Systems for Action
National Coordinating Center
Systems and Services Research to Build a Culture of Health

Cross-Jurisdictional Resource Sharing and Scope & Quality of Public Health Services

Research In Progress Webinar

Thursday, May 11, 2017 1:00-2:00pm ET/ 10:00-11:00am PT

Funded by the Robert Wood Johnson Foundation

College of Public Health
Center for Public Health Systems and Services Research

Agenda

Welcome: **Anna G. Hoover, PhD,** Assistant Professor, University of Kentucky College of Public Health

Cross-Jurisdictional Resource Sharing and Scope & Quality of Public Health Services [DIRECTIVE]

Presenters: **Justeen Hyde, PhD,** Research Scientist, Healthcare Organization & Implementation Research, Veterans Affairs Medical Center; Massachusetts Public Health PBRN *Justeen.Hyde@va.gov*

Debbie Humphries, PhD, MPH, Clinical Instructor in Epidemiology, Yale School of Public Health *debbie.humphries@yale.edu*

Commentary: **Steve Huleatt, MPH**, Director of Health, West Hartford-Bloomfield Health District, Connecticut

Ron O'Connor, MPH, Director, Office of Local and Regional Health, Massachusetts Department of Public Health

Questions and Discussion

Presenters

Justeen Hyde, PhD

Research Health Scientist, Center for Healthcare Organization & Implementation Research, Veterans Affairs Medical Center

Instructor, Harvard Medical School

Massachusetts Public Health PBRN

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Debbie Humphries, PhD, MPH

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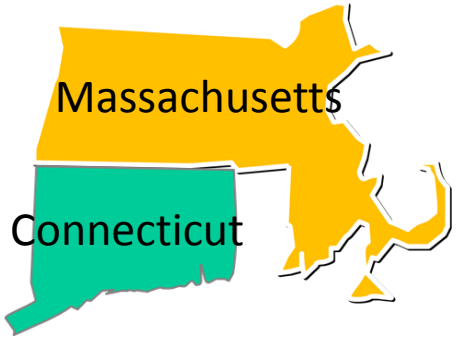
Effects of Cross-Jurisdictional Resource Sharing on the Implementation, Scope and Quality of Public Health Services



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

Justeen Hyde, PhD
Research Health Scientist
U.S. Veterans Administration,
Bedford, Massachusetts

CADH Connecticut Association of Directors of Health

Acknowledgements

Funder: Robert Wood Johnson Foundation through t**he** Systems for Action National Coordinating Center – DIRECTIVE Grant #72054

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

Background

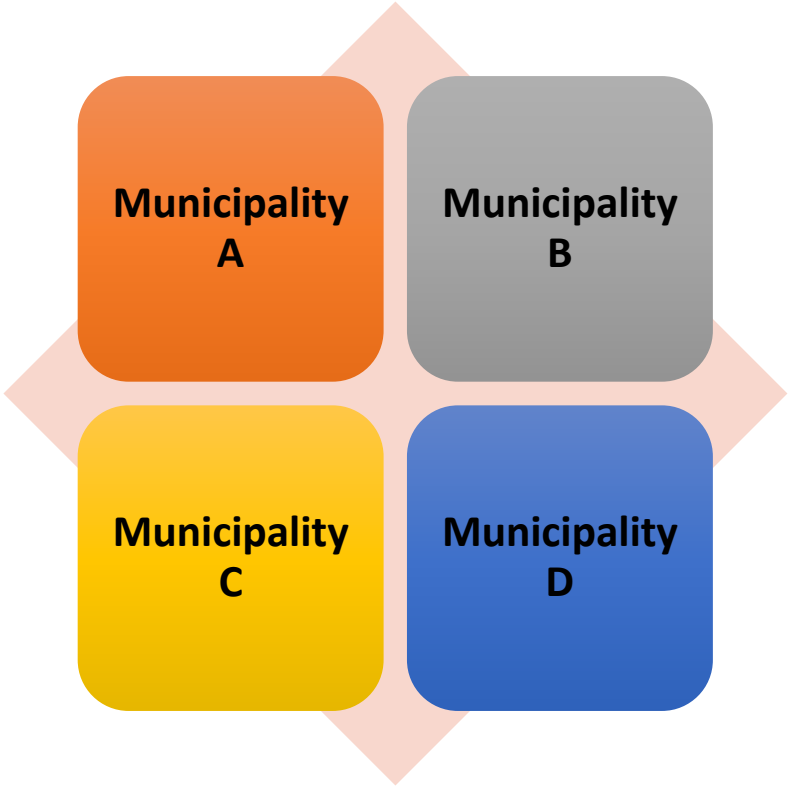
- Connecticut and Massachusetts
  - Both home rule states
  - Municipal responsibility for local public health
- Shared concern with equitable delivery of local public health services
- Mix of service delivery models
  - Independent
  - Partial and Comprehensive shared service
  - Districts

