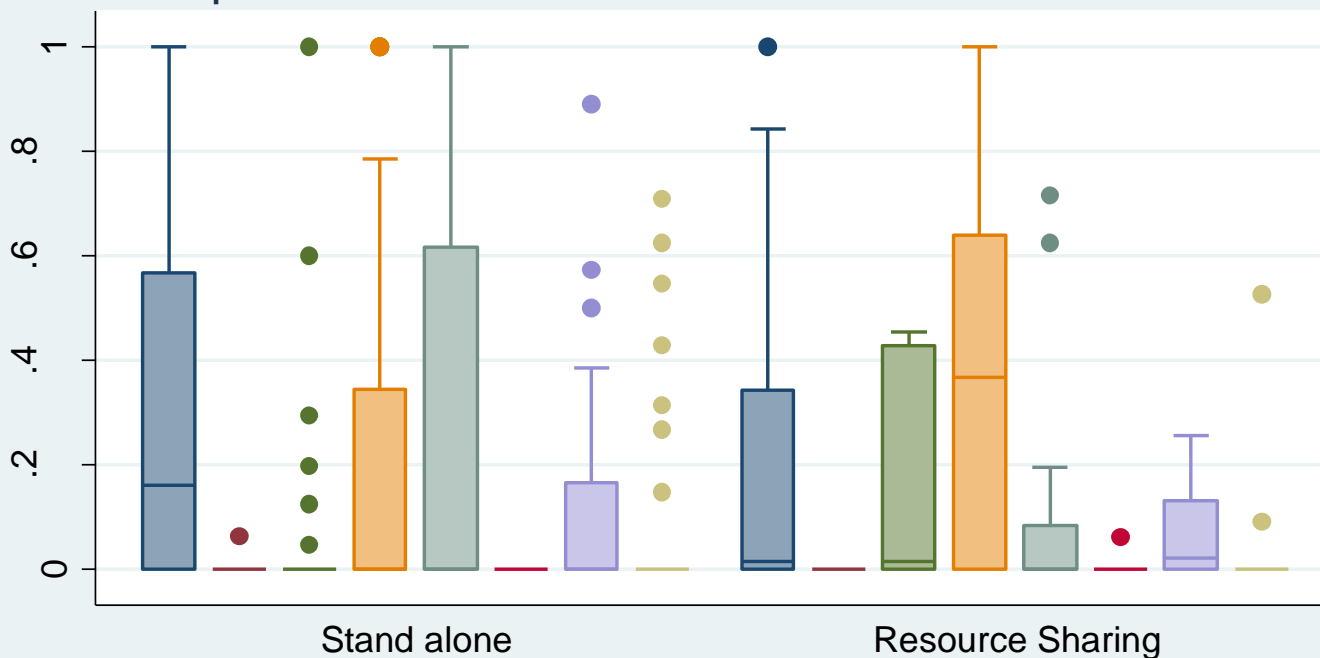
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# Food Safety Staffing

Proportion of FSI Staff Time from Different Positions



# Cost Estimates

- The total number of inspections for Resource Sharing and Stand Alone departments is significantly different ( $p < 0.001$ ).
- The cost per FSI is not significantly different for Resource Sharing and Stand Alone departments.

	Connecticut		Massachusetts	
	Cost/FSI	Total FSI	Cost/FSI	Total FSI
	mean (SD)			
Stand Alone	176.3 (133.5)	241.9** (244.4)	178.4 (183.9)	163.8** (171.0)
Resource Sharing	137.7 (108.2)	141.6** (400.6)	82.5 (65.0)	734.8** (1299)

# Predictors of Total FSI Staff Cost

- State, resource sharing and number of type 3 inspections required were insignificant, and were excluded from the model

	Coefficient	p value	95% CI	
Unemployment	-243373.1	0.101	-535912	49166.19
Population Density	10616.99	0.083	-1427.8	22661.8
FSI conducted	79.3	<0.0001	41.3	117.2
FSI <sup>2</sup>	-0.0201	0.001	-0.032	-0.008
Model R <sup>2</sup>	0.415			

