

# Determinants of local public health department staffing changes 2008-2010.

What are the organizational, demographic and operating characteristics associated with staffing changes between 2008 and 2010?

Change in FTEs (2008-2010) ~

- LHD characteristics
- Population demographics
- Service coverage
- Staffing characteristics

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# Disclosures, Gaps, Objective, Outcomes

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- Disclosure. No financial conflicts of interest.
- Educational Need / Practice Gap. Ability to anticipate staffing changes.
- Objective: Identify determinants of staffing changes.
- Expected Outcome: Anticipate staffing changes in the future.

# Data - Percent change in FTEs

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- Percent change in full-time equivalent employees
  - FTEs 2010 / FTEs 2008
- LHDs classified according to resilience
  - Predicted 2010 staffing ~
    - 2008 staffing
    - population size
    - other demographics
  - If actual FTEs < predicted FTEs, non-resilient.
  - If actual FTEs > predicted FTEs, resilient.

# Data - NACCHO

- 2008 and 2010 NACCHO surveys of local health departments.
  - 2,523 unique LHDs in one year or the other.
  - 1,204 remaining LHDs = 63 percent of the US population.

	All (n=1,204)	Non- resilient (n=536)	Resilient (n=668)	Sig.
<b>Change in FTEs</b>	1.00	0.85	1.11	***
<b>LHD characteristics</b>				
Board of Health	0.76	0.75	0.77	
Agency Type: City/Town	0.24	0.25	0.23	
Agency Type: Multi-county	0.13	0.13	0.12	
Administrator is MD, DO or RN	0.43	0.38	0.47	***
Local governance	0.19	0.24	0.16	***
Revenue % from local sources	0.24	0.22	0.25	

- LHD characteristics from the 2008 survey

# Data - Population

	All (n=1,204)	Non- resilient (n=536)	Resilient (n=668)	Sig.
<b>Change in FTEs</b>	1.00	0.85	1.11	***
<b>Population characteristics</b>				
Population (logged)	11.0	11.2	10.9	***
Geography: % population urban	0.4	0.4	0.4	
Geography: % population rural	0.4	0.4	0.4	
Race: White	87.4	86.3	88.2	***
Education: % college graduates	21.4	21.1	21.6	
Hispanic	7.0	7.1	6.8	
Age 65+	15.0	15.4	14.7	***
Poverty	13.6	14.0	13.2	***
Uninsured	21.8	23.5	20.5	
Primary Care Availability	69.4	71.1	68.0	*

- Source: American Community Survey and community health status indicators (CHSI).
- LHD FIPS codes used to align LHDs to demographics

# Data – Breadth of Service Coverage

	All (n=1,204)	Non- resilient (n=536)	Resilient (n=668)	Sig.
<b>Change in FTEs</b>	1.00	0.85	1.11	***
<b>Service coverage</b>				
Clinical	0.61	0.60	0.62	
Medical	0.34	0.32	0.35	*
Specialty	0.18	0.16	0.19	*
Population	0.44	0.44	0.44	
Regulatory	0.58	0.61	0.56	*
Environmental	0.04	0.04	0.04	

- Test for economies of scope.

# Data - Staffing

	All (n=1,204)	Non- resilient (n=536)	Resilient (n=668)	Sig.
<b>Change in FTEs</b>	1.00	0.85	1.11	***
<b>Staff characteristics (2008)</b>				
Total expense per FTE	77,619	74,502	80,133	***
FTEs per 100k population	86.1	85.6	86.5	
Staff-to-100-FTE ratio	128.4	126.7	129.7	***
Significance. * p < 0.05; ** p < 0.01; *** p < 0.001.				