CT and MA at a glance:

	Massachusetts	**Connecticut**
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%)

Key Research Question

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



Compared to

Municipality

$ Cost

✓ Quality

Breadth

Research Team

	Connecticut	**Massachusetts**
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

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

Four focus areas for presentation

Highlight similarities and differences by service delivery model

- Administration and governance
- Staff and Services
- Costs by sharing status
  - Obesity
  - Enteric Disease
  - Food Safety Inspections

Demographics

	Sharing	Independent	p value
Demographics, mean (SD)	(n=15)	(n=54)	
Poverty rate	5.76 (0.89)	5.32 (0.66)	0.79
Unemployment	7.17 (0.35)	7.61 (0.35)	0.52
Population	15586 (22637)	14729 (12240)	0.8
Pop per sq mile	937 (270)	615 (60)	0.08
Municipal budget per 1000 population	2.92M (240,400)	3.25M (377,403)	0.6
Public Health budget per 1000 population	15,170 (1630)	16,340 (1800)	0.74
Race & Ethnicity, mean % (SD)			
Black	3.8% (1.2)	5.9% (3.7)	0.59
Hispanic	5.6% (0.011)	4.4% (0.55)	0.31

[1]Proportions are with respect to the total number of sharing or non-sharing municipalities in that size range in both Connecticut and Massachusetts.

[2]Proportions are compared with a chi square analysis; means with t-test.

Administration and Governance (1)

Executive structure, % (n)	Shared (76)	Independent (54)	p value
Elected (mayor/selectman)	32% (24)	53.9% (28)	0.012
Appointed (manager/ administrator)	60% (45)	46.2% (24)	
None	8.0% (6)	0%	

- No significant differences in local legislative structure or municipality type (rural/suburban/urban) between independent and shared health departments.
- Service sharing departments were significantly more likely to have an appointed administrator.

Administration and Governance (1)

Understanding of Public Health	**Shared n=76**			**Independent n=54**			
	Excellent or Good	Fair or Poor	Don't Know	Excellent or Good	Fair or Poor	Don't Know	p value
Alderman/Councilors	30% (22)	49% (36)	22% (16)	40% (21)	60% (31)	0	0.002
Finance Committee	10% (7)	65% (47)	25% (18)	33% (17)	51% (26)	16% (8)	0.005

- Independent health departments reported their Aldermen/Councilors and Finance Committees had a better knowledge of the roles and responsibilities of a local health department than Service Sharing departments
- No differences between to two models in BOH or Chief Executives' understanding

Administration and Governance (2)

	Shared(n=15)	Independent (n=54)	p value[1]
Board of Health			
No BOH Rep	0 (0%)	18 (33%)	0.001
Appointed BOH	8 (53.3%)	14 (26%)	
Elected BOH	4 (27%)	22 (41%)	
Other BOH process	3 (20%)	0 (0%)	
Average BOH members	15.1 (3.1)	2.5 (0.28)	<0.001

- Service sharing departments all had BOH representation.
- Service sharing departments had a larger average number of BOH members.

