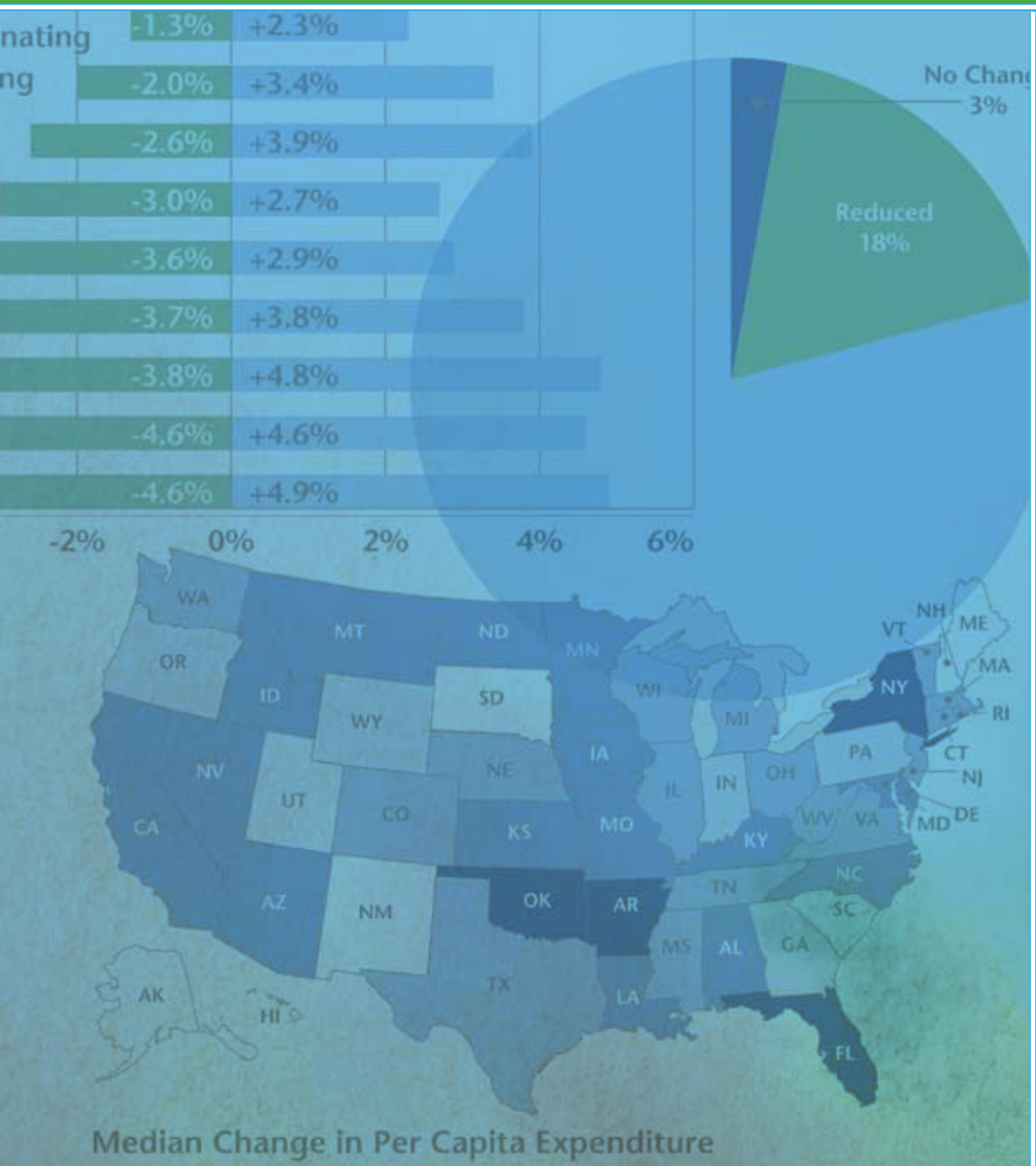
NACCHO
National Association of County & City Health Officials
The National Connection for Local Public Health

Trends
IN LOCAL HEALTH DEPARTMENT FINANCES, WORKFORCE, AND ACTIVITIES

Findings from the 2005 and 2008 National Profile of Local Health Departments Studies



NACCHO
National Association of County & City Health Officials
The National Connection for Local Public Health

1100 17th Street, NW 7th Floor
Washington, DC 20036
profileteam@naccho.org
www.naccho.org/profile

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.

July 2010

Table of Contents

Executive Summary

Between 2005 and 2008:

- One out of five LHDs reported decreased total annual expenditures.
- The total LHD workforce (measured in full time equivalent (FTE) employees) increased by approximately 5 percent.
- The numbers of nurses, epidemiologists, and health educators employed by LHDs decreased.
- Four activities showed net increases of 5 percent or more in provision by LHDs (smoke-free ordinance enforcement, syndromic surveillance, outreach/enrollment for medical insurance, and tobacco retailer regulation); no activity showed a net decrease in provision of 5 percent or more.
- LHDs were more likely to add or eliminate population-based activities than clinical services.

Background and Methodology

The National Association of County and City Health Officials (NACCHO) periodically conducts the National Profile of Local Health Departments (Profile) study, the only comprehensive national survey of local health department (LHD) infrastructure and activities. To date, NACCHO has conducted five Profile studies, most recently in 2005 and 2008. The purpose of this report is to examine changes between 2005 and 2008 in three aspects of LHD infrastructure—financing, workforce, and activities.

Both the 2005 and 2008 Profile studies included Web-based surveys of every LHD in the United States with overall response rates of 80 and 83 percent, respectively. The results presented in this report are based on a longitudinal analysis of 1,880 LHDs that responded to both surveys and served the same geographic jurisdiction at the time of both surveys, approximately two-thirds of all LHDs.

Key Findings

Finance

- Nearly 80 percent of LHDs reported greater expenditures in 2008 compared to 2005, whereas about 18 percent reported lower expenditures in 2008.
- LHDs that are units of local government were more likely than LHDs that are units of state health agencies to report lower expenditures in 2008, regardless of the size of the population served.
- Changes in total expenditures were greater for LHDs with increased expenditures (median increase of 23%), as compared to those with decreased expenditures (median decrease of 13%). Changes in expenditures between 2005 and 2008 varied by state.
- The relative amounts of LHD revenue from various sources changed little between 2005 and 2008, with city and county sources combined accounting for an average of 28 percent of revenue for all LHDs in both years.