- Average spending per FTE = Total expenditures / Total FTEs
- FTEs per 100,000 population = Total FTEs / Population
- Staff-to-FTE ratio = Total staff / Total FTEs
- Source: NACCHO and demographics

# Model

Percentage point change in FTEs	Model 1. Base	All (n=1,204)	Non-Resilient (n=0,536)	Resilient (n=0,668)
<b>LHD characteristics</b>				
Board of Health	-1.52%	0.73%	2.53%	-0.09%
Agency Type: City/Town	4.88% *	5.37% **	4.91% *	2.40%
Agency Type: Multi-county	2.92%	4.33%	5.71% *	-4.27%
Administrator is MD, DO or RN	2.85%	2.11%	-1.31%	1.61%
Local governance	-1.95%	-4.29% *	-1.25%	1.46%
Revenue % from local sources	0.07%	0.03%	0.11% **	-0.08%
<b>Population characteristics</b>				
Population (logged)	-3.39% ***	-4.61% ***	1.07%	-5.01% ***
Geography: % population urban	0.00%	0.00%	-0.04%	0.01%
Geography: % population rural	-0.02%	-0.03%	-0.02%	-0.03%
Race: White	-0.13%	-0.21% **	-0.17% *	-0.15%
Education: % college graduates	0.01%	-0.11%	-0.02%	-0.10%
Hispanic	0.11%	0.15%	0.04%	0.16%
Age 65+	0.47% *	0.38%	0.59% *	0.90% ***
Poverty	-0.20%	-0.24%	0.14%	-0.23%
Uninsured	-0.08% **	-0.03%	-0.07% **	0.04%
Primary Care Availability	0.03%	0.02%	0.01%	0.01%
<b>Service coverage</b>				
Clinical	0.01%	0.09% *	0.05%	0.06%
Medical	0.00%	0.00%	-0.02%	-0.03%
Specialty	-0.01%	0.03%	0.00%	0.02%
Population	-0.03%	-0.06%	-0.04%	-0.04%
Regulatory	-0.02%	-0.01%	0.00%	0.01%
Environmental	0.19%	0.12%	-0.12%	0.19%
<b>Staff characteristics (2008)</b>				
Total expense per FTE (\$1,000)		0.18% ***	0.10% ***	0.18% ***
FTEs per 100k population		-0.04% ***	-0.01%	-0.03% **
Staff-to-100-FTE ratio		0.14% ***	0.02%	0.15% ***
Significance. * p < 0.05; ** p < 0.01; *** p < 0.001				
<b>Model</b>				
Constant	1.418 ***	1.328 ***	0.652 ***	1.369
r2_a	0.026	0.158	0.118	0.271