- Independent departments reported more meetings with the chief executive.
- Independent departments reported fewer BOH meetings.

	Sharing (n=15)			Independent (n=54)			p value
Frequency of Meetings	<4/yr	4-9/yr	≥10/yr	<4/yr	4-9/yr	≥10/yr	p value
Chief Executive	20% (3)	46.7% (7)	33.3% (5)	33.3% (18)	7.4% (4)	59.3% (32)	<0.01
Board of Health	6.7% (1)	13.3% (2)	80% (12)	38.9% (21)	7.4% (4)	53.7% (29)	0.059

[1]Frequency of meetings is not available at the municipal level for multi-municipality health departments.

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).

Educational background of Directors 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%) – note this is mostly in small towns with Board of Health Chair serving as Director

Core Public Health Services

Higher in Independent

- Animal control (93% vs. 74%; p=0.07)
- Mosquito control (67% vs. 39%; p=0.002)
- Public health nursing (74% vs. 58%; p=0.06, CT specific)

Higher in Shared

- Lead inspections (97% vs. 81%, p=0.004)
- Natural bathing water testing (87% vs. 70%; p=0.02)
- Nail salon inspections (82% vs. 65%; p=0.03)
- Public pool inspections (99% vs. 85%; p=0.004)

Community Health Programs

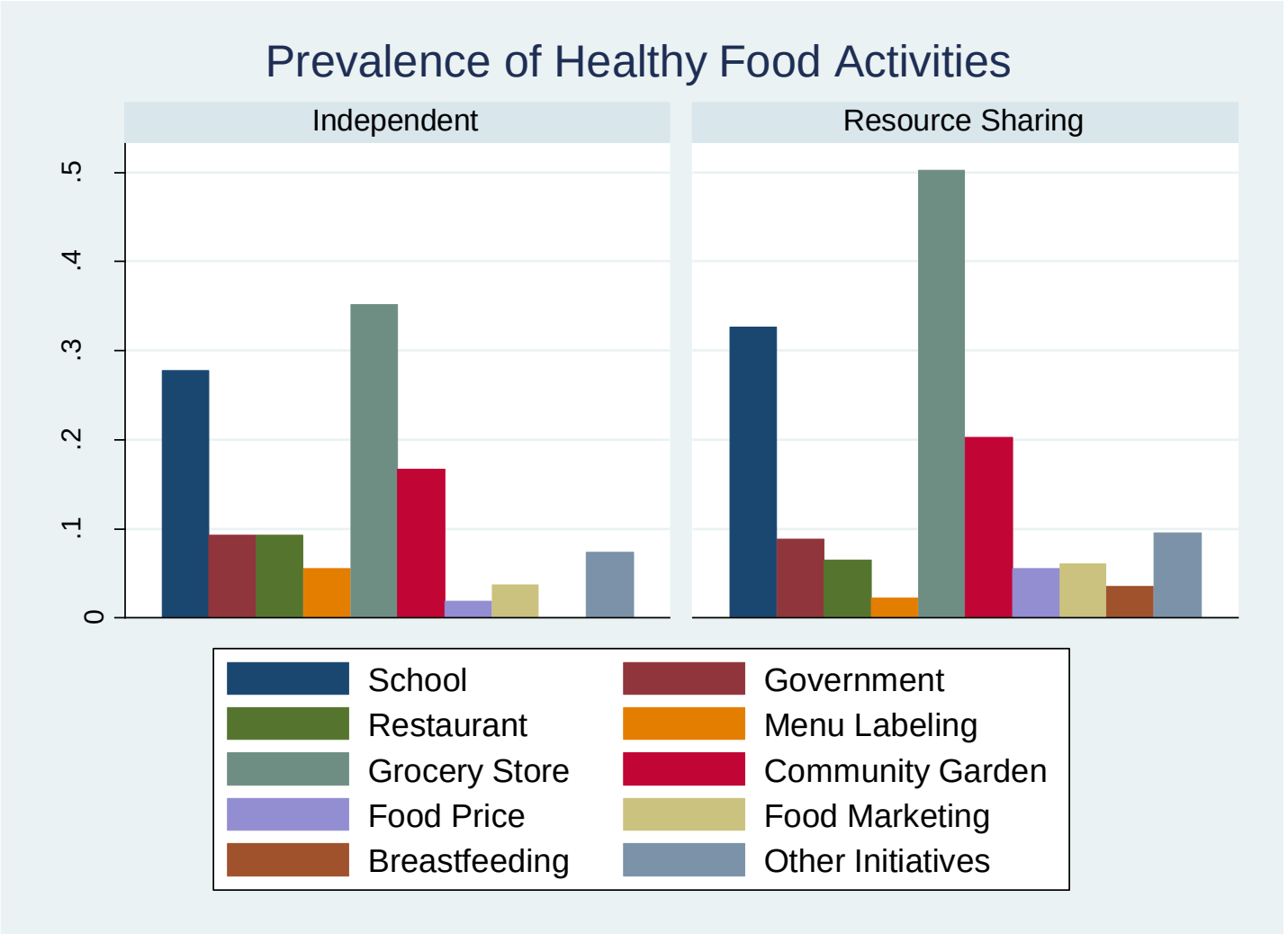
	Shared (76 municipalities	Independent (54 municipalities
Chronic Disease Prevention	66%	43%
Obesity Prevention	58%	44%
Healthy Aging	53%	57%
Tobacco Control/Prevention	32%	43%
Injury Prevention	42%	35%
Asthma Education and Prevention	39%	37%
Substance use Education and Prevention	39%	59%
Mental Health Education and Awareness	33%	26%
Domestic Violence Prevention	12%	26%
HIV/AIDS Education and Prevention	16%	15%