Workforce

- Between 2005 and 2008, the total number of FTE LHD workers grew by 5 percent.
- When change in the size of the LHDs' workforce was examined relative to the population served, the average growth was small (median increase of 0.5 FTE per 100,000 population).
- Changes in staffing between 2005 and 2008 varied for different occupations, with the largest percentage increases in total FTEs observed for information systems specialists, public information specialists, and emergency preparedness coordinators. The largest percentage decreases in total FTEs occurred for health educators, epidemiologists, and registered nurses.
- Registered nurses (RNs) showed the largest absolute decrease in total FTEs employed with a decrease of more than 2,000 FTEs (approximately 10% of all RN positions at LHDs).

Activities and Services

- Overall, the total number of services provided by LHDs (a crude measure of scope of services) changed very little between 2005 and 2008. Of the 73 activities or services included in both the 2005 and 2008 Profiles, the median number of services provided by LHDs was 30 in 2005 and 31 in 2008.
- The average LHD added six services and eliminated five services between 2005 and 2008.
- Overall, LHDs were more likely to add or eliminate population-based services (e.g., population-based primary prevention, epidemiology/surveillance, environmental health services) than clinical services (e.g., immunization, communicable disease treatment, and maternal and child health services).
- The public health services least likely to be added or eliminated by LHDs included adult and child immunization; food service establishment regulation; services to women, infants, and children (WIC); communicable disease surveillance; tuberculosis (TB) screening; and family planning.
- Few services showed large net changes between 2005 and 2008 in the overall percentages of LHDs that provide them. Only four activities (enforcement of smoke-free ordinances, syndromic surveillance, outreach/enrollment for medical insurance, and tobacco retailer regulation) showed net increases of more than 5 percent; no activities showed net decreases of more than 5 percent.

Conclusions

This study documents a period of modest growth in LHDs' expenditures and workforces. It also illustrates the constantly changing mix of services and activities provided by LHDs and some overall national trends in service provision. The 2008 Profile was conducted at the beginning of the economic recession that began in December 2007 and so does not reflect the full effect of the national economic downturn on LHDs, their activities, and infrastructure. The 2010 Profile study will provide a rich opportunity for longitudinal comparisons to study the full effect of the recession on LHDs.

Introduction

The nation's nearly 2,800 local health departments (LHDs) are the local stewards of the health of the public. Working community-by-community throughout the year, LHDs help to ensure the safety of the water we drink and the food we eat. They protect children from vaccine-preventable diseases, champion policies that reduce motor vehicle injuries, and provide timely information to the public on breaking issues such as H1N1 influenza. LHDs help to create and maintain conditions that make healthy choices the default option and reduce the burden of chronic disease by working with their communities to improve nutrition, increase physical activity, and reduce tobacco use.

The LHD is the foundation of the local public health system that is made up of public- and private-sector healthcare providers, academia, business, the media, and other local and state governmental entities. LHDs play a key role in the local public health system, including the following:

- Tracking and investigating health problems and hazards in the community.
- Preparing for and responding to public health emergencies.
- Developing, applying, and enforcing policies, laws, and regulations that improve health and ensure safety.
- Leading efforts to mobilize communities around important health issues.
- Linking people to health services.

The National Association of County and City Health Officials (NACCHO) periodically conducts the National Profile of Local Health Departments (Profile) study, the only comprehensive, national survey of LHD infrastructure and activities. NACCHO has conducted five Profile studies to date. The first survey was conducted in 1989 and the most recent in 2008. Because of the comprehensive questionnaire content and the high responses rates achieved, the Profile studies generate information that provides an accurate picture of LHD infrastructure, practice, and capacity. This information is used by public health practitioners to benchmark their LHD or state against the national picture, by NACCHO to advocate for LHDs, and by public health researchers to examine the relationships between LHD infrastructure and community health outcomes.

Because much of the content of the Profile questionnaire remains constant, data from the Profile study can be used to examine trends in LHD infrastructure and practice over time. This report examines changes in LHD financing, workforce, and activities between 2005 and 2008, the most recent data points for the Profile series.

Methodology

The Profile study population includes all LHDs in the United States; LHDs are present in all states except for Hawaii and Rhode Island. The 2005 and 2008 Profile studies were both conducted primarily as Web-based surveys, although a small percentage of respondents returned paper questionnaires. The 2005 Profile was fielded from June through October 2005 and achieved a response rate of 80 percent. The 2008 Profile was fielded from July through October 2008 and achieved a response rate of 83 percent.

Each study included a core questionnaire, which was administered to every LHD, and three module questionnaires, each of which was administered to a random sample of LHDs, stratified by size of population served. All of the data analyzed for this report were collected in the core questionnaire. Additional information about the methodology used for the 2005 and 2008 Profile studies is available in the main study reports.[1,2]

The data presented in this report are based on longitudinal analysis of panel data for 1,880 LHD respondents that served the same geographic jurisdiction at the times of administration of the 2005 and 2008 Profile questionnaires. LHDs were excluded from the longitudinal analysis for three reasons.

1. **LHD jurisdiction changes.** At some point between the administration of the 2005 and 2008 questionnaires, some LHDs merged together to serve a larger combined jurisdiction, and some LHDs broke off into multiple entities serving smaller jurisdictions.
2. **Reporting at different administrative levels.** Some LHDs in centralized states chose to report at different administrative levels in the 2005 and 2008 Profiles (e.g., they completed the 2005 Profile for

county-level units but completed the 2008 Profile for multi-county districts). Consequently, centralized LHDs in Alaska and South Dakota are omitted entirely from this analysis.

3. **Non-response.** LHDs that did not complete the Profile questionnaire in both years are excluded from the analysis.

A total of 1,880 LHDs met the inclusion criteria and participated in both surveys. There may be fewer observations for specific analyses (especially for financial data) because some LHDs did not complete all items in the questionnaire.

