PHSSR Research-In-Progress Series:

Public Health Cost, Quality and Value
Wednesday, April 8, 2015 12:00 - 1:00pm ET

Public Health Services Cost Studies:
Tobacco Prevention, Environmental Health Services

Please Dial Conference Phone: 877-394-0659; Meeting Code: 775 483 8037#.

Please mute your phone and computer speakers during the presentation.

You may download today's presentation and speaker bios from the 'Files 2' box at the top right corner of your screen.

Agenda

Welcome: C.B. Mamaril, PhD, Research Assistant Professor, Health Management & Policy, U. of Kentucky College of Public Health

"Public Health Services Cost Studies: *Tobacco Prevention, Environmental Health Services*"

Presenters:

***New Jersey Public Health PBRN* -- Pauline Thomas, MD,** Associate Professor and **Susan German, MPH,** Research Associate, Preventive Medicine & Community Health, Rutgers New Jersey Medical School

***North Carolina Public Health PBRN* -- Nancy Winterbauer, PhD,** Assistant Professor, Dep't. of Public Health, East Carolina University, and **Simone Singh, PhD,** Assistant Professor, School of Public Health, University of Michigan

Commentary: Lisa M. Harrison, MPH, Granville-Vance Health Dep't, NC
Kevin G. Sumner, MPH, Middle-Brook Regional Health Commission, NJ

Questions and Discussion

Public Health Delivery and Cost Studies (DACS)

- Public Health Practice-Based Research Network studies to:
  - Identify costs of delivering high-value public health services
  - evaluate influence of delivery system characteristics on the effectiveness, efficiency, & equity of these services
  - develop & apply cost-estimation methodologies in practice settings – e.g., longitudinal, cross-sectional, core services, QI services, cost-effectiveness and ROI
  - generate novel empirical results to inform policy & decision-making
- Studies:
  - 3 PBRNs: 12-month studies to estimate costs of delivering public health services, using standard methodology to compare costs across multiple public health settings, and
  - 8 PBRNs: 18-month studies, larger comparative methodologies
- See ***http://www.publichealthsystems.org/delivery-and-cost-studies-dacs***

Presenters: *New Jersey Public Health PBRN*

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OF NEW JERSEY

Determining the Public Health Costs of Tobacco Prevention and Control: A Comparison of 4 New Jersey Local Health Departments

Susan German, Anushua Sinha, Kevin Sumner, Nancy Raymond, Judith Migliaccio, Koren Norwood, Paschal Nwako, Pauline Thomas

April 8, 2015 PHSSR Webinar
New Jersey Public Health PBRN

Toll of Tobacco in New Jersey

- Largest preventable cause of disease and death
- After long decline, NJ adult smoking rate plateaued at 16%*
- NJ revenue for tobacco use prevention and control redirected to other purposes:
  - Tobacco sales tax-generated revenue
  - Master Settlement funds
- CDC recommends $2-$3 per capita for NJ tobacco state and community interventions**

*New Jersey Department of Health, Center for Health Statistics, (2013 data)

**Centers for Disease Control and Prevention, Office on Smoking and Health

New Jersey Local Health Departments (LHDs)

- 89* LHDs covering 566 municipalities
- All are units of local government
- Over 50% of revenue is from local sources
- Four jurisdictional structures:
  - Municipal (30)
  - Inter-local (contracting) (35)
  - County (19)
  - Regional Health Commission (5)

