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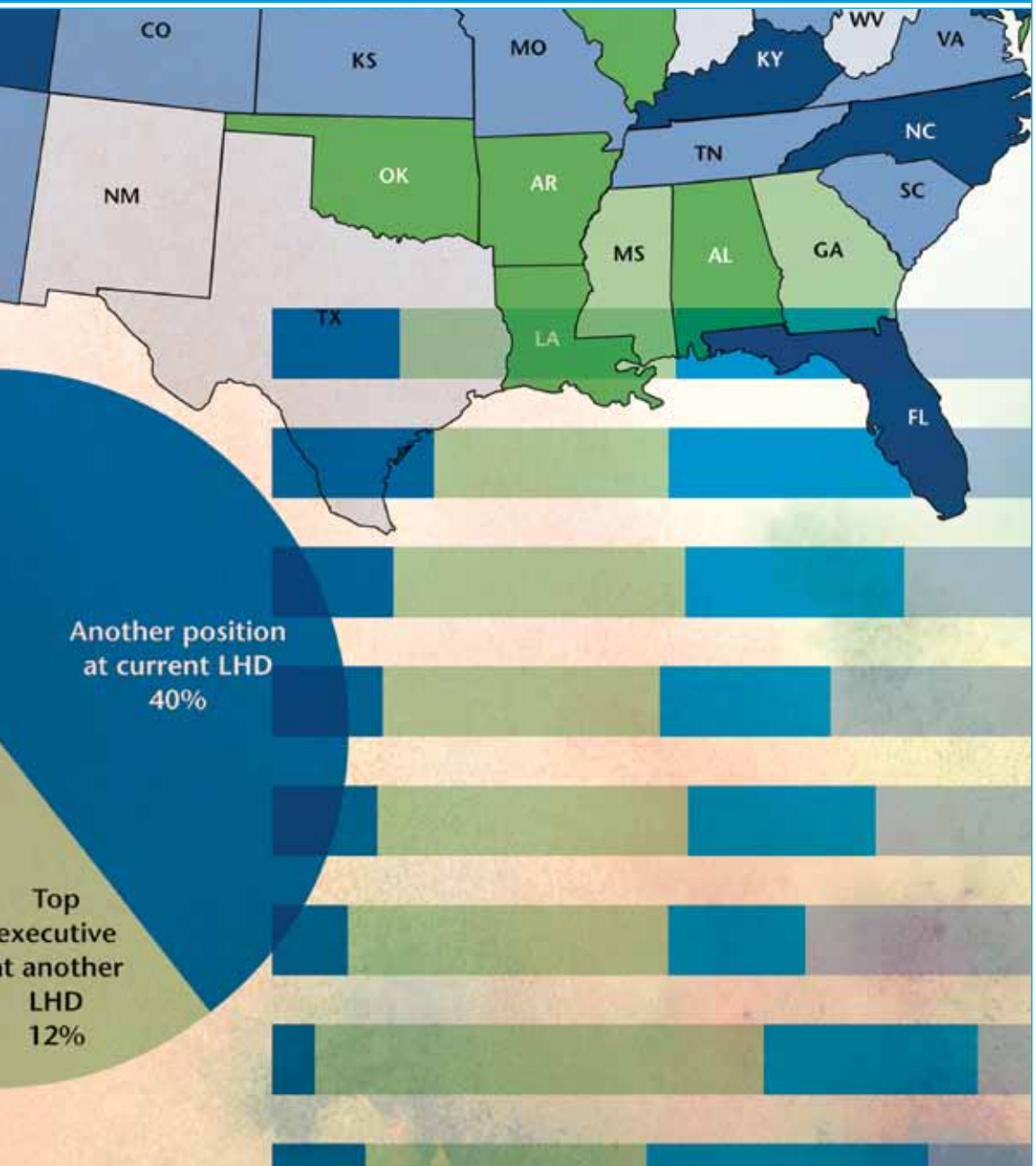
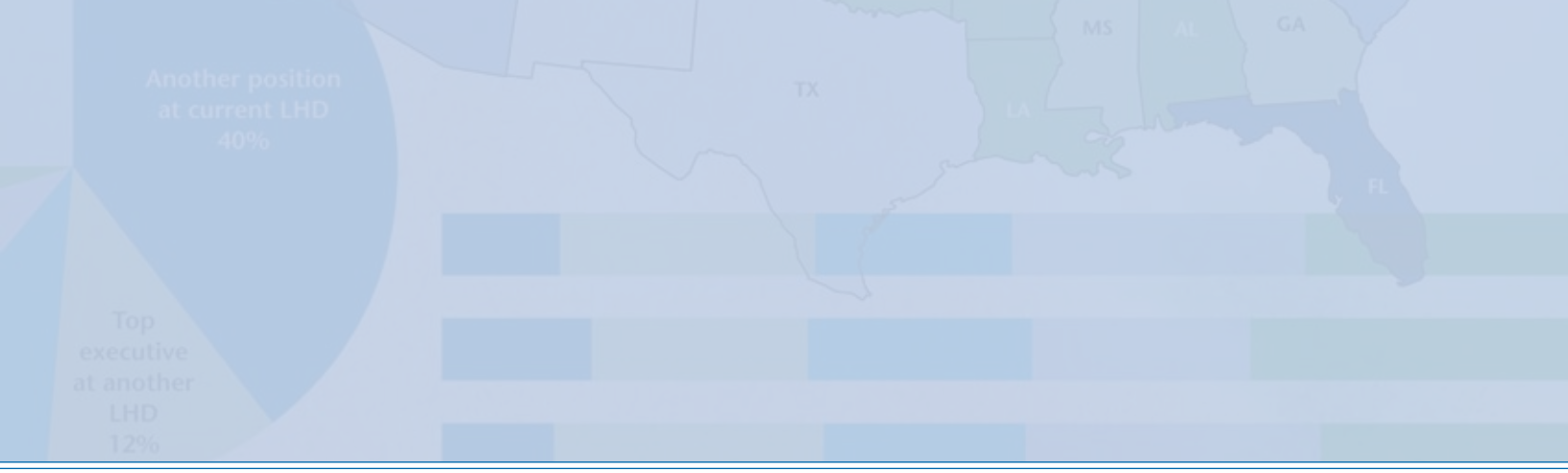
National Association of County & City Health Officials

The National Connection for Local Public Health

The LOCAL HEALTH DEPARTMENT WORKFORCE

Findings from the 2008 National Profile of Local Health Departments





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About NACCHO

The mission of the National Association of County and City Health Officials (NACCHO) is to be a leader, partner, catalyst, and voice for local health departments in order to ensure the conditions that promote health and equity, combat disease, and improve the quality and length of all lives.

May 2010

Contents

List of Figures

Chapter 2: Size of an LHD Workforce

Chapter 3: Occupations

Chapter 4: Demographics of the LHD Workforce

Chapter 5: Workforce Retirement

Chapter 6: Unfilled Positions Due to Hiring Freezes and Nursing Vacancies

Chapter 7: Workforce Development

Chapter 8: Top Executive Background and Career Path

Executive Summary

The purpose of this report is to provide information on the local health department (LHD) workforce, based on data collected in the 2008 National Profile of LHDs (Profile) study. This report includes information on the size of the LHD workforce, occupations employed, race and ethnicity of LHD leaders and staff, career paths of LHD top executives, staff recruitment and retirement, and workforce development.

Methods

The 2008 Profile was a Web-based survey of all 2,794 LHDs in the United States, conducted from July through October 2008, with an overall response rate of 83 percent. Although a large set of core questions was administered to all LHDs, additional questions grouped into three modules were also administered to three different randomly selected subsamples of LHDs. This report is based on data from 2,332 responses to the core survey questions and 473 responses to Module 2. The report also presents longitudinal analysis of data from 1,880 LHDs that responded to both 2005 and 2008 Profile Surveys and whose jurisdiction boundaries did not change between 2005 and 2008 (approximately two-thirds of all LHDs). For the longitudinal analysis, data from both surveys were combined for each individual LHD rather than separately performing aggregate analysis from the two datasets. Additional methodological details about the 2005 and 2008 Profile studies are presented in main reports for the 2005 and 2008 Profile studies, available online at www.naccho.org/profile.

Summary of Key Findings

Size of LHD Workforce. Cross-sectional analysis of data from the Profile studies for 2005 and 2008 represents findings from all respondents for a given Profile study. The results suggest that:

- The size of the LHD workforce in the United States remained constant between 2005 and 2008 at approximately 155,000 employees.
- These estimates had relatively large confidence intervals (approximately ±10%) because of missing data for some LHDs and changes in LHD structure from 2005 to 2008.

Longitudinal analysis of data from the 2005 and 2008 Profile studies detected more subtle trends and changes in the size of the LHD workforce for this subgroup of LHDs. For example, it revealed that:

- For this subgroup of LHDs, overall full-time equivalents (FTEs) employed increased by approximately 5 percent between 2005 and 2008.
- The change in staffing was not uniform across all LHDs. During this time, the workforce for 49 percent of LHDs grew, 34 percent shrank, and 17 percent stayed approximately the same size.
- LHDs serving populations of 250,000 to 499,999 people were most likely to increase their staffing; 40 percent of LHDs in this size group employed 3 to 20 percent more FTEs in 2008 than in 2005, an additional 16 percent employed more than 20 percent more FTEs.

- The median percentage change in FTEs employed by LHDs was an increase of approximately 3 percent. On average, LHDs serving populations between 250,000 and 499,999 experienced the largest relative increase in staff FTEs (a median increase of 5%) during this time.

Occupations Employed by LHDs. The longitudinal design also detected interesting staffing trends for specific occupations in LHDs.

- Four occupations (managers/directors, nurses, environmental health specialists, and clerical staff) comprise approximately 60 percent of the LHD workforce.
  - The nursing workforce of this subset of LHDs decreased dramatically, as evidenced by a 10 percent reduction in nursing FTEs between 2005 and 2008. This constitutes a loss of 2,200 FTE nursing positions in this subgroup of LHDs. If similar decreases were experienced in all LHDs, a 10 percent decrease in nursing FTEs would represent an overall loss of 3,800 FTE nursing positions at LHDs during this time.
  - In contrast, the FTEs of managers/directors, EH specialists, and clerical staff remained approximately the same between 2005 and 2008 (increases of 1% or less).
- Certain specialized occupations comprising small percentages of the overall LHD workforce showed relatively large growth in this time.
  - Nationwide, LHDs employ approximately 1,600 information system (IS) specialists. The longitudinal analysis showed an overall increase of 13 percent in the FTEs of IS specialists employed by this subgroup of LHDs. If similar trends were experienced by all LHDs, this would represent an increase of approximately 200 FTE IS specialist positions at LHDs.
  - Similarly, although the total number of public information (PI) specialists is estimated at only 430, this occupation is growing in LHDs. In 1989, only 6 percent of LHDs employed PI specialists; by 2005, that figure had risen to 18 percent. The longitudinal analysis showed an increase in FTEs of 9 percent in employment of PI specialists by LHDs between 2005 and 2008. If similar increases were experienced by all LHDs, this translates to an increase of approximately 40 PI specialists.
- The largest relative decreases in staffing for specialized occupations between 2005 and 2008 were seen for health educators and epidemiologists.
  - Total employment of health educators by LHDs was estimated at 4,400 FTEs in 2008, approximately 3 percent of the LHD workforce. Between 2005 and 2008, the percentage of LHDs employing health educators remained relatively stable (55% in 2005 and 56% in 2008). The longitudinal analysis showed a decrease of 20 percent in the FTEs of health educators employed by LHDs between 2005 and 2008. This translates to a loss of approximately 900 FTE health educator positions between 2005 and 2008, if similar decreases were experienced by all LHDs.
  - Total employment of epidemiologists was estimated at 1,200 in 2008, less than 1 percent of the LHD workforce. The overall 2005 and 2008 Profile estimates of the percentages of LHDs employing epidemiologists were 25 and 23 percent, respectively. The longitudinal analysis showed that the total FTEs of epidemiologists employed in this subset of LHDs decreased by 11 percent between 2005 and 2008, a decrease of approximately 100 FTE epidemiologists. This translates to a loss of approximately 140 FTE epidemiologist positions in LHDs nationwide if similar decreases were experienced by all LHDs.

Diversity of LHD Staff and Leaders. The 2008 Profile study collected data on staff race and ethnicity for all LHDs, building upon the 2005 Profile study, which collected such data for a statistical sample of LHDs.[1] This produced more precise estimates of racial and ethnic composition and also enabled the calculation of state-specific estimates for the first time. Data from the 2008 Profile study show that:

- The overall percentage of LHD employees who are Black or African American (16%) is higher than the percentage of the U.S. population that is Black or African American (13%). The percentage of Hispanic LHD employees (11%) is lower than the percentage of Hispanics in the U.S. population (15%). The overall percentage of White LHD employees (72%) is lower than the percentage of Whites in the U.S. population (80%), and the percentages of American Indian/Alaska Native and Asian LHD employees are similar to their percentages in the U.S. population.
- The diversity of LHD staff is greater for LHDs serving large jurisdictions than small jurisdictions. For example, although LHDs serving populations of fewer than 25,000 people reported mean percentages of 5 percent racial minority employees and 3 percent Hispanic employees, LHDs serving populations of one million or more reported a mean 42 percent racial minority and 19 percent Hispanic employees.
- In general, race and ethnicity patterns of LHD staff in a given state are similar to race and ethnicity patterns of the populations of those states; however, there are a few notable exceptions. In Florida, Nevada, Pennsylvania, and Texas, the LHD staff is notably more racially diverse than the population of the responding LHD jurisdictions. In Alaska, Arizona, and New Mexico, the LHD staff is notably less racially diverse than the population of the responding LHD jurisdictions. In all three of these states, the predominant racial minorities are American Indians/Alaska Natives or "some other race."
- In contrast, most LHD top executives are White (93%) and non-Hispanic (98%). These numbers showed little change from 2005 to 2008. Analysis by state shows that more than 20 percent of LHD top executives are minority races in a few states (Alabama, Alaska, California, Maryland, South Carolina, and Virginia). In only two states (Texas and Utah) are more than 10 percent of LHD top executives Hispanic.
- Analysis of race and ethnicity by job tenure shows that new top executives (those in their first top executive position with two or fewer years of job tenure) are more likely to be of minority races or Hispanic ethnicity than LHD top executives with longer tenure.[2]

LHD Top Executive Experience and Training. The Profile study collected data on LHD top executive licensure and immediately prior position for the first time in 2008. Analysis of these cross-sectional data revealed that:

- Most LHD top executives held a graduate degree. A master's degree was the highest level held for 39 percent of top executives; 18 percent of top executives held a doctoral degree.
- Twenty percent of LHD top executives held a public health degree, almost always the MPH degree.
- More than one-third of LHD top executives were educated either in nursing (22%) or medicine (14%).
- Most LHD top executives (82%) held a professional license. The most frequently held licenses were registered nurse (39%), registered environmental health specialist or sanitarian (20%), and medical doctor (14%).
- Most (77%) LHD top executives were serving in this position for the first time.
- LHD top executives most frequently reached that position through internal promotions (40% of all LHDs). Other paths to LHD top executive positions include top executive at another LHD (12%), position other than top executive at another LHD (10%), and position in a state health agency (9%). Overall, nearly three-quarters of LHD top executives came from positions in local or state health agencies.

Retirements and Hiring Freezes. The 2005 and 2008 Profile studies examined retirements and hiring freezes. Cross-sectional data found that:

- Three-quarters (76%) reported that one or no employees had retired in the previous year, including 57 percent that had no employees retire in this time.
- Only one-third of LHDs reported that they had tabulated data on employee age.
- Almost half (46%) of LHDs had not determined the percentage of their staff members that were eligible for retirement in the next five years.

Workforce Development. The 2005 and 2008 Profile studies examined several factors associated with workforce development, including the existence of dedicated training budgets and staff, awareness of competencies, and collaboration with academic institutions. Cross-sectional data reveal that:

- Many LHDs do not have a budget line item for staff training (43% of LHDs) or a designated staff person to coordinate training (53%). These percentages have changed little since 2005.
- Many LHDs are not aware of the core competencies developed for public health workers (39%), bioterrorism and emergency readiness competencies (37%), and informatics competencies from the Northwest Center for Public Health Practice (74%); and most are not using them to assess staff competencies, formulate staff training plans, or develop job descriptions. Fewer LHDs were using the *Core Competencies for all Public Health Workers* in 2008 than in 2005.
- Most LHDs have some kind of workforce-related interaction with schools of public health and other four-year institutions (82% and 72%, respectively), and half of LHDs have some kind of workforce-related interaction with two-year institutions, such as community colleges.
- For all types of academic institutions, workforce-related activities are more common for LHDs serving large jurisdictions than small jurisdictions. The most common interaction with schools of public health was LHD staff taking classes or workshops (68% of LHDs).
- The most common interaction with other four-year institutions and two-year institutions was accepting students from the institutions as trainees, interns, or volunteers. Overall, 90 percent of LHDs accept students in practicums or as trainees, interns, or volunteers.

CHAPTER 1
Introduction

Background and Significance

Research on the size and composition of the U.S. public health workforce dates back more than 90 years to the 1923 U.S. Public Health Service workforce enumeration of municipal health departments in the 100 largest U.S. cities.[3] Several other major efforts during the twentieth century were carried out by government agencies, academia, and non-governmental organizations.[4–13] The most recent national enumeration was sponsored by the Health Resources and Services Administration (HRSA) in 2000.[14] Such efforts to study the entirety of the U.S. public health workforce are challenged by the difficulty of identifying and locating public health workers. Though connected through shared missions and networks, public health workers are dispersed among governmental and non-governmental agencies and lack a common credential, which would help identify them in personnel systems or licensure registries.

LHD workers have a special significance because, as governmental workers, they are a public concern.[15] Furthermore, LHD workers may be more accessible for study than public health workers at large by virtue of their common setting and the organizational capacity of the National Association of County and City Health Officials (NACCHO) to identify and survey them. Finally, in terms of their significance in the public health workforce, LHD workers were estimated to comprise about one-third of the entire U.S. public health workforce, as of the last national enumeration in 2000.[16]

The LHD workforce is the front line for the implementation of many essential public health services in the face of changing communities, expectations, and threats to the public health. One way in which our communities continue to change is in demographic composition. For example, the proportion of the U.S. population that is Hispanic or Latino is projected to rise from 12.6 percent in 2000 to 17.8 percent in 2020, and the proportion of the population that belongs to a racial minority is projected to rise from 19 percent in 2000 to 22.4 percent in 2020.[17] In addition, many new and existing health threats must be confronted. Chronic disease is one such threat, presenting what the CDC has called one of "the most common, costly, and preventable of all health problems"—a problem well suited to public health approaches.[18] LHDs must also play a role in detecting and responding to emerging and re-emerging infectious diseases, which continue to arise in an increasingly connected global community.[19,20] In the face of homeland security threats such as bioterrorism, LHDs must overcome differences in organizational cultures, compartmentalization, and privacy practices to collaborate with law enforcement and national security partners.[21] Furthermore, although the economic downturn has led to the loss of jobs and the associated income and health benefits, government revenues and services have decreased alongside increased demand for safety net healthcare services, which LHDs provide in some communities.[22,23] In the face of these and many challenges, the LHD workforce implements the evolving science, policy, and resources that our nation and communities direct toward improving our individual and collective health and well-being.

The *National Profile of Local Health Departments* (Profile) study is the largest source of data about LHD infrastructure and practice in the United States. As such, it supports the activities of those working in local public health practice, research, education, policy development, and advocacy. The combined efforts of NACCHO and many partners in this endeavor have provided a unique data set for public health practice, research, education, and policy development. This special workforce report builds on the data already published in the *2008 National Profile of Local Health Departments* (2008 Profile main report) to focus on the workforce issues that are of particular interest to public health workers, policy analysts, researchers, community members, and many more stakeholders.[24] A better understanding of the background, current composition, and future trends of the LHD workforce will support many efforts to protect and improve our nation's health.

Understanding the workforce supports the formally recognized essential public health function to "assure a competent public health and personal health care workforce."[25] Assuring a competent LHD workforce requires monitoring its size and composition to help create appropriate plans for workforce development, recruitment, and retention. In addition, understanding the LHD workforce composition allows it to be described to the stakeholders that it serves. In turn those stakeholders may support the further development of that workforce.

With this and other reports, NACCHO now carries forward the history of public health and LHD workforce research. Workforce issues have been included in the Profile survey since it was initiated in 1989, through to the fifth release of the Profile report in 2009.[26–29] Additionally, special attention was given to workforce issues in *The Local Health Department Workforce: Findings from the 2005 National Profile of Local Health Departments*, *Race and Ethnicity of Local Health Department Employees*, and *Changes in Occupations of Local Health Department Staff*, based on the 2005 Profile and other data.[30–32]

Intended Audience

The many potential audiences for this report include LHD leadership comparing their workforce with that of other LHDs, program evaluators, schools of public health and other educational institutions that contribute to public health workforce development, policy analysts, and other workforce researchers.

Key Issues Addressed in This Report

This report summarizes information gathered in the 2008 Profile study to address several aspects of the LHD workforce, including:

- Size of LHD workforce and occupations employed.
- Diversity of the LHD workforce.
- Aging and retirement of the workforce.
- Workforce recruitment and development.
- Top executive background, career paths, and demographics.
- Nursing vacancies.
- Interaction with academic institutions.
- Changes from 2005 to 2008, particularly in the data addressing total workforce size and occupations employed.

Methods

Survey Methodology

The focus or unit of analysis in this report is the LHD, not the local public health workforce as a whole. This report uses data from the same survey that the 2008 Profile main report was based on. The questionnaire was administered from July through October 2008. The primary mode was Web-based, with paper copies available upon request. The study population comprised 2,794 local health departments that met the basic definition of an LHD used in every Profile study: an administrative or service unit of local or state government concerned with health and carrying some responsibility for the health of a jurisdiction smaller than the state. Hawaii and Rhode Island were excluded because their local public health activities are conducted by state agencies with no local units. The overall response rate for the survey was 83 percent. Please see the 2008 Profile main report for a full discussion of these and other issues, including sampling and weighting.

Core and Module Questions

The 2008 Profile study questionnaire included a set of core questions sent to every LHD in the study population. Additionally, randomly selected LHDs received one of three sets of supplemental questions or modules. Workforce questions used in this report are from the core survey questions (2,332 responses) and Module 2 (473 responses). (See 2008 Profile main report for additional details.)