Finance

LHD revenues from various sources were reported as percentages of total revenue in the 2005 Profile and as dollars in the 2008 Profile. To facilitate comparison, revenue data from the 2008 Profile were converted to percentages by dividing the dollar amount of revenue from each source by the LHD's total annual revenues. When analyzing changes in LHD expenditures, outliers were identified by examining the percent change in expenditures and changes in per capita revenues. LHDs with scores three standard deviations or higher from the mean for each of these variables were omitted from the analysis, resulting in the elimination of 14 observations.

Workforce

LHDs reported the total number of employees and the total full-time equivalents (FTEs) currently working at their agencies in both the 2005 and 2008 Profile questionnaires. These figures included both regular and contractual employees at the time the questionnaire was completed. To clarify the meaning of the figure reported by LHDs as FTEs, the 2008 Profile asked respondents, "What does the FTE number at your LHD include?" 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 uncertainties in analyzing the LHD workforce due to variations among LHDs in data reporting.

Activities and Services

LHDs indicated on the Profile questionnaires whether they provided services either directly or by contract across 10 service categories. Seventy-three activities or services were included in both the 2005 and 2008 questionnaires. For each service, proportions of LHDs that (a) continued to provide a service, (b) added a service in 2008, (c) discontinued a service in 2008, and (d) never provided a service were calculated. LHDs were classified as providing a service if they checked either direct provision, provision by contract, or both on the questionnaire.

To examine differences in the extent of change among broad categories of LHD services (e.g., screening for diseases and conditions, maternal and child health services, environmental health activities), group mean percentages were computed for categories of LHD services. For example, a group mean for percentage of LHDs adding services in the maternal and child health category was computed by averaging the individual percentages of LHDs adding each of the six services in the maternal and child health category.

Limitations

The number of LHDs in this analysis represents approximately 67 percent of all LHDs in the United States and approximately 81 percent of Profile respondents. The LHDs included in the analysis may differ in important ways from those not included.

The data on activities, finances, and workforce were self-reported by LHDs and were not independently verified. LHDs may have provided erroneous information (e.g., by misinterpreting a question) or interpreted the question differently when completing the two questionnaires. For LHDs that are part of a larger agency that provides other health- or human service-related function, the respondents' choice of how to define their agency introduces additional uncertainty into longitudinal analyses. For example, a respondent may

have chosen to include certain functions (e.g., home health, hospital services) in their responses one year and exclude them another. Consequently, some changes in expenditures, staffing, and activities reported in those Profile studies may reflect errors or differences in interpretation rather than actual changes.

LHDs were asked to report financial information (expenditures and revenues) for the "most recently completed fiscal year" in both the 2005 and 2008 Profile questionnaires. Due to the focus of the financial section on the most recently completed fiscal year, the timeframe for financial information is earlier than other information gathered through the Profile survey (e.g., workforce and activities). LHD fiscal years vary, so the timeframes associated with LHD fiscal data reported in the Profile also vary. In addition, the number of years between the data reported in the 2005 and 2008 Profile studies also varies. For most LHDs, there is a three-year interval between the data reported in the 2005 and 2008 Profile studies, but the interval is two or four years for some LHDs. For these reasons, the relationships between changes in expenditures and changes in workforce or activities were not explored. The longitudinal analysis of financial data does not include changes in total annual revenue or revenue dollars from various sources because those figures were not collected in 2005.

The comparison of source-specific revenues was based on questions that used the same revenue categories but differed in the type of information reported by respondents (i.e., percentages of total revenue in 2005 versus dollar amounts in 2008). LHDs may have responded to these questions in different ways; for example, they may have been more likely to approximate when reporting percentages than dollar amounts.

The analyses of LHD activities also have important limitations. The Profile study measures only whether or not an LHD provides specific activities or services, not the level of service provision. Consequently, this analysis cannot measure increases or decreases in the size or scope of an activity or service. For simplicity, the analysis of activities and services did not differentiate between providing the service directly or by contract, so this analysis does not measure changes from direct to contract provision.

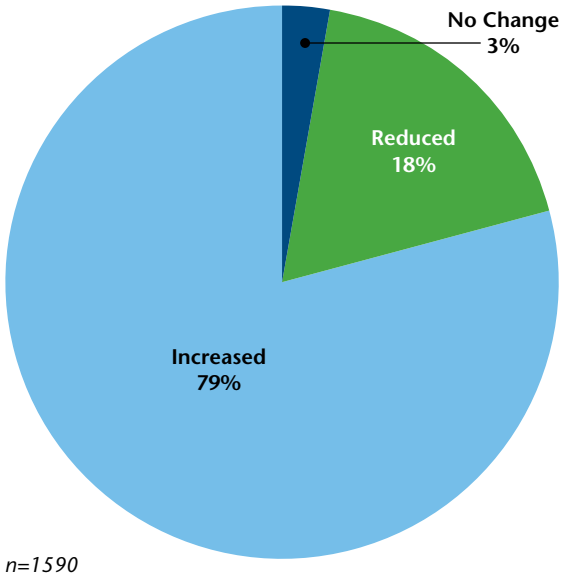
Results

Finance

This section provides analyses of changes in LHDs' total annual expenditures (direction and magnitude of change), changes in per capita LHD expenditures, and changes in percentage of LHD revenues from various funding sources.

Most LHDs included in this analysis experienced some financial growth between 2005 and 2008. When LHD expenditures were compared for the "most recently completed fiscal year" prior to the 2005 and 2008 Profile surveys, 79 percent of LHDs experienced an increase in their expenditures. A sizable percentage (18%) reported lower expenditures in 2008. Only 3 percent of LHDs reported negligible (1% or less) or no change during the three-year period (Figure 1).