* As of April 2014

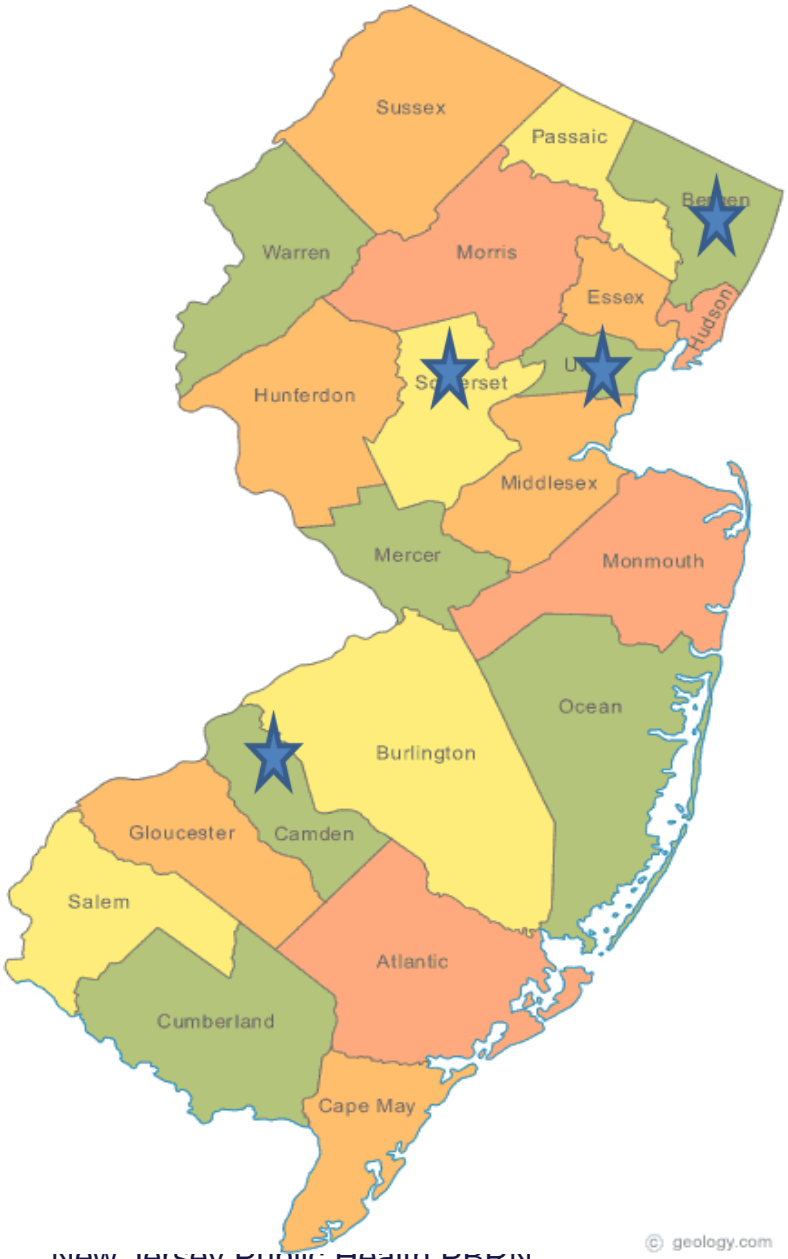
Objectives

- To determine elemental and total costs of local public health activities comprising tobacco prevention, reduction, and control

- To contribute to the understanding of costs involved in delivering efficient and effective set of public health services

Practice Settings

- PBRN-based Partnership of Co-Investigators from NJDOH, LHDs, and Rutgers
- From 15 volunteer LHDs, 4 selected for diversity of population characteristics, geographic location, and administrative structure
- Participating LHDs:
  - 2 Municipal
  - 1 Regional Health Commission
  - 1 County
- Incentive provided to participating LHDs ($500 gift card)



New Jersey DACS Study Sites

LHD	Jurisdictional Structure	Population of Jurisdiction[3]
1	Municipal1	15,184
2	Municipal2	26,674
3	Regional	43,462
4	County	512,854

Key Informant Interviews

- Listing of activities:
  - Inventory of tobacco prevention and control activities in 2013
  - Component breakdown for each activity (production function), including labor and non-labor resources
- Cost and Labor Data:
  - Quantify resources (Personnel hours, supplies, equipment, transportation, facilities)
  - Determine unit cost for each resource (to be multiplied by quantity to estimate cost for resource)
- Interview forms adapted from the Substance Abuse Services Cost Analysis Program (SASCAP™) questionnaires

Cost Estimation

- Perspective: Local health department
- Time frame: Calendar year 2013
- (Retrospective) cost accounting approach
- Counts of resources multiplied by unit costs to estimate cost for resource
- All costs expressed in U.S. dollars 2013

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Example of Time Allocation Table

	Time Allocation for Personnel: Enforcement of Outdoor Smoke-Free Ordinance													
Column A	Column B		Column C Hours Spent in Specified Year										Column D	Column E
Job Type	# of people		Receive complaint	Initiate complaint record	Perform investigation	Issue warning or citation	Follow-up visit to site	Education	Attend court hearing complainant	Follow up with	Complete complaint record	Surveillance	Sum of **annual** hours worked by all staff indicated in Column B	Comments
Administrative														
REHS														
Health Officer														
Health Educator														
Public Health Nurse														
Intern														
Volunteer														
Board Member														
[Job Type]														
TOTAL														

Data Sources

- Activity inventory and breakdown via key informant interviews
- Mixed-source cost data via LHD key informant interviews:
  - Expenditure reports, price lists, payroll, budgets
- Facility opportunity cost estimation:
  - Average office asking rental rate psf for county of LHD
- Volunteer labor opportunity cost estimated by average wage for each volunteer's respective profession
- US Census 2013 Population Estimates Program used for population denominator values