Positions Reported as FTE Employees

To clarify the meaning of the figure reported by LHDs as FTEs, the following question was asked in the 2008 Profile survey:

What does the FTE number at your LHD include? (select only one):

(1) Currently filled positions only.
(2) Currently funded positions (whether or not filled).
(3) Currently authorized positions (whether or not filled).
(4) Other, specify: _____.
(5) Unknown.

Approximately two-thirds of the responding LHDs included only positions that are currently filled. Almost one-third of LHDs counted positions that may only be funded or authorized, but not currently filled. This serves as an example of one of the many problems confronted when studying the LHD workforce due to variations in data reporting.

Longitudinal Analysis from Linked 2005–2008 Data

Several of the analyses presented in this report draw on a longitudinal analysis of LHDs in 2005 and 2008. Many of the questions in the 2005 Profile were included in the 2008 survey to allow longitudinal analysis. Responses by an LHD in 2005 and 2008 were linked to analyze trends of changes within an LHD as the unit of analysis, rather than simply the unmatched cross-sectional analysis of all LHDs in the two survey years. Responses for 1,880 LHDs (67% of all LHDs) had perfect one-to-one matches in both years and were used for the longitudinal analysis. For many specific analyses the number of perfect matches dropped considerably (to approximately 1,500), due to missing responses to a specific question in either 2005 or 2008. The remaining LHDs were not used because they did not respond in one or both years, they reported the data at different levels in each year (such as region or district rather than county office), or their jurisdiction had consolidated or separated in the interim.

CHAPTER 2
Size of an LHD Workforce

This analysis of the size of LHD workforces builds on the basic statistics already presented in the 2008 Profile main report. As previously reported, most (89%) LHDs had fewer than 100 FTE employees. Twenty percent of LHDs had fewer than five FTEs. Five percent had 200 or more FTEs.[33] In general, larger LHD workforces are found in larger communities; however, there is wide variation among communities of similar size. The purpose of the following additional analyses is to provide LHDs more detailed statistics against which to assess their own staffing levels. The analyses include the number of FTEs employed and the ratio of workers to population. The ratio of workers to population served is a common measure in other areas of health and community development research (e.g., the ratio of physicians to population in underserved or rural communities) and it may prove valuable in local public health workforce and systems planning as well. Note that the data are not presented as prescriptive formula but rather as descriptive analyses of current practice that may provide a useful basis for discussion or self-assessment. Because LHDs vary widely in services offered, any comparisons in LHD workforce size must be made with caution.

One potential source of variation in LHD workforce size is revenue from state and federal categorical funding. A revenue stream of special interest to some stakeholders is federal preparedness funding. To support what is seen as the front line in the defense against biological terrorism, pandemic influenza, other emerging infectious diseases, and various other threats that fall under all-hazards preparedness, Congress began appropriating funds for public health agencies in 1997, with a dramatic increase following the events of late 2001.[34] Federal emergency preparedness grants and cooperative agreements during the last several years have driven many LHD activities and, it has been assumed, supported LHD staff. Other research that analyzed the 2005 Profile survey data found that CDC preparedness funding had little or no direct effect on local preparedness activities, but an indirect effect when those funds encouraged the hiring of an emergency preparedness coordinator.[35] This chapter explores to what extent that funding has directly supported preparedness personnel in LHDs around the country. LHDs, communities, emergency preparedness planners, and many other stakeholders concerned with the nation's readiness may find it useful to compare preparedness staff support to other LHDs in the same jurisdictional population range.

How Many Workers Did an LHD Employ?

As Figure 2.1 shows, the median number of workers for all LHDs was 15 FTEs. In LHDs serving the smallest communities, fewer than 25,000 people, the median number of FTEs was 6. For LHDs serving 25,000 to 49,999 people, the median number of FTEs was the same as the median for all LHDs (15). As expected, the median number of workers was larger for each successively larger population category: 32 FTEs for LHDs serving 50,000 to 99,999 people, 66 FTEs for LHDs serving 100,000 to 249,999 people, 147 FTEs for LHDs serving 250,000 to 499,999 people, 305 FTEs for LHDs serving 500,000 to 999,999, reaching 584 FTEs for LHDs serving more than one million people. In fact the size of population served explains approximately 52 percent of variability in number of LHD staff, based on simple linear regression.

When the number of FTEs is examined on a per capita basis, LHDs serving all sizes of populations are remarkably similar, as shown in Figure 2.2, which provides the number of FTEs per 100,000 people in the population served. For all LHDs, the median number of workers was 48 FTEs per 100,000 people in the community. In all population categories between 25,000 and 999,999 people, the median number of FTE workers per 100,000 was close to the median value for all LHDs, ranging from 41 to 45 FTEs per 100,000 people. LHDs serving the largest communities, one million or more people, had the lowest number of FTEs per capita, at 35 FTEs per 100,000 people. LHDs serving fewer than 25,000 people had the highest median number of FTEs per capita, at 60 FTEs per 100,000 people. That group also had the most variability, with the highest interquartile range of 68 (75th percentile minus the 25th percentile).

In addition to the median values for each statistic, Figure 2.1 and Figure 2.2 also provide selected major percentiles so that an LHD or community can identify approximately how their LHD workforce size ranks in comparison to their counterparts serving similarly sized communities.

FIGURE 2.1 Percentiles of Number of Workers (FTEs), by Size of Population Served

Percentile	All LHDs	<25,000	25,000–49,999	50,000–99,999	100,000–249,999	250,000–499,999	500,000–999,999	1,000,000+
90th	111	22	45	85	160	314	705	2,634
75th	43	12	27	55	108	200	500	1,221
50th (Median)	15	6	15	32	66	147	305	584
25th	6	3	9	18	37	88	149	377
10th	2	1	6	10	19	45	58	224

n = 2,205

FIGURE 2.2 Percentiles of Number of Workers (FTEs) per 100,000 Population, by Size of Population Served

Percentile	All LHDs	<25,000	25,000–49,999	50,000–99,999	100,000–249,999	250,000–499,999	500,000–999,999	1,000,000+
90th	139	174	127	126	96	88	84	90
75th	82	98	74	76	68	64	64	69
50th (median)	48	60	44	45	43	44	41	35
25th	28	30	25	26	26	28	23	24
10th	15	15	15	14	14	13	8	12

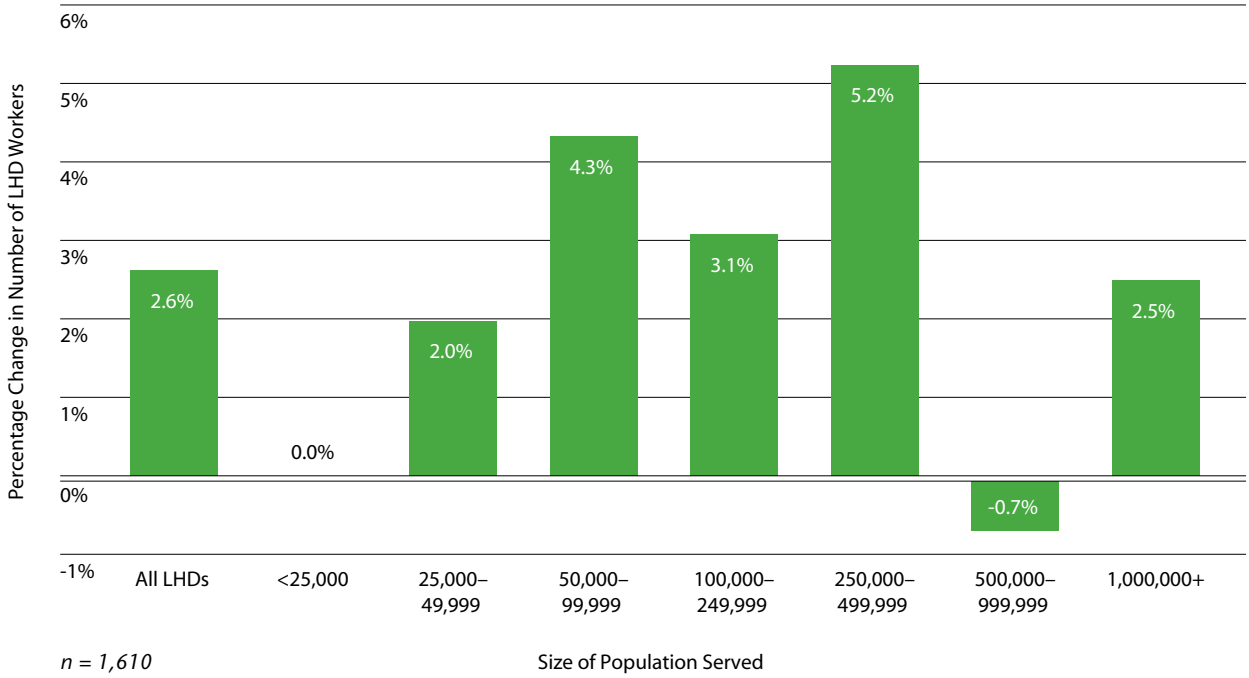
n = 2,205

Did LHDs Gain or Lose Workers between 2005 and 2008?

As previously reported, the estimated total number of workers in LHDs nationwide remained the same from 2005 to 2008 at approximately 155,000.[36] The median number of employees (FTEs) for all LHDs remained unchanged at 19. However, an additional longitudinal analysis of LHDs that responded to both the 2005 and 2008 surveys shows some variation in the size of an LHD's workforce during that period (Figure 2.3).

For the LHDs included in this longitudinal analysis, the total number of FTEs employed in any occupation increased by approximately 5 percent, from 99,655 to 104,530. Additionally, for each LHD in this subset of LHDs, the analysis calculated the percentage change in the number of FTEs employed from the 2005 value, and then determined the median percentage change for all LHDs and for LHDs serving different size populations. The results show that for all LHDs, regardless of size of population served, the number of FTEs employed in an LHD increased by a median of 2.6 percent. When examined by size of population served (Figure 2.3), there was some variation but no consistent trend with respect to size of population served. The largest growth was seen in LHDs serving 250,000 to 499,999 people, which showed a median increase in number of FTEs of approximately 5 percent. LHDs in some other population ranges showed slightly less growth in the size of their workforce. The number of FTEs employed by LHDs serving population ranges between 25,000 and 249,999 people, and those serving one million or more people, increased by median values ranging from 2 to approximately 4 percent. Those LHDs serving fewer than 25,000 people showed a median of 0 percent change in the number of FTEs employed. The only category to experience a decrease was LHDs serving 500,000 to 999,999 people, which showed a median 0.7 percent decrease.

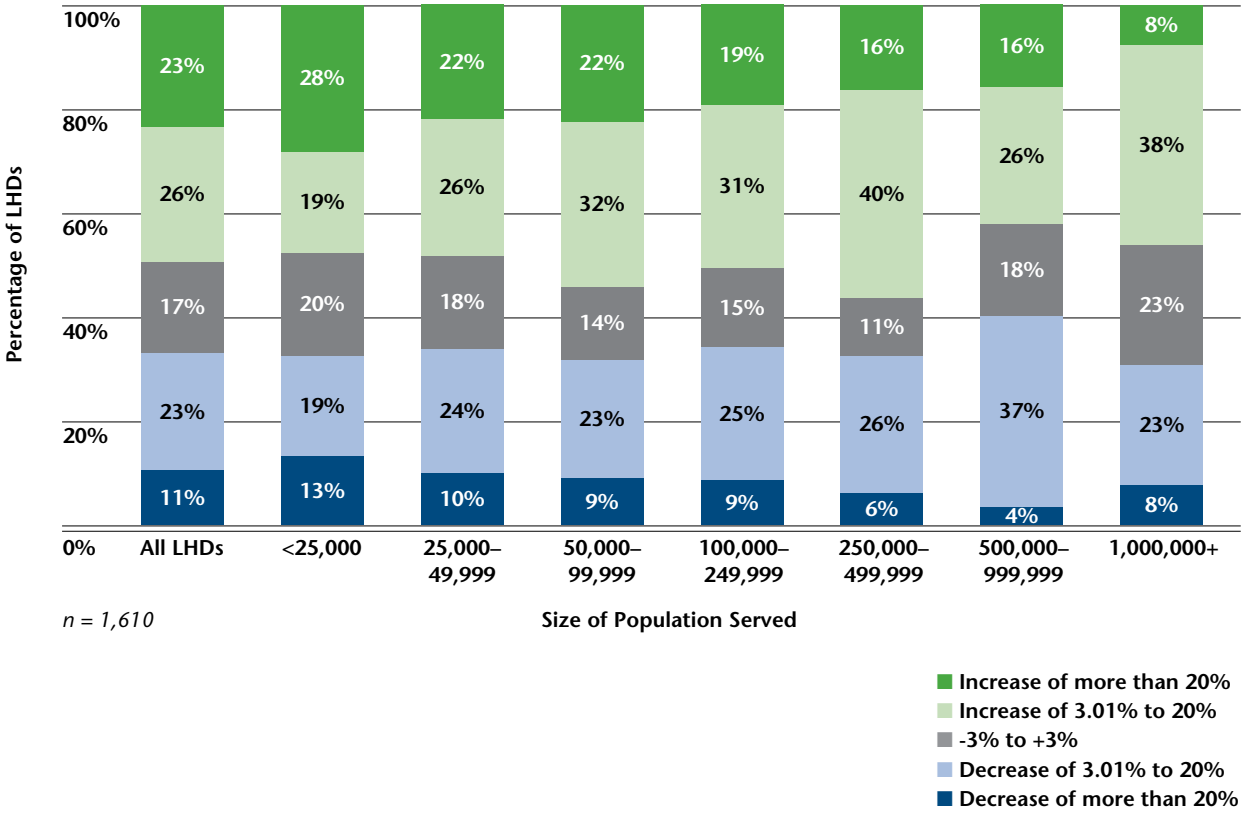
FIGURE 2.3 Median Percentage Change in Number of Workers (FTEs), Longitudinal Analysis from 2005 to 2008, by Size of Population Served



Regardless of the broad trends in LHD workforce size from 2005 to 2008, any individual LHD may have had an experience very different from the average during those years. Figure 2.4 shows the distribution of LHDs by percentage change in LHD workforce size and by size of population served. Overall, 49 percent of LHDs grew, 34 percent shrank, and 17 percent had no or almost no change (±3%) in the total number of FTEs employed. Many LHDs reduced their workforce size, with 23 percent losing approximately 3 to 20 percent of their FTEs, and 11 percent losing more than 20 percent of their FTEs. Other LHDs experienced modest or significant growth in their workforce size. More than one-quarter (26%) of LHD workforces grew by approximately 3 to 20 percent, and 23 percent grew by more than 20 percent.

When analyzed by size of population served there were some notable variations. LHDs serving 500,000 to 999,999 had the lowest proportion of LHDs that increased their workforce size (42%) and the highest proportion of LHDs that had a reduced workforce in 2008 (41%). More growth was seen in the workforce size of LHDs serving 250,000 to 499,999 people, of which 56 percent grew and only 32 percent decreased.

FIGURE 2.4 Percentage Distribution of LHDs by Change in Workforce Size, Longitudinal Analysis from 2005 to 2008, by Size of Population Served



How Many Workers Were Supported in an LHD by CDC Preparedness Funds?

The Profile survey asked LHDs how many workers (FTEs) were supported by CDC emergency preparedness cooperative agreement funds received from the state health agency. The median number of workers supported by CDC preparedness funds was 0.5 FTEs or 1.0 FTEs per 100,000 people served for all LHDs. This analysis includes all LHDs, regardless of whether they received any CDC preparedness funds from their state health agency or not.

As shown in Figure 2.5, the median number of FTEs supported ranged from zero FTEs in LHDs serving the smallest communities (fewer than 25,000 people) to 12.7 FTEs in LHDs serving the largest communities (more than one million people). The number of FTEs supported followed a clear trend with respect to size of population served. In the intermediary population ranges, LHDs serving the next larger populations (25,000 to 49,999 and 50,000 to 99,999 people) were able to support a median of less than one FTE. The median number of FTEs supported increased to 2.0 and 3.0 FTEs in LHDs serving 100,000 to 249,999 and 250,000 to 499,999 people, respectively. LHDs in the second largest population range, 500,000 to 999,999 people, supported a median of 6.0 FTEs.

On a per capita basis, the lowest and highest numbers of workers supported were found in LHDs serving the two lowest population ranges. LHDs serving fewer than 25,000 people supported a median of zero FTEs per 100,000 people served. More than half (54%) of those LHDs supported no staff with CDC preparedness funds (not shown in figures). The highest ratio of LHD workers supported by the CDC preparedness funds was seen in LHDs serving 25,000 to 49,999 people, which had a median value approximately 40 percent higher than the national average, at 1.4 FTEs per 100,000 people. The measures for LHDs serving communities in the larger population ranges (more than 50,000 people) were much closer to the national average. LHDs serving 50,000 to 99,999 or 100,000 to 249,999 people had approximately 1.1 FTEs per 100,000 people supported by CDC preparedness funds, around 10 percent higher than the national average. LHDs serving 500,000 to 999,999 or one million or more people had approximately 0.9 FTEs per 100,000 people, approximately 10 percent less than the national average.

FIGURE 2.5 Median Number of Workers and Workers per 100,000 Population Supported by CDC Emergency Preparedness Cooperative Agreement Funds Received from the State Health Agency, by Size of Population Served

Size of Population Served	Median FTEs	Median FTEs per 100,000 Population
All LHDs	0.5	1.0
<25,000	0.0	0.0
25,000–49,999	0.5	1.4
50,000–99,999	0.8	1.1
100,000–249,999	2.0	1.1
250,000–499,999	3.0	1.0
500,000–999,999	6.0	0.9
1,000,000+	12.7	0.9

n = 2,141

CHAPTER 3
Occupations

Building on the analyses of the total number of workers presented in Chapter 2, this chapter examines the number of workers (FTEs) employed in specific occupations in LHDs. The 2008 Profile questionnaire asked respondents to indicate how many FTEs were employed by their LHD in each of 13 occupational categories. Information on the composition of the LHD workforce in various occupations can allow benchmarking against their peer LHDs, help identify workforce shortages, support the provision of ongoing training and education, and form the basis for projections of future workforce needs. Staffing patterns are useful to researchers, human resources offices, individual professionals, and many others because they identify what occupations are employed in an industry or setting of interest, and what industries or settings employ a certain occupation of interest.[37]

Much of the recent research regarding the public health workforce has been conducted by the HRSA. The landmark report *The Public Health Workforce: Enumeration 2000*, sponsored by HRSA, outlined the history of public health workforce research, examined the entire U.S. public health workforce, and described challenges that continue to be encountered.[38] LHD workers are diverse in the type and amount of education and training they bring to their work. LHD workers may belong to a recognized health profession, come from other technical backgrounds, or be trained on the job in their agency. Some workers may hold advanced degrees, whereas others carry out their responsibilities having only a high school diploma. Job titles are of limited use to occupational analyses of public health workers because many professionals employed in public health (e.g., nurses, physicians, laboratory scientists) serve as administrators, program managers, or in other organizational roles with job titles that do not indicate their occupational or professional background. To move beyond job titles, the 2000 HRSA research expanded the HRSA Bureau of Health Professions public health occupational listing to 55 functional roles. The 2008 Profile could not effectively survey all LHDs on such an extensive list without great expense and burden to the participants, and thus chose 13 occupational categories of most interest. Although all levels of workers are critical to meeting the public health needs of a community, professionals with more advanced education and credentials may be of additional concern because they may require more extensive and expensive initial education, recruiting efforts, and continuing education after hiring.

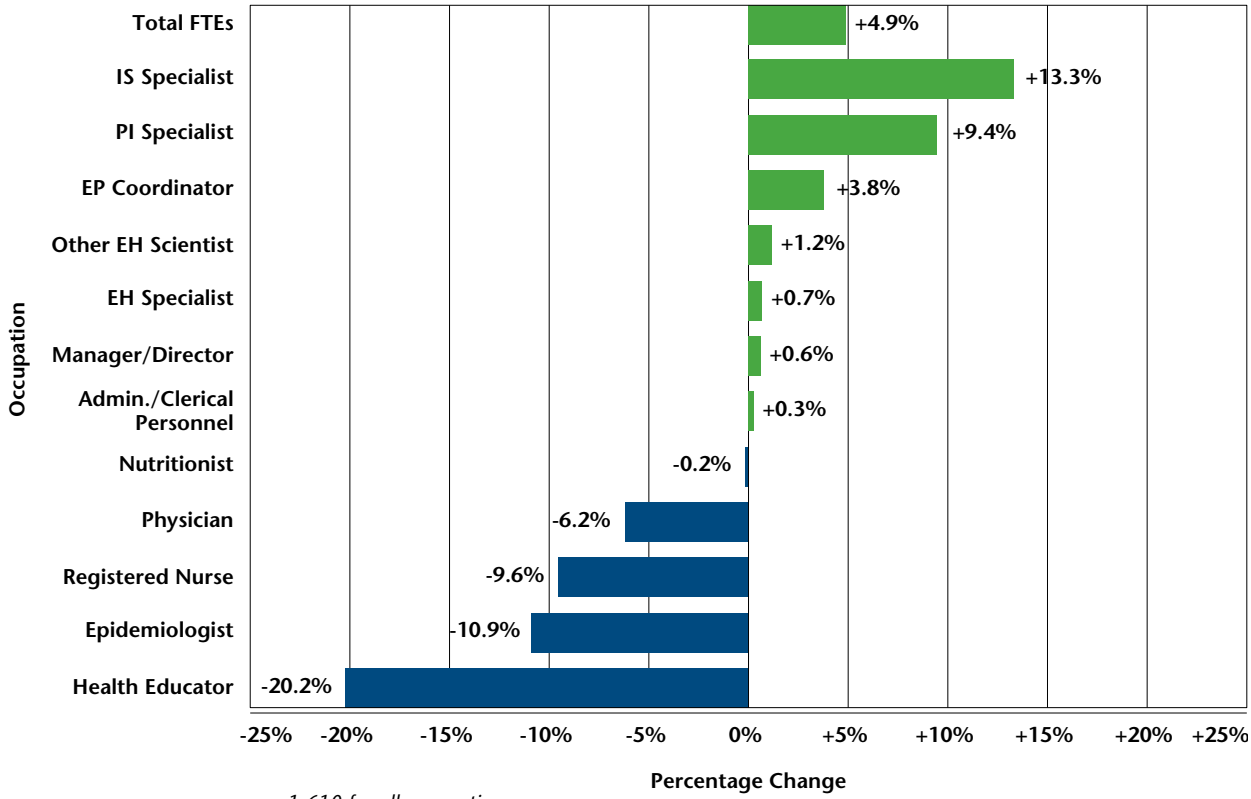
The following analysis examines the number of workers in different occupational categories employed in LHDs in 2008, and the change since the previous Profile study in 2005. Additionally, three occupations of special interest in public health workforce studies are examined in greater detail: nurses, physicians, and epidemiologists. Nurses are prominent in public health history and workforce. As the largest single professional group in the U.S. public health workforce (49,232 or 11% as of 2000), their employment in LHDs garners attention from many stakeholders.[39] Physicians are prominent in health care, mass media health information, and public health history. Physicians have played enormously important roles in the history of modern epidemiology and public health generally, although the fields of medicine and public health often diverged during the twentieth century and physicians are numerically far scarcer in public health agencies than are nurses.[40] Epidemiologists are of special interest in

public health workforce studies because of their proficiency in what is often described as the core science of public health. They have a central, non-clinical, intellectual, and functional role in population-level studies and control of diseases. Furthermore, examining the employment of epidemiologists in LHDs compliments other reports on the shortages of trained epidemiologists in the United States and on the lead role that many state health agencies have in epidemiological functions.[41,42]

How Did the Number of LHD Workers in Different Occupations Change from 2005 to 2008?

