

# Minimum Package of Public Health Services: Changes in Local Public Health Services as a result of Core Service Implementation

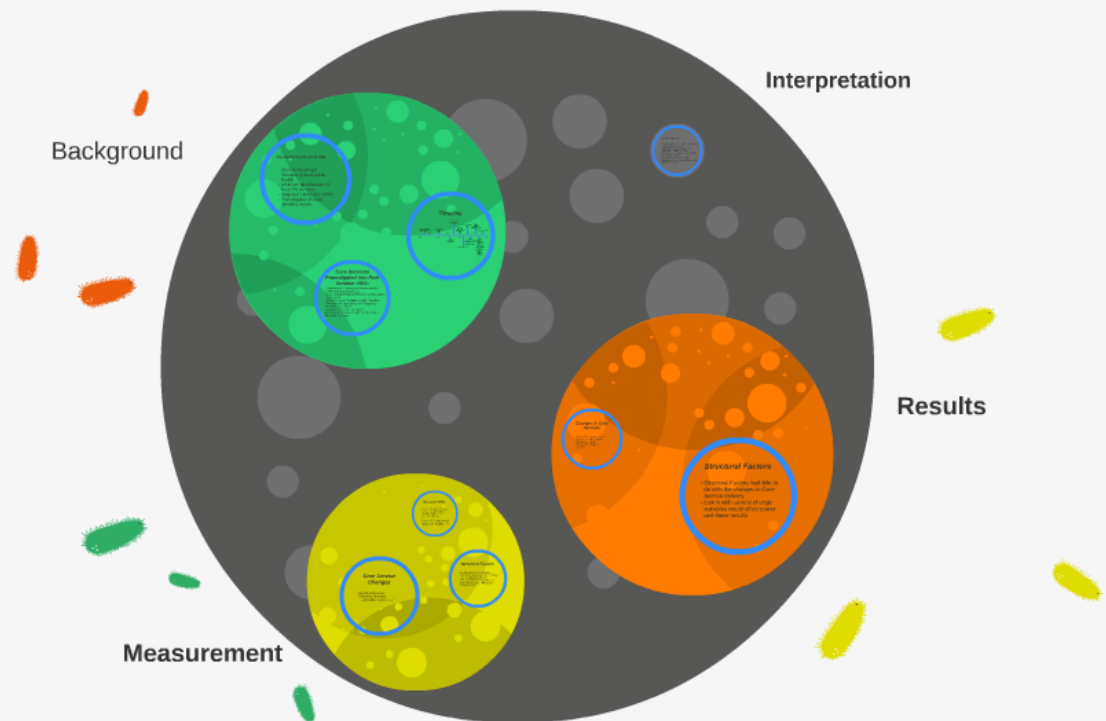
Sarah Lampe, MPH

Adam Atherly, PhD

Lisa VanRaemdonck, MPH, MSW

Julie Marshall, PhD

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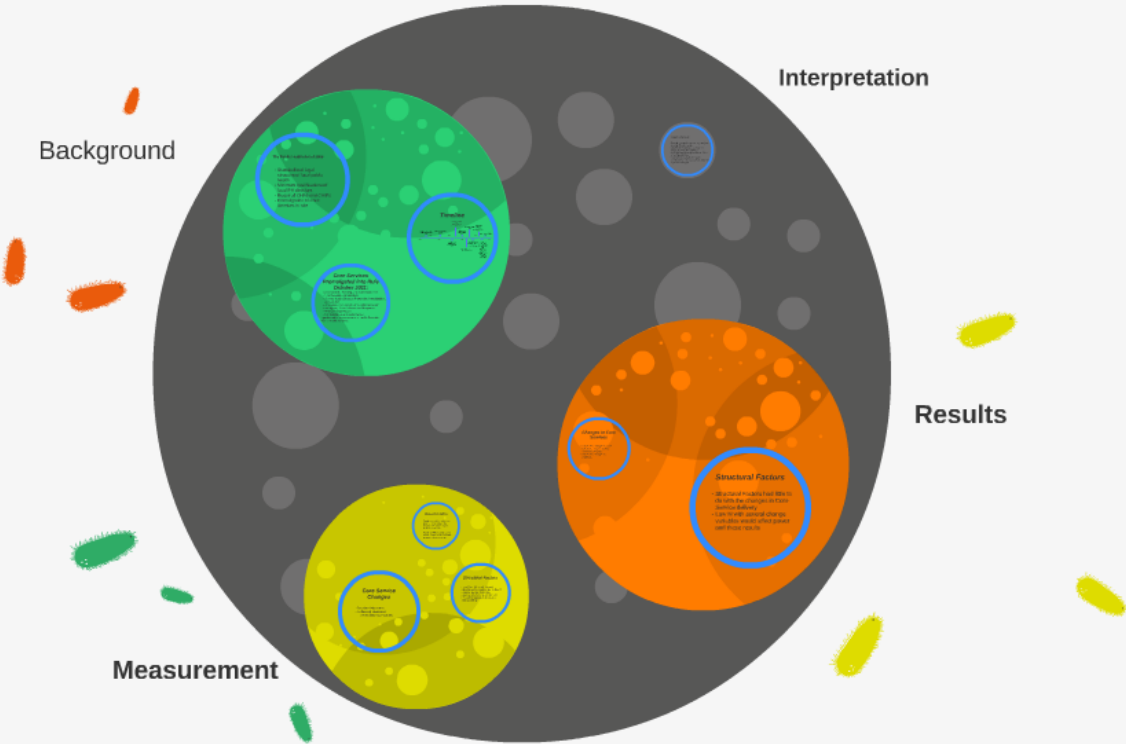
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# Background

## The Public Health Act of 2008

- Standardized legal structure of local public health
- Minimum qualifications of local PH directors
- Required CHAs and CHIPs
- Promulgation of Core Services in rule

## Timeline



## Core Services Promulgated into Rule October 2011:

- Assessment, Planning, and Communication
  - Vital Records and Statistics
  - Communicable Disease Prevention, Investigation, and Control
  - Prevention and Population Health Promotion
  - Emergency Preparedness and Response
  - Environmental Health
  - Administration and Governance
- performed in accordance with the 10 Essential Public Health Services