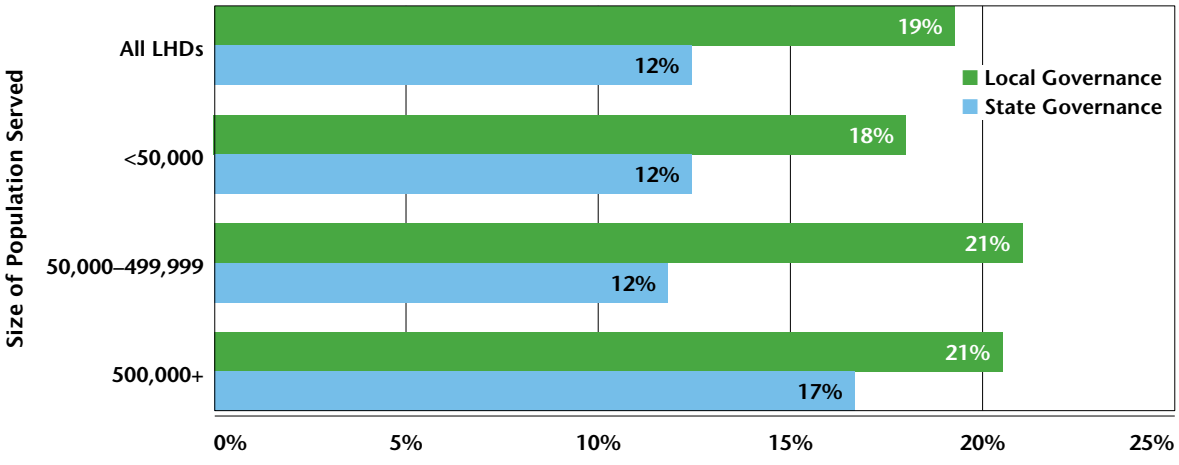
FIGURE 1. Percentage of LHDs by Whether Their Reported 2008 Expenditure Was Less, More, or Same* Compared to 2005 Expenditure



n=1590
** The change was less than 1 percent*

The percentage of LHDs reporting lower expenditures in 2008 compared to 2005 varied little by size of jurisdiction population but did vary by governance. Locally governed LHDs were more likely than state-governed LHDs to experience a reduction in their expenditures (19% versus 12%) between the 2005 and 2008 Profile surveys. This variation by type of governance persisted across jurisdiction population categories. The difference in percentage with reduced expenditures by governance category was most prominent for the LHDs in the middle population category (over nine percentage points) but smaller for those in the largest category of population size (less than four percentage points; Figure 2).

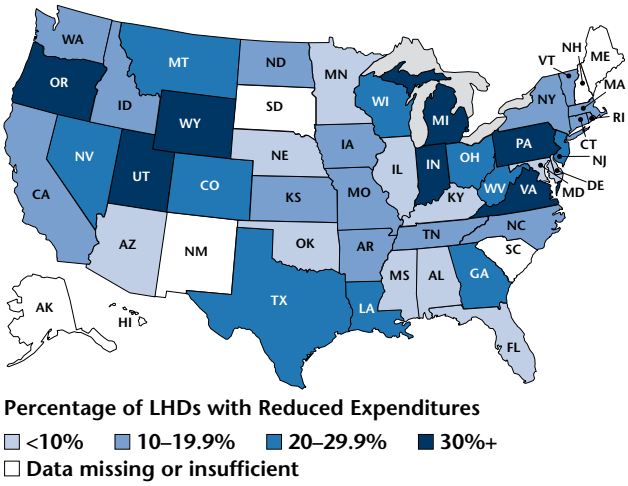
FIGURE 2. Percentage of LHDs with Reported 2008 Expenditure Less Than 2005 Expenditure, by Size of Population Served and Type of Governance



n=1,588

The percentage of LHDs that reported lower expenditures in the 2008 Profile compared to the 2005 Profile also varied by state. The states in which the greatest percentage of LHDs experienced a decrease in expenditures during this period included Utah (80%); Pennsylvania (50%); and Indiana, Michigan, Oregon, Virginia, and Wyoming (each with between 30 and 50% of LHDs reporting reduced expenditures). On the other end of the continuum, 10 states where the 10 or fewer percent of LHDs reported reduced expenditures included Alabama, Arizona, Florida, Kentucky, Maryland, Minnesota, Mississippi, Nebraska, and Oklahoma (Figure 3).

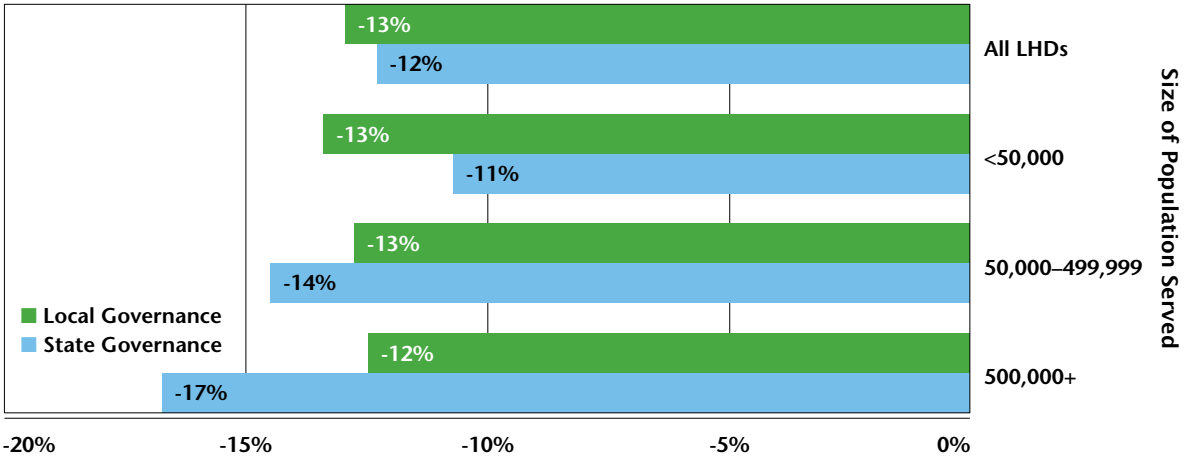
FIGURE 3. Percentage of LHDs with Reported 2008 Expenditures Less Than 2005 Expenditures, by State