Figure 3.1 and Figure 3.2 show to what extent the total number of FTEs employed in selected occupations increased or decreased between 2005 and 2008. This longitudinal analysis examined data from the LHDs that responded to the Profile surveys in both of those years and responded to questions about the number of FTEs employed in these selected occupational categories. The following figures and values for the number of FTEs employed cover only the LHDs included in the longitudinal analysis (n ranges from 1,130 to 1,610). For the LHDs included in this longitudinal analysis, the number of FTEs employed in some specific occupations surveyed increased. As a percentage of the 2005 value, the number of FTEs employed as administrative/clerical personnel, managers/directors, environmental health specialists, or other environmental health scientists increased by approximately 1 percent or less from 2005 to 2008. The number of FTE emergency preparedness coordinators employed increased by approximately 4 percent. Much greater increases occurred for information systems specialists (13.3% increase) and public information specialists (9.4% increase).

FIGURE 3.1 Percentage Change in FTEs Employed in Selected Occupations, Longitudinal Analysis from 2005 to 2008



n = 1,610 for all occupations.
n ranges from 1,130 to 1,443 for each occupation.

Other selected occupations did not increase or, in fact, decreased. The number of FTE nutritionists employed in 2008 was nearly unchanged since 2005, decreasing by only 0.2 percent. The number of FTEs, however, employed in several prominent public health occupations decreased noticeably. In this subset of LHDs, there were an estimated 6.2 percent fewer physicians employed in 2008 than 2005. The number of FTE registered nurses decreased by approximately 9.6 percent between 2005 and 2008. There were 10.9 percent fewer epidemiologists in 2008 than in 2005. Health educators experienced the greatest percent decrease of all occupations in this subset, numbering approximately 20.2 percent fewer in 2008 compared to 2005.

In terms of absolute change (number of FTEs), the greatest increase in number of FTEs employed was in IS specialists (increase of 155 FTEs), followed by administrative/clerical personnel (increase of 57 FTEs) and environmental health (EH) specialists (increase of 55 FTEs) (see Figure 3.2). Far greater absolute decreases were identified. The number of nurses employed in the subset of LHDs decreased by 2,194. The number of health educators in this subset of LHDs also decreased significantly, by 738 FTEs.

Regardless of the modest absolute increases and the significant absolute decreases in the number of FTEs employed in these subsets of LHDs, the total number of FTEs (employed in any occupation) increased by approximately 5 percent in the LHDs that provided that figure in both 2005 and 2008. Many occupational categories and workers fell outside of the categories provided and/or were not reported by LHDs, and these workers may account for most of the increase in total workforce size. Although 1,610 LHDs responding in both 2005 and 2008 provided a total number of FTEs employed, far fewer provided the specific number of FTEs employed or not employed in any particular occupation (n ranges from 1,130 to 1,443).

FIGURE 3.2 Absolute and Percentage Change in FTEs Employed in Selected Occupations, Longitudinal Analysis from 2005 to 2008

Occupation	FTEs Employed in 2005	FTEs Employed in 2008	Absolute Change, 2005 to 2008	Percentage Change, 2005 to 2008 (as Percentage of 2005 Value)
Total FTEs (n=1,610)	99,655	104,530	+4,875	+4.9%
IS Specialist (n=1,161)	1,164	1,319	+155	+13.3%
PI Specialist (n=1,154)	254	278	+24	+9.4%
EP Coordinator (n=1,211)	769	798	+29	+3.8%
Other EH Scientist (n=1,140)	2,288	2,315	+27	+1.2%
EH Specialist (n=1,359)	7,950	8,005	+55	+0.7%
Manager/Director (n=1,443)	5,895	5,931	+36	+0.6%
Admin./Clerical Personnel (n=1,419)	22,532	22,589	+57	+0.3%
Nutritionist (n=1,220)	2,571	2,567	-4	-0.2%
Physician (n=1,130)	1,528	1,433	-95	-6.2%
Registered Nurses (n=1,426)	22,970	20,776	-2,194	-9.6%
Epidemiologist (n=1,194)	999	890	-109	-10.9%
Health Educator (n=1,285)	3,646	2,908	-738	-20.2%

Did the Number of Registered Nurses Employed or the Percentage of LHDs Employing Registered Nurses Change from 2005 to 2008?

Overall, the number of LHDs that employed any registered nurses increased by approximately two percentage points from 95 to 97 percent (n = 1,797), with little variation among LHDs serving different size populations (not shown in figures). However, the total number of FTE registered nurses employed decreased in LHDs serving all population ranges (Figure 3.3). LHDs serving more than 500,000 people decreased the number of FTE registered nurses employed by 15 percent. Smaller decreases occurred in LHDs serving 25,000 to 49,999 people (5%), 50,000 to 99,999 people (9%) and 100,000 to 499,999 people (7%). LHDs serving fewer than 25,000 people decreased the number of FTE registered nurses employed by approximately 2 percent.

FIGURE 3.3 Change in Total Number of Registered Nurses Employed (FTEs), Longitudinal Analysis from 2005 to 2008, by Size of Population Served

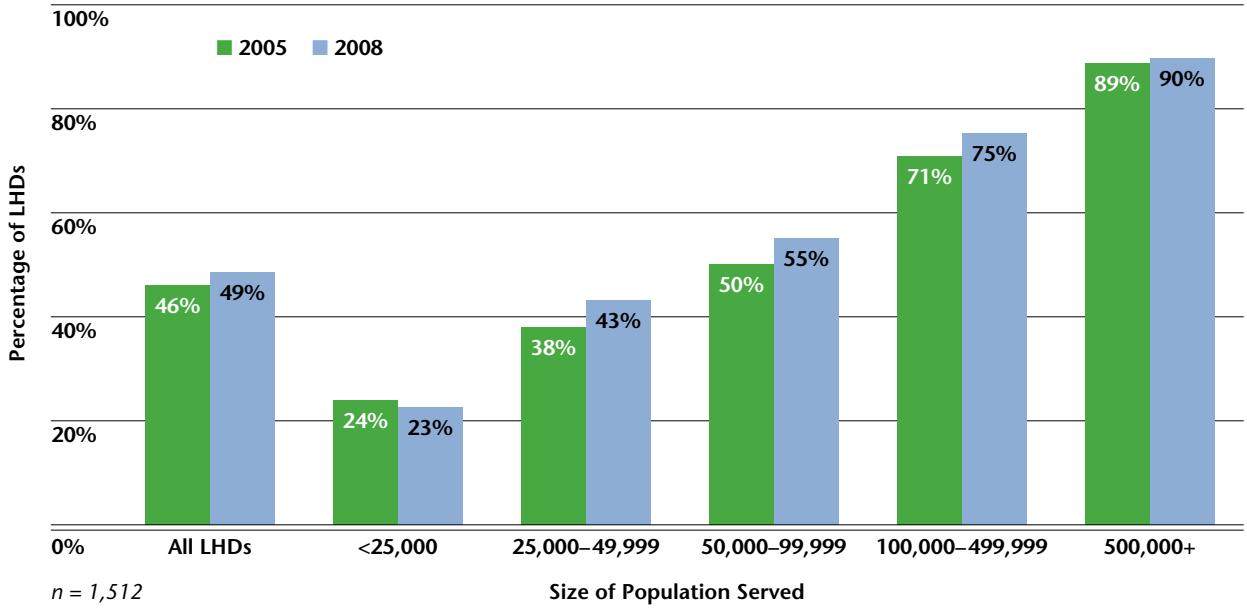
	All LHDs	<25,000	25,000–49,999	50,000–99,999	100,000–499,999	500,000+
Total Registered Nurses (FTEs), 2005	22,970	1,900	2,262	2,949	7,089	8,770
Total Registered Nurses (FTEs), 2008	20,776	1,857	2,148	2,693	6,603	7,476
Percentage Change from 2005 to 2008	-10%	-2%	-5%	-9%	-7%	-15%

n = 1,426

Did the Number of Physicians Employed or the Percentage of LHDs Employing Physicians Change from 2005 to 2008?

As shown in Figure 3.4, the percentage of LHDs that employed any physicians increased from 46 percent to 49 percent during this time. However, in the LHDs included in the longitudinal analysis, the number of physicians employed decreased by 6 percent between 2005 and 2008 (Figure 3.5).

FIGURE 3.4 Percentage of LHDs Employing Any Physicians, Longitudinal Analysis from 2005 to 2008, by Size of Population Served



n = 1,512

The additional analysis by size of population served shows that the percent of LHDs employing any physicians followed a clear trend by size of population served, from 23 percent of LHDs serving fewer than 25,000 people in 2008, to 90 percent of LHDs serving more than 500,000 people in 2008. The percentage of LHDs employing any physicians decreased among LHDs serving the smallest populations (fewer than 25,000). In LHDs serving larger populations, the percentage of LHDs employing any physicians increased by one to five percentage points from 2005 to 2008.

Figure 3.5 shows the number of FTE physicians employed by LHDs serving different sized populations. The change in number of FTEs employed did not follow a clear trend according to size of population served. The percentage change in total number of FTE physicians employed ranged widely from a decrease of 15 percent (LHDs serving more than 500,000 people) to an increase of 51 percent in LHDs serving 25,000 to 49,999 people. The percentages are in part affected by the small number of FTE physicians employed in some LHDs. LHDs in the smallest population range employed as few as 0.1 FTE physicians. The large 51 percent increase in total FTEs of physicians employed by LHDs serving 25,000 to 49,999 people was from 45 to 68 FTE physicians.

FIGURE 3.5 Change in Total Number of Physicians Employed (FTEs), Longitudinal Analysis from 2005 to 2008, by Size of Population Served

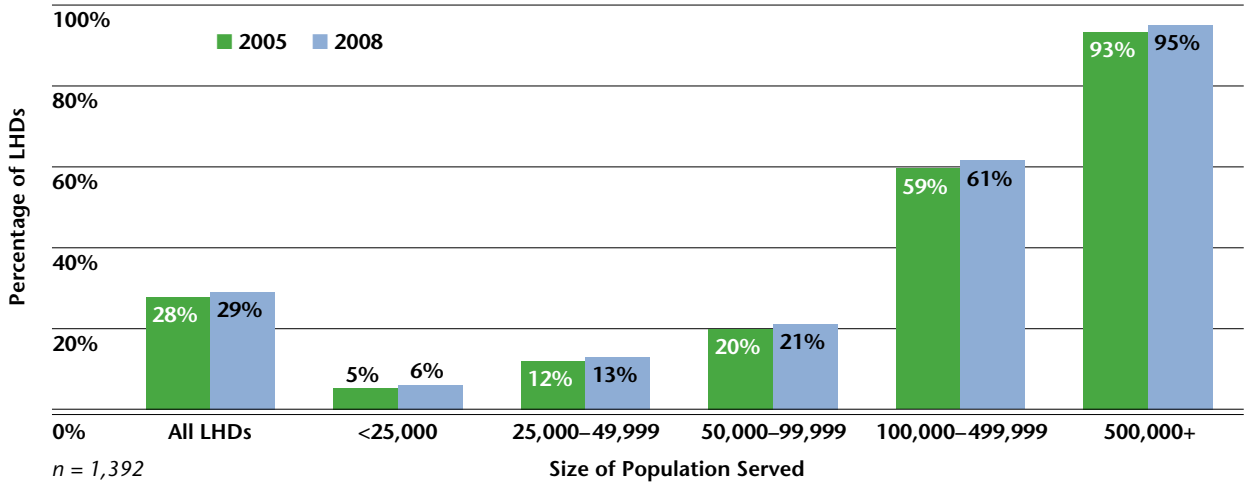
	All LHDs	<25,000	25,000–49,999	50,000–99,999	100,000–499,999	500,000+
Total Physicians (FTEs), 2005	1,528	34	45	97	350	1,002
Total Physicians (FTEs), 2008	1,433	30	68	96	385	854
Percentage Change from 2005 to 2008	-6%	-12%	+51%	-1%	+10%	-15%

n = 1,130

Did the Number of Epidemiologists Employed or the Percentage of LHDs Employing Epidemiologists Change from 2005 to 2008?

The percentage of LHDs that employed any epidemiologists in 2005 and 2008 is shown in Figure 3.6. For all LHDs in the subset, the percentage of LHDs employing any epidemiologists increased by approximately one percentage point from 28 to 29 percent. When examined by size of population served, a similar one to two percentage point increase in the number of LHDs that employed any epidemiologists was observed among LHDs serving all population sizes. As expected, the percentage of LHDs employing any epidemiologists varied enormously among different population ranges. Six percent of LHDs serving fewer than 25,000 people employed any epidemiologists in 2008, compared to approximately 95 percent of LHDs serving more than 500,000 people.

FIGURE 3.6 Percentage of LHDs Employing Any Epidemiologists, Longitudinal Analysis from 2005 to 2008, by Size of Population Served



n = 1,392

Figure 3.7 provides the number of FTE epidemiologists employed by LHDs serving populations of different sizes. Note that the large percentage increases among LHDs in the smaller population ranges are driven by the very small number of epidemiologists employed by LHDs serving small populations. Most epidemiologists in LHDs are employed by LHDs serving populations of 100,000 or more. LHDs serving 100,000 to 499,999 people decreased the number of epidemiologists employed by 11 percent, from 261 to 233 FTEs. The greatest decrease in total number of FTEs and percentage decrease from 2005 to 2008 was among LHDs serving more than 500,000 people, which lost 91 FTEs (13%) of the epidemiologists employed. The total number of FTEs lost in the two highest population ranges from 2005 to 2008 (119 FTEs) was more than the total number employed in all of the smaller population ranges combined in 2008 (70 FTEs).

FIGURE 3.7 Change in Total Number of Epidemiologists Employed (FTEs), Longitudinal Analysis from 2005 to 2008, by Size of Population Served

	All LHDs	<25,000	25,000–49,999	50,000–99,999	100,000–499,999	500,000+
Total Epidemiologists (FTEs), 2005	999	8	18	35	261	678
Total Epidemiologists (FTEs), 2008	890	12	21	37	233	587
Percentage Change from 2005 to 2008	-11%	+42%	+17%	+7%	-11%	-13%

n = 1,194

CHAPTER 4
Demographics of the LHD Workforce

Why Is Workforce Diversity Important?

An LHD with a demographically diverse workforce similar to the demographic diversity of the jurisdiction served by the LHD supports cultural competence, the public good, and personal rights. There are also more self-interested or business-related advantages that come from a diverse workforce. The U.S. Office of Personnel Management has outlined two key advantages for federal agencies that apply equally well to LHDs:

> First, the labor market has become increasingly competitive. The Federal Government must use every available source of candidates to ensure that each agency has the high-quality workforce that it needs to deliver its mission to the American public. Any agency that fails to take steps to recruit among the full spectrum of the labor market is missing a strategic opportunity.
>
> Second, the changing demographics of America mean that the public served by the Federal Government is also changing. When agencies recruit and retain an inclusive workforce—one that looks like the America it serves—and when individual differences are respected, appreciated, and valued, diversity becomes an organizational strength that contributes to achieving results. Diversity offers a variety of views, approaches, and actions for an agency to use in strategic planning, problem solving, and decision making. It also enables an agency to better serve the taxpayer by reflecting the customers and communities it serves.[43]

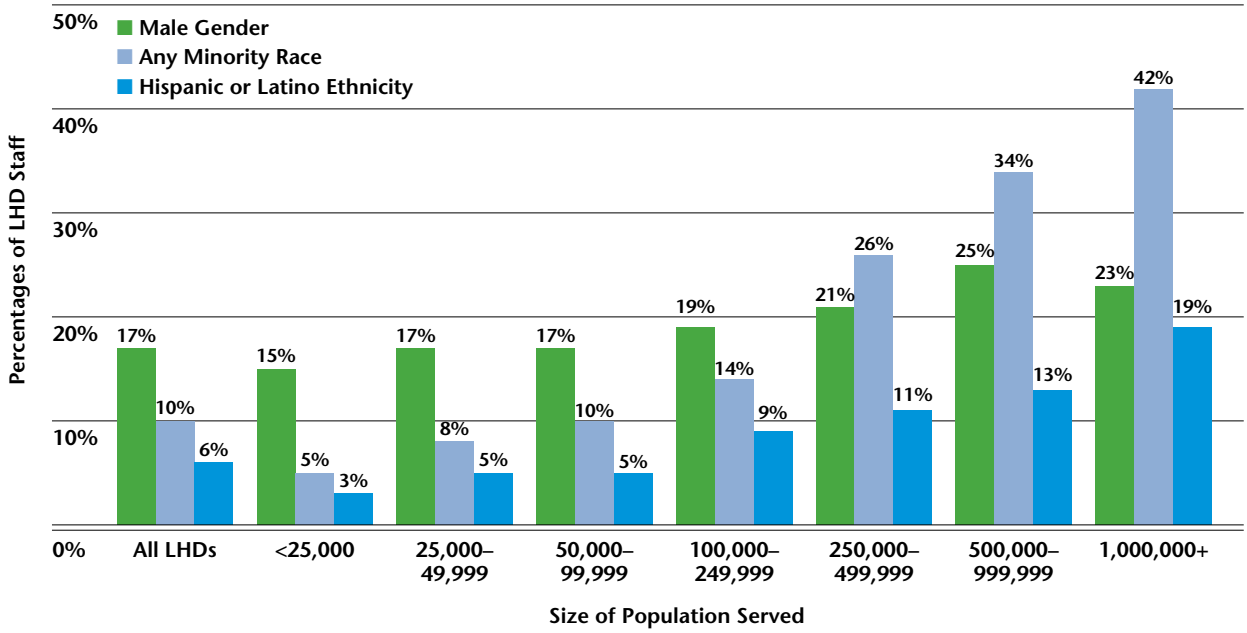
Diversity is all the more important for the work of LHDs who, by the nature of their work, often interact with some of the most under-represented and less empowered minority groups within their community. Profile data, although limited to overall counts by LHD (rather than information on each individual in the LHD workforce), provide information on the race, gender, and ethnicity of all LHD employees and the LHD's top executive. This report builds on the 2005 Profile data and subsequent report *Race and Ethnicity of Local Health Department Employees,* which was the first national-level survey to collect data on race and ethnicity of LHD employees. [44] Although that work established a baseline, the 2008 Profile and this report begin to provide a picture of LHD workforce diversity over time.

What Were the Demographic Characteristics of an LHD Workforce?

The average proportions of LHD workers who belonged to selected racial, ethnic, and gender categories are found in Figure 4.1. The gender of LHD workers was predominantly female. The mean percentage of LHD workers who were male was 17 percent for all LHDs. The proportion of male workers varied slightly among LHDs serving communities of different sizes. The proportion of male workers was highest in LHDs serving 500,000 to 999,999 people, in which the mean was 25 percent. LHDs serving populations fewer than 25,000 had the lowest mean percentage of workers who were male, at 15 percent.

LHDs serving larger populations had much higher proportions of staff who belonged to racial minorities or were Hispanic or Latino ethnicity. Among all LHDs, the mean proportion of workers who belonged to any minority race was 10 percent, but ranged from 5 percent (for LHDs serving populations fewer than 25,000) to 42 percent (for LHDs serving populations of one million or more). The proportion that was Hispanic or Latino showed a similar trend. The mean percentage of workers who were Hispanic or Latino was 6 percent for all LHDs, and ranged from 3 percent (for LHDs serving populations fewer than 25,000) to 19 percent (for LHDs serving populations of one million or more).

FIGURE 4.1 Mean Percentages of Staff Who Are Male, Minority Race, and Hispanic/Latino, by Size of Population Served



n = 2,226 for gender, 2,168 for race, and 1,966 for ethnicity.

What Was the Estimated Racial and Ethnic Composition of the LHD Workforce?

Figure 4.2 shows the estimated proportion of all LHD staff nationwide that belonged to specific racial and ethnic groups included in the 2008 Profile survey. In terms of race, workers who were White alone made up the largest group, making up an estimated 72.2 percent of the LHD workforce. Workers belonging to any minority racial group amounted to an estimated 27.8 percent of the total LHD workforce. Black or African American workers were the largest racial minority group, making up 15.8 percent of all LHD workers. Workers identified as Asian were an estimated 3.8 percent of the entire workforce. Native Hawaiian/Other Pacific Islanders totaled an estimated 1.9 percent of the entire LHD workforce, which is higher than in the U.S. population as a whole, although the estimate is strongly influenced by a single large LHD in California. American Indian/Alaska Natives made up an estimated 0.5 percent of the entire LHD workforce. An estimated 5.4 percent of LHD workers belonged to some other minority race group. Workers identified as belonging to two or more races made up approximately 0.4 percent of the LHD workforce. In terms of ethnicity, individuals that were identified as Hispanic or Latino made up an estimated 10.5 percent of the LHD workforce.

FIGURE 4.2 Number and Percentage Distribution of LHD Workforce, by Race and Ethnicity Categories

	LHD Workers Whose Race/Ethnicity Was Reported	
	Percent	Number
Race		
White	72.2%	107,689
Any Minority Race	27.8%	41,541
Black or African American	15.8%	23,596
American Indian/Alaska Native	0.5%	796
Asian	3.8%	5,737
Native Hawaiian or Other Pacific Islander	1.9%	2,785
Some Other Race	5.4%	8,080
Two or More Races	0.4%	546
Ethnicity		
Hispanic or Latino	10.5%	16,340
Not Hispanic or Latino	89.5%	139,005

n = 2,098 for race and 1,900 for ethnicity.