# Interpretation

## Points of Interest

- Even in a short time period (2 years) there was significant change
- Significant increases were seen in "Population Health" Activities
- Changes were not dependent on LPHU size or governance
- Detailed data collection through customers was necessary to observe significant changes

# Measurement



### Changes in Core Services

- Observed Changes in Core Services
- Program Changes
- Operational Changes
- Access

### Structural Factors

- Structural Factors had little to do with the changes in Core Service delivery
- Low N with several change variables would affect power and these results

# Results

# Background

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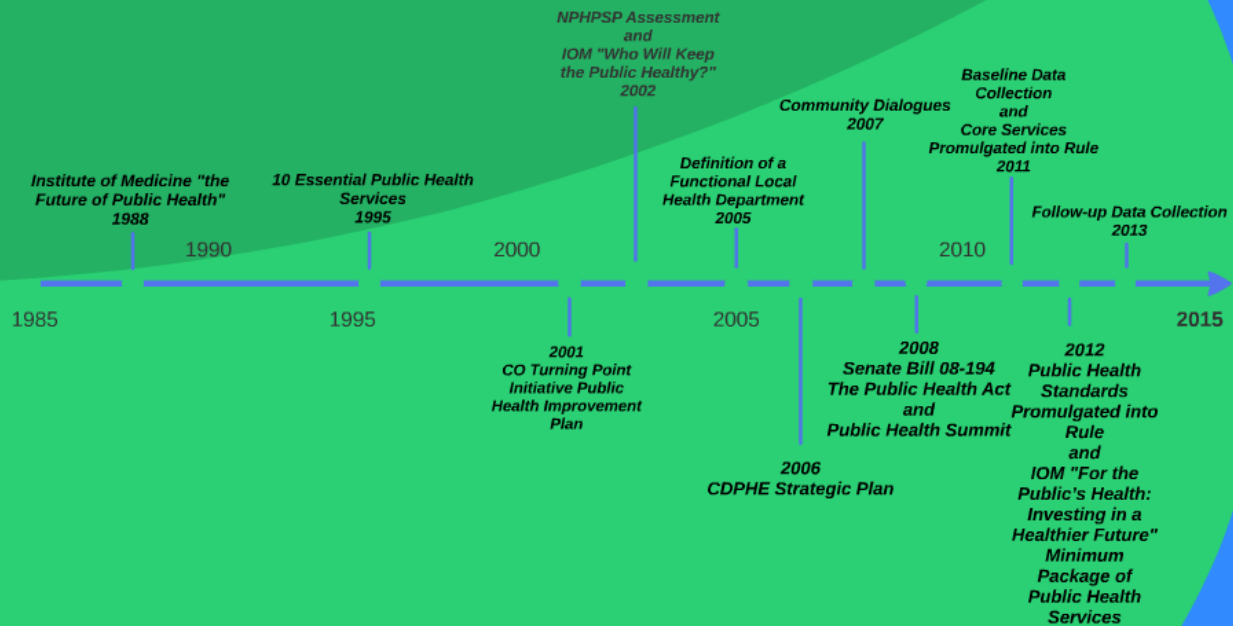
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## **The Public Health Act of 2008**

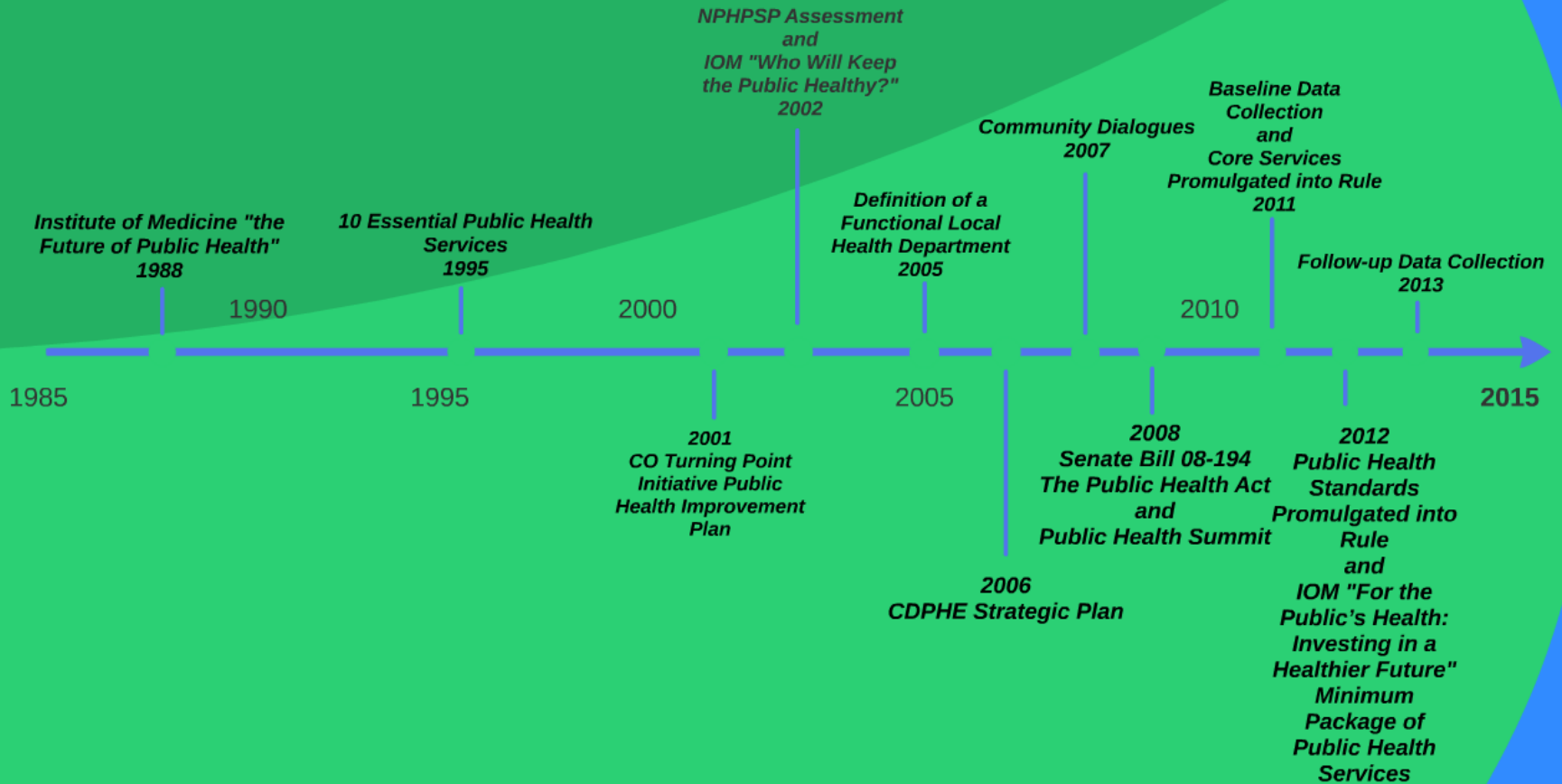
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# Timeline