Tobacco Prevention and Control Activities

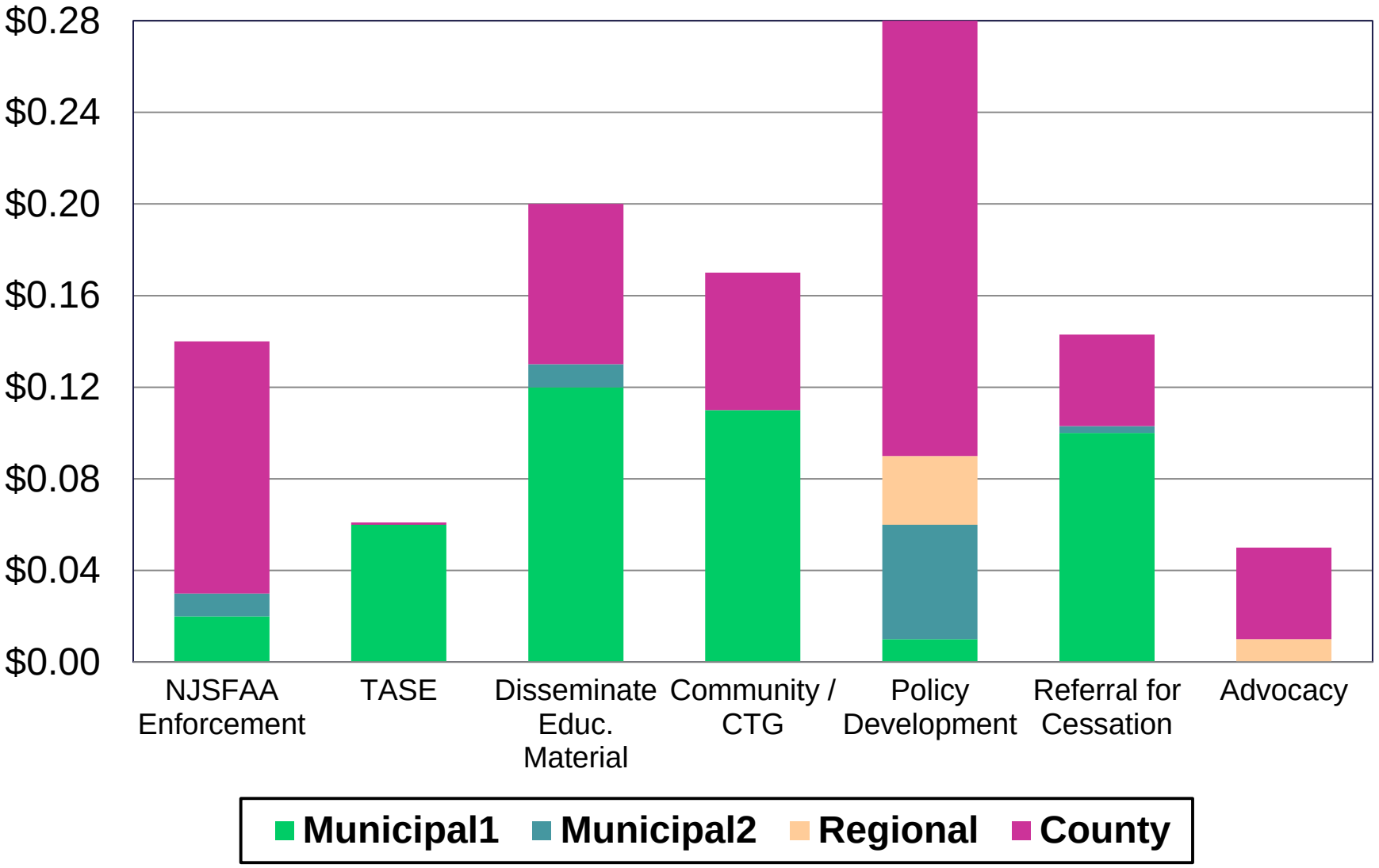
Select Activities for CY 2013	Number of LHDs
Policy development	4
Enforcement of the NJ Smoke-free Air Act (NJSFAA)	3
Referral for tobacco cessation	3
Dissemination of educational materials	3
Tobacco Age of Sale Enforcement (TASE)	2
Community Involvement / Community Transformation Grant	2
Implementation of tobacco cessation	1*
Educational mass media	1*
Regional tobacco-use surveillance	1*

** County LHD*

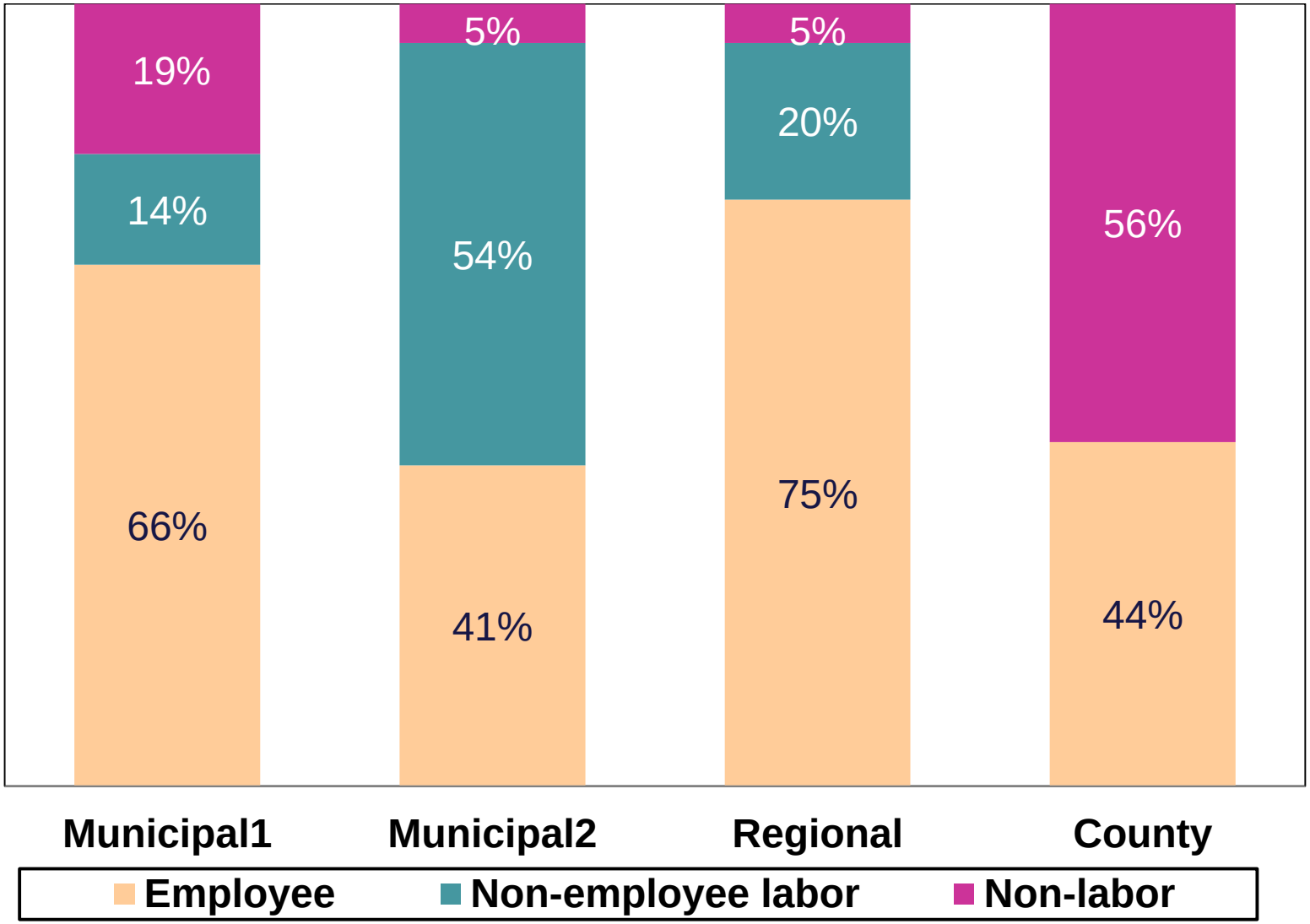
Tobacco activity and costs by LHD

LHD Type	# of Activities	Population	Total Cost ($)	Cost per capita ($)
Municipal1	7	15,184	6,144	0.41
Municipal2	5	26,674	1,912	0.07
Regional	2	43,462	1,726	0.04
County	12	512,854	406,487	0.79