n=1,590

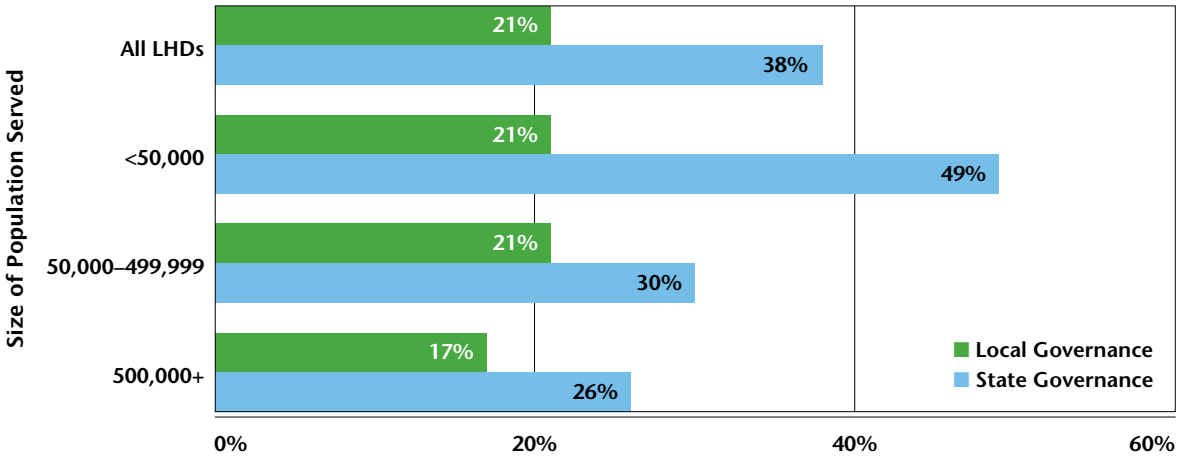
Among LHDs with a reduction in expenditures during this period, the median decrease in expenditures was 13 percent. Subgroup analysis showed only small differences in the median size of decreases in expenditure for LHDs with different types of governance and jurisdiction population sizes. The difference was most notable for LHDs serving large jurisdictions (500,000+), where the median decrease in expenditures for LHDs that are units of the state health agency was 17 percent, compared to a median decrease in expenditures of 12 percent for LHDs that are units of local government (Figure 4).

FIGURE 4. Median Percentage Change in Expenditure among LHDs with Reduced Expenditure from 2005 to 2008, by Size of Population Served and Type of Governance



n=284

FIGURE 5. Median Percentage Change in Expenditure among LHDs with Increased Expenditure from 2005 to 2008, by Size of Population Served and Type of Governance

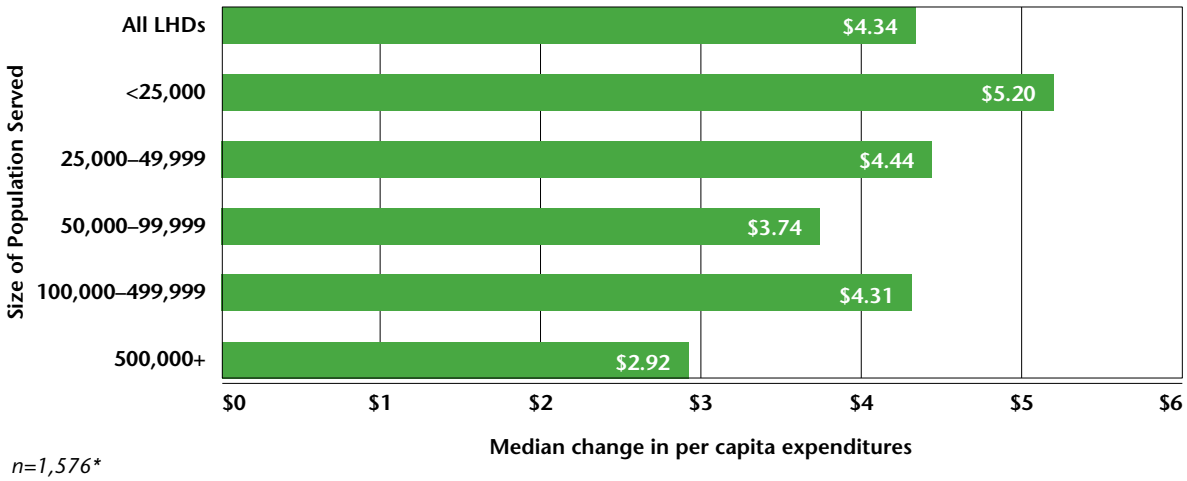


n=1,246

Changes in expenditures were considerably greater for the LHDs with increases in their expenditures, compared to LHDs with decreases in their expenditures. Among LHDs with an increase in expenditures during this period, the median increase was 23 percent. Differences in the median percentage increase in expenditures among LHDs serving different jurisdiction sizes were modest, ranging from a median increase of 24 percent for LHDs serving populations fewer than 25,000 to 20 percent for LHDs serving populations of 500,000+ (data not shown). State-governed LHDs experienced substantially larger expenditure increases overall and in each population category. Figure 5 shows median percent increase in expenditures by governance category and size of population served. The median percentage increase for LHDs that are units of the state health agency was 38 percent, compared to a median increase of 21 percent for LHDs that are units of local government. The difference is most notable for LHDs serving populations of 50,000 or less, where the median expenditure increase for LHDs that are units of the state health agency is more than twice as large as the median increase for LHDs that are units of local government.

Changes in LHD expenditures reported in 2005 and 2008 were also examined on a per capita basis. Looking across all LHDs in the analysis, the overall average increase was slightly more than four dollars per capita. The smallest increase occurred for the LHDs in the largest population size category, and the largest increase for LHDs occurred in the smallest population size category (Figure 6).

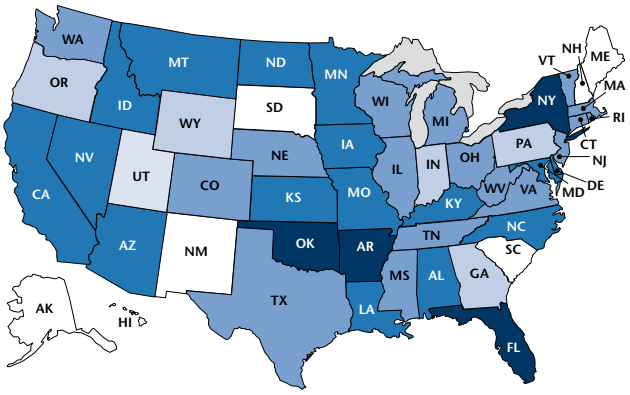
FIGURE 6. Median Change in Per Capita Expenditure from 2005 to 2008, by Size of Population Served



*n=1,576**
** 14 LHDs were excluded because they met the definition of outlier, described in the methods*

Changes in per capita expenditures were also analyzed by state. One state (Utah) showed a decrease in the median per capita LHD budget between 2005 and 2008 and five states (Georgia, Indiana, Oregon, Pennsylvania, and Wyoming) showed little change in median per capita LHD expenditure during this period. Four states (Arkansas, Florida, New York, and Oklahoma) showed median increases in per capita LHD expenditure of 10 percent or greater between 2005 and 2008 (Figure 7).