Percentage and number are for subsets reporting races and ethnicity. Sum of numbers does not equal total number of LHD workers.

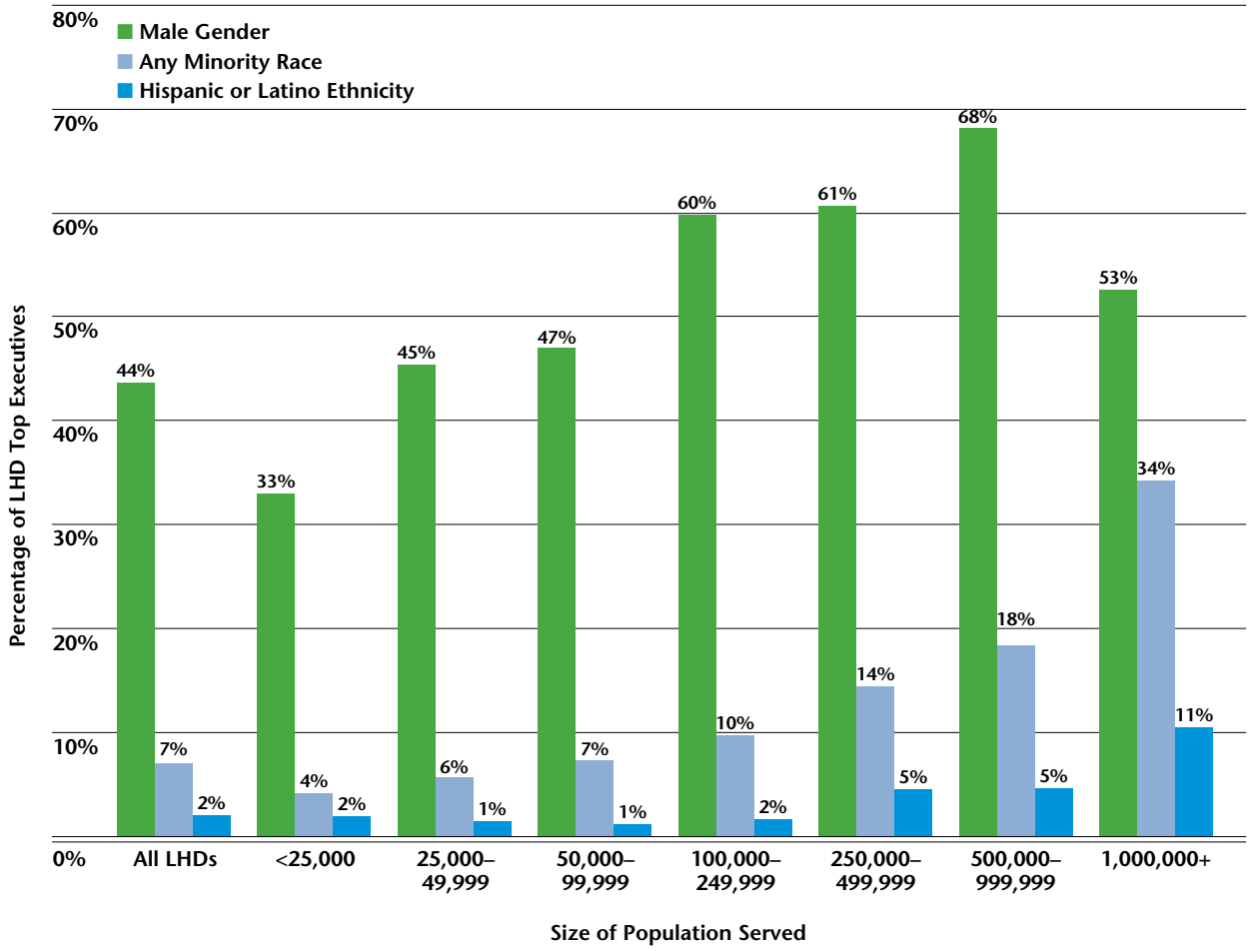
Race and ethnicity statistics exclude responses that provided race and ethnicity data on less than 95 percent of the LHD's workforce.

What Were the Demographic Characteristics of LHD Top Executives?

Nationally, LHD top executives were much less racially and ethnically diverse than both the LHD workforce as a whole and the U.S. population. Only 7 percent were of any minority race (compared to 20% of the U.S. population that were of any minority race), and only 2 percent were Hispanic or Latino (compared to approximately 15% of the U.S. population that was Hispanic or Latino).[45] Yet the top executives serving larger communities were much more diverse. Among LHDs serving more than one million people, 34 percent of top executives belonged to a racial minority and 11 percent were Hispanic or Latino (see Figure 4.3).

At the national level, the gender of top executives was 44 percent male. However, the proportions of top executives of each gender were quite different by size of population served. More than two-thirds (68%) of top executives in LHDs serving 500,000 to one million people were male. With the exception of LHDs serving more than one million people, there was a decreasing trend among LHDs serving smaller and smaller LHDs where the proportion of male top executives was as low as one-third (33%) in LHDs serving fewer than 25,000 people.

FIGURE 4.3 Mean Percentages of Top Executives Who Are Male, Minority Race, and Hispanic/Latino, by Size of Population Served



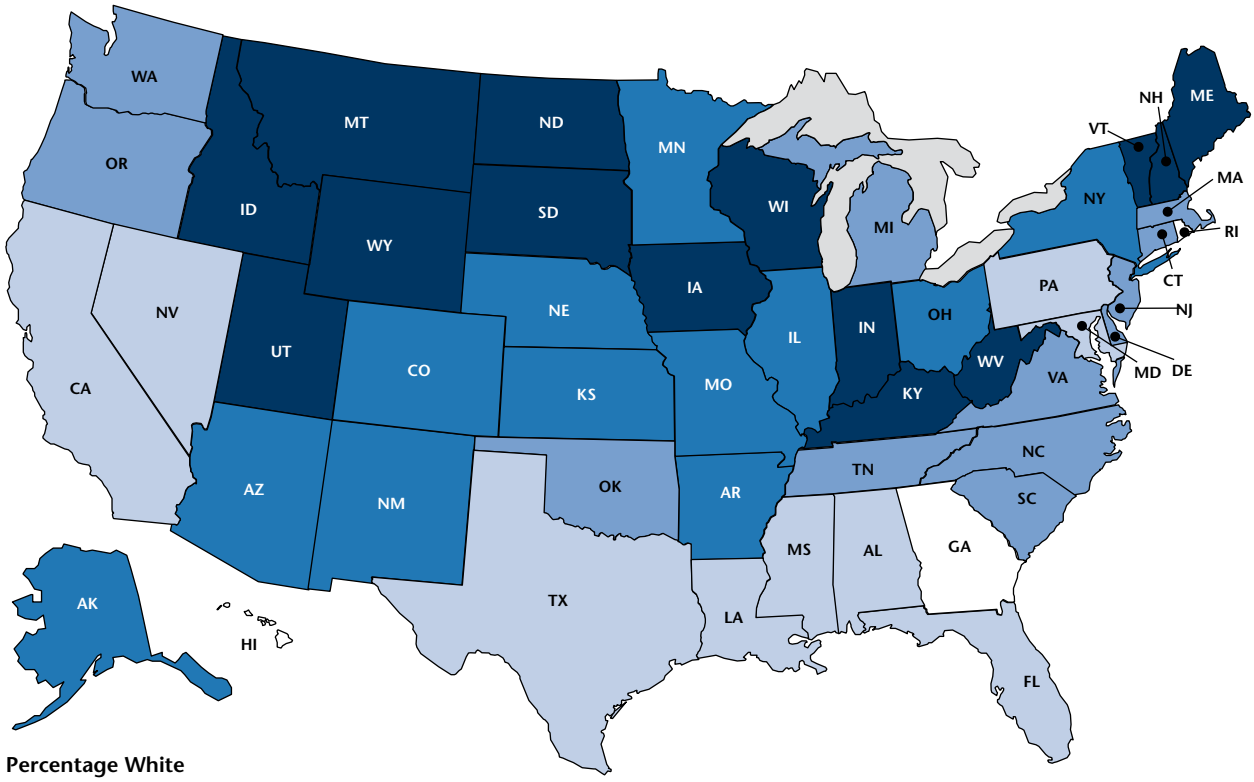
n = 2,288 for gender, 2,276 for race, and 2,229 for ethnicity.

How Did LHD Workforce and Top Executive Demographics Vary by State?

Like the general population of the communities they serve, the race and ethnicity of LHD employees varies among states and regions. Overall, LHD staff were slightly less White and less Hispanic than the populations of their states.

Figure 4.4 and Figure 4.5 show the proportions of LHD workers and LHD top executives in each state that are White according to the 2008 Profile survey. Figure 4.6 and Figure 4.7 map the percentages of LHD workers and top executives who are Hispanic or Latino. The data for all of the preceding figures are also provided in tabular format in Figure 4.8. The general population statistics use U.S. Census Bureau data for only the local jurisdictions that participated in the 2008 Profile survey, and thus may differ slightly from the racial and ethnic data for the entire state population. Also note that the maps show no data for the states that did not participate in the 2008 Profile survey (Hawaii and Rhode Island), and the states for which insufficient data were received to allow jurisdiction-level analysis (Georgia and Washington, DC).

FIGURE 4.4 Percentage of Staff Who Are White Race Alone, by State

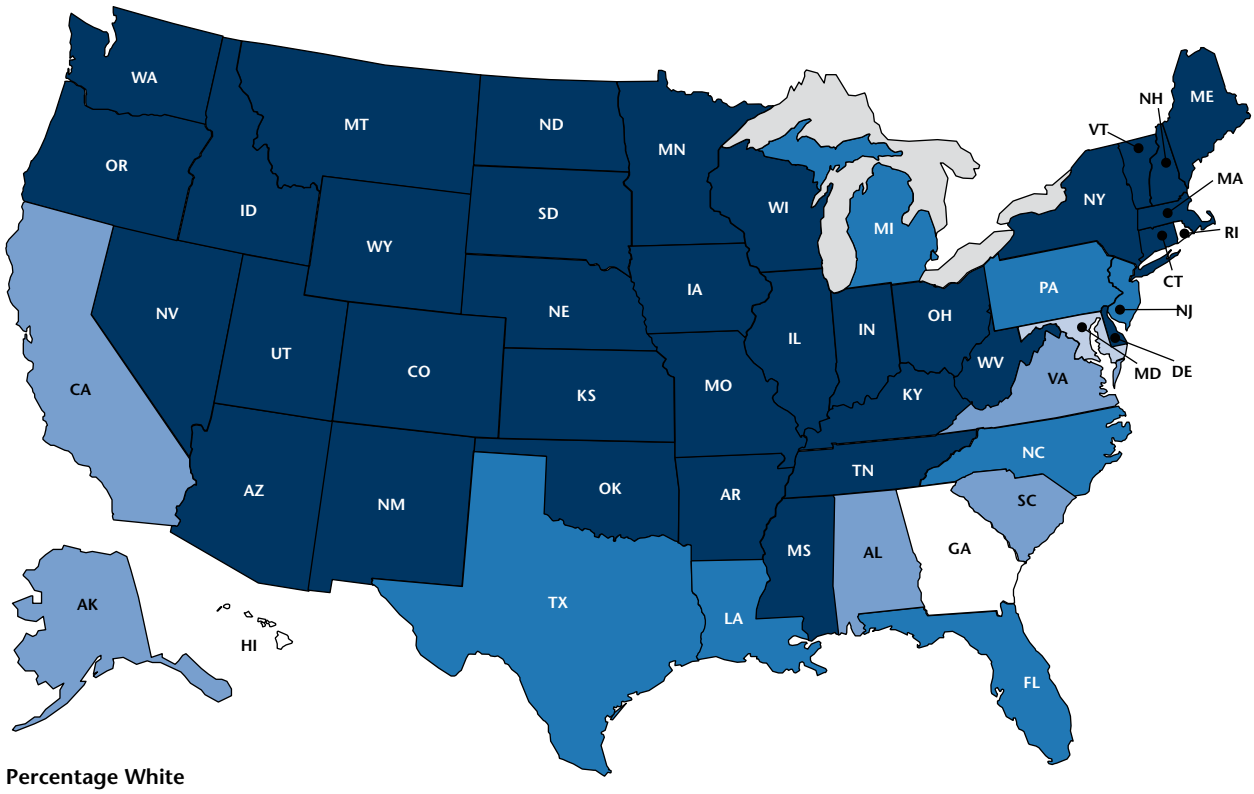


In many states the percentage of LHD workers who are White approaches the percentage of the general population that is White. For example, as shown in Figure 4.4, a cluster of north central and western states (Idaho, Montana, North Dakota, and Wyoming) have LHD workforces that are more than 90 percent White. The general population of the jurisdictions served by those workers is also more than 90 percent White (see Figure 4.8). Several states along the Gulf of Mexico have both general populations and LHD workforces that are less than 70 percent White. However, in some states

the percentage of LHD workers who are White is significantly higher (by more than 15%) than the general population (Alaska, Arizona, New Mexico). In other states, the percentage of LHD staff who are White is substantially lower (by more than 15%) than the general population (Florida, Nevada, Pennsylvania, Texas).

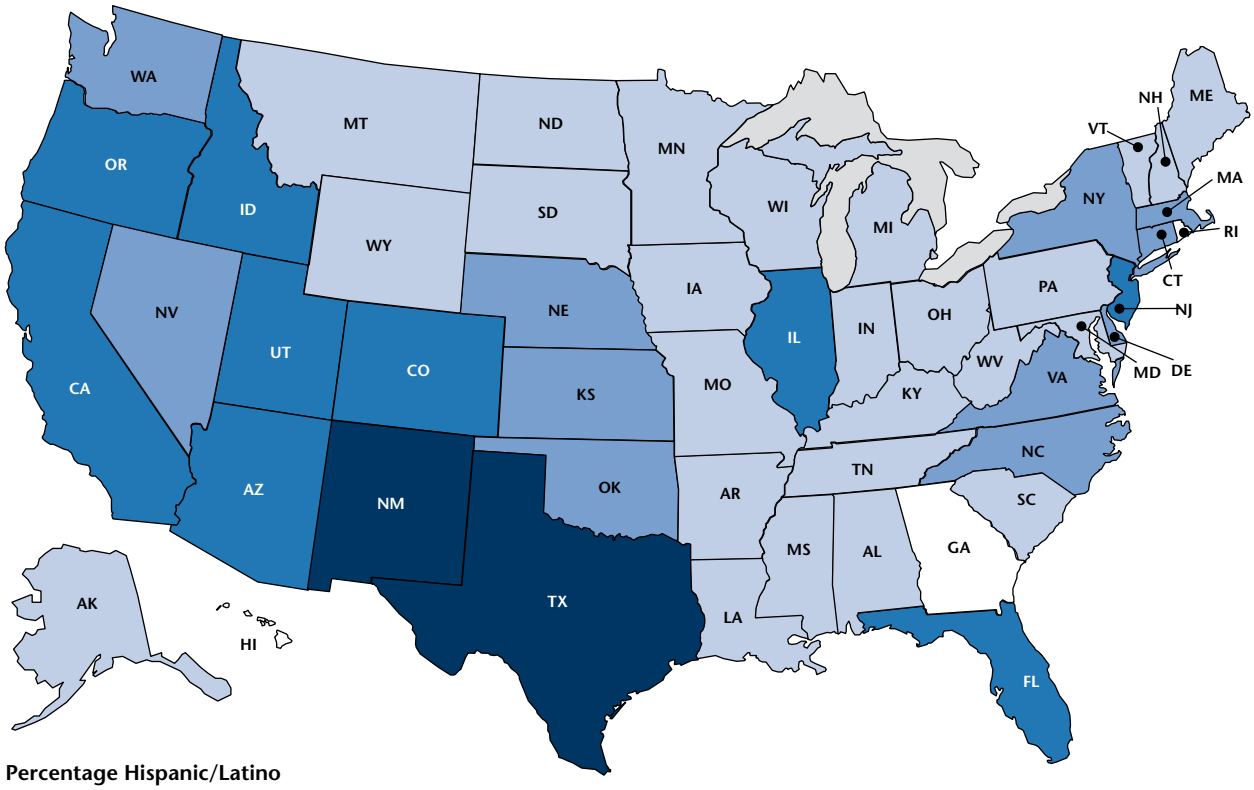
LHD top executives were predominantly White in most states, as shown in Figure 4.5. In all but 12 states the percentage of top executives who were White was more than 90 percent. In 16 states, 100 percent of top executives were White. Ninety percent or less of LHD top executives were White in a stretch of coastal states along the Gulf of Mexico, through the southeast, and into the lower northeastern states (Texas, Louisiana, Alabama, Florida, South Carolina, North Carolina, Virginia, Maryland, New Jersey, Pennsylvania, in geographic order), and Alaska, California, and Michigan.

FIGURE 4.5 Percentage of Top Executives Who Are White Race Alone, by State



As shown in Figure 4.6, the largest grouping of states with higher percentages of staff who were Hispanic or Latino were found in the west and southwest, although states in other regions also had significant percentages of Hispanic or Latino staff. Similar to race, the percentage of LHD staff who were Hispanic or Latino approached the percentage of the general population that were Hispanic or Latino in many states (Figure 4.8). For example, of the 12 states where LHDs served populations that were more than 10 percent Hispanic or Latino, the percentage of LHD workers who were Hispanic or Latino exceeded that of the general population in seven states (Colorado, Idaho, Illinois, New Mexico, Oregon, Texas, Utah) and was not more than five percentage points lower in two states (Arizona, Florida). Four states had a much higher percentage of staff who were Hispanic or Latino than the general population (Nevada, New Mexico, Oregon, Texas). Another four states had a much lower percentage of LHD staff who were Hispanic or Latino than the general population (California, Florida, New Jersey, and New York).

FIGURE 4.6 Percentage of Staff Who Are Hispanic/Latino Ethnicity, by State



n = 1,832

As shown in Figure 4.7, in most states the percentage of LHD top executives who were Hispanic or Latino was low (less than 5%). Much lower percentages of top executives were Hispanic or Latino than the populations they served (Figure 4.8). Although 23 states had populations that were more than 5 percent Hispanic or Latino, only three of those states had more than 5 percent Hispanic or Latino top executives (Oregon, Texas, and Utah). Thirty-three states had no top executives who were Hispanic or Latino.

FIGURE 4.7 Percentage of Top Executives Who Are Hispanic/Latino Ethnicity, by State

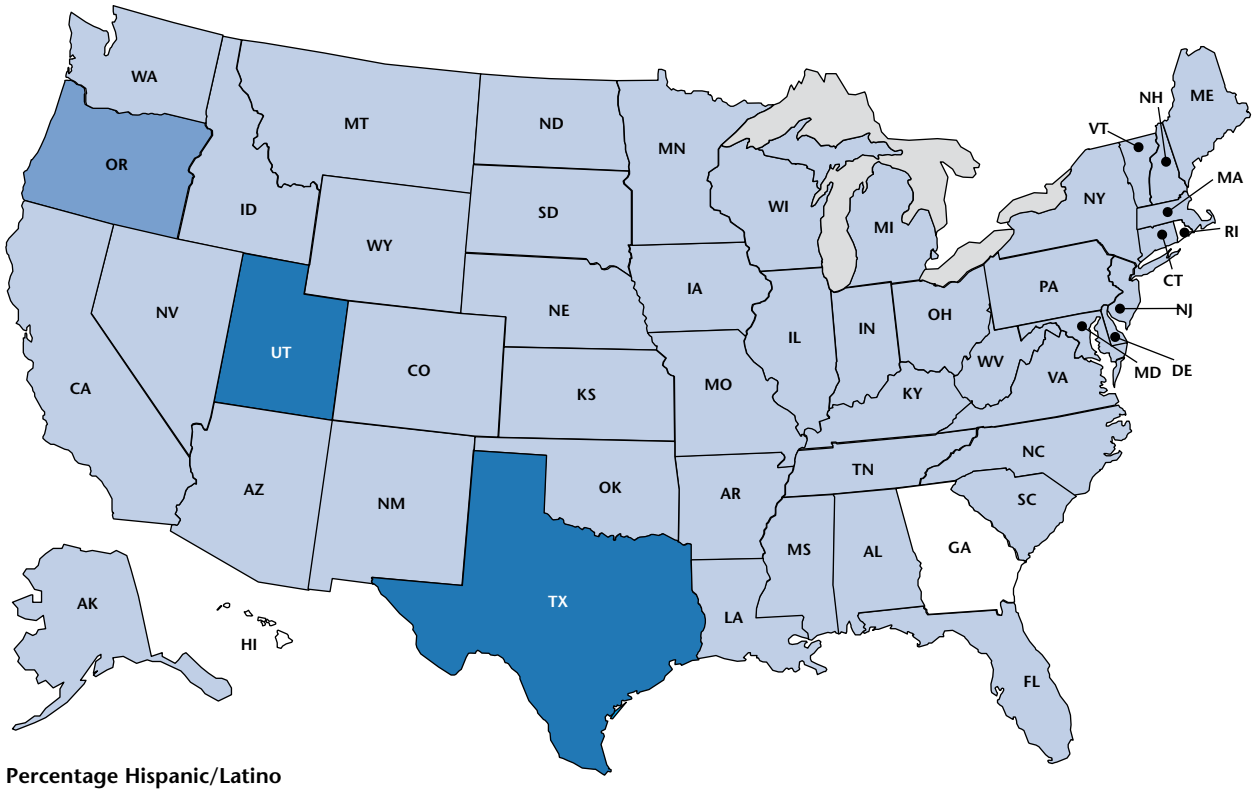


FIGURE 4.8 Percentage of Population, Staff, and Top Executives Who Are White Race Alone and Percentage Hispanic/Latino Ethnicity, by State

	Race: White Alone			Ethnicity: Hispanic or Latino		
State	Population	LHD Staff	Top Executives	Population	LHD Staff	Top Executives
Alabama	70%	62%	76%	3%	2%	0%
Alaska	70%	85%	75%	4%	2%	0%
Arizona	67%	87%	100%	21%	19%	0%
Arkansas	80%	85%	91%	4%	3%	0%
California	60%	45%	74%	29%	18%	5%
Colorado	81%	86%	98%	20%	23%	5%
Connecticut	80%	78%	94%	10%	10%	0%
Delaware	74%	75%	100%	5%	8%	0%
Florida	76%	56%	88%	22%	17%	5%
Idaho	91%	93%	100%	8%	11%	0%
Illinois	83%	87%	94%	11%	12%	0%
Indiana	90%	94%	95%	4%	3%	3%
Iowa	92%	97%	99%	4%	4%	0%
Kansas	84%	90%	97%	9%	8%	1%
Kentucky	88%	91%	93%	2%	2%	0%
Louisiana	62%	63%	88%	3%	0%	0%
Maine	95%	95%	100%	1%	1%	0%
Maryland	56%	65%	67%	7%	4%	0%
Massachusetts	78%	73%	96%	7%	10%	1%
Michigan	76%	78%	90%	4%	2%	0%
Minnesota	86%	84%	100%	4%	2%	0%
Mississippi	56%	57%	100%	2%	2%	0%
Missouri	82%	83%	98%	3%	2%	0%
Montana	91%	97%	97%	2%	1%	0%
Nebraska	88%	89%	100%	7%	10%	0%
Nevada	87%	68%	100%	2%	10%	0%
New Hampshire	87%	94%	100%	7%	4%	0%
New Jersey	68%	79%	90%	18%	12%	5%
New Mexico	70%	90%	100%	43%	57%	0%
New York	84%	90%	96%	19%	9%	2%
North Carolina	71%	75%	88%	6%	7%	0%
North Dakota	92%	99%	100%	2%	1%	0%
Ohio	80%	84%	95%	3%	2%	0%
Oklahoma	74%	78%	98%	8%	9%	0%
Oregon	86%	78%	100%	9%	15%	6%
Pennsylvania	83%	56%	87%	4%	4%	0%
South Carolina	66%	74%	75%	3%	3%	0%
South Dakota	87%	96%	100%	2%	1%	0%
Tennessee	79%	71%	96%	3%	5%	2%
Texas	64%	48%	81%	39%	44%	16%
Utah	88%	93%	100%	11%	14%	11%
Vermont	96%	100%	100%	1%	0%	0%
Virginia	70%	72%	77%	7%	6%	0%
Washington	80%	78%	97%	8%	8%	4%
West Virginia	95%	98%	95%	1%	0%	0%
Wisconsin	86%	94%	99%	5%	3%	0%
Wyoming	91%	99%	100%	7%	4%	5%
All States	76%	72%	93%	13%	11%	2%

Non-Participants: Hawaii and Rhode Island. Insufficient data for Georgia and Washington, DC.

n = 2,024 for staff race, 2,200 for top executive race, 1,832 for staff ethnicity, 2,152 for top executive ethnicity. Population data are only for participating jurisdictions within each state.