Per Capita Cost: Select Activities, by LHD



Tobacco Activity Cost Structure, by LHD



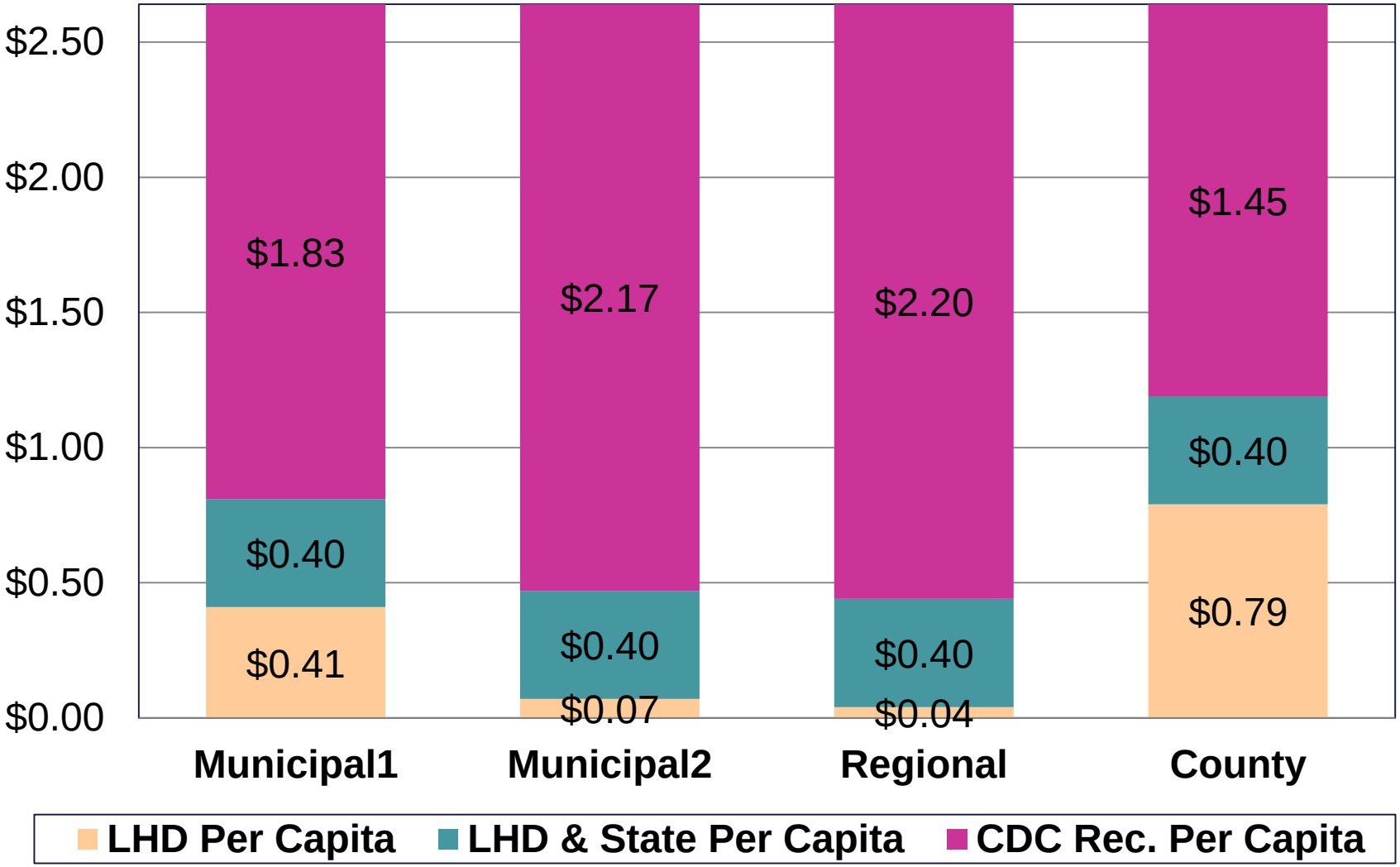
Total Cost Including State Expenditure

- State-level *per capita* tobacco spending for FY 2013: $0.40* (mostly federal funds)

- Adding this to LHD costs, *per capita* spending on state and community interventions: $0.44 - $1.19

*New Jersey Department of Health, Division of Family Services, Community Health and Wellness, Office of Tobacco Control. FY 2013 NJ Tobacco Expenditures.