CHA and CHIP Completion (last 3 years)

	CHA completion		CHIP completion	
	frequency	%	frequency	%
Shared Service (includes 76 municipalities)	**28**	**37%**	**16**	**21%**
Major/Co-lead/Lead	*23*	*83.87%*	*16*	*100%*
Minor/No role	*5*	*16.13%*	*0*	*0%*
Independent (54 municipalities)	**19**	**35%**	**10**	**19%**
Major/Co-lead/Lead	*13*	*72.20%*	*8*	*80%*
Minor/No role	*5*	*27.80%*	*2*	*20%*

Obesity Prevention Activities

Grocery store and school-based healthy food initiatives are most common in both independent and sharing departments, followed by community gardens.



Obesity Prevention & Enteric Disease Expenditures

- Shared service departments invested more on activities that promote access to healthy food
- There are no significant differences in enteric disease investigation costs between independent and resource sharing departments in Connecticut.

Obesity Expenditures* (per 1K population)	**Independent**	**Resource Sharing**	p value
Physical Activity	46.7 (0.3,93.0)	136.2 (33.9,238.5)	0.14
Healthy Foods	20.3 (-14.9,55.4)	120.0 (42.4,197.6)	0.04
Overall	69.5 (0.9,138.0)	180.7 (29.3,332.1)	0.22
ED Investigation Costs*			
Cost per ED Investigation	1352 (685,2019)	2321 (1006,3637)	0.24
ED Cost per 1K populatior	461 (298,625)	463 (102,824)	0.99
*adjusted for unemployment and square miles			