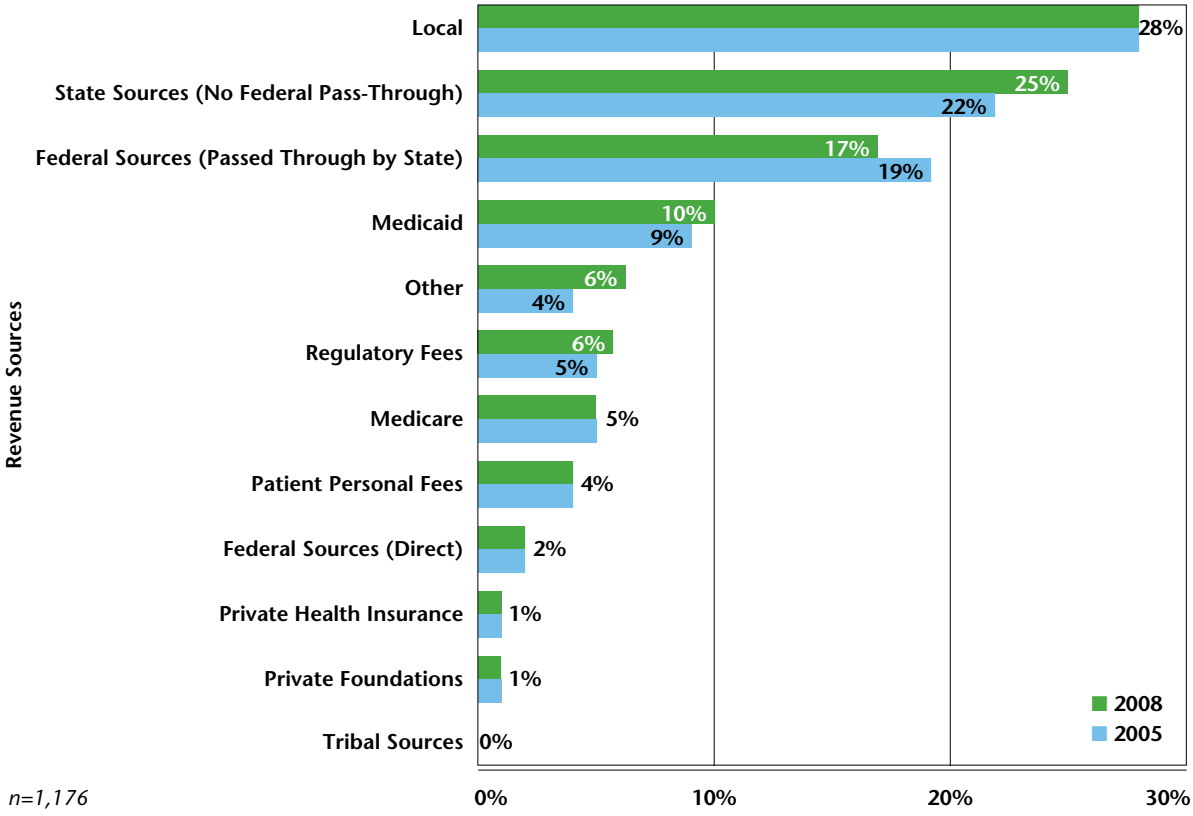
FIGURE 7. Median Change in Per Capita Expenditure from 2005 to 2008, by State



n=1,590

The relative amounts of LHD revenue from various sources changed little between 2005 and 2008. Local sources (city and county sources combined) accounted for, on average, 28 percent of revenue for all LHDs both in 2005 and in 2008. A quarter of all revenues in 2008 came from state sources, an increase of three percentage points since 2005. Average share of revenue from federal sources (passed through state) underwent a slight decrease in 2008, the only source experiencing a relative decline (Figure 8). The average share of revenue from "other" sources (which include inter-governmental transfers, vital records fees, interest income, and other miscellaneous sources of revenue) increased from 4 percent in 2005 to 6 percent in 2008.

FIGURE 8. Average Percentage of Revenue by Revenue Source for 2005 and 2008



n=1,176

Workforce

This section presents several longitudinal analyses that examine changes in LHD staffing between 2005 and 2008, including an analysis of the total number of staff in the longitudinal analysis subset of LHDs (all staff and by occupation), the distribution of changes in staffing across LHDs, and changes in median FTE staffing per capita.

For the subset of LHDs included in the longitudinal analysis, the total number of FTE workers grew 5 percent between 2005 and 2008, from approximately 100,000 to approximately 105,000. Changes in staffing between 2005 and 2008 varied for different occupations. Occupations that showed the largest percentage increases in total FTEs employed by LHDs were information systems specialists (13%), public information specialists (9%), and emergency preparedness coordinators (4%). Occupations that showed the largest percentage decreases in total FTEs employed by LHDs were health educators (20%), epidemiologists (11%), and RNs (10%; Figure 9).

Because RNs comprise a large percentage of the entire LHD workforce, they showed the largest absolute change in total FTEs employed with a decrease of more than 2,000 FTEs (Figure 9). Further analysis (not shown) of changes in employment of RNs shows that more than half of the nursing positions eliminated were in LHDs serving populations of 500,000+.