Per Capita Allocation: LHD, State, CDC Recommended



Conclusions

- None of the 4 LHDs met CDC-recommended annual *per capita* allocation of $2.64-$3.29 for NJ State and Community Tobacco Interventions

- Our data demonstrate insufficient resources for LHDs to confront the leading cause of morbidity and mortality

Limitations

- LHDs do not maintain labor data in the component-based format used by SASCAP™
- Time intensive data collection
- While LHD staff were supportive and enthusiastic, LHDs lack time resources to participate easily in public health services and systems research
- Possible measurement error due to the retrospective and self-report design
- Our data do not include non-governmental tobacco control efforts, e.g., partner activities

Implications for Public Health Policy and Practice

- These data can be used to advocate for additional resources where the CDC-recommended per capita funding for tobacco control is not met
- Adds to public health knowledge of mechanisms through which costs, information, and labor produce health promotion and protection services, programs, and policies
- Elucidation of true costs of local tobacco control is needed to attain the goal of delivering foundational public health services at the community level

Next Steps

- Conclude data analysis
- Share findings with PBRN partners
- Prepare manuscript for publication

Acknowledgements

- The NJ PH PBRN DACS project was funded by the Robert Wood Johnson Foundation

- NJ PH PBRN DACS Co-Investigators:
  - Pauline Thomas (PI), Rutgers New Jersey Medical School
  - Susan German, Rutgers New Jersey Medical School
  - Anushua Sinha, Rutgers New Jersey Medical School
  - Natalie Pawlenko, New Jersey Department of Health
  - Kevin Sumner, Local Health Department
  - Nancy Raymond, Local Health Department
  - Judith Migliaccio, Local Health Department
  - Koren Norwood, Local Health Department
  - Paschal Nwako, Local Health Department

References

1. New Jersey Department of Health, Center for Health Statistics, State Health Assessment Data Website (https://www26.state.nj.us/doh-shad/indicator/view_numbers/CigSmokAdlt.Ut_US.html) [accessed March 9, 2015].
2. Centers for Disease Control and Prevention. Best Practices for Comprehensive Tobacco Control Programs — 2014.Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014.
3. U.S. Census Bureau: Population Estimates (http://www.census.gov/popest/) [accessed December, 2014].
4. Hernandez-Paine, L. [New Jersey Department of Health, Division of Family Services, Community Health and Wellness, Office of Tobacco Control]. Written communication. December 5, 2014.

Presenters: *North Carolina Public Health PBRN*

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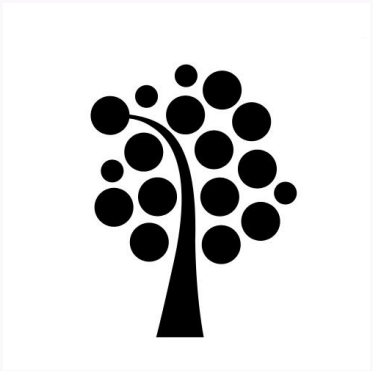
Developing a tool for estimating local health departments' costs of providing public health services



North Carolina Public Health Practice-Based Research Network

A Section of the North Carolina Public Health Association

Purpose

WHAT DOES IT COST TO PROVIDE THE MANDATED PUBLIC HEALTH SERVICES?

East Carolina University

Background

- Little is known about the cost of providing services in local health departments (LHDs);
- Understanding factors contributing to the cost of providing these services is critical to:
  - Demonstrating the need for funding;
  - Programmatic decision-making, including decisions regarding fee structures;
  - Achieving *efficiency* in public health interventions.

Specific Aims

- Estimate and validate the cost per unit of service for selected services mandated by NC statute (Administrative Code 10A NCAC 46.0201 – 0215);
- Construct a validated methodology for the estimation of service costs that can be readily implemented by finance staff at LHDs;
- Examine the influence of different delivery system structures such as single-county, multicounty district, public health authority, and consolidated human service agencies on the costs of delivering mandated and other essential public health services.

Mandated Services

Provide:	Provide/contract/certify:
Food, lodging & institutional sanitation	Adult health
Individual on-site water supply	Home health
Sanitary sewage collection, treatment & disposal	Dental public health
Communicable disease control	Grade-A milk sanitation
Vital records registration	Maternal health
	Child health
	Family planning
	Public health laboratory

Cost Estimation Methods

Costing Method	Data Collection Method	Sample Size
Empirical (5 yrs data)	Administrative data	All 85 LHDs (100 counties); 2 mandated services
Resource-Based	Key informant input, administrative data	16 LHDs, 2 mandated services
Time Log	Direct observation or activity logs supplemented with administrative data	4 LHDs, 2 mandated services

Resource-Based Method

Data Collection Tool:

- Based on SASCAP tool developed by RTI
  - Instrument to cost substance abuse services
  - Two parts:
    - Cost module to collect data on direct and indirect costs
    - Labor module to collect data on staffing
- Adapted for this study with the help of the following modifications
  - Two SASCAP modules were combined into one tool
  - For each service, tool asks respondents to indicate:
    - Number of services provided
    - Direct labor costs
    - Other direct costs (building, supplies, subcontracts, miscellaneous)
    - Indirect costs