Food Service Cost Model

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

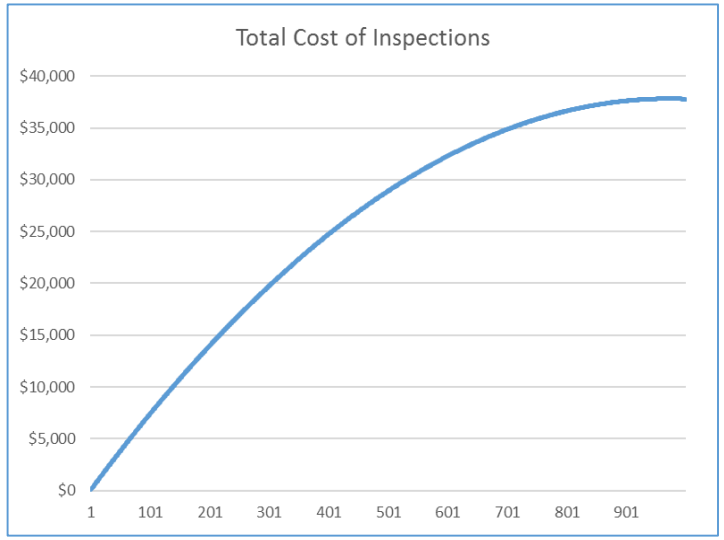
Food Inspection Costs*	Resource Independent	Resource Sharing	p value
Cost per Food Inspection	135.7 (95.8,175.6)	93.6 (5.4,181.8)	0.43
Cost per Food Establishment	155.1 (109.7,200.4)	123.5 (25.2,221.8)	0.59
Cost per 1K population	1468 (1070,1870)	1018 (128,1909)	0.4
*adjusted for unemployment and square miles			

✓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.

Drivers of cost per inspection

- Ordinary Least Squares regression with staff cost per food safety inspection (FSI) as dependent variable.
- State, resource sharing, unemployment and having more than 5 FSI quality indicators were insignificant in the model
- Other significant control variables included population density (p=0.064)
- The total cost of inspections increases at a decreasing rate. The cost per inspection declines.



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

Food Safety Inspections

Quality indicators for food inspections

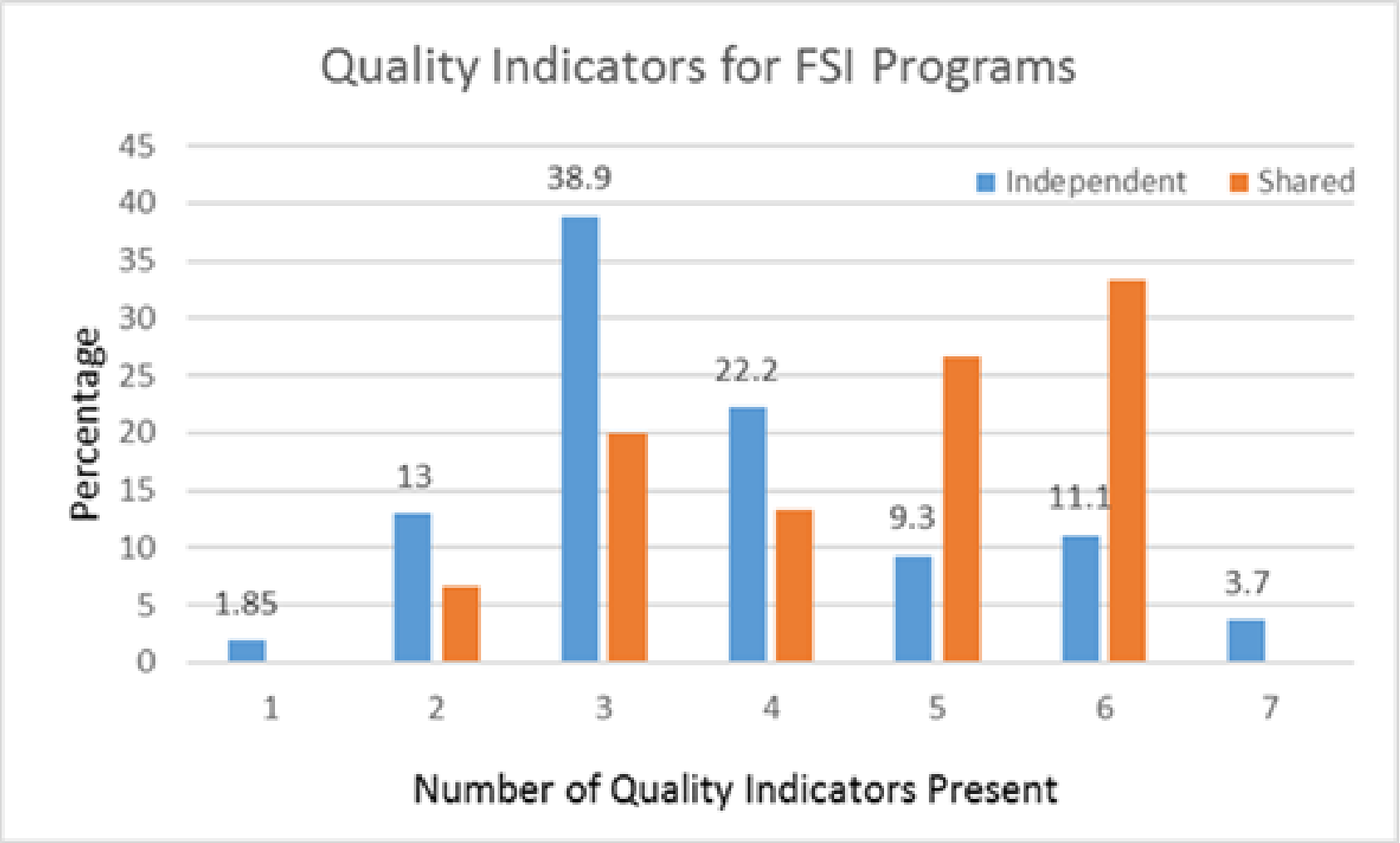
(adopted from FDA Voluntary Retail Food Safety Program):