# Timeline



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Promulgated into Rule  
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# Measurement



## ***Research Aims***

- Examine the effect of the core services regulation on the adoption/assurance of core services by LPHAs
- Examine LPHA-level structural factors related to change in the adoption of core services

# ***Core Service Changes***

- Baseline Measures
- Follow-up Measures
  - Reliability and Validity

# NACCHO Profile

## Population-based Primary Prevention Activities

54. Check all that apply. (Variable values: unchecked= 0, checked= 1)

	Performed by LHD directly	Contracted out by LHD	Performed NEITHER by LHD directly NOR contracted out by LHD
Injury	c6q87a	c6q87b	c6q87h
Unintended pregnancy	c6q88a	c6q88b	c6q88h
Chronic disease programs	c6q89a	c6q89b	c6q89h
Nutrition	c6q90a	c6q90b	c6q90h
Physical activity	c6q91a	c6q91b	c6q91h
Violence	c6q92a	c6q92b	c6q92h
Tobacco	c6q93a	c6q93b	c6q93h
Substance abuse	c6q94a	c6q94b	c6q94h
Mental illness	c6q95a	c6q95b	c6q95h

More Detail

Chronic Disease Prevention and Education				
What services are delivered within Chronic Disease Prevention and Education and by whom within your jurisdiction?				
<b>T 1</b>	<b>Tobacco (Check all that apply)</b>			
	LPHA	Someone else (name in notes)	Not Done	Notes
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here
<b>T 2</b>	<b>Nutrition (Check all that apply)</b>			
	LPHA	Someone else (name in notes)	Not Done	Notes
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here

Follow-up

**Baseline**

\*Note: Direct Services in these areas are located within the Direct Services & Other Tab.

	Educational Materials	Educational Media	Cultural/Linguistic materials	Cultural/Linguistic-specific programs	Educational Training programs and Groups	Community Development (e.g. coalitions)	Policy Initiatives (including social/Environmental/Organizational Change)	Other (please name)
<b>Chronic diseases, conditions and related risk factors prevention and education*</b>								
Tobacco Prevention								Please name here
Nutrition Promotion	<input type="checkbox"/>							Please name here
Physical Activity								Please name here
Obesity Prevention								Please name here
Worksite wellness								Please name here
Substance Abuse								Please name here
Mental health								Please name here
Automated External Defibrillator (AED)								Please name here
Cardiopulmonary Resuscitation (CPR)								Please name here
Other (please name)								Please name 'other' here

# Baseline

\*Note: Direct Services in these areas are located within the Direct Services & Other Tab.

	Educational Materials	Educational Media	Cultural/ linguistic materials	Cultural/ linguistic specific programs	Education/ Training Programs and Groups	Community Development (e.g. coalitions)	Policy Initiatives (Including Social/ Environmental/Organizational Change)	Other (please name)
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Other (please name)								Please name 'other' here

More  
Detail

Chronic Disease Prevention and Education					
What services are delivered within Chronic Disease Prevention and Education and by whom within your jurisdiction?					
SP 1	Tobacco (Check all that apply)	LPHA	Someone else (name in notes)	Not Done	Notes
	Development and/or dissemination of Educational Materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here
	Development and/or dissemination of Educational Media (e.g. radio, television)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here

Follow-up



### Chronic Disease Prevention and Education

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PP 1 Tobacco (Check all that apply)					
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Development and/or dissemination of Educational Materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here	
Development and/or dissemination of Educational Media (e.g. radio or television campaigns, mass media social marketing)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here	
Development and/or dissemination of Cultural/ linguistic tailored materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here	
Implementation of culturally/linguistically tailored educational programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Please place any notes here	
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PP 2 Nutrition (Check all that apply)					
	LPHA	Someone else (name in notes)	Not Done	Notes	
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# Follow-up

# Follow-up Measures

- **Could not collect all data from Baseline**
- **Modified Delphi Process with PAC and practice experts**
  - **What represents the work of LPHAs?**
  - **What is most relevant in the work of LPHAs?**
- **Ended with 80% fewer measures which included:**
  - **Availability**
  - **Self-Reported Capacity**
  - **Funding**
  - **FTE**

# ***Core Service Changes***

- Baseline Measures
- Follow-up Measures
  - Reliability and Validity

## **Reliability**

- **Test-Retest Reliability**
  - **19 agencies**
  - **2-4 weeks after initial measurement**
  - **Select number of measures from all measure types (availability, capacity, funding and FTE)**
- **Availability Measures were highly reliable**
- **Capacity Measures were the least reliable**
- **Funding and FTE were more reliable than expected**

## **Validity**

- **Convergent and Divergent Validity**
- **2013 NACCHO Profile Data**
- **Results pending**

# ***Structural Factors***

- Local board of health structure
- Structure of the agency prior to the Act
- Agency leadership turnover
- Agency jurisdiction population size
- Percent of population living at, or below, poverty

<b>Variable</b>	<b>Category</b>	<b>Number of LPHAs within Category</b>
Pre-Act LPHA structure	Former Nursing Service	37
	Former Organized Health Department	13
Board of Health Structure	Independent Local Board of Health	17
	Elected Officials only on Local Board of Health	33
Executive Director Turnover	New LPHA Executive Director from 2011-2013	17
	Same LPHA Executive Director from 2011-2013	33
Population Size	Continuous (Min – 705; Max – 1,305,654)	
Percent of Population Living in Poverty	Continuous (Min – 6.5%; Max – 36%)	

# Interpretation

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- Changes were not dependent on LPHA size or governance
- Detailed data collection, though cumbersome, was necessary to observe significant changes



### Changes in Core Services

- Observed Changes in Core Services
- Program Changes
- Observed Changes in Access

### Structural Factors

- Structural Factors had little to do with the changes in Core Service delivery
- Low N with several change variables would affect power and these results

# Results

# ***Changes in Core Services***

- Observed Changes in Core Services, Program Areas and Service Areas
- Observed Changes in Activities

# Baseline

\*Note: Direct Services in these areas are located within the Direct Services & Other Tab.