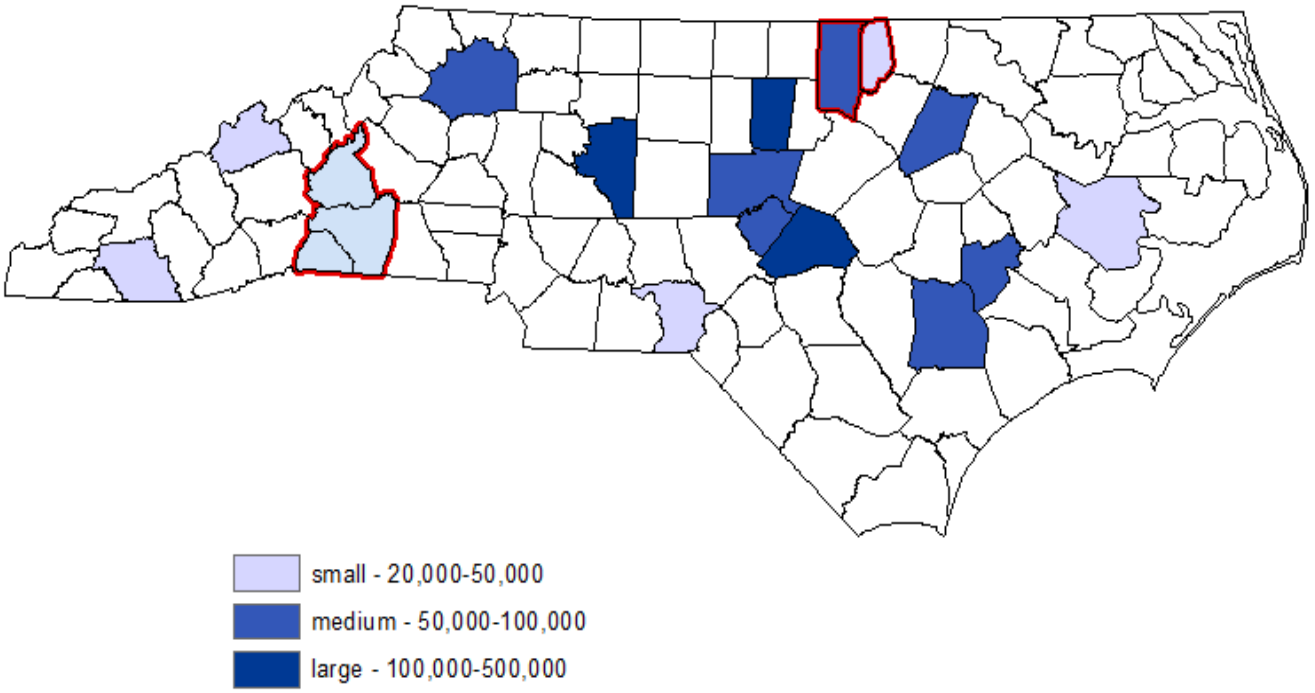
Resource-Based Method

Data Collection Process:

- To date, 15 (of 16) LHDs have completed the tool
  - Respondents usually included the finance officer and the environmental health manager
  - Time required to complete the tool ranged from 2 to 12 hours (median = 4 hours)

- All LHDs received follow-up phone calls to clarify responses and obtain additional information, if needed

Participating Counties/LHDs



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Jurisdiction Characteristics

Characteristics of Study Counties (n=18) Compared with Total North Carolina Counties (n=100)

Characteristic	Study Counties		Total NC Counties	
	n	%	N	%
County Population Size				
Small (up to 50,000)	7	39	47	47
Medium (50,000 to 100,000)	8	44	26	26
Large (over 100,000)	3	17	27	27
Geographic Region				
East	5	28	41	41
Piedmost	7	39	35	35
West	6	33	24	24
Population Density				
Frontier (<6 people per sq mi)	0	0	0	0
Rural (6-19)	0	0	2	2
Dense Rural (20-39)	0	0	8	8
Semi-Urban (40-149)	12	66	54	54
Urban (≥ 150)	6	34	36	36
% of Pop- Rural				
< 50% classifed as rural	6	34	36	36
≥ 50 classified as rural	12	66	64	64

East Carolina University

Results: Services and FTEs

	Number of services Median (IQR)	**Number of FTEs** Median (IQR)	**Number of services per FTE** Median (IQR)
Food and lodging	2,442 (1,107 – 3,339)	4.5 (3.0 – 6.0)	495 (350 – 814)
Onsite water and wells	5,704 (1,901 – 7,272)	4.5 (3.0 – 6.75)	861 (481 – 1,745)
Combined	7,761 (3,980 – 10,719)	9.0 (6.0 – 12.0)	655 (437 – 1,109)

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Results: Costs

	Total Cost Median (IQR)	**Cost per service** Median (IQR)	**Cost per capita** Median (IQR)
Food and lodging	$287,624 ($191,108 - $463,987)	$145 ($119 - $186)	$3.38 ($3.06 - $4.77)
Onsite water and wells	$347,153 ($232,236 - $516,574)	$82 ($57 - $162)	$4.40 ($3.24 - $6.90)
Combined	$659,873 ($423,344 - $971,982)	$105 ($71 - $166)	$8.51 ($6.68 - $11.67)