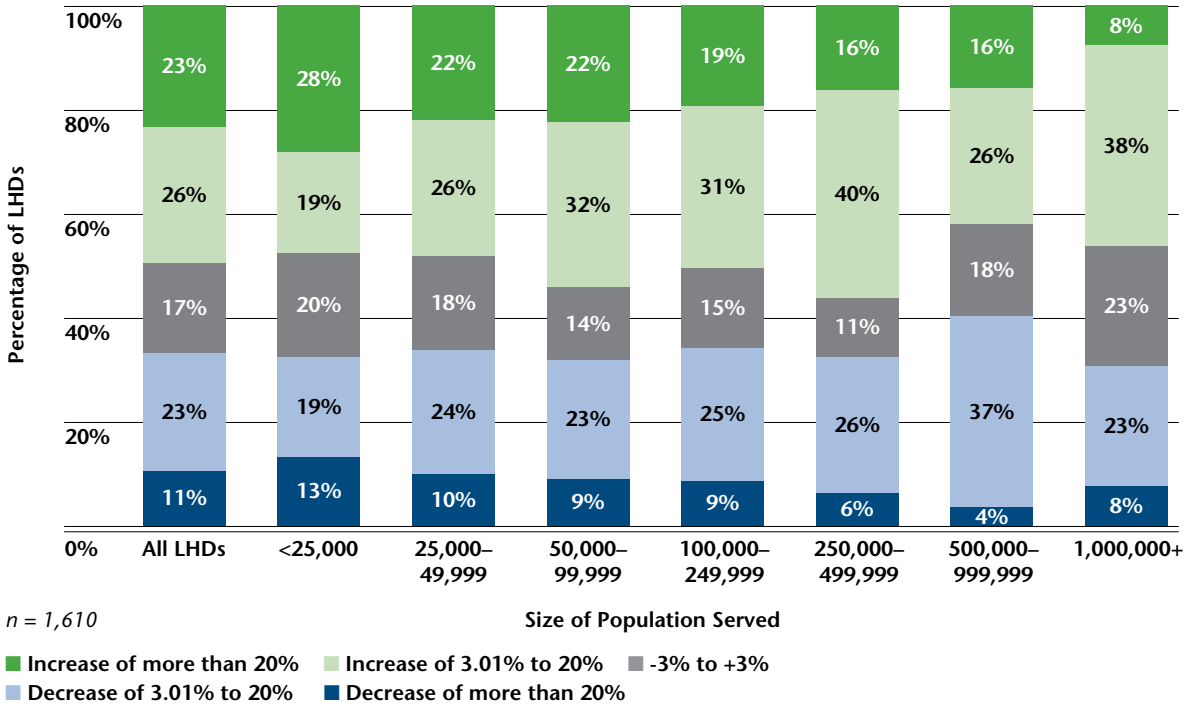
FIGURE 9. Absolute and Percentage Change in FTEs Employed in Selected Occupations from 2005 to 2008

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	99,655	104,513	+4,858	+5%
IS Specialist	1,164	1,319	+155	+13%
PI Specialist	254	278	+24	+9%
EP Coordinator	769	798	+29	+4%
Other EH Scientist	2,288	2,315	+27	+1%
EH Specialist	7,950	8,005	+55	+1%
Manager/Director	5,895	5,931	+36	+1%
Admin/Clerical Personnel	22,532	22,589	+57	+0.3%
Nutritionist	2,571	2,567	-4	-0.2%
Physician	1,528	1,433	-95	-6%
Registered Nurses	22,970	20,776	-2,194	-10%
Epidemiologist	999	890	-109	-11%
Health Educator	3,646	2,908	-738	-20%

n=1,610 for Total FTEs; ranges from 1,130 to 1,443 for specific occupation

IS=Information Systems, PI= Public Information; EP=Emergency Preparedness; EH=Environmental Health

FIGURE 10. Percentage Distribution of Change in Workforce Size from 2005 to 2008, by Size of Population Served

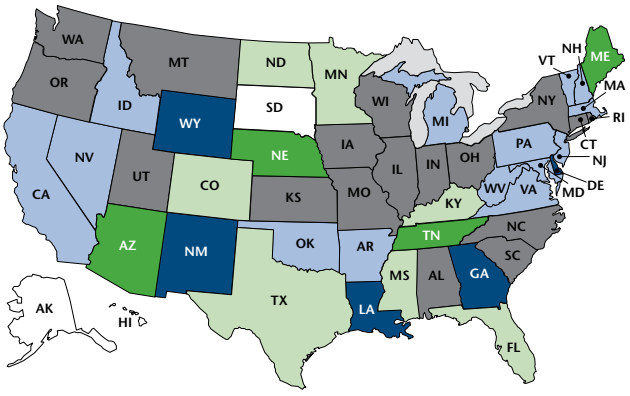


Regardless of the broad trends in LHD workforce size from 2005 to 2008, many individual LHDs had experiences very different from the average during this timeframe. Overall, 49 percent of LHDs grew, 34 percent shrank, and 17 percent had no or almost no change (± 3%) in the total number of FTEs employed.

When analyzed by the size of population served, some notable variations occurred in workforce size. LHDs serving populations of 500,000 to 999,999 had the lowest proportion of LHDs with an increase in their workforce size (42%) and the highest proportion of LHDs that had a reduced workforce in 2008 (41%). More growth in workforce was seen among LHDs serving 250,000 to 499,999 people, of which 56 percent grew and only 32 percent decreased (Figure 10).

Changes in the size of the LHD workforce between 2005 and 2008 also varied by state. For all LHDs in the analysis, the median percentage change in FTE employees was 3 percent. In 19 states (shown in gray in Figure 11), the median percentage change in FTE employees between 2005 and 2008 was close to the national median (0 to 6% increase in total FTEs). In 11 states, the median percentage increase in FTE employees was more than 6 percent. The states showing the largest median percentage increases in FTE employees were Nebraska (31%), Arizona (25%), Tennessee (25%), and Maine (18%). In 15 states, LHD workforces, on average, decreased in size during this period. The states showing the largest median percentage decreases in FTE employees were Georgia (8%), Delaware (7%), Louisiana (7%), New Mexico (6%), and Wyoming (6%; Figure 11).

FIGURE 11. Median Percentage Change in FTE Employees between 2005 and 2008, by State



n=1,610

When measured on a per capita basis, LHD staffing grew negligibly, on average, between 2005 and 2008. The median FTE staff per 100,000 population increased slightly during this period, from 50.7 to 51.1 FTE per 100,000. LHDs serving jurisdictions of fewer than 25,000 showed the largest increase in median FTEs per 100,000 population, whereas LHDs serving 50,000 to 99,999 showed the largest decrease (Figure 12).