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# Follow-up

**Communicable Disease**

Outcome	Potential Range of Activities	n	Pretest Mean (SD)	Posttest Mean (SD)	Change	Test Statistic
<b>Core Service: Communicable Disease</b>	<b>3</b>	<b>50</b>	<b>26.44 (4.45)</b>	<b>28.06 (4.54)</b>	<b>1.62</b>	<b>t = 2.27, p = 0.03</b>
Program Area: Immunizations	0-10	50	8.58 (1.74)	9.02 (1.42)	0.44	t = 1.95, p = 0.06
Service Area: Childhood Immunizations	0-5	50	4.54 (0.79)	4.70 (0.61)	0.16	t = 1.38, p = 0.17
Service Area: Adult Immunizations	0-5	50	4.04 (1.16)	4.32 (0.96)	0.28	t = 1.79, p = 0.08
Program Area: Prevention of Disease Transmission	0-10	50	9.14 (1.53)	9.08 (1.81)	-0.06	t = 0.17, p = 0.87
Service Area: Tuberculosis	0-5	50	4.86 (0.45)	5.00 (0.0)	0.14	t = 2.19, p = 0.03
Service Area: HIV	0-5	50	4.28 (1.34)	4.08 (1.81)	-0.20	t = 0.59, p = 0.56
Program Area: Population Prevention and Education	0-14	50	8.72 (3.16)	9.96 (3.05)	1.24	t = 2.45, p = 0.02
Service Area: Influenza	0-7	50	4.78 (1.59)	5.64 (1.48)	0.86	t = 2.94, p = 0.005
Service Area: STI	0-7	50	3.94 (1.95)	4.32 (2.33)	0.38	t = 1.09, p = 0.28
<b>Core Service: Prevention and Health Promotion</b>	<b>0-56</b>	<b>50</b>	<b>34.72 (13.19)</b>	<b>37.14 (11.66)</b>	<b>2.42</b>	<b>t = 1.33, p = 0.19</b>
Program Area: Chronic Disease	0-28	50	17.98 (7.16)	20.26 (6.24)	2.28	t = 2.16, p = 0.04
Service Area: Tobacco	0-7	50	4.30 (2.37)	4.66 (2.17)	0.36	t = 1.02, p = 0.31
Service Area: Physical Activity	0-7	50	4.20 (2.35)	4.70 (2.33)	0.50	t = 1.23, p = 0.23
Service Area: Mental Health	0-7	50	4.58 (2.28)	5.28 (2.29)	0.70	t = 1.73, p = 0.09
Service Area: Nutrition	0-7	50	4.90 (2.01)	5.62 (1.65)	0.72	t = 2.66, p = 0.01
Program Area: Maternal & Child Health	0-21	50	12.76 (5.71)	12.90 (5.61)	0.14	t = 0.14, p = 0.89
Service Area: Prenatal Health	0-7	50	4.38 (2.23)	4.64 (2.24)	0.26	t = 0.63, p = 0.53
Service Area: Unintended Pregnancy Prevention	0-7	50	3.82 (2.44)	4.06 (2.51)	0.24	t = 0.57, p = 0.57
Service Area: Oral Health	0-7	50	4.56 (2.19)	4.20 (2.39)	-0.36	t = 0.88, p = 0.38
Program Area: Injury Prevention						
Service Area: Motor Vehicle	0-7	50	3.30 (2.57)	3.98 (2.68)	0.68	t = 1.32, p = 0.19
<b>Core Service: Environmental Health</b>	<b>0-15</b>	<b>46</b>	<b>11.26 (3.57)</b>	<b>12.09 (2.83)</b>	<b>0.83</b>	<b>t = 1.95, p = 0.06</b>
Program Area: Sanitation	0-9	46	5.98 (2.53)	6.59 (2.28)	0.61	t = 1.76, p = 0.08
Service Area: Childcare Facilities	0-3	46	2.72 (0.66)	2.72 (0.50)	0.00	t = 0.00, p = 1.00
Service Area: Summer Camps	0-3	46	1.65 (1.35)	2.13 (1.28)	0.48	t = 2.57, p = 0.01
Service Area: Spa, Swimming, Natural Bathing	0-3	46	1.61 (1.18)	1.74 (1.25)	0.13	t = 0.68, p = 0.50
Program Area: Food Safety	0-6	46	5.28 (1.39)	5.50 (1.01)	0.22	t = 1.46, p = 0.15
Service Area: Retail Establishments	0-3	46	2.87 (0.34)	2.96 (0.21)	0.09	t = 1.43, p = 0.16
Service Area: Special Events	0-3	46	2.41 (1.20)	2.54 (0.89)	0.13	t = 1.00, p = 0.32