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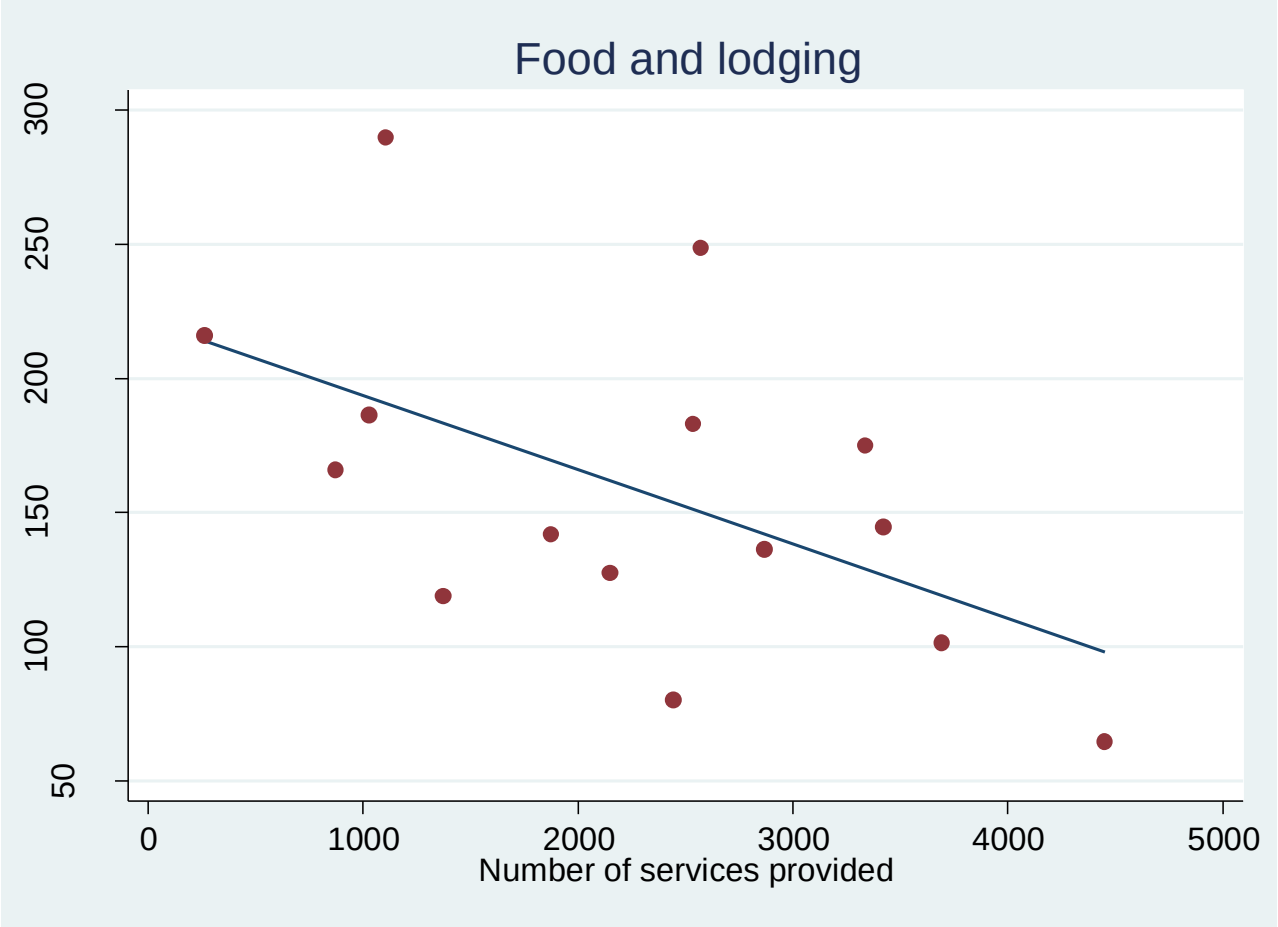
Composition of Costs

	Food and lodging	Onsite water and wells
Direct costs	**93.9%**	**94.5%**
Labor	83.7%	80.2%
Rent	2.6%	2.4%
Supplies	4.8%	6.7%
Subcontracts	0.0%	0.0%
Miscellaneous	1.3%	2.1%
Indirect costs	**6.1%**	**5.5%**
Total costs	**100%**	**100%**

Note: Values shown represent medians and as result, do not add up to exactly 100%.

Relationship between Volume and Cost



r= -0.54
(p = 0.04)

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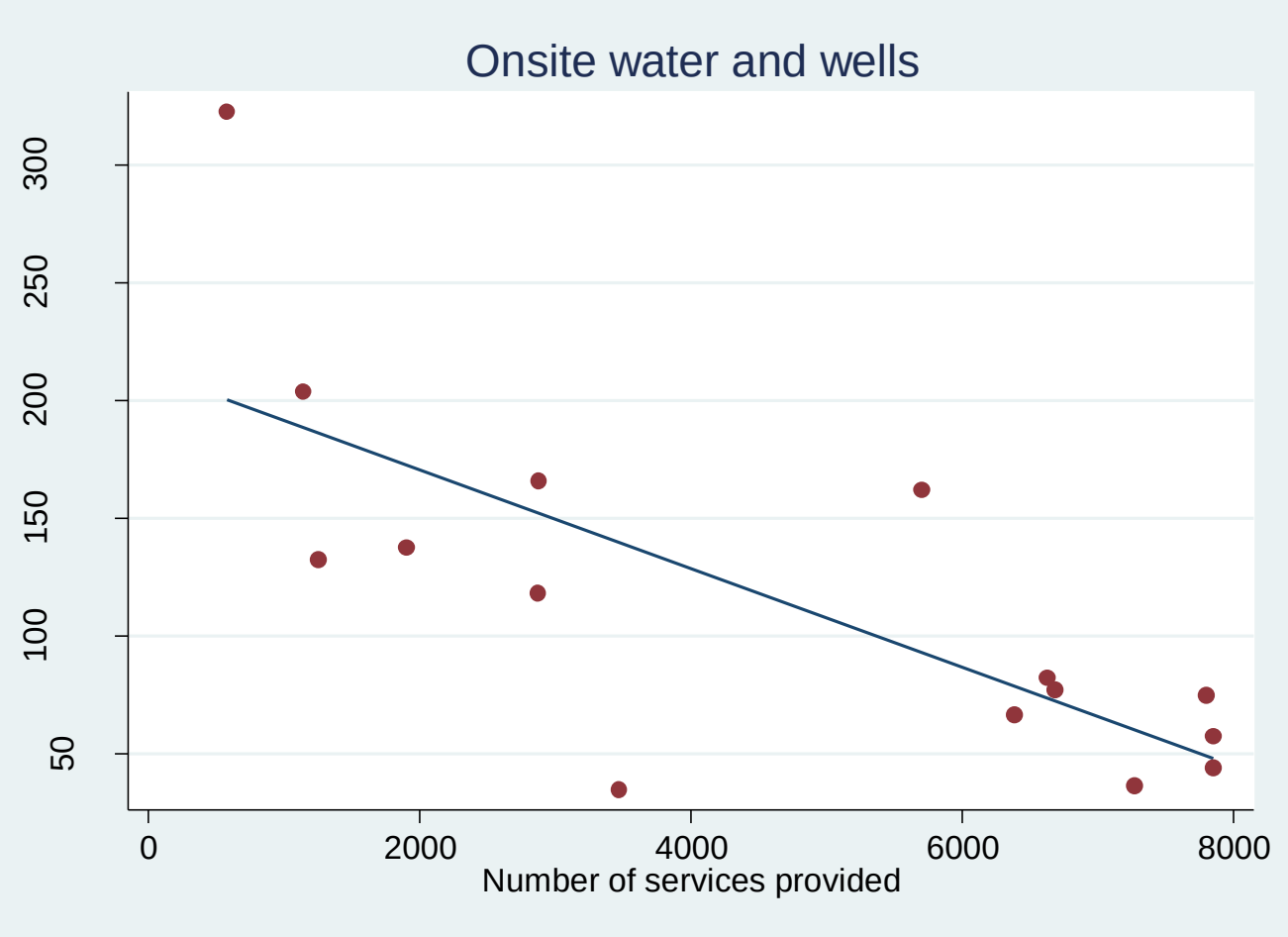
Relationship between Volume and Cost