- 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
- Designated supervisor to oversee food inspections
- Written policies for responding to complaints
- Equipment needed for food inspections*
- Annual evaluation of food inspection program

* Most commonly reported across both models

Quality of Food Safety Inspections

Sharing departments are more likely to have 5 or more of the quality indicators (73% vs. 46%) (p= 0.064)



Observations of Qualitative Responses

Most commonly reported indicators:

- Formally trained food safety inspectors
  - CT requires standard training of all food inspectors and on-going training
  - MA varied widely in reports of formal training
- Use of a standard inspection reporting form
  - Nearly all (both states) using their state's inspection form
- Equipment needed for food inspections
  - Nearly all (both states) reported this was not a challenge for their department

Observations of Qualitative Responses

- **Written** standard operating procedures and procedures for responding to complaints were not commonly reported, but those who did were likely to report:
  - working towards or had achieved public health accreditation
  - enrollment in the FDA's Voluntary Retail Food Safety Program
- Having a designated **supervisor** to oversee the inspectional service more likely to be found in:
  - Shared service departments
  - Independent health departments in urban or suburban communities

Observations of Qualitative Responses

- Very few reported performing an annual **evaluation** of retail food inspection program
- Those who did conceptualized evaluation in different ways
  - Review of past inspections to identify trends in violation types and/or repeat violators
  - Regular or annual review of food inspection forms to assess quality
  - Formal to informal conversations with inspectors to identify strengths, challenges, and areas in need of improvement
- Development of **annual report** on food inspection services most often entailed a count of inspections and re-inspections to the state and/or Board of Health

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 are stand alone entities
  - Affects day-to-day involvement in municipal decisions
  - Affects relationships across towns
  - Allows for some distance from political fluctuations

Cross-cutting

Health directors from both service delivery models and states reported challenges with variable understanding of the roles and responsibilities of local health departments among key stakeholders

Conclusions (1)

- Independent health departments report that their governing bodies have greater understanding of roles and responsibilities of local public health
- In both models, state mandates drive the provision of public health services
  - Those that are mandated are most likely to be provided
- Shared service departments have fewer staff per 1000 population
- Shared service departments are more likely to have directors with public health training

Conclusions (2)

- Shared service departments report providing more community health programs and services
- Shared service departments invested more on activities that promote access to healthy food
- There are no significant differences in enteric disease investigation costs between independent and sharing departments in Connecticut.