**Environmental Health**

**Prevention & Population Health Promotion**

**Communicable Disease**

**Prevention & Population Health Promotion**

**Environmental**

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<b>Core Service: Communicable Disease</b>	<b>3</b>	<b>50</b>	<b>26.44 (4.45)</b>	<b>28.06 (4.54)</b>	<b>1.62</b>	<b>t = 2.27, p = 0.03</b>
Program Area: Immunizations	0-10	50	8.58 (1.74)	9.02 (1.42)	0.44	t = 1.95, p = 0.06
Service Area: Childhood Immunizations	0-5	50	4.54 (0.79)	4.70 (0.61)	0.16	t = 1.38, p = 0.17
Service Area: Adult Immunizations	0-5	50	4.04 (1.16)	4.32 (0.96)	0.28	t = 1.79, p = 0.08
Program Area: Prevention of Disease Transmission	0-10	50	9.14 (1.53)	9.08 (1.81)	-0.06	t = 0.17, p = 0.87
Service Area: Tuberculosis	0-5	50	4.86 (0.45)	5.00 (0.0)	0.14	t = 2.19, p = 0.03
Service Area: HIV	0-5	50	4.28 (1.34)	4.08 (1.81)	-0.20	t = 0.59, p = 0.56
Program Area: Population Prevention and Education	0-14	50	8.72 (3.16)	9.96 (3.05)	1.24	t = 2.45, p = 0.02
Service Area: Influenza	0-7	50	4.78 (1.59)	5.64 (1.48)	0.86	t = 2.94, p = 0.005
Service Area: STI	0-7	50	3.94 (1.95)	4.32 (2.33)	0.38	t = 1.09, p = 0.28
<b>Core Service: Prevention and Health Promotion</b>	<b>0-56</b>	<b>50</b>	<b>34.72 (13.19)</b>	<b>37.14 (11.66)</b>	<b>2.42</b>	<b>t = 1.33, p = 0.19</b>
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Service Area: Physical Activity	0-7	50	4.20 (2.35)	4.70 (2.33)	0.50	t = 1.23, p = 0.23
Service Area: Mental Health	0-7	50	4.58 (2.28)	5.28 (2.29)	0.70	t = 1.73, p = 0.09
Service Area: Nutrition	0-7	50	4.90 (2.01)	5.62 (1.65)	0.72	t = 2.66, p = 0.01
Program Area: Maternal & Child Health	0-21	50	12.76 (5.71)	12.90 (5.61)	0.14	t = 0.14, p = 0.89
Service Area: Prenatal Health	0-7	50	4.38 (2.23)	4.64 (2.24)	0.26	t = 0.63, p = 0.53
Service Area: Unintended Pregnancy Prevention	0-7	50	3.82 (2.44)	4.06 (2.51)	0.24	t = 0.57, p = 0.57
Service Area: Oral Health	0-7	50	4.56 (2.19)	4.20 (2.39)	-0.36	t = 0.88, p = 0.38
Program Area: Injury Prevention Service Area: Motor Vehicle	0-7	50	3.30 (2.57)	3.98 (2.68)	0.68	t = 1.32, p = 0.19
<b>Core Service: Environmental Health</b>	<b>0-15</b>	<b>46</b>	<b>11.26 (3.57)</b>	<b>12.09 (2.83)</b>	<b>0.83</b>	<b>t = 1.95, p = 0.06</b>
Program Area: Sanitation	0-9	46	5.98 (2.53)	6.59 (2.28)	0.61	t = 1.76, p = 0.08
Service Area: Childcare Facilities	0-3	46	2.72 (0.66)	2.72 (0.50)	0.00	t = 0.00, p = 1.00
Service Area: Summer Camps	0-3	46	1.65 (1.35)	2.12 (1.28)	0.48	t = 2.57, p = 0.01



**Communicable Disease**

Outcome	Potential Range of Activities	n	Pretest Mean (SD)	Posttest Mean (SD)	Change	Test Statistic
<b>Core Service: Communicable Disease</b>	<b>3</b>	<b>50</b>	<b>26.44 (4.45)</b>	<b>28.06 (4.54)</b>	<b>1.62</b>	<b>t = 2.27, p = 0.03</b>
Program Area: Immunizations	0-10	50	8.58 (1.74)	9.02 (1.42)	0.44	t = 1.95, p = 0.06
Service Area: Childhood Immunizations	0-5	50	4.54 (0.79)	4.70 (0.61)	0.16	t = 1.38, p = 0.17
Service Area: Adult Immunizations	0-5	50	4.04 (1.16)	4.32 (0.96)	0.28	t = 1.79, p = 0.08
Program Area: Prevention of Disease Transmission	0-10	50	9.14 (1.53)	9.08 (1.81)	-0.06	t = 0.17, p = 0.87
Service Area: Tuberculosis	0-5	50	4.86 (0.45)	5.00 (0.0)	0.14	t = 2.19, p = 0.03
Service Area: HIV	0-5	50	4.28 (1.34)	4.08 (1.81)	-0.20	t = 0.59, p = 0.56
Program Area: Population Prevention and Education	0-14	50	8.72 (3.16)	9.96 (3.05)	1.24	t = 2.45, p = 0.02
Service Area: Influenza	0-7	50	4.78 (1.59)	5.64 (1.48)	0.86	t = 2.94, p = 0.005
Service Area: STI	0-7	50	3.94 (1.95)	4.32 (2.33)	0.38	t = 1.09, p = 0.28

**Prevention & Population Health Promotion**

<b>Core Service: Prevention and Health Promotion</b>	<b>0-56</b>	<b>50</b>	<b>34.72 (13.19)</b>	<b>37.14 (11.66)</b>	<b>2.42</b>	<b>t = 1.33, p = 0.19</b>
Program Area: Chronic Disease	0-28	50	17.98 (7.16)	20.26 (6.24)	2.28	t = 2.16, p = 0.04
Service Area: Tobacco	0-7	50	4.30 (2.37)	4.66 (2.17)	0.36	t=1.02, p = 0.31
Service Area: Physical Activity	0-7	50	4.20 (2.35)	4.70 (2.33)	0.50	t=1.23, p = 0.23
Service Area: Mental Health	0-7	50	4.58 (2.28)	5.28 (2.29)	0.70	t=1.73, p = 0.09
Service Area: Nutrition	0-7	50	4.90 (2.01)	5.62 (1.65)	0.72	t = 2.66, p = 0.01
Program Area: Maternal & Child Health	0-21	50	12.76 (5.71)	12.90 (5.61)	0.14	t = 0.14, p = 0.89
Service Area: Prenatal Health	0-7	50	4.38 (2.23)	4.64 (2.24)	0.26	t= 0.63, p = 0.53
Service Area: Unintended Pregnancy Prevention	0-7	50	3.82 (2.44)	4.06 (2.51)	0.24	t = 0.57, p = 0.57
Service Area: Oral Health	0-7	50	4.56 (2.19)	4.20 (2.39)	-0.36	t = 0.88, p = 0.38
Program Area: Injury Prevention Service Area: Motor Vehicle	0-7	50	3.30 (2.57)	3.98 (2.68)	0.68	t = 1.32, p = 0.19