CHAPTER 5
Workforce Retirement

This chapter examines 2008 Profile data on related issues of LHD workforce age and retirement, including recent retirements, retirement and age forecasts, retirement eligibility, and top executive age. The retirement of staff and leadership—in an LHD or any organization—can be seen both as a challenge and as an opportunity. Long-serving personnel that depart may take with them skills, knowledge of agency and community public health history, and social and political capital. Yet their departure can also present an opportunity for new direction in organizational structure, function, or culture.

The year 2008 was an important year for retirements in the United States and LHDs. That year the first wave of approximately 78 million Americans—the baby boom generation—turned 62 and became eligible for social security benefits. As the Government Accountability Office stated, "the retirement of the relatively large baby boom generation, combined with other demographic trends, is expected to strain the nation's retirement and health systems."[46] The 2008 Profile, administered from summer to fall 2008, captures the cusp of baby boomers' shift into retirement. Future Profile studies may show the consequences of that shift.

Retirement issues must also be examined in light of the aging (or graying) of the entire U.S. workforce, which the Bureau of Labor Statistics (BLS) and others continue to study.[47] The BLS projects that the total U.S. labor force is projected to increase by 8.5 percent during the period 2006–2016, but the number of workers between the ages of 65 and 74 and those aged 75 and up are predicted to soar by more than 80 percent. Notably, after 1995, full-time employment of workers 65 and older began rising much more sharply than part-time employment, as more older workers are working full-time than part-time. Workers are also feeling more of the risks associated with providing a steady retirement income, as the percentage covered by defined benefit (payout) plans has decreased and the percentage covered by defined contribution (pay in) plans has increased.[48] Altogether, as the BLS stated, "with the baby-boom generation about to start joining the ranks of those age 65 and over, the graying of the American workforce is only just beginning." Although the 2008 Profile survey did not gather data on the age of all LHD workers, the survey captured the age of LHD top executives and asked if LHDs had tabulated employee age data.

Did LHDs Experience Many Retirements in the Previous Year?

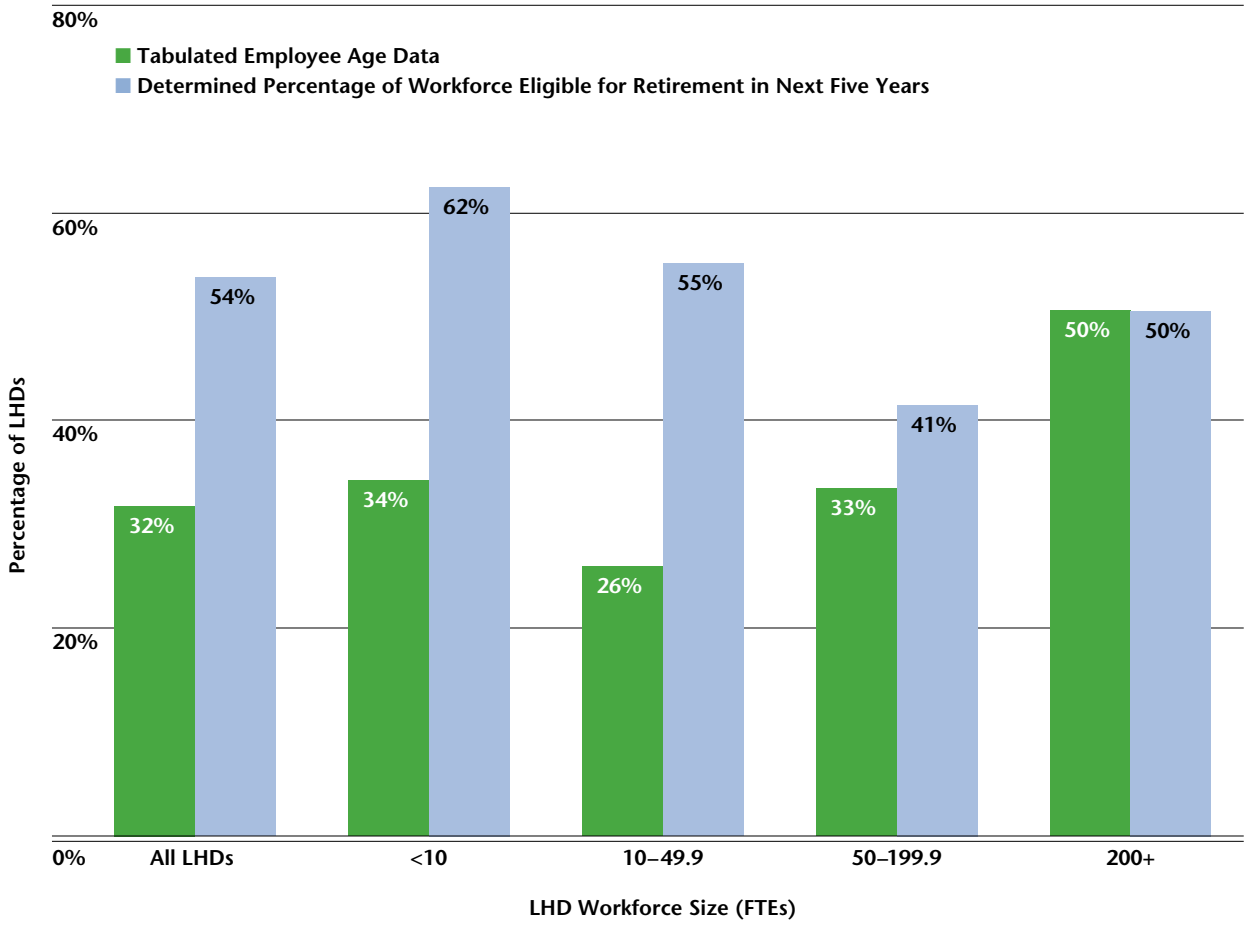
Many LHDs reported few or no employee retirements in the previous year. More than half (57%) of all LHDs reported that no employees had retired in the previous year. Another 19 percent of LHDs reported that only one employee had retired in the previous year. When analyzed as a proportion of workers who had retired in the previous year, the mean percentage of workers in an LHD that had retired was 3 percent. The mean proportion of workers who had retired in the previous year varied little by LHD workforce size or size of population served, ranging from 2 to 5 percent for all ranges (not shown in figure).

Had LHDs Tabulated Workforce Age and Determined Retirement Eligibility?

Figure 5.1 shows the percentage of LHDs that had tabulated the age of their workers, and the percentage of LHDs that had determined what proportion of their workforce was eligible for retirement in the next five years. The proportion of LHDs that reported they had tabulated age data on their employees was low. Only around one-third (32%) of all LHDs would have been able to answer the question, "How old is our workforce?" When trends by LHD size (total FTEs) were examined, LHDs employing 200 FTE staff or more were most likely to have tabulated employee age data (50%) and LHDs employing 10 to 49.9 FTEs were least likely to have done so (26%).

The proportion of LHDs that had determined the percentage of their workforce eligible for retirement in the following five years was 54 percent for all LHDs. A higher proportion (62%) of LHDs with fewer than 10 FTEs had determined the percentage of their workforce eligible for retirement in the following five years, compared to the lowest percentage (41%) among LHDs with 50 to 199.9 FTEs.

FIGURE 5.1 Percentage of LHDs That Have Determined Worker Age and Retirement Eligibility, by LHD Workforce Size (FTEs)



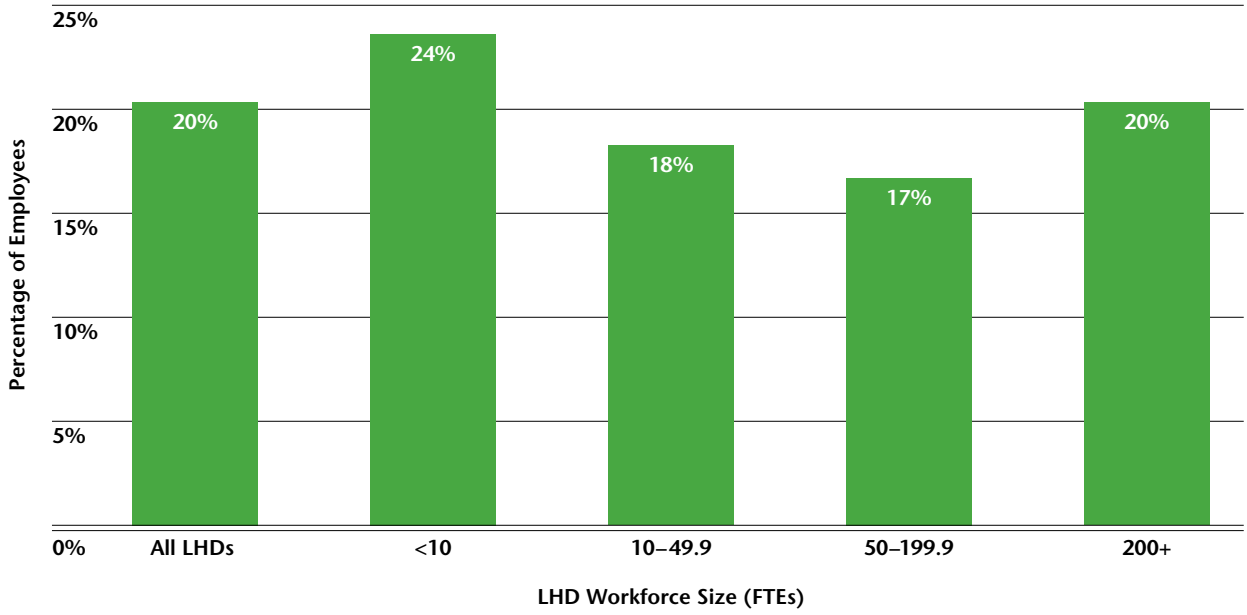
n = 459 and 461, respectively, for All LHDs, 430 for FTE categories.
(Question asked of survey Module 2 subsample only.)

What Proportion of Employees Was Eligible for Retirement in the Next Five Years?

LHDs were asked to provide the specifically determined percentage of their workforce that would be eligible for retirement in the next five years or, lacking that data, the best estimate. As shown in Figure 5.2, the percentage of an LHD's employees eligible for retirement in the next five years had a mean of 20 percent among all LHDs. The proportion varied slightly when examined according to the LHD workforce size. Among LHDs with fewer than 10 FTEs, a mean 24 percent of the employees were eligible for retirement in the next five years. The lowest proportion was in LHDs with 50 to 199.9 FTEs, among which an average of 17 percent of the employees were eligible for retirement in the next five years.

These findings are difficult to interpret because respondents may have had different interpretations of the phrase "eligible for retirement" (e.g., old enough to retire versus simply invested in the retirement system and able to draw from it at a later age). Future research may be able to clarify this issue.

FIGURE 5.2 Mean Percentage of Employees Eligible for Retirement in the Next Five Years, by LHD Workforce Size (FTEs)

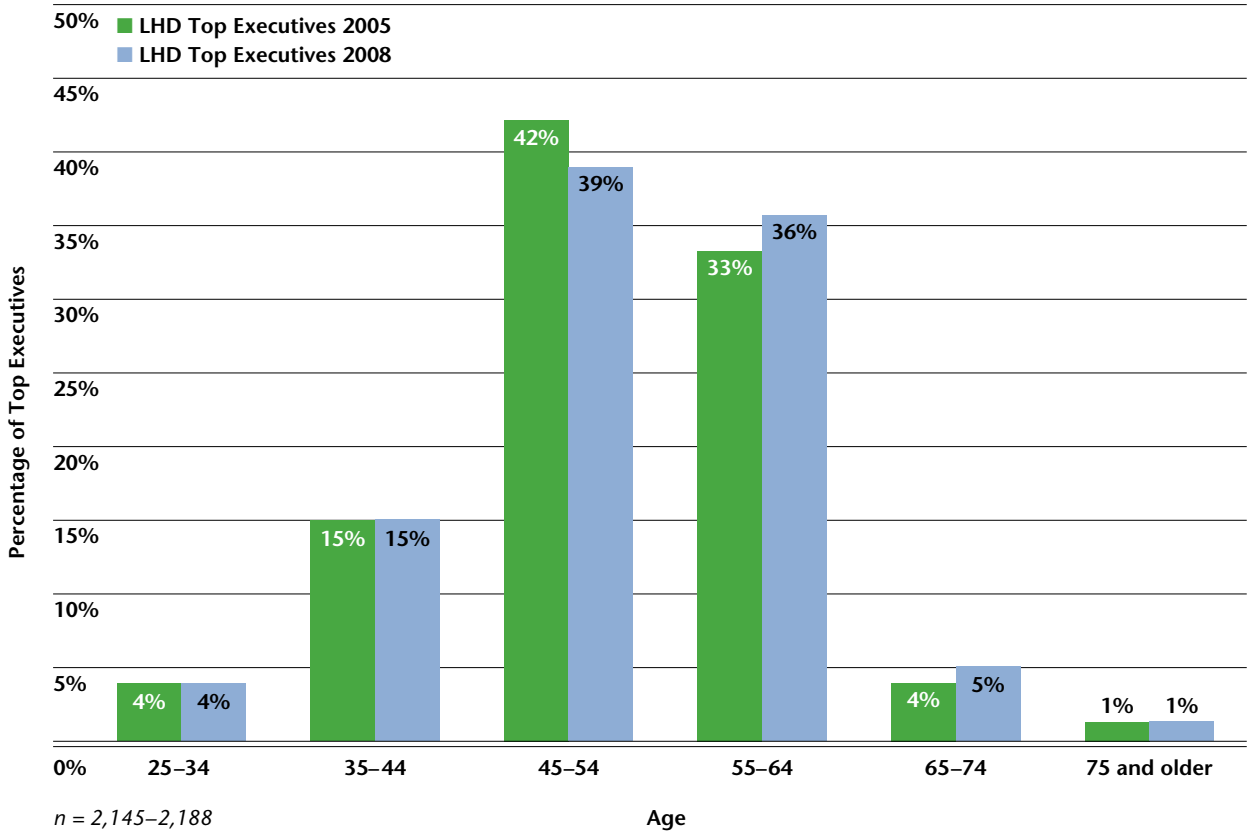


n = 392 for All LHDs, 371 for FTE categories.
(Question asked of survey Module 2 subsample only.)

What Age Were Top Executives?

In 2008 the median age of LHD top executives was 53 years, increased slightly from the median age of 52 in 2005. Figure 5.3 shows the distribution of top executives by age category, taken from separate cross-sectional analyses for 2005 and 2008. The figure uses the standard BLS age ranges to enable easy comparison with other populations. From 2005 to 2008 there was a slight shift toward the higher age ranges. In 2005, approximately 38 percent of top executives were age 55 or higher. In 2008, the proportion of LHD top executives who were age 55 or higher had increased to 42 percent. The percentage aged over 65 was 5 percent in 2005, and 6 percent in 2008. In 2008, there was very little difference in the average age of LHD top executives when examined by state or among LHDs with different size workforces (not shown in figures.)

FIGURE 5.3 Percentage Distribution of LHD Top Executives, by Age Category, 2005 and 2008 Cross-Sectional Analyses



n = 2,145–2,188

CHAPTER 6
Unfilled Positions Due to Hiring Freezes and Nursing Vacancies

The nursing shortage and nursing vacancies are a serious concern for LHDs because nurses make up a significant proportion of the LHD workforce, and the U.S. public health workforce generally. Nurses serve in various critical leadership, outreach, clinical, and other roles in an estimated 94 percent of LHDs.[49] The HRSA 2000 enumeration found that public health nurses were the largest single professional group, making up 49,232 or 11 percent of the entire U.S. public health workforce.[50] In contrast, nurses make up an estimated 21 percent of the national LHD workforce.[51] LHDs must compete for nurses with the healthcare industry, in which registered nurses are also the single largest profession.[52] The nursing shortage has eased slightly during the recent economic downturn, as it did in the previous 2001 recession, due to nurses working longer hours or returning to the active workforce. However, the reprieve is expected to be only temporary.[53,54] The American Nursing Association and many government and independent researchers expect a long-term nursing shortage to intensify as the baby boom generation ages and creates greater demand for healthcare. Even despite the national economic downturn and job losses, as of November 2009 the BLS reported that the health care sector continued to grow.[55] As demand for nurses in healthcare settings increases, LHDs may face ever greater competition to hire and retain nurses.

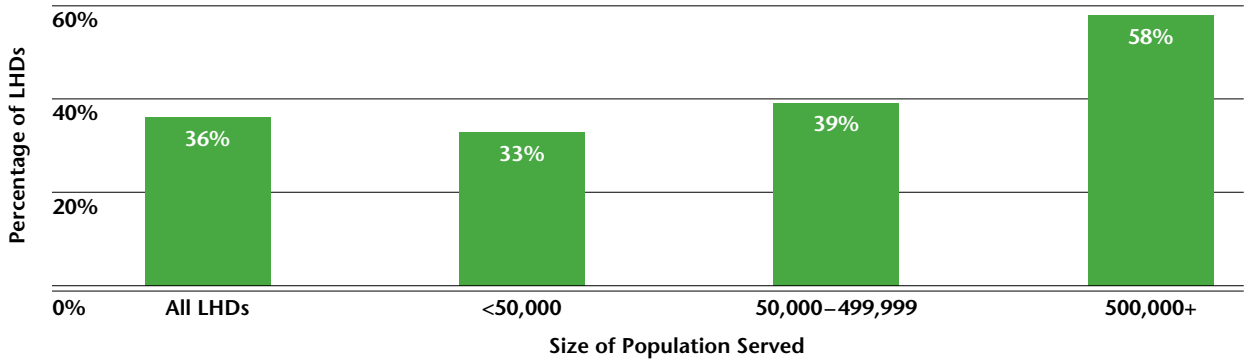
Like any employer, an LHD depends on both sufficient financial resources to draw employees, and a supply of qualified workers in the labor market. This chapter examines the 2008 Profile data related to the ability of LHDs to fill vacant positions: hiring freezes and nursing vacancies.

The year preceding the 2008 Profile survey was difficult for the U.S. economy. A recession began in December 2007.[56] By the end of December 2008, the U.S. gross domestic product had decreased by 5.4 percent from the previous quarter, and state and local government consumption expenditures and gross investment had decreased by 2 percent (seasonally adjusted annual rate).[57] In such a context, hiring freezes may be used as a simple step to stop budget deficits and reduce debts, whether implemented in targeted fashion within specific programs or agency or jurisdiction-wide. Regardless of outcome, a hiring freeze can also provide a simple demonstration of government responsiveness to worsening economic conditions. To assess the prevalence of this practice among LHDs and their governing authorities, the 2008 Profile asked LHDs if they experienced any hiring freezes in the previous year.

Did LHDs Experience Hiring Freezes?

Approximately one-third (36%) of all LHDs experienced a hiring freeze in the previous year (2007–2008). Figure 6.1 shows the proportion of LHDs by size of population served that reported experiencing a hiring freeze. Compared to the national estimate, a much higher percentage of the largest LHDs had experienced a hiring freeze during the previous year: 58 percent of LHDs serving more than 500,000 people. The proportion was smallest among LHDs serving fewer than 50,000 people, at 33 percent. Of LHDs serving 50,000 to 499,999 people, 39 percent had experience a hiring freeze in the previous year.

FIGURE 6.1 Percentage of LHDs Reporting Hiring Freezes, by Size of Population Served



n = 463 (Question asked of survey Module 2 subsample only.)

Did LHDs Have Vacant Registered Nurse (RN) Positions?

More than one-third (37%) of all LHDs that employed nurses had at least one vacant nursing position. Nearly one-quarter (23%) reported that 10 percent or more of their nursing positions were vacant. The median percentage of nursing positions in an LHD that were vacant was zero percent.