# Results - LHD Characteristics

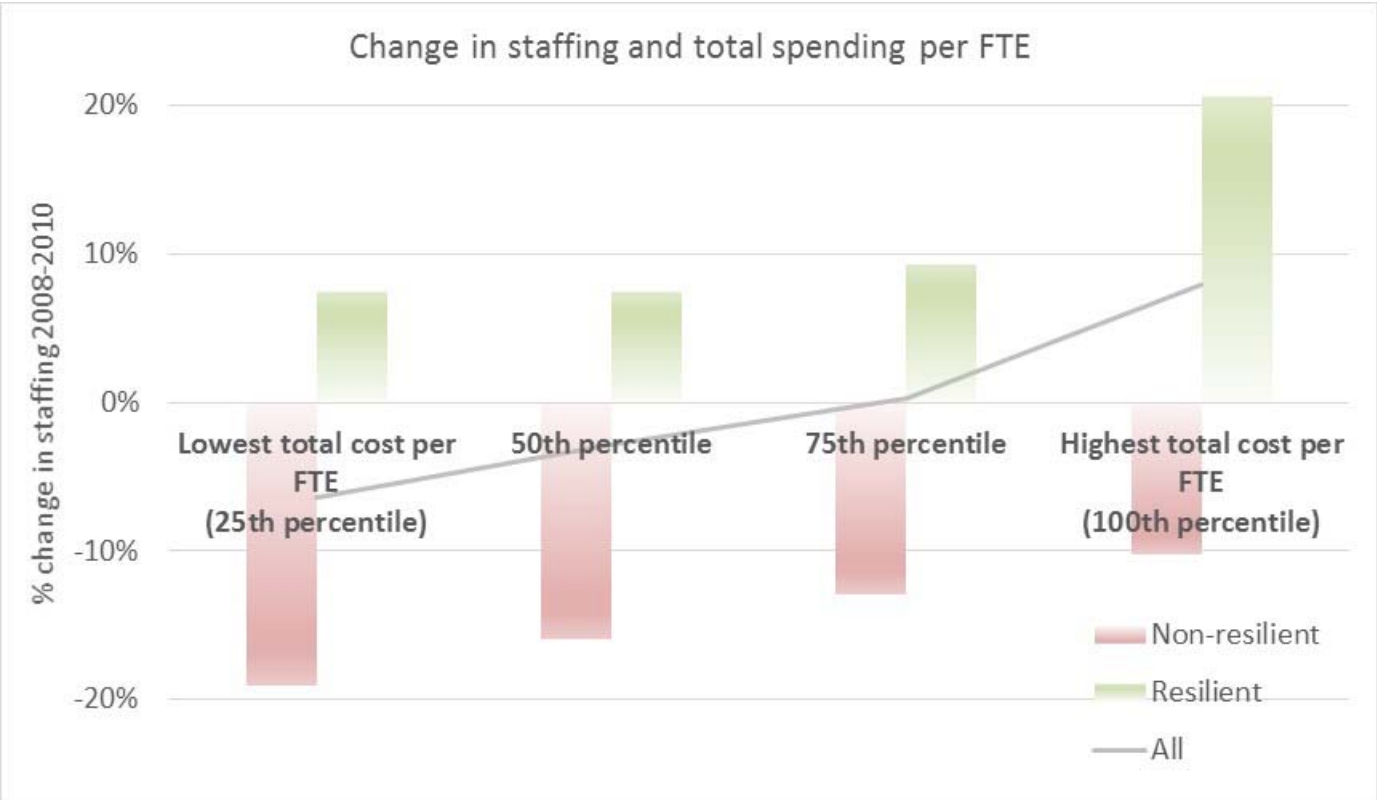
Percentage point change in FTEs	Model 1. Base	All (n=1,204)	Non-Resilient (n=0,536)	Resilient (n=0,668)
<b>LHD characteristics</b>				
Board of Health	-1.52%	0.73%	2.53%	-0.09%
Agency Type: City/Town	4.88% *	5.37% **	4.91% *	2.40%
Agency Type: Multi-county	2.92%	4.33%	5.71% *	-4.27%
Administrator is MD, DO or RN	2.85%	2.11%	-1.31%	1.61%
Local governance	-1.95%	-4.29% *	-1.25%	1.46%
Revenue % from local sources	0.07%	0.03%	0.11% **	-0.08%

# Results - Demographics

Percentage point change in FTEs	Model 1. Base	All (n=1,204)	Non-Resilient (n=0,536)	Resilient (n=0,668)
<b>Population characteristics</b>				
Population (logged)	-3.39% ***	-4.61% ***	1.07%	-5.01% ***
Geography: % population urban	0.00%	0.00%	-0.04%	0.01%
Geography: % population rural	-0.02%	-0.03%	-0.02%	-0.03%
Race: White	-0.13%	-0.21% **	-0.17% *	-0.15%
Education: % college graduates	0.01%	-0.11%	-0.02%	-0.10%
Hispanic	0.11%	0.15%	0.04%	0.16%
Age 65+	0.47% *	0.38%	0.59% *	0.90% ***
Poverty	-0.20%	-0.24%	0.14%	-0.23%
Uninsured	-0.08% **	-0.03%	-0.07% **	0.04%
Primary Care Availability	0.03%	0.02%	0.01%	0.01%

- Higher population appears to throttle down on staff increases.
- Uninsured accelerates staff lose among non-resilient LHDs.