r= -0.74
(p = 0.002)

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Cross-Validation of Cost Estimates

- Cross-validation of cost estimates using expenditure information compiled by the NC Department of Health

	Total Cost Median (IQR)	**Cost per service** Median (IQR)	**Cost per capita** Median (IQR)
DACS Survey	$659,873 ($423,344 - $971,982)	$105 ($71 - $166)	$8.51 ($6.68 - $11.67)
NC Department of Health	$305,007 ($202,398 - $569,930)	$48 ($27 - $93)	$3.96 ($3.04 - $5.44)

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Lessons Learned

- Adapting the SASCAP tool to make it understandable and usable for LHDs was a challenge
- Generating cost estimates was complicated by the fact that many NC LHDs
  - Budget procedures do not easily lend themselves to splitting program costs
  - Do not pay rent
  - Had difficulty identifying indirect/overhead costs

Implications for Practice

- Increasing demand for accountability in public health service delivery and outcomes
- Efficiency is a key consideration
- The process of conducting this study suggests that finance and accounting procedures in NC LHDs need revision in order to meet these demands

Next Steps

- Respondent validation of costing tool results
- Continue to cross-validate cost estimates using data from our data collection tool, secondary data sources, and time logs
- Examine the influence of different delivery system structures on the costs of delivering mandated and other essential public health services

Thank You!

The research summarized here was made possible through support from the Robert Wood Johnson Foundation (#71131)

- ***Core PBRN Team***
  - Nancy Winterbauer (Research Co-PI) East Carolina University
  - Lisa Macon Harrison (Practice Co-PI) Granville-Vance HD
  - Simone Singh, University of Michigan
  - Katherine Jones, East Carolina University
  - Ashley Tucker, East Carolina University
  - Patrick Bernet, Louisiana State University

- ***Advisory Committee***
  - Local Health Departments: Sue Lynn Ledford, Colleen Bridger, and Amy Belflower Thomas
  - NC Division of Public Health (DPH): Joy Reed
  - UNC-Chapel Hill: Dorothy Cilenti (NCIPH)

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Commentary

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Questions and Discussion

Archives of all Webinars available at:

http://www.publichealthsystems.org/phssr-research-progress-webinars

Upcoming Events and Webinars

Tuesday and Wednesday, April 21-22
2015 PHSSR KEENELAND CONFERENCE, Lexington, KY

Wednesday, May 6 (12-1pm ET)
CHIP AND CHNA: MOVING TOWARDS COLLABORATIVE ASSESSMENT AND COMMUNITY HEALTH ACTION
Scott Frank, MD, Director, Ohio Research Ass'n for Public Health Improvement, and OH PBRN

Wednesday, May 13 (12-1pm ET)
VIOLENCE AND INJURY PREVENTION: VARIATION IN PUBLIC HEALTH PROGRAM RESOURCES AND OUTCOMES
Laura Hitchcock, JD, Project Manager, Public Health – Seattle & King County, WA PBRN

Thursday, May 21 (1-2pm ET)
EXPLORING COST AND DELIVERY OF STI SERVICES BY HEALTH DEPARTMENTS IN GEORGIA
Gulzar H. Shah, PhD, MStat, MS, Georgia Southern University, GA PBRN

Upcoming Webinars – June to July 2015

Wednesday, June 3 (12-1pm ET)

Optimizing Expenditures Across HIV Care Continuum: *Bridging Public Health & Care Systems*

Gregg Gonsalves, Yale University (PPS-PHD)

Wednesday, June 10 (12-1pm ET)

Examining Public Health System Roles in Mental Health Service Delivery

Jonathan Purtle, DrPH, MPH, MSc, Drexel University School of Public Health (PPS-PHD)

Thursday, June 18 (1-2pm ET)

Injury Prevention Partnerships to Reduce Infant Mortality among Vulnerable Populations

Sharla Smith, MPH, PhD, University of Kansas School of Medicine - Wichita (PPS-PHD)

Wednesday, July 1 (12-1pm ET)

The Affordable Care Act and Childhood Immunization Delivery in Rural Communities

Van Do-Reynoso, University of California - Merced (PPS-PHD)

Thank you for participating in today's webinar!

For more information:

- Inquiries about PBRN Cost Studies to *PublicHealthPBRN@uky.edu*
- Questions about Research in Progress Webinars to Ann Kelly, Project Manager *Ann.Kelly@uky.edu*

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