When examined by size of population served (Figure 6.2), the data show variations among LHDs serving populations of different sizes. LHDs serving 50,000 to 499,999 people had a median of 3 percent of nursing positions vacant, and almost one-third (31%) of those LHDs had 10 percent or more of their nursing positions vacant. The median percentage of nursing positions that were vacant was the highest (5%) among LHDs serving more than 500,000 people, though the percentage of those LHDs that had 10 percent or more of their nursing positions vacant was lower than the national estimate, at 19 percent.

FIGURE 6.2 Median Percentage of Nursing Positions That Are Vacant and Proportion of LHDs with 10 Percent or More Nursing Positions Vacant, by Size of Population Served

Size of Population Served	Median Percentage of Nursing Positions Vacant	Proportion of LHDs with 10 Percent or More Nursing Positions Vacant
All LHDs	0%	23%
<50,000	0%	19%
50,000– 499,999	3%	31%
500,000+	5%	19%

n = 383 (Question asked of survey Module 2 subsample only.)

Note: The total number of RN positions was calculated by adding the number of RNs currently employed and the number of vacant RN positions. Percent vacant RN positions = Vacant RN positions / (Vacant RN positions + Employed RNs). Both questions asked specifically about registered nurses (as opposed to licensed practical nurses) and were to be reported as FTEs.

CHAPTER 7
Workforce Development

As the Institute of Medicine noted in its 2003 report, *Who Will Keep the Public Healthy? Educating Public Health Professionals for the 21st Century*, the LHD workforce deserves ongoing attention as it struggles to acquire new skills to meet new challenges and circumstances.[58] Much of the responsibility for the education and training of the LHD workforce falls to LHDs themselves, both for already serving workers and new workers who do not receive public health training elsewhere. Doing so can be difficult for LHDs with limited resources, and they require support and engagement from partners in other parts of government and academic institutions. This chapter examines what resources LHDs use to develop their workforce through training and recruitment, including human resources personnel, funding, competency sets, and academic institutions.

The 2008 Profile survey asked LHDs if they had funds and personnel dedicated to training LHD staff. In any organization, training may be variously seen as an expense or an investment. Yet in any budgetary environment training can be essential to support workplace codes of conduct, regulatory compliance, administrative practices, technical skills, team-building, and situation updates on public health issues. The intended outcomes may include increased competency, productivity, job satisfaction, organizational commitment, and safety. Existing workers need skill updates, and employees who are new to the LHD or the field of public health require orientation. Training today includes a wide range of instructor-led and self-directed learning, through various modes, such as face-to-face, Web-based, and satellite broadcasts. Having dedicated internal training resources can ensure that LHD personnel select and receive training that is directly relevant to their workplace, functional roles, and organizational mission and strategic plan. Having a designated staff person responsible for coordinating LHD staff training can be critical to planning and implementing successful training programs. A training coordinator can provide basic logistical support, hire instructors, maintain documentation, and aid the implementation of learning technology, such as a learning management system. At the strategic level, a training coordinator may help identify training needs, select curricula, ensure compliance, support self-directed learning, and support learning transfer from the training environment to the workplace.

One common type of tool for workforce development is competency statements. All LHD workers in different areas of specialty, interest, and responsibility require specific competencies. Their collective expertise enables the LHD to provide the essential services of public health. Written competency statements can be used to design curricula, write job descriptions, or evaluate worker performance.[59] *Healthy People 2010* set the objective of increasing the proportion of LHDs that incorporate specific competencies in the essential public health services into personnel systems.[60] Although there is a proliferation of competency statements that may apply to LHDs, there are several nationally developed and recognized sets.[61–64] The data help measure progress toward the *Healthy People 2010* objective, and inform the implementation of other competency sets that may be developed for the LHD workforce.

The 2008 Profile survey asked a series of questions about interaction between the LHDs and institutions of higher learning, including many questions related to workforce development. Collaboration between LHDs and academic institutions may also support workforce development. The Institute of Medicine describes how collaboration between the public health academic and practice communities provides mutually beneficial opportunities, such as staff and faculty exchanges, life-long learning, research opportunities, and field placements.[65] Many of these activities can have an effect on the current and future LHD workforce. Academic institutions can have a major role in the continuing education of the LHD workforce, including updating skills and providing basic education for workers with limited previous instruction in some areas of their work. Students may benefit from placements in LHDs, which allow them to apply the new skills they are acquiring and gain exposure to their potential future work environment. Similarly, when LHD staff serve as faculty or advisory board members of educational institutions, they bring valuable practice experience and perspectives to their future workforce. Furthermore, although any type of academic institution may serve as a resource for LHDs, LHD interaction with accredited schools of public health on workforce issues is of special interest. The two types of organizations share a common discipline and great deal of common professional history. Furthermore, federal grants have tasked many schools of public health with providing continuing education and training directly to LHDs and other partners via the networks of HRSA-funded Public Health Training Centers and CDC-funded Centers for Public Health Preparedness located within schools of public health around the country.[66,67]

Who Was Responsible for Recruiting Staff?

Figure 7.1 shows the persons or organizations used by LHDs to recruit personnel, analyzed by LHD size according to total number of employees expressed in FTEs. Slightly less than one-half (47%) of LHDs used non-human resources personnel in their LHD for staff recruitment, rather than a human resources professional within their agency, a city/county government human resource department, or a state agency. Human resources professionals within the LHD were used by 22 percent of LHDs. That proportion, however, had a wide variation, ranging from 9 percent for LHDs with fewer than 10 FTEs, to 67 percent for LHDs with 200 or more FTEs.

The responsibility for staff recruitment fell to external personnel in some LHDs. City or county human resources departments were used in approximately 23 percent of all LHDs, ranging from 18 percent of LHDs with fewer than 10 FTEs, up to approximately one-third for LHDs with 200 or more FTEs. Of the categories listed in the survey, state health agencies (human resources personnel or other) were used the least, by 18 percent of all LHDs. Additional persons not listed in the questionnaire were used

FIGURE 7.1 Percentage of LHDs, by Persons or Organizations Responsible for Staff Recruitment and LHD Workforce Size (FTEs)

		LHD Workforce Size (FTEs)			
	All LHDs	<10	10–49.9	50–199.9	200+
HR Professional at LHD	22%	9%	17%	38%	67%
Someone Else at LHD	47%	47%	57%	37%	35%
City or County Gov't HR Department	23%	18%	21%	31%	35%
State Health Agency	18%	12%	21%	20%	15%
Other	17%	24%	16%	11%	10%

n = 453 for All LHDs, 426 for FTE categories. (Question asked of Module 2 subsample only.)

Note: Columns total more than 100%. Respondents could select multiple options.

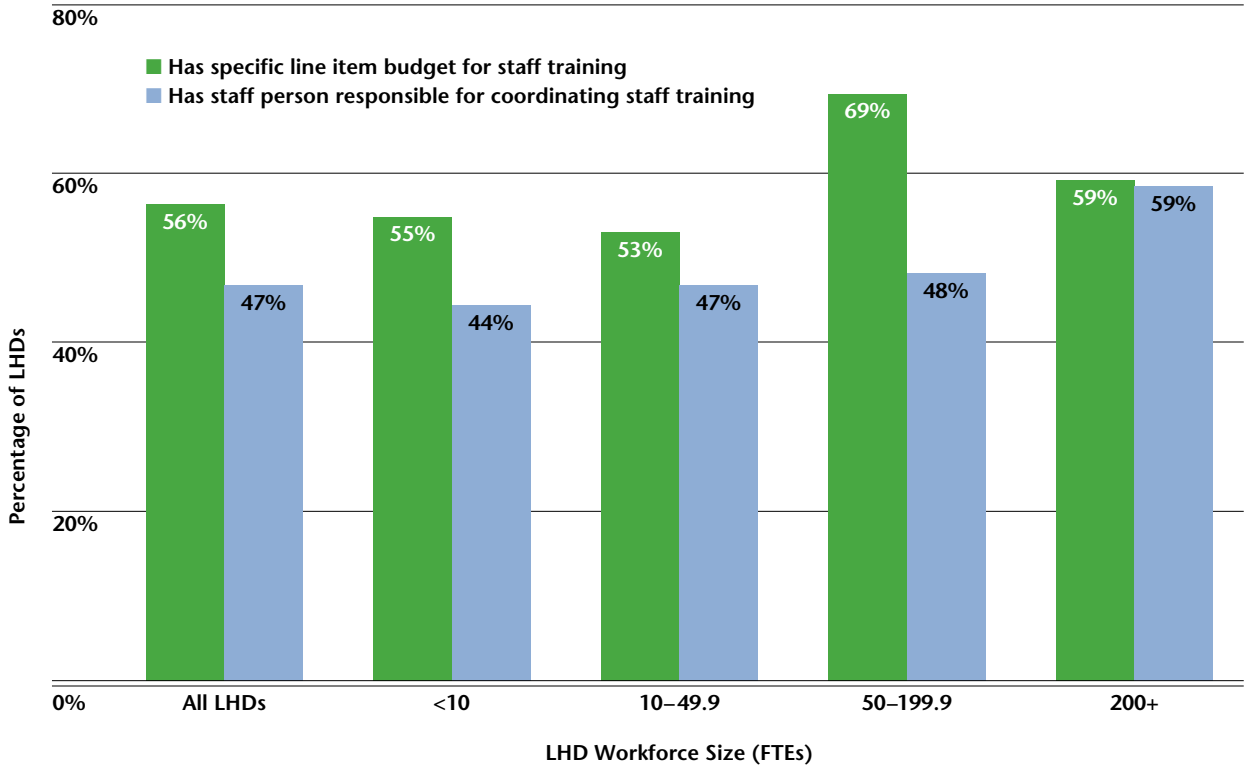
by 17 percent of all LHDs. Where respondents provided details, those additional persons included regional health district personnel, board of health members, local elected officials, and health officers and managers.

What Proportion of LHDs Had Human and Financial Resources Dedicated to Staff Training?

Figure 7.2 shows the percentage of LHDs that had a specific line item in their budgets for training agency staff or had a designated staff person responsible for the coordination of staff training. Slightly less than one-half (47%) of all LHDs had a designated staff person responsible for coordinating staff training. The percentage followed a clear trend and direction with respect to LHD size, ranging from 44 percent of LHDs with fewer than 10 full-time equivalent (FTE) employees to 59 percent of LHDs with 200 or more FTEs.

Approximately 56 percent of all LHDs reported having a specific budget line item for staff training. The percentage was highest among LHDs with 50 to 199.9 FTEs, of which 69 percent had a specific budget line item for staff training. There was also an association between an LHD's type of governance and the presence of a training budget (not shown in figures). For LHDs that were a unit of local government, 66 percent reported a specific line item budget for training, compared to 25 percent of LHDs that were a unit of state government. LHDs that were units of state government may have had designated training budgets folded into a state health department budget, although that information was not available for this analysis.

FIGURE 7.2 Percentage of LHDs with Designated Training Budget or Coordinator, by LHD Workforce Size (FTEs)



n = 455 and 459, respectively, for All LHDs, 428 and 431, respectively, for FTE categories. (Question asked of survey Module 2 subsample only.)

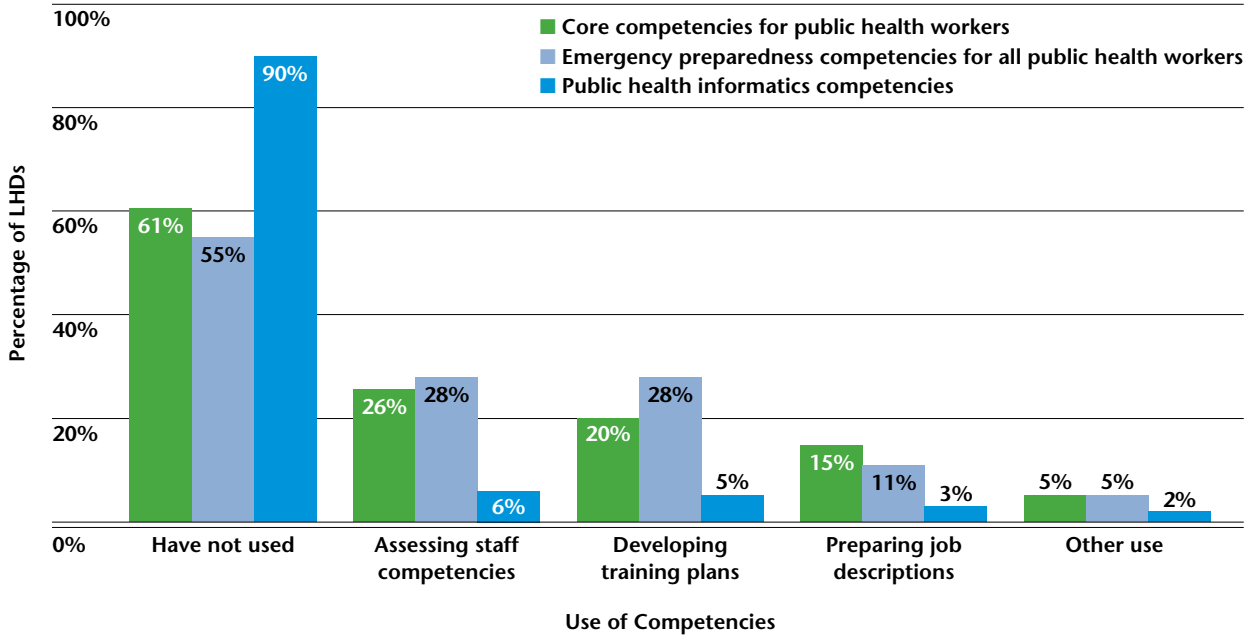
Were LHDs Familiar with Public Health Competency Sets?

The Profile data show that many LHDs are familiar with the three nationally recognized public health worker competency sets included in the 2008 Profile survey (not shown in figures). Nearly two-thirds of LHDs were familiar with the *Core Competencies for Public Health Workers* from the Council on Linkages (61%) and the emergency preparedness competencies for public health workers from Columbia University School of Nursing and the CDC (63%). Approximately one-quarter (26%) of LHDs were familiar with the informatics competencies from the Northwest Center for Public Health Practice.

How Did LHDs Use Public Health Competency Sets?

In addition to being familiar with the competency statements, actual use of the competencies was much lower. Figure 7.3 shows the proportion of LHDs that had made use of each competency set for different purposes. Approximately one-quarter of LHDs had used the emergency preparedness competencies to assess staff or develop training plans. The informatics competencies were used by 6 percent or less of LHDs for any one purpose. LHDs made very limited use of any of the competencies for preparing job descriptions, ranging from 3 to 15 percent of LHDs.

FIGURE 7.3 Percentage of LHDs Using Competency Sets, by Purpose of Competencies



n ranged from 446 to 452 (Question asked of survey Module 2 subsample only.)

How Did LHDs Interact with Academic Institutions on Workforce-Related Activities?

Figure 7.4 shows interactions related to the public health workforce that LHDs had with accredited schools of public health, other four-year academic institutions, and two-year colleges. The last item listed could involve workforce development activities, such as teaching or advising on curricula, and research or other activities not related to workforce development.

Most LHDs had some sort of workforce-related interaction with a school of public health (82%) or other four-year institution (72%), and one-half reported such interaction with two-year colleges. Most LHDs (90%) reported that they accepted students from one or more of the academic institution types for practicums or as trainees, interns, or volunteers (not shown in figure). The staff in approximately two-thirds (68%) of LHDs had taken public health-related classes and workshops from schools of public health, twice the percentage that received such training from other four-year institutions (34%) and far greater than the 16 percent that received such training from two-year colleges. For most of the other activity areas, the percentages of LHDs that interacted with schools of public health or other four-year academic institutions were nearly identical to one another, and approximately twice the percentage of LHDs that interacted with two-year colleges. For example, 40 percent of LHDs offered student practicums through schools of public health and 42 percent through other four-year institutions, but only 21 percent did so through two-year colleges. A low percentage of LHDs had staff serving as faculty or advisory board members in any institution type, ranging from 6 to 21 percent.

FIGURE 7.4 Percentage of LHDs Interacting with Academic Institutions on Workforce-Related Activities, by Type of Institution

	Accredited Schools or Programs of Public Health	Other Four Year Academic Institutions	Two-Year Colleges
Any of the following interactions	82%	72%	50%
LHD staff have taken public health-related classes or workshops offered by institution (includes online classes)	68%	34%	16%
LHD accepts students from institution as trainees, interns, or volunteers	57%	61%	42%
LHD offers student practicums through the institution	40%	42%	21%
LHD actively recruits graduates from programs with which you have a training relationship	28%	30%	15%
LHD staff serve as faculty (regular, adjunct, or guest)	21%	20%	11%
LHD staff serve on an academic institution advisory board	13%	12%	6%

n = 425 (Question asked of survey Module 2 subsample only.)

How Did Interaction with Accredited Schools of Public Health on Workforce-Related Activities Vary among LHDs?

The data show large differences in interaction with accredited schools of public health on workforce-related activities when examined according to LHD workforce size. As shown in Figure 7.5, there were clear trends toward greater interaction among LHDs with larger workforces. One hundred percent of LHDs with 200 or more FTEs reported some type of interaction with schools of public health, compared to 75 percent of LHDs with fewer than 10 FTEs.

For individual activities the differences were much larger. The percentage of LHDs with staff that had taken public health-related classes or workshops offered by schools of public health had a slightly smaller range, from 67 percent of LHDs with fewer than 10 FTEs, to 90 percent of LHDs with 200 or more FTEs.

LHDs with large workforces also made much greater use of students from schools of public health than their counterparts with smaller workforces. Public health students were accepted as trainees, interns, or volunteers in up to 94 percent of LHDs with 200 or more FTEs, compared to 42 percent of LHDs with fewer than 10 FTEs. After graduation, as few as 15 percent of LHDs with fewer than 10 FTEs actively recruited school of public health graduates, compared to 70 percent of the LHDs with 200 or more FTEs.

Very few LHDs with small workforces had staff who served as faculty or advisory board members of schools of public health. Almost three-quarters (70%) of LHDs with 200 or more FTEs had staff who served as faculty in schools of public health, compared to the 6 percent or less of LHDs with the smallest workforces (fewer than 10 FTEs).

FIGURE 7.5 Percentage of LHDs Interacting with Accredited Schools of Public Health on Workforce-Related Activities, by LHD Workforce Size (FTEs)

	LHD Workforce Size (FTEs)				
	All LHDs	<10	10–49.9	50–199.9	200+
Any of the following interactions	82%	75%	82%	86%	100%
LHD staff have taken public health-related classes or workshops offered by institution (includes online classes)	68%	67%	63%	73%	90%
LHD accepts students from institution as trainees, interns, or volunteers	57%	42%	58%	63%	94%
LHD offers student practicums through the institution	40%	25%	39%	47%	84%
LHD actively recruits graduates from programs with which you have a training relationship	28%	15%	24%	39%	70%
LHD staff serve as faculty (regular, adjunct, or guest)	21%	6%	15%	34%	70%
LHD staff serve on an academic institution advisory board	13%	3%	9%	21%	52%

n = 425 for All LHDs, 397 for FTE categories.

(Question asked of survey Module 2 subsample only.)

CHAPTER 8
Top Executive Background and Career Path

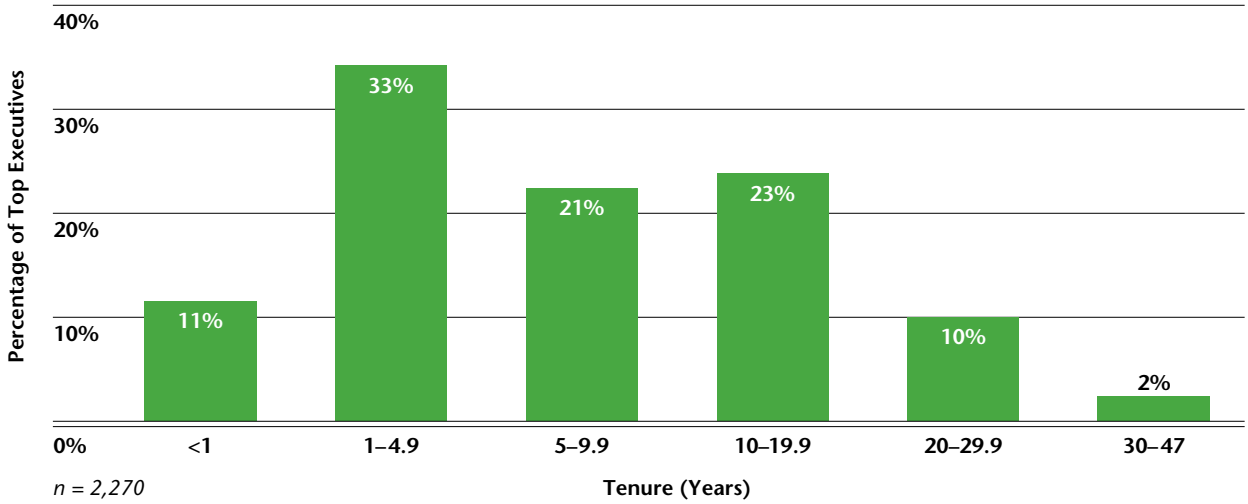
Effective leadership in LHDs supports the development and maintenance of a strong local public health infrastructure. Although leadership happens at all levels in LHDs, there is a special expectation for leadership from LHD top executives. They are of special concern because of the significant duties they perform. They must coordinate a diverse set of stakeholders, differing priorities, staff from different disciplines, and information from different sources. To do so, top executives must relate to internal staff, guide action, relate to the external environment, influence all phases of operations, and act in anticipation of future events.[68] The 2008 Profile questionnaire included a series of questions about LHD top executives' educational background, professional licensure, prior positions, and tenure in their current positions, all of which provide information about the pathways to becoming an LHD top executive.

The routes to becoming an LHD top executive may be of interest to would-be top executives and the many stakeholders with an interest in LHD leadership succession planning. Research on the issue among LHD top executives is limited. In one example, a recent study of LHDs in Ohio found that 44 percent of the top executives planned to leave their position within six years, and that 70 percent of the LHDs were not grooming an internal person to be the top executive's successor.[69] The education background and professional licensure of top executives are important because of the different perspectives, networks, and skills that different fields provide. Additionally, professional licensure can provide an ongoing opportunity to develop LHD leadership because many states and professions require individuals to receive continuing education to maintain that licensure.

What Was the Top Executive's Length of Tenure?