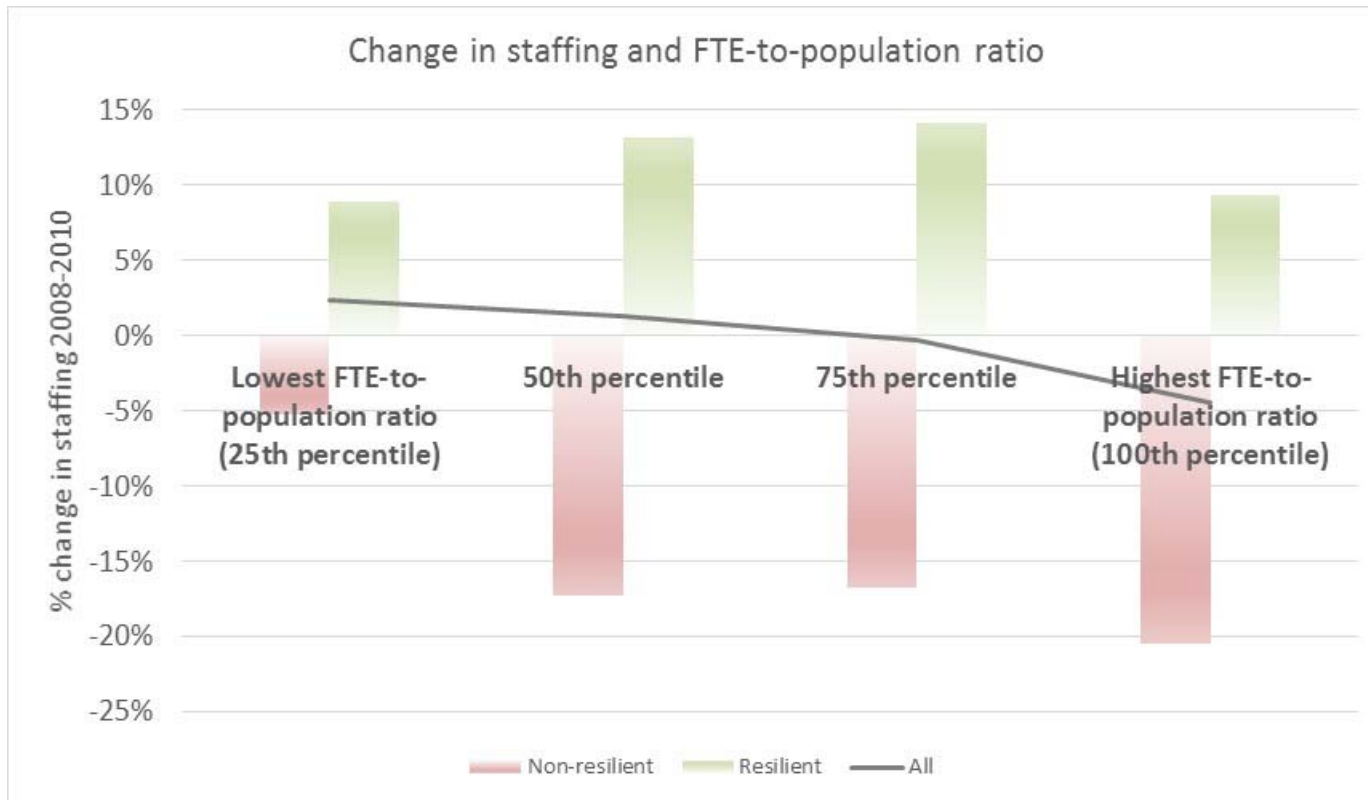
# Spending per FTE – Higher Pay $\uparrow$ FTEs



Percentage point change in FTEs	All (n=1,204)	Non-Resilient (n=0,536)	Resilient (n=0,668)
<b>Total expense per FTE (\$1,000)</b>	<b>0.18% ***</b>	<b>0.10% ***</b>	<b>0.18% ***</b>
FTEs per 100k population	-0.04% ***	-0.01%	-0.03% **
Staff-to-100-FTE ratio	0.14% ***	0.02%	0.15% ***