**Environmental Health**

<b>Core Service: Environmental Health</b>	<b>0-15</b>	<b>46</b>	<b>11.26 (3.57)</b>	<b>12.09 (2.83)</b>	<b>0.83</b>	<b>t = 1.95, p = 0.06</b>
Program Area: Sanitation	0-9	46	5.98 (2.53)	6.59 (2.28)	0.61	t = 1.76, p = 0.08
Service Area: Childcare Facilities	0-3	46	2.72 (0.66)	2.72 (0.50)	0.00	t=0.00, p = 1.00
Service Area: Summer Camps	0-3	46	1.65 (1.35)	2.13 (1.28)	0.48	t=2.57, p = 0.01
Service Area: Spa, Swimming, Natural Bathing	0-3	46	1.61 (1.18)	1.74 (1.25)	0.13	t=0.68, p = 0.50
Program Area: Food Safety	0-6	46	5.28 (1.39)	5.50 (1.01)	0.22	t = 1.46, p = 0.15
Service Area: Retail Establishments	0-3	46	2.87 (0.34)	2.96 (0.21)	0.09	t= 1.43, p = 0.16
Service Area: Special Events	0-3	46	2.41 (1.20)	2.54 (0.89)	0.13	t = 1.00, p = 0.32

**Disease**

Service Area: Tuberculosis	0-5	50	4.86 (0.45)	5.00 (0.0)	0.14	t = 2.19, p = 0.03
Service Area: HIV	0-5	50	4.28 (1.34)	4.08 (1.81)	-0.20	t = 0.59, p = 0.56
Program Area: Population Prevention and Education	0-14	50	8.72 (3.16)	9.96 (3.05)	1.24	t = 2.45, p = 0.02
Service Area: Influenza	0-7	50	4.78 (1.59)	5.64 (1.48)	0.86	t= 2.94, p = 0.005
Service Area: STI	0-7	50	3.94 (1.95)	4.32 (2.33)	0.38	t = 1.09, p = 0.28

**Prevention & Population Health Promotion**

<b>Core Service: Prevention and Health Promotion</b>	<b>0-56</b>	<b>50</b>	<b>34.72 (13.19)</b>	<b>37.14 (11.66)</b>	<b>2.42</b>	<b>t = 1.33, p = 0.19</b>
Program Area: Chronic Disease	0-28	50	17.98 (7.16)	20.26 (6.24)	2.28	t = 2.16, p = 0.04
Service Area: Tobacco	0-7	50	4.30 (2.37)	4.66 (2.17)	0.36	t=1.02, p = 0.31
Service Area: Physical Activity	0-7	50	4.20 (2.35)	4.70 (2.33)	0.50	t=1.23, p = 0.23
Service Area: Mental Health	0-7	50	4.58 (2.28)	5.28 (2.29)	0.70	t=1.73, p = 0.09
Service Area: Nutrition	0-7	50	4.90 (2.01)	5.62 (1.65)	0.72	t = 2.66, p = 0.01
Program Area: Maternal & Child Health	0-21	50	12.76 (5.71)	12.90 (5.61)	0.14	t = 0.14, p = 0.89
Service Area: Prenatal Health	0-7	50	4.38 (2.23)	4.64 (2.24)	0.26	t= 0.63, p = 0.53
Service Area: Unintended Pregnancy Prevention	0-7	50	3.82 (2.44)	4.06 (2.51)	0.24	t = 0.57, p = 0.57
Service Area: Oral Health	0-7	50	4.56 (2.19)	4.20 (2.39)	-0.36	t = 0.88, p = 0.38
Program Area: Injury Prevention Service Area: Motor Vehicle	0-7	50	3.30 (2.57)	3.98 (2.68)	0.68	t = 1.32, p = 0.19

**Environmental Health**

<b>Core Service: Environmental Health</b>	<b>0-15</b>	<b>46</b>	<b>11.26 (3.57)</b>	<b>12.09 (2.83)</b>	<b>0.83</b>	<b>t = 1.95, p = 0.06</b>
Program Area: Sanitation	0-9	46	5.98 (2.53)	6.59 (2.28)	0.61	t = 1.76, p = 0.08
Service Area: Childcare Facilities	0-3	46	2.72 (0.66)	2.72 (0.50)	0.00	t=0.00, p = 1.00
Service Area: Summer Camps	0-3	46	1.65 (1.35)	2.13 (1.28)	0.48	t=2.57, p = 0.01
Service Area: Spa, Swimming, Natural Bathing	0-3	46	1.61 (1.18)	1.74 (1.25)	0.13	t=0.68, p = 0.50
Program Area: Food Safety	0-6	46	5.28 (1.39)	5.50 (1.01)	0.22	t = 1.46, p = 0.15
Service Area: Retail Establishments	0-3	46	2.87 (0.34)	2.96 (0.21)	0.09	t= 1.43, p = 0.16
Service Area: Special Events	0-3	46	2.41 (1.20)	2.54 (0.89)	0.13	t = 1.00, p = 0.32



# ***Changes in Core Services***

- Observed Changes in Core Services, Program Areas and Service Areas
- Observed Changes in Activities