Conclusions (3)

- Sharing departments have more indicators of higher quality food safety inspections.
- Primary driver of food safety 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

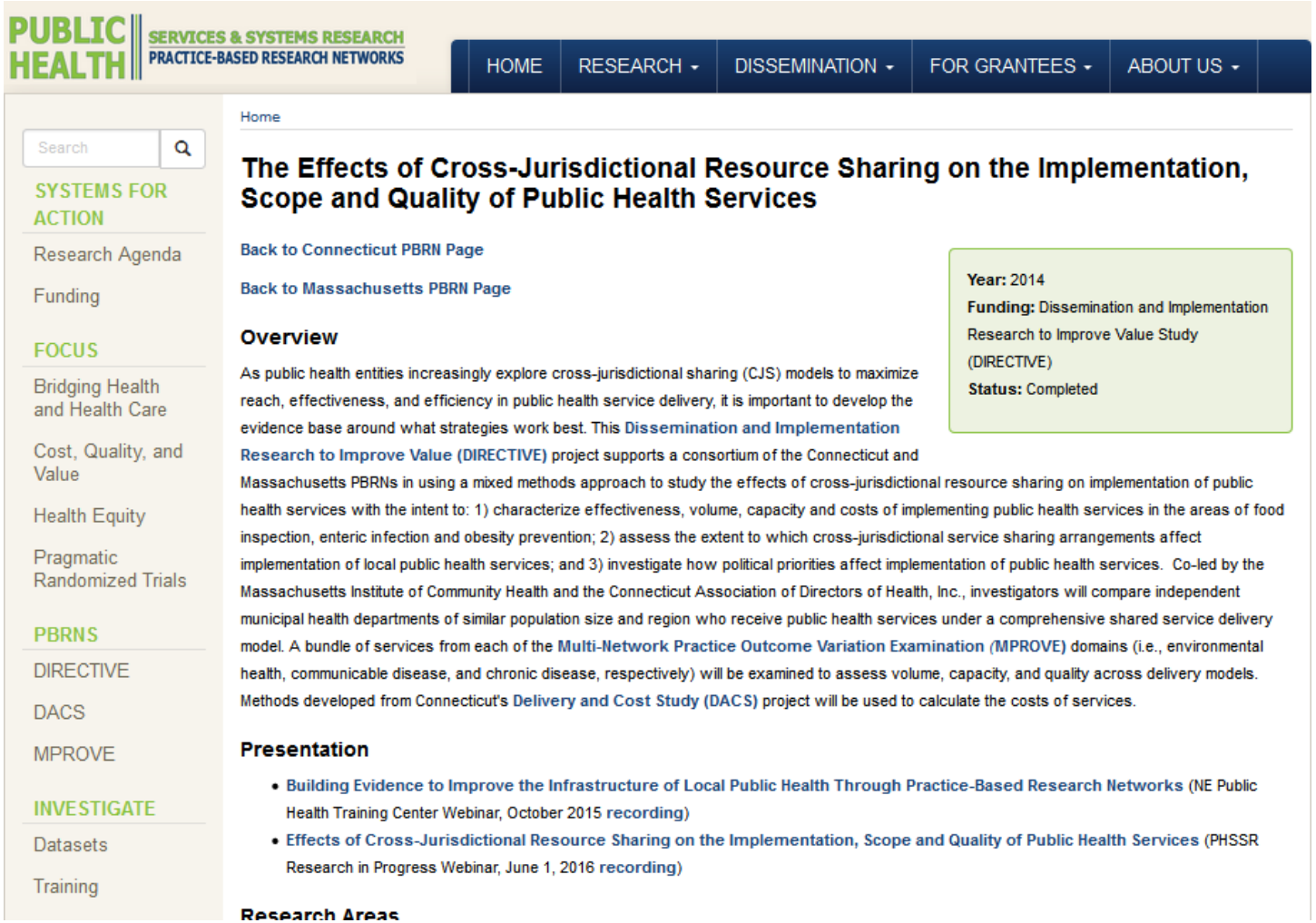
- This study adds to limited research on effective and efficient service delivery models for small and mid-size jurisdictions
- Incorporation of quality measures into services adds more nuanced understanding of service provision and cost
  - More work is needed on quality measures that are meaningful and reliable
- This study extends previous research on cost of local public health services by exploring potential variations in cost by jurisdiction size and service delivery model