As previously reported, the median tenure for an LHD top executive was 8.7 years.[70] However, as shown in Figure 8.1, the tenure of LHD top executives in their current position varied widely from less than one year to several decades. Many top executives were new to their position: 11 percent had held their position less than one year. One-third (33%) had been in their position for one to almost five (4.9) years. Approximately one-fifth (21%) had been in their position from five to almost 10 years. A small percentage had held their position for much longer, such as the 12 percent who had been in their position for 20 or more years. In addition, top executive tenure varied little among LHDs of different sizes.

FIGURE 8.1 Percentage Distribution of Top Executives, by Tenure Length Category

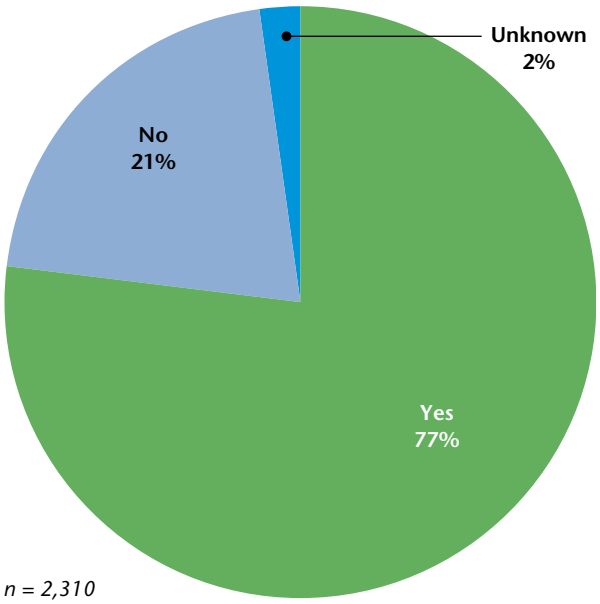


n = 2,270

Were Top Executives in Their First Position as an LHD Top Executive?

Only a small percentage of LHD top executives came to their current position with prior experience as an LHD top executive, as shown in Figure 8.2. For the majority (77%) of current top executives, this was their first experience in that role. There were few differences between LHDs of different workforce sizes or size of the community served. The proportion of top executives with no previous experience in that role ranged from 71 percent to 81 percent by LHD workforce size with no clear trends. By size of population served, that proportion ranged from 70 percent to 82 percent, again with no clear trends (not shown in figures).

FIGURE 8.2 Percentage of LHDs where Top Executive's Current Position Is First Experience as LHD Top Executive

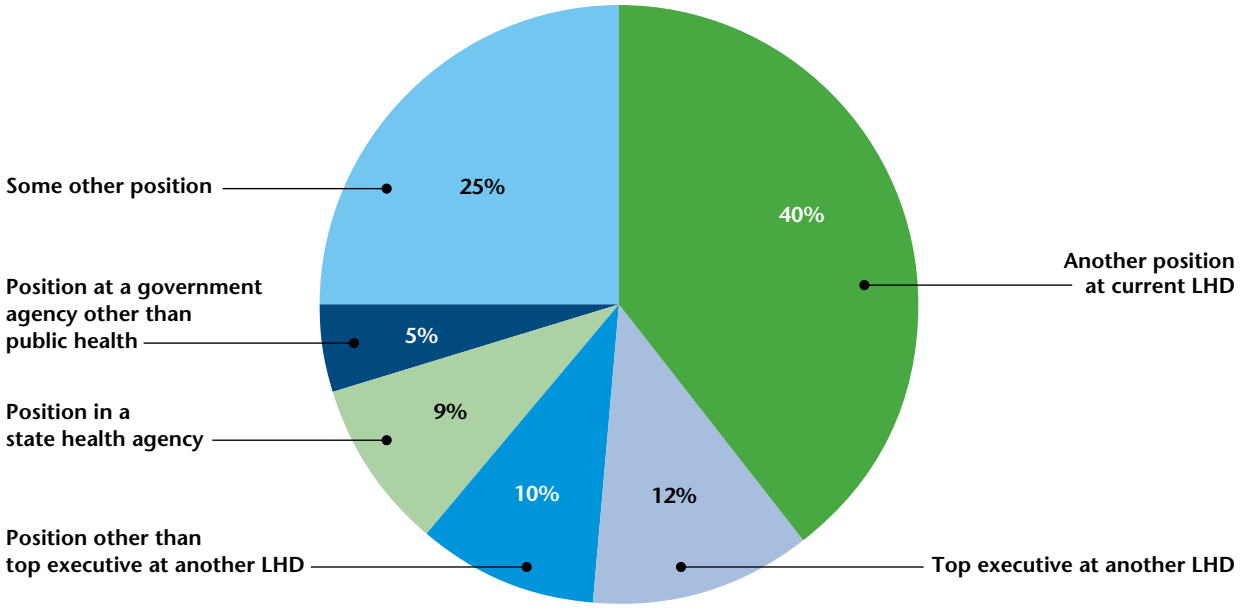


n = 2,310

What Was the Top Executive's Prior Position?

Figure 8.3 shows the types of positions LHD top executives served in immediately prior to their current position as an LHD top executive. Although 21 percent of top executives had some previous experience serving as an LHD top executive (see Figure 8.2 above), only 12 percent did so in their *immediately prior* position. This suggests that some public health professionals that serve as LHD top executives during their career may alternate between LHD top executive and other types of positions. The most common career path for LHD top executives was promotion from within the LHD (40%). Slightly less than one-quarter came from other LHDs, 12 percent having served as another LHD's top executive and 10 percent having served in another position there. Nine percent came from some position in a state public health agency. In total, 71 percent of LHD top executives came from state or local public health agencies. Only 5 percent came from a government agency that was not part of public health. One-quarter of top executives came from some other position not specifically listed in the survey, and no detail was provided.

FIGURE 8.3 Percentage of LHDs by Type of Position Held by Top Executive Immediately prior to Assuming Top Executive Position



n = 442 (Question asked of survey Module 2 subsample only.)

What Level and Type of Educational Degrees Did Top Executives Hold?

Figure 8.4 lists the percentage distribution of LHD top executive according to the highest level of degree held and the percentages of top executives who held degrees in selected specialty areas. The highest degree held by 7 percent of LHD top executives was an associate's degree. (Note that the associate's degree category was added to the survey for the first time in 2008.) Slightly less than one-third (29%) held a bachelor's degree but no graduate degree. The largest percentage was the 39 percent of top executives whose highest degree was some type of master's degree. Doctoral degrees were the highest degree held by 18 percent of LHD top executives.

Examining the professional degrees held by top executives, the largest identifiable professional group among top executives was nurses. Approximately 22 percent of top executives reported holding a nursing degree (BSN, MSN, or DNS; this statistic does not cover licensure). Specialty public health degrees (MPH, DrPH) were held by nearly as many top executives (20%), the majority holding an MPH (19%). Medical field degrees (MD, DVM, DO, DDS) were held by 14 percent of top executives, the most common of which was an MD (13% of top executives).

As previously reported, there was large variation in the educational attainment of top executives in LHDs of different workforce sizes and serving different population sizes.[71] For example, among the LHDs responding to questions about top executive education, doctoral degrees were the highest degree held by 57 percent of top executives in LHDs serving communities of 500,000 or more people, compared with only 11 percent of top executives serving communities with fewer than 25,000 people (not shown in figures).

Approximately 2 percent of top executives held a PhD from one of a reported 33 specific fields. The most common fields were psychology (five respondents), nursing (four), and biology (four). Notably, only 14 top executives (1%) out of the entire population reported holding a doctor of public health (DrPH) degree, the terminal practice degree for the field. Of the other types of doctoral degrees reported, 15 top executives held eight other types of doctoral degrees.

FIGURE 8.4 Percentage of Top Executives, by Highest Level Degree Obtained and Specialty Area

Highest Level Degree *	
Associate's	7%
Bachelor's	29%
Master's	39%
Doctoral	18%
No Response	8%
Specialty Area **	
Public Health (MPH, DrPH)	20%
Nursing (BSN, MSN, DNS)	22%
Medical (MD, DVM, DO, DDS)	14%

n = 2,332

** Percentages do not add to 100 due to rounding.*

*** Percentages do not to sum to total responses for multiple degrees fields; respondents could select multiple degrees (e.g., MD and MPH, BSN and MSN).*

What Licensure Did Top Executives Hold?

The majority (82%) of LHD top executives were licensed to practice a specific profession. Like the educational background of top executives, the types of licensure held are quite diverse, as listed in Figure 8.5. The most common licensure was registered nurse (RN), which 39 percent of top executives held. Twenty percent of LHD top executives were some type of registered EH specialist or registered sanitarian. Approximately 14 percent of all LHD top executives were licensed physicians. Nearly one-quarter (22%) of LHD top executives held some other type of licensure, such as state-specific health officer certification, social worker, a nursing licensure other than RN, and community health education specialist (CHES).

FIGURE 8.5 Percentage of Top Executives Holding Selected Professional Licensure

Licensure	Percentage of Top Executives *
Any Licensure Listed Below	82%
Registered Nurse (RN)	39%
Registered Environmental Health Specialist (REHS)/Registered Sanitarian (RS)	20%
Medical Doctor (MD)	14%
Licensed Practical Nurse (LPN)/Licensed Vocational Nurse (LVN)	1%
Registered Dietitian (RD)	1%
Other Licensures	22%
Top 10 Other Licensure Types	**Number of Top Executives Holding It in Parentheses**
Health Officer Certification from State	(107)
Social Worker	(28)
Other Nursing	(22)
CHES	(15)
Emergency Medical Technician (EMT)	(12)
Nursing Home Administrator	(8)
Soil Evaluator	(7)
Certified Public Accountant (CPA)	(6)
DEA Controlled Substances	(5)
Veterinary Medicine	(5)

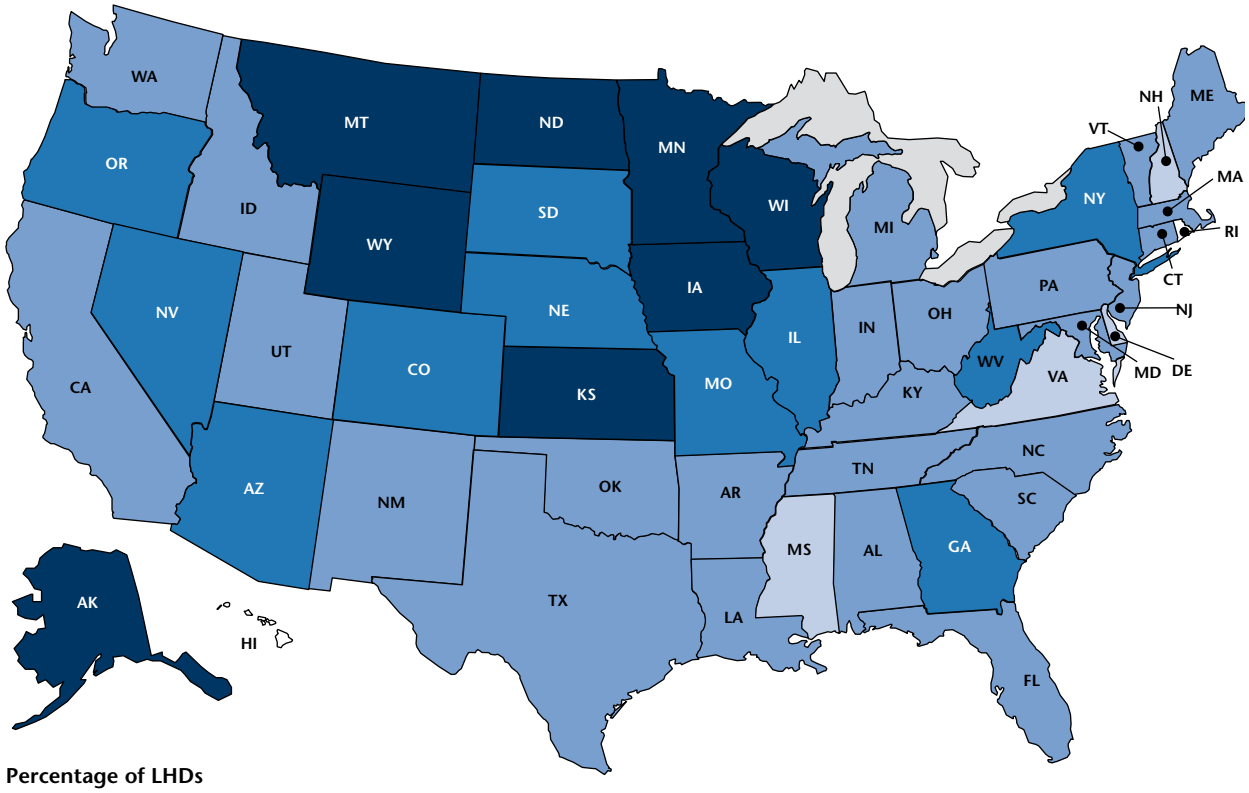
n = 1,919

** Totals do not add to 100 percent. Respondents could select multiple licensure types.*

Did Top Executive RN Licensure Vary by State?

As the most common type of licensure of LHD top executives, registered nurse (RN) licensure deserves additional attention. As shown in Figure 8.6, there were large differences among states and some regional trends in terms of the proportion of LHD top executives who were registered nurses. In many of the upper Midwest and Mountain states, 71 to 100 percent of LHD top executives were RNs, including Iowa, Minnesota, Montana, North Dakota, Wisconsin, Wyoming, and also Alaska and Kansas. In more than half of the states RNs accounted for approximately one-third (35%) or less of LHD top executives.

FIGURE 8.6 Percentage of Top Executives with Registered Nurse (RN) Licensure, by State



CHAPTER 9
Discussion and Future Research Directions

Discussion

Size of LHD Workforce. The best estimate of the total size of the LHD workforce was 155,000 FTEs in both 2005 and 2008, though more precise estimates via longitudinal analysis showed a modest (5%) increase in total LHD workforce size. The median percentage change in FTEs employed by LHDs between 2005 and 2008 was an increase of approximately 3 percent. This modest growth in LHD employment during a period of strong economic growth in the U.S. is consistent with overall trends in local government employment. U.S. Census Bureau statistics show that, overall, local government employment grew by approximately 3 percent between 2005 and 2008.[72]

Longitudinal analysis showed that about a third of LHDs actually experienced a decrease in FTEs during this time. As the 2008 Profile survey was administered during the early months of an economic recession, it may be that LHDs experiencing workforce reductions were the first to experience the impact of the recession.[73] Alternatively, workforce cuts in this group may have been due to overall trends toward the tightening of state and local budgets for public health that were simply exacerbated by the ensuing economic recession. Approximately six months after the Profile study, NACCHO conducted further research that documented the loss of approximately 7,000 LHD staff positions in 2008, affecting approximately half of LHDs.[74]

Occupations Employed by LHDs. Changes in staffing between 2005 and 2008 varied by occupation. For example, nursing staff experienced dramatic cuts, while other occupations, such as EH specialists, remained relatively stable. The number of LHDs that employ health educators and epidemiologists increased dramatically between 1989 and 2005, especially among small- and medium-sized LHDs, but the trend did not continue for these two occupations between 2005 and 2008. Although LHDs appeared to be retaining the roles of health educator and epidemiologist, they appear to be cutting back on staff hours or the number of positions. A few specialized occupations, such as IS specialists and PI specialists, experienced dramatic growth, although their overall numbers in the LHD workforce remain low. These changes may reflect shifting roles for local health departments. For example, the decline of nursing positions could signal a trend away from direct provision of services, perhaps as a result of increasingly limited funding for core public health functions. Conversely, the growth of IS and PI specialists demonstrates the growing importance of information management and public communication for LHDs.

Diversity of LHD Staff and Leaders. Overall, the LHD workforce appears to be trending toward greater diversity, but the diversity of LHD leadership is still lagging behind. By 2008, the LHD workforce across the nation was slightly more diverse than the population it served, and race and ethnicity of LHD staff by state were usually similar to the population of those states, with a few exceptions. Conversely, most LHD top executives are White and non-Hispanic, a statistic that changed little between 2005 and 2008. This lack of change in a three-year period is not particularly surprising because LHD top executive positions do not show rapid turnover, with the average job tenure of LHD top executives

in 2008 being nine years. The new generation of LHD leadership exhibits greater diversity than their predecessors, suggesting that the demographics of LHD top executives are changing, albeit slowly.[75]

LHD Top Executive Experience and Training. Information on LHD top executive education, licensing, and prior employment demonstrates that most LHD top executives rise through the ranks of governmental public health agencies (mostly LHDs), and their training is most often in the professions that dominate the local public health workforce—nursing and environmental health. Physicians are the other profession that frequently serves as an LHD top executive, often in states where that degree is a requirement for the position. This suggests that increasing the diversity of these professions is a key to increasing the diversity of LHD top executives.

Retirement and Hiring Freezes. Although there has been much discussion in the general media and public health circles about the potential impact on the workforce of the retirement of the baby boomer generation, the issue of staff retirements does not appear to be of great concern to many LHDs. Few have tabulated data on employee age or eligibility for retirement in the next five years.

The relatively low number of LHD employees who have recently retired may explain why the issue of employee retirements is not of great concern for many LHDs. Rates of retirement and the exodus of baby boomers from the workforce may be further slowed by the economic recession that began in December 2007.[76] Most respondents (85%) to a survey from the Center for State and Local Government Excellence reported that the economic recession is causing employees to postpone retirement.[77]

LHDs, which have been greatly affected by the recession, are probably no exception to this rule. The 2008 Profile survey was administered during the early months of the recession, whose early effects could be seen in hiring freezes reported by more than a third of LHDs (and 58% of LHDs serving populations of 500,000 or more) in the 12 months preceding the survey. Subsequent NACCHO research found that 46 percent of LHDs lost positions due to hiring freezes in 2008.[78]

Workforce Development. Two key pieces of infrastructure that support a strong workforce development program are a budget line item for training and a designated staff person to coordinate staff training. Although LHDs without these resources often provide staff training, the absence of a dedicated training budget and staff for many LHDs suggests that they lack a coordinated program for staff development. The Public Health Accreditation Board is currently testing draft standards for LHDs, one of which is "Assess staff competencies and address gaps by enabling organizational and individual training and development opportunities."[79] This standard may motivate LHDs interested in accreditation to formalize and continuously improve their workforce training and development programs.

Several public health-related competency sets have been developed during the past decade, including core competencies for public health workers, bioterrorism and emergency readiness, and informatics.[80–83] Yet, many LHDs are not aware of these competency sets, and most are not using them to assess staff competencies, formulate staff training plans, or develop job descriptions. Furthermore, LHDs using the *Core Competencies for all Public Health Workers* declined between 2005 and 2008 (51% reported using them in 2005 compared with 39% in 2008), suggesting that using these competencies in an LHD setting is not straightforward.

Although many LHDs have some interaction with academic institutions around workforce development, the relatively lower percentage of LHDs that interact with community colleges suggests an untapped opportunity for many LHDs. Every state in the United States has at least one community college, with a total of 1,177 community colleges nationwide. Minority students comprise 36 percent of their overall student population.[84] Increasing interactions with community colleges may be a pathway for increasing

diversity in LHD staffs. Most LHDs report some interaction with accredited schools or programs in public health, and two-thirds of LHDs report that staff have taken classes (including Web-based classes) at these institutions. This provides important evidence of success for federal grant programs that fund schools of public health to provide continuing education for the public health workforce.

In addition, findings from this survey highlight the important contribution that LHDs make to the future public health workforce by providing practical training opportunities for students from academic institutions as trainees, interns, or volunteers. Nearly all LHDs (90%) accept students in practicums or as trainees, interns, or volunteers. This statistic is particularly remarkable in light of the relatively small size of many LHD workforces.

Future Research

There is great potential and need for future research on the LHD workforce that uses the 2008 Profile and other data sources. LHDs around the U.S. continue to show significant variations in size, composition, and changes over time. Those variations raise a number of important research questions related to the nature, origins, and outcomes of those differences. A better understanding of the background, composition, and trends of the LHD workforce will support its essential efforts that protect and improve our nation's health. Some of the outstanding workforce issues include LHD size and staffing patterns, occupations employed, support for emergency preparedness, aging and retirement, vacancies, use of competency sets, and workforce-related policy.

Composition of the LHD Workforce. The number of workers employed in different occupations in LHDs deserves further study. The LHD workforce may be undergoing significant professional diversification. As shown in the subsample of LHDs that participated in both the 2005 and 2008 Profile studies, there appears to be a decrease in the numbers of FTEs employed in the historically important public health occupations (nurses, physicians, and epidemiologists). Yet that shift contrasted with the increase in the number of FTEs employed in new occupations, such as information systems and public information specialists. In addition, approximately one-quarter of the LHD workforce is not captured in the occupation categories included in the Profile questionnaire, and this percentage appears to be growing. The types of other occupations employed by LHDs should be explored.

The employment of specific occupations in LHDs may also be of interest to stakeholder groups not exclusively interested in LHDs or public health. For example, the most recent research estimates that 11 percent of nurses in the United States are employed in public and community health (a portion of whom work in LHDs).[85] In the face of the ongoing long-term nursing shortage, research that investigates the employment of nurses in LHDs may gain the interest and support of the large stakeholder group interested in the nursing workforce generally. Such audiences outside of public health that have a shared interest in specific professions may therefore be a source of support for LHD workforce research.

Origins of LHD Workforce Variations. The 2008 Profile shows broad trends in LHD workforce size and composition across different levels of population served, yet there was still considerable variation not explained by that factor alone. Another major factor to examine in considering staffing patterns is the type and level of services provided. LHDs have many common goals, but the specific services they provide may be determined by a host of local conditions, such as community need, history, finances, provision of services by other agencies or organizations, and so on. Additional analyses may effectively examine the differences in staffing patterns that were found among LHDs with different service profiles.

Outcomes of LHD Workforce Variations. Although it may be assumed that LHD workforce size and composition are related to an LHD's outputs and impacts on the public's health, the nature and strength of that relationship is not fully understood. Future research that uses the 2008 Profile data set in conjunction with community health data sets may be useful in illustrating the relationship between LHD workforce composition and community health status. The results might aid decisions about staffing patterns, answer stakeholders' questions about what an LHD workforce can do for the public's health, and support future investment in the LHD workforce.

Emergency Preparedness. The broad array of stakeholders concerned with emergency preparedness and homeland security may be interested in the 2008 Profile data on emergency preparedness coordinators and other personnel supported with CDC emergency preparedness funds. Additional analyses or research may be able to identify geographic or other variations in the data, and examine how those variations may be due to such factors as higher priority non-staff expenditures, inadequate funding, or employment of emergency preparedness staff in state or regional public health agencies.