Outcome	Potential Range of Service Areas	n	Pretest Mean (SD)	Posttest Mean (SD)	Change	Test Statistic
<b>Core Service: Prevention and Health Promotion</b>	<b>0-56</b>	<b>50</b>	<b>34.72 (13.19)</b>	<b>37.14 (11.66)</b>	<b>2.42</b>	<b>t = 1.33, p = 0.19</b>
Activity: Development and/or Dissemination of Educational Materials	0-8	50	7.22 (1.07)	7.10 (1.18)	-0.12	t = 0.57, p = 0.57
Activity: Development and/or Dissemination of Educational Media	0-8	50	5.00 (2.67)	4.82 (2.49)	-0.18	t = 0.41, p = 0.68
Activity: Development and/or Dissemination of Cultural/Linguistic Tailored Materials	0-8	50	5.40 (2.60)	5.82 (2.26)	0.42	t = 0.98, p = 0.33
Activity: Implementation of Educational and/or Training Programs and/or Groups	0-8	50	5.28 (1.98)	5.56 (2.02)	0.28	t = 0.73, p = 0.47
Activity: Implementation of Community Development Activities	0-8	50	4.36 (2.60)	4.58 (2.40)	0.22	t = 0.55, p = 0.59
Activity: Implementation of Culturally/Linguistically Tailored Educational Programs	0-8	50	3.62 (2.83)	4.70(2.39)	1.08	t = 2.46, p = 0.02
Activity: Policy Development and Implementation Initiatives	0-8	50	3.16 (2.74)	4.56 (2.30)	1.40	t = 3.42, p = 0.001
<b>Core Service: Environmental Health</b>	<b>0-15</b>	<b>46</b>	<b>11.26 (3.57)</b>	<b>12.09 (2.83)</b>	<b>0.83</b>	<b>t = 1.95, p = 0.06</b>
Activity: Inspections	0-5	46	3.83 (1.22)	3.96 (1.05)	0.13	t = 0.75, p = 0.46
Activity: Complaint Investigation/Response	0-5	46	4.04 (1.23)	4.02 (1.09)	-0.02	t = 0.14, p = 0.89
Activity: Outreach/Education	0-5	46	3.39 (1.47)	4.11 (1.08)	0.72	t = 3.76, p = 0.0005
<b>Core Service: Communicable Disease</b>	<b>0-34</b>	<b>50</b>	<b>26.44 (4.45)</b>	<b>28.06 (4.54)</b>	<b>1.62</b>	<b>t = 2.27, p = 0.03</b>
Activity: System Based Services*	0-10	50	6.96 (1.80)	7.78 (1.73)	0.82	t = 2.66, p = 0.01
Activity: Population Based Services†	0-8	50	7.10 (0.93)	7.36 (0.92)	0.26	t = 1.57, p = 0.12
Activity: Targeted Population Services‡	0-12	50	8.74 (2.35)	9.34 (2.34)	0.60	t = 1.84, p = 0.07
Activity: Effected Population Services§	0-4	50	3.64 (0.83)	3.58 (0.78)	-0.06	t = 0.35, p = 0.73

\*System Based Services include: Immunizations-Tracking, Follow-Up, and Checking Registries; Immunizations-Monitor Coverage Rates; Prevention of Disease Transmission-Surveillance; Population Prevention and Education-Community Development; Population Prevention and Education-Policy

†Population Based Services include: Immunizations-Outreach and Education; Prevention of Disease Transmission-Screening; Population Prevention and Education-Educational Materials; Population Prevention and Education-Educational Media

‡Targeted Population Services include: Immunizations-Provider Education; Immunizations-Immunization Registry Recruitment; Prevention of Disease Transmission-Case Investigation; Population Prevention and Education-Cultural materials; Population Prevention and Education-Cultural Programs; Population Prevention and Education-Educational/Training programs

§Effected Population Services include: Prevention of Disease Transmission-Contact notification and follow-up; Prevention of Disease Transmission-Treatment referral and follow-up

Outcome	Potential Range of Service Areas	n	Pretest Mean (SD)	Posttest Mean (SD)	Change	Test Statistic
<b>Core Service: Prevention and Health Promotion</b>	0-56	50	34.72 (13.19)	37.14 (11.66)	2.42	t = 1.33, p = 0.19
Activity: Development and/or Dissemination of Educational Materials	0-8	50	7.22 (1.07)	7.10 (1.18)	-0.12	t = 0.57, p = 0.57
Activity: Development and/or Dissemination of Educational Media	0-8	50	5.00 (2.67)	4.82 (2.49)	-0.18	t = 0.41, p = 0.68
Activity: Development and/or Dissemination of Cultural/Linguistic Tailored Materials	0-8	50	5.40 (2.60)	5.82 (2.26)	0.42	t = 0.98, p = 0.33
Activity: Implementation of Educational and/or Training Programs and/or Groups	0-8	50	5.28 (1.98)	5.56 (2.02)	0.28	t = 0.73, p = 0.47
Activity: Implementation of Community Development Activities	0-8	50	4.36 (2.60)	4.58 (2.40)	0.22	t = 0.55, p = 0.59
Activity: Implementation of Culturally/Linguistically Tailored Educational Programs	0-8	50	3.62 (2.83)	4.70(2.39)	1.08	t = 2.46, p = 0.02
Activity: Policy Development and Implementation Initiatives	0-8	50	3.16 (2.74)	4.56 (2.30)	1.40	t = 3.42, p = 0.001
<b>Core Service: Environmental Health</b>	0-15	46	11.26 (3.57)	12.09 (2.83)	0.83	t = 1.95, p = 0.06
Activity: Inspections	0-5	46	3.83 (1.22)	3.96 (1.05)	0.13	t = 0.75, p = 0.46
Activity: Complaint Investigation/Response	0-5	46	4.04 (1.23)	4.02 (1.09)	-0.02	t = 0.14, p = 0.89
Activity: Outreach/Education	0-5	46	3.39 (1.47)	4.11 (1.08)	0.72	t = 3.76, p = 0.0005
<b>Core Service: Communicable Disease</b>	0-34	50	26.44 (4.45)	28.06 (4.54)	1.62	t = 2.27, p = 0.03
Activity: System Based Services*	0-10	50	6.96 (1.80)	7.78 (1.73)	0.82	t = 2.66, p = 0.01
Activity: Population Based Services†	0-8	50	7.10 (0.93)	7.36 (0.92)	0.26	t = 1.57, p = 0.12
Activity: Targeted Population Services‡	0-12	50	8.74 (2.35)	9.34 (2.34)	0.60	t = 1.84, p = 0.07
Activity: Effected Population Services§	0-4	50	3.64 (0.83)	3.58 (0.78)	-0.06	t = 0.35, p = 0.73
*System Based Services include: Immunizations-Tracking, Follow-Up, and Checking Registries; Immunizations-Monitor Coverage Rates; Prevention of Disease Transmission-Surveillance; Population Prevention and Education-Community Development; Population Prevention and Education-Policy						
†Population Based Services include: Immunizations-Outreach and Education; Prevention of Disease Transmission-Screening; Population Prevention and Education-Educational Materials; Population Prevention and Education-Educational Media						
‡Targeted Population Services include: Immunizations-Provider Education; Immunizations-Immunization Registry Recruitment; Prevention of Disease Transmission-Case Investigation; Population Prevention and Education-Cultural materials; Population Prevention and Education-Cultural Programs; Population Prevention and Education-Educational/Training programs						
§Effected Population Services include: Prevention of Disease Transmission-Contact notification and follow-up; Prevention of Disease Transmission-Treatment referral and follow-up						