Implications

- Trade-offs with each model
- Size of jurisdiction served matters
  - Local independent health departments serving small jurisdictions have most limited resources but strong local knowledge
  - Multi-jurisdictional models have more resources but require more time and investment in governance and decision-making
- When making decisions about the right service delivery model for a given jurisdiction, careful consideration should be given to local culture and values

Project Updates

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



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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: Completed

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 Research in Progress Webinar, June 1, 2016 recording)

Research Areas

Commentary

Steve Huleatt, MPH
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Questions and Discussion

Webinar Archives

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

Upcoming Webinars

Wednesday, June 14, 1-2pm ET/ 10-11am PT

CROSS-JURISDICTIONAL SHARING ARRANGEMENTS BETWEEN TRIBES AND COUNTIES FOR EMERGENCY READINESS

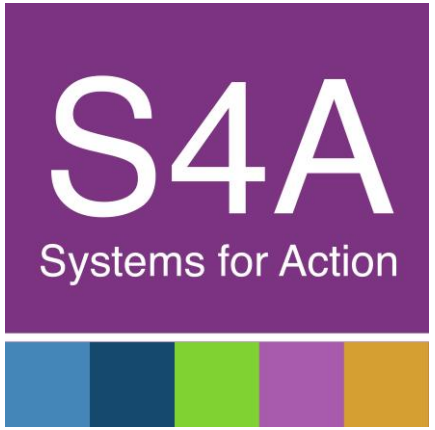
Maureen Wimsatt, PhD, MSW, California Tribal Epidemiology Center, California Rural Indian Health Board

Wednesday, June 21, 12-1pm ET/ 9-10am PT

ACCOUNTABLE COMMUNITY OF HEALTH STRUCTURES AND CROSS-SECTOR COORDINATION

Eli Kern, MPH, Public Health - Seattle and King County

Thank you for participating in today's webinar!



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For more information about the webinars, contact:

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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.

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Speaker Bios

Dr. Hyde is a Research Health Scientist at the Center for Healthcare Organization and Implementation Research, Bedford/Boston VA. For many years she has worked with local and state public health departments to develop and implement research and evaluation studies focusing on public health programs, services, and organization. Since 2008, she has also co-directed 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.

Dr. Humphries is a Clinical Instructor in Epidemiology at the Yale School of Public Health, and has a broad background in public health research and practice. Dr. Humphries' research addresses programmatic approaches to improving public health as well as interactions between nutrition and infectious disease, as well as intersections between nutrition and infectious disease.

Mr. Huleatt is the Director of Health for the West Hartford-Bloomfield Health District in Central Connecticut. Mr. Huleatt's public health career began in Environmental Health in 1979. He was appointed the Health Director for the Town of West Hartford, CT in 1989. He was appointed Health Director of the West Hartford-Bloomfield Health District upon formation in 1995.

Mr. O'Connor is the Director, Office of Local and Regional Health (OLRH) for the Massachusetts Department of Public Health (MDPH). In this role, he leads the OLRH team and collaborates with external stakeholders (including the Massachusetts Coalition for Local Public Health) and an intra-agency local public health working group to strengthen local public health capacity through workforce development, regular communication, intra-agency collaboration, and support for inter-municipal collaboration in the delivery of local public health services. Ron joined the Massachusetts Department of Public Health in 1988 as the Southeast Regional Health Promotion Coordinator and has held other DPH management positions at the regional level prior to his current statewide assignment in 2015. He is also playing a leadership role in a new Special Commission on Local and Regional Public Health that is chaired by the MDPH Commissioner and was enacted by the Massachusetts Legislature in 2016.