- +.18% in FTEs / each \$1,000 in **spending per FTE**

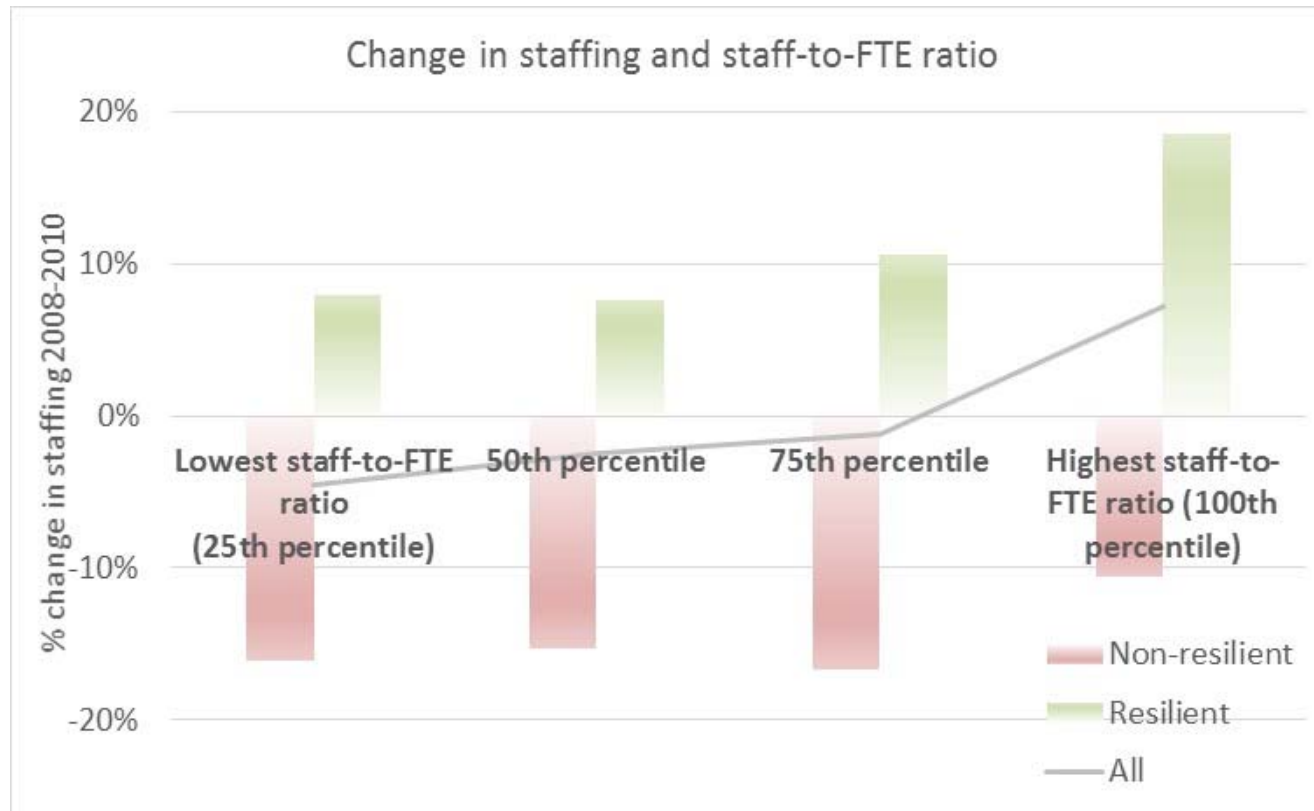
# FTEs per 100,000 Population – Lean FTEs



Percentage point change in FTEs	All (n=1,204)	Non-Resilient (n=0,536)	Resilient (n=0,668)
Total expense per FTE (\$1,000)	0.18% ***	0.10% ***	0.18% ***
<b>FTEs per 100k population</b>	<b>-0.04% ***</b>	<b>-0.01%</b>	<b>-0.03% **</b>
Staff-to-100-FTE ratio	0.14% ***	0.02%	0.15% ***

- - 0.04% in FTEs / **FTEs per 100,000 population**

# Proportion Full-time – Less full-time ↑ FTEs



Percentage point change in FTEs	All (n=1,204)	Non-Resilient (n=0,536)	Resilient (n=0,668)
Total expense per FTE (\$1,000)	0.18% ***	0.10% ***	0.18% ***
FTEs per 100k population	-0.04% ***	-0.01%	-0.03% **
<b>Staff-to-100-FTE ratio</b>	<b>0.14% ***</b>	<b>0.02%</b>	<b>0.15% ***</b>

- + 0.14% in FTEs / 1% increase in **staff-to-FTE ratio**

# Conclusion

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- Staffing cuts are less likely in LHDs that are:
  - Leaner (fewer FTEs per 100,000 population)
  - Less full-time workers
  - Higher-salaried and/or higher-capitalized employees