Workforce Diversity. Workforce diversity is an area for future research with relevance both to the workers personally and the communities served by LHDs. The 2008 Profile survey collected data on the proportion of an LHD's workforce that was made up of major gender, race, and ethnic groups. Other variables to study in the future include education levels, age, and language skills needed to serve customers with limited English proficiency. Furthermore, future research may wish to conduct (or at least approach) a workforce census that collects worker demographics in connection with worker profession, functional role, salary, and other characteristics of interest. Doing so would allow examination of many issues not possible when the variables are collected as independent cross-sectional items in a survey (i.e., simple percentages of an LHD workforce that belong to racial groups). Issues to examine include the extent to which there is equitable distribution of minority racial and ethnic groups among professions and positions in LHDs.

Aging and Retirement. The issue of workforce retirement is not fully understood, as shown in the wide variation in whether LHDs had determined the age and retirement status of their workers. Understanding this issue better may be particularly critical because 2008 ushered in the retirement of the baby boom generation, who may be a concern if they retire in large numbers or remain in the workforce beyond retirement age. Future research through other methods may wish to examine why LHD personnel do or do not retire. Factors to consider include age, availability of qualified successors, and amount of personal savings or pensions. Occupation-specific retirement data may be useful to academic institutions and providers of continuing education who may be able to use retirement rates to inform program planning.

Vacancies and Shortages. The 2008 Profile examined the specific issue of unfilled nursing positions. The cause for those vacancies deserves further attention, as does the location of those vacancies (e.g., whether they are in communities of higher need). Additionally, vacancies for other occupations could be enumerated and examined as well, to identify trends in profession-specific shortages, vacancies, and recruitment issues.

Credentials and Licensure. In response to a recommendation by an Institute of Medicine (IOM) report, NACCHO and other organizations came together to establish the National Board of Public Health Examiners, which began issuing the Certified in Public Health credential in 2008.[86,87] Now that the certification is available, new research will be useful in examining the extent to which LHDs encounter and overcome challenges anticipated by the IOM report and others stakeholders. Those challenges include the integration of credentialing into hiring, promotion, performance appraisal,

and compensation practices, and serious local level concerns that credentialing would become tied to federal funding mechanisms to the detriment of some LHDs.[88]

Use of Competency Sets. The 2008 Profile showed that many LHDs made no or limited use of the several nationally recognized sets of competency statements. As competency sets are unlikely to be abandoned as a key workforce development tool, any shortcomings in the adoption of already existing competency sets deserves further research to aid use of existing and yet to be developed competency sets. Future research may wish to examine marketing of the competency sets to LHDs around the nation, challenges in using them once LHDs are aware of them, or opinions about the applicability of the competencies themselves for LHD staff.

Acknowledgments

Eric Gebbie, doctoral student at the University of Illinois at Chicago School of Public Health, conducted the data analysis and authored most of the report.

Many NACCHO staff members contributed to the development of this report.

- Ramon Bonzon provided substantive comments on report drafts.
- Barbara Laymon served as program manager during part of the development of this report and provided both substantive comments on early drafts and editorial assistance.
- Carolyn Leep provided substantive review and comments on report drafts and authored the executive summary and discussion section.
- Nathalie Robin provided quality control for all data analysis.
- Gulzar Shah provided guidance on statistical analysis and data presentation and provided substantive review and comments on report drafts.
- Rachel Willard provided editorial assistance on the executive summary and discussion sections.

Carol Gotway Crawford, Science Officer in the Centers for Disease Control and Prevention's Office of Workforce and Career Development, provided guidance on content and substantive comments on early outlines and drafts.

Phyllis Jask copyedited the manuscript and Mary Argodale did the graphic design and layout.

Funding for the 2008 Profile study and the development of this report was provided by Award Number 5U38HM000449-02 from the Centers for Disease Control and Prevention and Award Number 61911 from the Robert Wood Johnson Foundation® in Princeton, NJ. NACCHO is grateful for this support. The report contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC or RWJF.

Endnotes

1 National Association of County and City Health Officials (NACCHO), *Race and Ethnicity of Local Health Department Employees* (Washington, DC: Author, October 2007). Retrieved January 2010 from http://www.naccho.org/topics/infrastructure/research/upload/RaceandEthnicityResearchBrief.pdf.

2 NACCHO, "Figure 4.7 Percentage of Top Agency Executive Selected Demographic Characteristics, by Experience Level," *2008 National Profile of Local Health Departments,* (Washington, DC: Author, 2009), p. 27. Retrieved January 2010 from http://www.naccho.org/topics/infrastructure/profile/index.cfm.

3 U.S. Public Health Service, *Municipal Health Department Practice for the Year 1923 Based upon Surveys of the 100 Largest Cities in the United States Public Health Bulletin,* 1926, 164.

4 Mountin, J., "Specific Expenditures and Personnel of Official Health Agencies in Certain Cities," *American Journal of Public Health*, 1935, 25, 545–50.

5 Greve, C., and J. Connor, *Public Health Personnel, Facilities, and Services in Local Areas, as of Dec. 31, 1950* (Washington, DC: U.S. Department of Health, Education and Welfare, Division of General Health Services, 1952).

6 Greve, C., and J. Connor, *Public Health Personnel, Facilities, and Services in Local Areas, as of Dec. 31, 1952* (Washington, DC: U.S. Department of Health, Education and Welfare, Division of General Health Services, 1953).

7 Greve, C., and J. Connor, *Organization and Staffing for Full-Time Local Health Services, as of Dec. 31, 1953* (Washington, DC: U.S. Department of Health, Education and Welfare, Division of General Health Services, 1954).

8 Greve, C., and J. Connor, *Organization and Staffing for Full-Time Local Health Services, as of Dec. 31, 1954* (Washington, DC: U.S. Department of Health, Education and Welfare, Division of General Health Services, 1957).

9 Greve, C., and J. Connor, *Organization and Staffing for Full-Time Local Health Services, as of Jan. 1, 1958* (Washington, DC: U.S. Department of Health, Education and Welfare, Division of General Health Services, 1958).

10 Greve, C., and J. Connor, *Organization and Staffing for Full-Time Local Health Services, as of Jan. 1, 1960* (Washington, DC: U.S. Department of Health, Education and Welfare, Division of General Health Services, 1961).

11 U. S. Department of Health Education and Welfare, Bureau of Health Manpower, *A Report on Public and Community Health Personnel*, (Washington, DC: Author, 1979).

12 U. S. Department of Health and Human Services, Health Resources Administration, *Public Health Personnel in the United States, 1980,* (Washington, DC: Government Printing Office, 1982).

13 De la Puente, J., *Survey of Public Health/Community Health Personnel: Final Report,* (Washington, DC: American Public Health Association, 1983).

14 Gebbie, K., J. Merrill, R. B'toush, M. Cortazal, et al., *The Public Health Workforce: Enumeration 2000*, (Washington, DC: Health Resources and Services Administration, Bureau of Health Professionals, National Center for Health Workforce Information and Analysis, 2000).

15 Turnock, B., *Public Health: What It Is and How It Works*, 3rd ed., (Sudbury: Jones and Bartlett, 2004).

16 Gebbie, K., et al., *The Public Health Workforce: Enumeration 2000, Ibid.*, 21.

17 U.S. Census Bureau, "U.S. Interim Projections by Age, Sex, Race, and Hispanic Origin, Table 1a. Projected Population of the United States, by Race and Hispanic Origin: 2000 to 2050" Retrieved December 2009 from http://www.census.gov/population/www/projections/usinterimproj/.

18 Centers for Disease Control and Prevention, *Chronic Diseases and Health Promotion*. Retrieved January 2010 from http://www.cdc.gov/nccdphp/overview.htm.

19 Lederberg J., R.E. Shope, and S.C. Oaks, Jr., eds., *Emerging Infections: Microbial Threats to Health in the United States*. (Washington, DC: National Academy Press, 1992). Retrieved January 2010 from http://www.nap.edu/openbook.php?isbn=0309047412.

20 Cutler, S.J., A.R. Fooks, and W.H.M. van der Poel, "Public Health Threat of New, Reemerging, and Neglected Zoonoses in the Industrialized World," *Emerging Infectious Diseases*, (1), January 2010. Retrieved January 2010 from http://www.cdc.gov/eid/content/16/1/1.htm.

21 Cetron, M.J., and O. Davies, *55 Trends Now Shaping the Future of Terrorism, The Proteus Trends Series*, 1(2), February 2008, p. 30. Retrieved January 2010 from http://www.carlisle.army.mil/proteus/docs/55-terror.pdf.

22 Johnson, N., E. Hudgins, and J. Koulish, "Facing Deficits, Many States Are Imposing Cuts That Hurt Vulnerable Residents," (Washington, DC: Georgetown University Center on Budget and Policy Priorities, November 2008). Retrieved January 2010 from http://www.cbpp.org/archiveSite/3-13-08sfp.pdf.

23 Henderson, J., and J. Long, "Stressing the Safety Net: Effects of an Economic Downturn," *North Carolina Medical Journal*, July/August 2009, 70(4). Retrieved January 2010 from http://www.ncmedicaljournal.com/Jul-Aug-09/Henderson.pdf.

24 NACCHO, *2008 National Profile of Local Health Departments*, *Ibid*.

25 Public Health Functions Steering Committee, "Public Health in America," (July 1995). Retrieved December 2009 from http://www.health.gov/phfunctions/public.htm.

26 NACCHO, *National Profile of Local Health Departments: An Overview of the Nation's Local Public Health System,* (Washington, DC: Author, July 1990). Retrieved January 2010 from http://www.naccho.org/topics/infrastructure/research/upload/NationalPrifileofLocalHealthDepartment.pdf.

27 NACCHO, *1992–1993 National Profile of Local Health Departments,* (Washington, DC: Author, 1995). Retrieved January 2010 from http:/www.naccho.org/topics/infrastructure/research/upload/1992-1993NationalProfileofLocalHealthDepts.pdf.

28 NACCHO, *1996 National Profile of Local Health Departments Core Questionnaire,* (Washington, DC: Author, 1996). Retrieved January 2010 from http://www.naccho.org/topics/infrastructure/research/upload/1996-1997ProfileInstrument-Codebook.pdf.

29 NACCHO, *The Local Health Department Infrastructure Study, 1999–2000,* (Washington, DC: Author, October 2001). Retrieved January 2010 from http://www.naccho.org/topics/infrastructure/research/chartbook.cfm.

30 NACCHO, *The Local Health Department Workforce: Findings from the 2005 National Profile of Local Health Departments,* (Washington, DC: Author, 2006). Retrieved January 2010 from http://www.naccho.org/topics/infrastructure/profile/upload/LHD_Workforce-Final.pdf.

31 NACCHO, *Race and Ethnicity of Local Health Department Employees*, *Ibid.*

32 NACCHO, *Changes in Occupations of Local Health Department Staff*, (Washington, DC: Author, 2007). Retrieved February 2010 from http://www.naccho.org/topics/infrastructure/research/upload/LHDOccupationsIssueBrief4-20-07.pdf.

33 NACCHO, *2008 National Profile of Local Health Departments*, *Ibid.*, 30.

34 NACCHO, *Federal Funding for Public Health Emergency Preparedness: Implications and Ongoing Issues for Local Health Departments,* (Washington, DC: Author, August 2007). Retrieved January 2010 from http://pandemic.wisconsin.gov/docview.asp?docid=12485&locid=106.

35 Avery, G., and J. Zabriskie-Timmerman. "The Impact of Federal Bioterrorism Funding Programs on Local Health Department Preparedness Activities," *Evaluation & the Health Profession* 2009, 32(95).

36 NACCHO, *2008 National Profile of Local Health Departments*, *Ibid.*, 36.

37 New York State Department of Labor, Division of Research and Statistics, *Employment in New York State*, (Author, January 2007). Retrieved December 2009 from http://www.labor.state.ny.us/stats/PDFs/enys0107.pdf.

38 Gebbie, K., et al., *The Public Health Workforce: Enumeration 2000, Ibid.*

39 Gebbie, K., et al., *The Public Health Workforce: Enumeration 2000, Ibid.*, 25.

40 For a relatively brief summary see Fee, E., "The Education of Public Health Professionals in the 20th Century," in Gebbie, K., L. Rosenstock, and L.M. Hernandez, eds., *Who Will Keep the Public Healthy?: Educating Public Health Professionals for the 21st Century*, (Washington, DC: National Academies Press, 2003), 222[en dash]62.

41 Association of State and Territorial Health Officials (ASTHO), *Profile of State Public Health, Vol. 1 [2007–08],* (Washington, DC: Author, 2009). Retrieved December 2009 from http://www.astho.org/Research/Major-Publications/Profile-of-State-Public-Health-Vol-1/.

42 Council of State and Territorial Epidemiologists (CSTE), *2006 National Assessment of Epidemiologic Capacity: Findings and Recommendations*, (Atlanta, GA: Author, 2007). Retrieved December 2009 from http://www.cste.org/pdffiles/2007/2006CSTEECAFINALFullDocument.pdf.

43 U.S. Office of Personnel Management, *Building and Maintaining a Diverse, High-Quality Workforce: A Guide for Federal Agencies,* (Washington, DC: U.S. Office of Personnel Management, June 2000). Retrieved December 2009 from http://www.opm.gov/diversity/guide.PDF.

44 NACCHO, *Race and Ethnicity of Local Health Department Employees*, *Ibid.*

45 U.S. Census Bureau, Population Estimates Program, *DP-1. General Demographic Characteristics: July 2008*. Retrieved December 2009 from http://factfinder.census.gov/servlet/QTTable?-ds_name=PEP_2008_EST&-qr_name=PEP_2008_EST_DP1&-geo_id=01000US.

46 Government Accountability Office, *Baby Boom Generation: Retirement of Baby Boomers Is Unlikely to Precipitate Dramatic Decline in Market Returns, but Broader Risks Threaten Retirement Security*, (Washington, DC: Author, July 2006). Retrieved December 2009 from http://www.gao.gov/new.items/d06718.pdf.

47 U.S. Bureau of Labor Statistics, *Older Workers: Are There More Older People in the Workplace?* (Washington, DC: Author, July 2008). Retrieved December 2009 from http://www.bls.gov/spotlight/2008/older_workers/.

48 U.S. Bureau of Labor Statistics, *Older Workers: Are There More Older People in the Workplace? Ibid.*

49 NACCHO, *2008 National Profile of Local Health Departments*, *Ibid.*, 32.

50 Gebbie, K., et al., *The Public Health Workforce: Enumeration 2000, Ibid.*, 25.

51 NACCHO, *2008 National Profile of Local Health Departments*, *Ibid.*, 36.

52 U.S. Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections, *Occupational Outlook Handbook, 2010–11 Edition: Registered Nurses,* (Washington, DC: Author.) Retrieved December 2009 from http://www.bls.gov/oco/ocos083.htm.

53 Guglielmo, W.J., "Recession-Related Surge in Nursing Employment Just a Blip, Study Cautions," *Medscape Medical News,* June 22, 2009. Retrieved December 2009 from http://emergencynurse-community.blogspot.com/2009/06/recession-related-surge-in-nursing.html.

54 Robert Wood Johnson Foundation, *Has the Recession Solved the Nursing Shortage? Experts Say No,* (Author: April 17, 2009). Retrieved December 2009 from http://www.rwjf.org/pr/product.jsp?id=41728.

55 U.S. Bureau of Labor Statistics, *The Employment Situation, November 2009*. Retrieved December 2009 from http://www.bls.gov/news.release/pdf/empsit.pdf.

56 Wall Street Journal, *NBER Makes It Official: Recession Started in December 2007,* (Author, December 1, 2008). Retrieved December 2009 from http://blogs.wsj.com/economics/2008/12/01/nber-makes-it-official-recession-started-in-december-2007/.

57 U.S. Department of Commerce, Bureau of Economic Analysis, *Table 1.1.1. Percent Change From Preceding Period in Real Gross Domestic Product.* Retrieved January 2010 from http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=1&Freq=Qtr&FirstYear=2007&LastYear=2009.

58 Gebbie, K., L. Rosenstock, and L.M. Hernandez, eds., *Who Will Keep the Public Healthy?: Educating Public Health Professionals for the 21st Century*, (Washington, DC: National Academies Press, 2003), 145–149.

59 Association of Teachers of Preventive Medicine, Columbia University School of Nursing, *Competency-to-Curriculum Toolkit: Developing Curricula for Public Health Workers*, (Author, March 2008). Retrieved January 2010 from http://www.asph.org/userfiles/Competency-to-Curriculum-Toolkit08.pdf.

60 U.S. Department of Health and Human Services, *Healthy People 2010, Volume 2, Objective 23–8: Public Health Infrastructure-Workforce,* 2nd ed., (Washington, DC: U.S. Government Printing Office, November 2000). Retrieved December 2009 from http://www.healthypeople.gov/Document/HTML/volume2/23PHI.htm#_Toc491137863.

61 Council on Linkages, *Core Competencies for Public Health Workers*. Retrieved December 2009 from http://www.phf.org/link/corecompetencies.htm.

62 Columbia University School of Nursing Center for Health Policy, *Emergency Preparedness Core Competencies for All Public Health Workers*. Retrieved January 2010 from http://www.dphhs.mt.gov/PHSD/MPHTI/docs/coreompetencies.pdf.

63 Columbia University School of Nursing Center for Health Policy, *Bioterrorism & Emergency Readiness Competencies for All Public Health Workers*. Retrieved January 2010 from http://www.nursing.columbia.edu/chp/pdfArchive/btcomps.pdf.

64 Northwest Center for Public Health Practice, *Public Health Informatics Competencies*. Retrieved December 2009 from http://www.nwcphp.org/docs/phi/comps/phic_web.pdf.

65 Gebbie, K., L. Rosenstock, et al., *Who Will Keep the Public Healthy?: Educating Public Health Professionals for the 21st Century*, *Ibid*.

66 Association of Schools of Public Health, *National Public Health Training Centers Network*. Retrieved December 2009 from http://www.asph.org/document.cfm?page=780.

67 Association of Schools of Public Health, *Centers for Public Health Preparedness*. Retrieved December 2009 from http://preparedness.asph.org/cphp/home.cfm

68 Rowitz, L., *Public Health Leadership: Putting Principles into Practice*. (Sudbury: Jones and Bartlett, 2003), 10.

69 Schmalzried, H. and L.F. Fallon, "Succession Planning for Local Health Department Top Executives: Reducing Risk to Communities," *Journal of Community Health*, June 2007, 32, 3.

70 NACCHO, *2008 National Profile of Local Health Departments*, *Ibid.*, 26.

71 NACCHO, *2008 National Profile of Local Health Departments*, *Ibid.*, 26.

72 U.S. Census Bureau, *Government Payroll and Employment*. Retrieved February 2010 from http://www.census.gov/govs/apes/historical_data_2005.html.

73 National Bureau of Economic Research, *Determination of the December 2007 Peak in Economic Activity*, (Cambridge: Author, December 11, 2008). Retrieved January 2010 from http://www.nber.org/cycles/dec2008.html.

74 NACCHO, *NACCHO Survey of Local Health Departments' Budget Cuts and Workforce Reductions*, (Washington, DC: Author, January 2009). Retrieved January 2010 from http://www.naccho.org/advocacy/upload/2008-LHD-budget-cut-report.pdf.

75 NACCHO, "Figure 4.7 Percentage of Top Agency Executive Selected Demographic Characteristics, by Experience Level," *2008 National Profile of Local Health Departments*, *Ibid.*, p. 27.

76 National Bureau of Economic Research, *Determination of the December 2007 Peak in Economic Activity*, (Cambridge: Author, December 11, 2008). Retrieved January 2010 from http://www.nber.org/cycles/dec2008.html.

77 Center for State and Local Government Excellence, *A Tidal Wave Postponed: The Economy and Public Sector Retirements*. (Washington, DC: Author, May 2009). Retrieved January 2010 from http://www.slge.org/index.asp?Type=B_BASIC&SEC=%7b22748FDE-C3B8-4E10-83D0-959386E5C1A4%7d&DE=%7bE2CBB7DB-0A62-48FA-9F61-3F4AD2BAA54B%7d.

78 NACCHO, *NACCHO Survey of Local Health Departments' Budget Cuts and Workforce Reductions, Ibid.*

79 Public Health Accreditation Board, *Draft National Voluntary Accreditation Standards for Public Health Accreditation*. (Alexandria, VA: Author, July 2009). Retrieved January 2010 from http://www.phaboard.org/index.php/beta_test/standards/.

80 Council on Linkages, *Core Competencies for Public Health Workers*. Retrieved December 2009 from http://www.phf.org/link/corecompetencies.htm.

81 Columbia University School of Nursing Center for Health Policy, *Emergency Preparedness Core Competencies for All Public Health Workers*. Retrieved January 2010 from http://www.dphhs.mt.gov/PHSD/MPHTI/docs/coreompetencies.pdf.

82 Columbia University School of Nursing Center for Health Policy, *Bioterrorism & Emergency Readiness Competencies for All Public Health Workers*. Retrieved January 2010 from http://www.nursing.columbia.edu/chp/pdfArchive/btcomps.pdf.

83 Northwest Center for Public Health Practice, *Public Health Informatics Competencies*. Retrieved December 2009 from http://www.nwcphp.org/docs/phi/comps/phic_web.pdf.

84 American Association of Community Colleges, *Fast Facts*. (Washington, DC: Author, 2009). Retrieved January 2010 from http://www.aacc.nche.edu/AboutCC/Pages/fastfacts.aspx.

85 Health Resources and Services Administration (HRSA) Bureau of Health Professions (BHPr) *The Registered Nurse Population: Findings from the 2004 National Sample Survey of Registered Nurses*. (June 2006.) Available at http://bhpr.hrsa.gov/healthworkforce/rnsurvey04/.

86 Committee on Assuring the Health of the Public in the 21st Century, Board of Health Promotion and Disease Prevention, Institute of Medicine of the National Academies, *The Future of the Public's Health in the 21st Century*. (Washington, DC: National Academies Press; 2003), 122–123.

87 National Board of Public Health Examiners (NBPHE), *About NBPHE,* (Washington, DC: Author.) Retrieved January 2010 from http://www.publichealthexam.org/about.cfm.

88 Committee on Assuring the Health of the Public in the 21st Century, Board of Health Promotion and Disease Prevention, Institute of Medicine of the National Academies, *Ibid.*

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May 2010