# FSI Cost Analysis Conclusions

- 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 maximum 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

- Add to limited research on effective and efficient service delivery models for small and mid-size jurisdictions
- Mixed methods allows us to gain insights into quality and complexity of measures
- Cost of local public health services
  - Variation in cost by jurisdiction size and service delivery model

# Next Steps

- Quality indicators are critical to factor in to cost analyses for food inspections
- Mixed methods analyses examining political influences on public health services
- Explore variation in delivery and cost of enteric disease and obesity prevention services

# Project Information & Updates

go to: <http://www.publichealthsystems.org/effects-cross-jurisdictional-resource-sharing-implementation-scope-and-quality-public-health#>

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DIRECTIVE

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MPROVE

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Datasets

## The Effects of Cross-Jurisdictional Resource Sharing on the Implementation, Scope and Quality of Public Health Services

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**Year:** 2014  
**Funding:** Dissemination and Implementation Research to Improve Value Study (DIRECTIVE)  
**Status:** Underway

**Overview**

As public health entities increasingly explore cross-jurisdictional sharing (CJS) models to maximize reach, effectiveness, and efficiency in public health service delivery, it is important to develop the evidence base around what strategies work best. This **Dissemination and Implementation Research to Improve Value (DIRECTIVE)** project supports a consortium of the Connecticut and Massachusetts PBRNs in using a mixed methods approach to study the effects of cross-jurisdictional resource sharing on implementation of public health services with the intent to: 1) characterize effectiveness, volume, capacity and costs of implementing public health services in the areas of food inspection, enteric infection and obesity prevention; 2) assess the extent to which cross-jurisdictional service sharing arrangements affect implementation of local public health services; and 3) investigate how political priorities affect implementation of public health services. Co-led by the Massachusetts Institute of Community Health and the Connecticut Association of Directors of Health, Inc., investigators will compare independent municipal health departments of similar population size and region who receive public health services under a comprehensive shared service delivery model. A bundle of services from each of the **Multi-Network Practice Outcome Variation Examination (MPROVE)** domains (i.e., environmental health, communicable disease, and chronic disease, respectively) will be examined to assess volume, capacity, and quality across delivery models. Methods developed from Connecticut's **Delivery and Cost Study (DACS)** project will be used to calculate the costs of services.

**Presentation**

- **Building Evidence to Improve the Infrastructure of Local Public Health Through Practice-Based Research Networks** (NE Public Health Training Center Webinar, October 2015 recording)
- **Effects of Cross-Jurisdictional Resource Sharing on the Implementation, Scope and Quality of Public Health Services** (PHSSR)



# Commentary



## **Patrick (Pat) Libbey**

Co-director, Center for Sharing Public Health Services

Clinical Instructor, Health Services, University of Washington School of Public Health

[pat-libbey@comcast.net](mailto:pat-libbey@comcast.net)



## **Jennifer C. Kertanis, MPH**

Director

Farmington Valley Health District, CT

[jkertanis@fvhd.org](mailto:jkertanis@fvhd.org)

# Questions and Discussion

# Webinar Archives & Upcoming Events

go to: <http://www.publichealthsystems.org/phssr-research-progress-webinars>

## Upcoming Webinars

June 23, 2016 (12-1p ET/ 11-12a CT)

### **IMPROVING THE EFFICIENCY OF NEWBORN SCREENING FROM COLLECTION TO TEST RESULTS**

Beth Tarini, MD, MS, University of Iowa College of Medicine, formerly at University of Michigan Medical School

July 6, 2016 (12-1p ET/ 9-10a PT)