Activity: Development and/or Dissemination of Educational Media	0-8	50	5.00 (2.67)	4.82 (2.49)	-0.18	t = 0.41, p = 0.68
Activity: Development and/or Dissemination of Cultural/Linguistic Tailored Materials	0-8	50	5.40 (2.60)	5.82 (2.26)	0.42	t = 0.98, p = 0.33
Activity: Implementation of Educational and/or Training Programs and/or Groups	0-8	50	5.28 (1.98)	5.56 (2.02)	0.28	t = 0.73, p = 0.47
Activity: Implementation of Community Development Activities	0-8	50	4.36 (2.60)	4.58 (2.40)	0.22	t = 0.55, p = 0.59
Activity: Implementation of Culturally/Linguistically Tailored Educational Programs	0-8	50	3.62 (2.83)	4.70(2.39)	1.08	t = 2.46, p = 0.02
Activity: Policy Development and Implementation Initiatives	0-8	50	3.16 (2.74)	4.56 (2.30)	1.40	t = 3.42, p = 0.001
<b>Core Service: Environmental Health</b>	<b>0-15</b>	<b>46</b>	<b>11.26 (3.57)</b>	<b>12.09 (2.83)</b>	<b>0.83</b>	<b>t = 1.95, p = 0.06</b>
Activity: Inspections	0-5	46	3.83 (1.22)	3.96 (1.05)	0.13	t = 0.75, p = 0.46
Activity: Complaint Investigation/Response	0-5	46	4.04 (1.23)	4.02 (1.09)	-0.02	t = 0.14, p = 0.89
Activity: Outreach/Education	0-5	46	3.39 (1.47)	4.11 (1.08)	0.72	t = 3.76, p = 0.0005
<b>Core Service: Communicable Disease</b>	<b>0-34</b>	<b>50</b>	<b>26.44 (4.45)</b>	<b>28.06 (4.54)</b>	<b>1.62</b>	<b>t = 2.27, p = 0.03</b>
Activity: System Based Services*	0-10	50	6.96 (1.80)	7.78 (1.73)	0.82	t = 2.66, p = 0.01
Activity: Population Based Services†	0-8	50	7.10 (0.93)	7.36 (0.92)	0.26	t = 1.57, p = 0.12
Activity: Targeted Population Services‡	0-12	50	8.74 (2.35)	9.34 (2.34)	0.60	t = 1.84, p = 0.07
Activity: Effected Population Services§	0-4	50	3.64 (0.83)	3.58 (0.78)	-0.06	t = 0.35, p = 0.73

\*System Based Services include: Immunizations-Tracking, Follow-Up, and Checking Registries; Immunizations-Monitor Coverage Rates; Prevention of Disease Transmission-Surveillance; Population Prevention and Education-Community Development; Population Prevention and Education-Policy

†Population Based Services include: Immunizations-Outreach and Education; Prevention of Disease Transmission-Screening; Population Prevention and Education-Educational Materials; Population Prevention and Education-Educational Media

‡Targeted Population Services include: Immunizations-Provider Education; Immunizations-Immunization Registry Recruitment; Prevention of Disease Transmission-Case Investigation; Population Prevention and Education-Cultural materials; Population Prevention and Education-Cultural Programs; Population Prevention and Education-Educational/Training programs

§Effected Population Services include: Prevention of Disease Transmission-Contact notification and follow-up; Prevention of Disease Transmission-Treatment referral and follow-up

## ***Structural Factors***

- Structural Factors had little to do with the changes in Core Service delivery
- Low N with several change variables would affect power and these results



Dependent Variable: Change in Population and Health Promotion Services				
Variable	Coef.	Std. Err.	t statistic	P> t
Former Nursing Service	13.905	8.5952	1.62	0.113
Elected Board of Health	9.463	7.3562	1.29	0.205
Turnover	-2.065	4.1055	-0.5	0.617
Population (1,000's)	0.00148	0.0176	0.08	0.933
Percent Poverty	-0.094	0.3249	-0.29	0.774
Constant	-9.067	9.5694	-0.95	0.349
Dependent Variable: Change in Environmental Health Services				
Variable	Coef.	Std. Err	t statistic	P> t
Former Nursing Service	-0.039	1.8851	-0.02	0.983
Elected Board of Health	-2.235	1.6162	-1.38	0.174
Turnover	0.131	0.9779	0.13	0.894
Population (1,000's)	0.00706	.00389	1.82	0.077
Percent Poverty	0.0543	0.0722	0.75	0.457
Constant	0.249331	2.1113	0.12	0.907
Dependent Variable: Change in Communicable Disease Services				
Variable	Coef.	Std. Err.	t statistic	P> t
Former Nursing Service	-4.145	3.094238	-1.34	0.187
Elected Board of Health	-5.119	2.648208	-1.93	0.06
Turnover	-3.821	1.477956	-2.59	0.013
Population (1,000's)	0.00081	6.34E-06	1.28	0.207
Percent Poverty	0.078	0.116973	0.67	0.507
Constant	5.946	3.444933	1.73	0.091

# Interpretation

## Points of Interest

- Even in a short time period (2 years) there was significant change
- Significant increases were seen in "Population Health" Activities
- Changes were not dependent on LPHU size or governance
- Detailed data collection through customers was necessary to observe significant changes

## Points of Interest

- Even in a short time period (2 years) there was significant change
- Significant Increases were seen in "Population Health" Activities
- Changes were not dependent on LPHA size or governance
- Detailed data collection, though cumbersome, was necessary to observe significant changes



# Minimum Package of Public Health Services: Changes in Local Public Health Services as a result of Core Service Implementation

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