### **DEVELOPING PUBLIC HEALTH POLICY RESEARCH FRAMEWORKS WITH CONCEPT MAPPING**

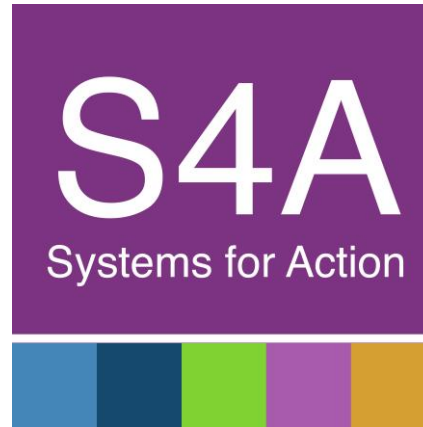
Marjorie MacDonald, RN, MSc, PhD, Applied Public Health Chair and  
Bernadette M. Pauly, RN, PhD, Associate Director, Research and Scholarship,  
School of Nursing, University of Victoria, British Columbia

July 13, 2016 (12-1p ET/ 9-10a PT)

### **LOCAL PUBLIC HEALTH AND PRIMARY CARE COLLABORATION: A PRACTICE-BASED APPROACH**

Elizabeth Gyllstrom, PhD, MPH, Research Scientist, Minnesota Department of Health and  
Rebekah Pratt, PhD, Assistant Professor, Family Medicine and Community Health,  
University of Minnesota School of Medicine

Thank you for participating in today's webinar!



For more information about the webinars, contact:  
Ann Kelly, Project Manager [Ann.Kelly@uky.edu](mailto:Ann.Kelly@uky.edu)  
111 Washington Avenue #201, Lexington, KY 40536  
859.218.2317

**[www.systemsforaction.org](http://www.systemsforaction.org)**

# Speaker Bios

**Justeen Hyde, PhD**, is the Director of Research & Evaluation for the Institute for Community Health and an instructor at Harvard Medical School. She is a cultural and medical anthropologist with a strong commitment to the use of participatory approaches to the development and implementation of health and public health research studies. She co-directs the Massachusetts Practice Based Research Network for Public Health, a group that has focused on the study of cross-jurisdictional service sharing as a strategy for improving the equity and quality of local public health services. [jhyde@challiance.org](mailto:jhyde@challiance.org)

**Debbie Humphries, PhD, MPH**, is a Clinical Instructor in Epidemiology at the Yale School of Public Health, and has a broad background in public health research and practice. She has been a consultant in the areas of diet and physical activity behavior change, sustainability of community health programs, program monitoring and evaluation, and training in participatory monitoring and evaluation for organizations in Vietnam, Africa and in the United States. Dr. Humphries' research addresses interactions between nutrition and infectious disease, as well as programmatic approaches to improving public health. She recently completed a pilot study investigating the effects of economic shocks on Connecticut local health departments. [debbie.humphries@yale.edu](mailto:debbie.humphries@yale.edu)

**Patrick (Pat) Libbey** is a co-director of the Center for Sharing Public Health Services, and a Clinical Instructor in the Department of Health Services, University of Washington School of Public Health. The Center for Sharing Public Health Services has grown to be a national resource on cross-jurisdictional service sharing for local health departments. He has a wealth of experience working in public health at the local, regional, and national levels, which includes serving as the executive director of the National Association of County and City Health Officials and a local public health director. Mr. Libbey also served as a founder and incorporating board member of the Public Health Accreditation Board. [pat-libbey@comcast.net](mailto:pat-libbey@comcast.net)

**Jennifer C. Kertanis, MPH**, is the director of the Farmington Valley Health District in Connecticut where she oversees the delivery of public health services for 10 municipalities. In addition to being a lead for the Public Health Practice-Based Research Network, she is also the former Executive Director of the Connecticut Association of Health Departments. She previously worked for eleven years with the CT Department of Public Health in the environmental epidemiology unit working with communities to assess the health implications of hazardous waste sites, and established the asthma surveillance program. [jkertanis@fvhd.org](mailto:jkertanis@fvhd.org)