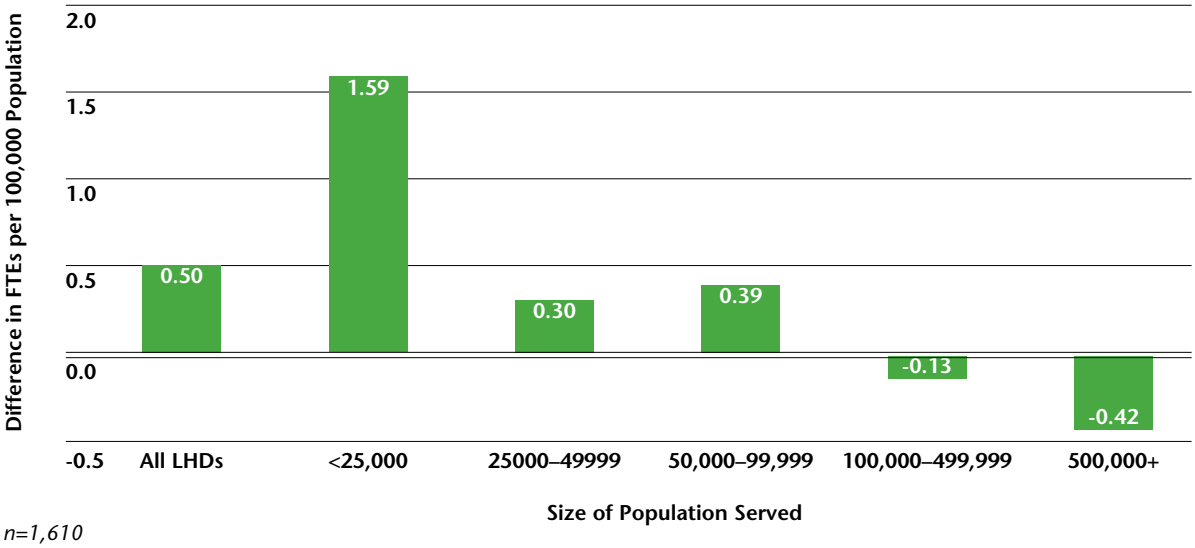
FIGURE 12. Median FTEs Per 100,000 Population from 2005 and 2008, by Size of Population Served

	Median FTE per 100,000 Population	
	2005	2008
All LHDs	50.7	51.1
<25,000	60.0	63.3
25,000–49,999	45.3	44.9
50,000–99,999	48.9	47.0
100,000–499,999	44.9	45.7
500,000+	41.0	41.5

n=1,610

The median difference in staffing per 100,000 population (i.e., FTEs per 100,000 employed in 2008 minus FTEs per 100,000 employed in 2005) increased by only 0.5 FTEs per 100,000 population served between 2005 and 2008. There were modest differences among LHDs serving different-sized jurisdictions. LHDs serving smaller populations showed small increases in median differences (0.3 to 1.6 FTE per 100,000), whereas LHDs serving larger populations showed small decreases (0.13 to 0.42 FTE per 100,000; Figure 13).

FIGURE 13. Median Difference in FTEs Per 100,000 Population from 2005 to 2008, by Size of Population Served



n=1,610
**Median difference calculated by taking the median of the differences in total FTEs from 2008 to 2005 for each individual LHD.*

Activities and Services

This section examines several measures of change in LHD provision of services and activities. The longitudinal analysis of changes in LHD service provision (i.e., percentage of LHDs adding or eliminating services) provides information about which services and activities are most and least likely to change within individual LHDs. The analysis of mean changes in broad categories of LHD services provides information about which categories of services are most and least likely to change over time. The analysis of net changes in service provision (i.e., percentage of LHDs adding a service minus the percentage of LHD eliminating a service) provides information about overall trends in service provision among LHDs in the United States. Finally, analyzing the total number of activities and services provides a crude measure of how the overall breadth of services provided by LHDs changed between 2005 and 2008.

Services most frequently added by LHDs between 2005 and 2008 include several activities related to tobacco control and prevention and surveillance (Figure 14). In the field of tobacco control and prevention, 28 percent of LHDs began conducting regulatory activities related to smoke-free ordinances between 2005 and 2008, and 15 percent initiated tobacco-use prevention activities. Surveillance activities ranking in the list of the top 10 activities added include syndromic surveillance (18%), behavior risk factor surveillance (16%), and chronic disease surveillance (15%). Other activities added by more than 15 percent of LHDs included outreach and enrollment for medical insurance (added by 19% of LHDs) and unintended pregnancy prevention (15%).

Several of the activities that were most likely to be added by LHDs during this period were also in the list of activities most likely to be eliminated. For example, behavioral risk factors surveillance (eliminated by 17% of LHDs), chronic disease surveillance (16%), groundwater protection (13%), and injury prevention (13%) were all among the 10 activities most likely to be added by LHDs (Figure 15). Other programs frequently eliminated by LHDs included environmental health activities (surface water protection, food processing regulation) and clinical services (diabetes screening, school health, prenatal care).

In contrast to the group of activities showing large changes in provision trends for 2005–2008, several activities showed little change in LHD provision between 2005 and 2008. For nine services, the percentage of LHDs adding and eliminating each was less than 5 percent (Figure 16). Five of these activities (child immunization, adult immunization, food service establishments regulation, communicable/infectious disease surveillance, TB screening) are among the 10 activities/services most frequently provided by LHDs. Two of these activities (emergency medical services, noise pollution regulation) are provided by fewer than 20 percent of LHDs.

FIGURE 14. Services Most Frequently Added by LHDs between 2005 and 2008

Service/Activity	Percent LHDs Adding
Smoke-Free Ordinances Regulation	28%
Outreach and Enrollment for Medical Insurance	19%
Syndromic Surveillance	18%
Behavioral Risk Factors Surveillance	16%
Unintended Pregnancy Prevention	15%
Chronic Disease Surveillance	15%
Tobacco-Use Prevention	15%
Laboratory Services	15%
Groundwater Protection	15%
Injury Prevention	14%

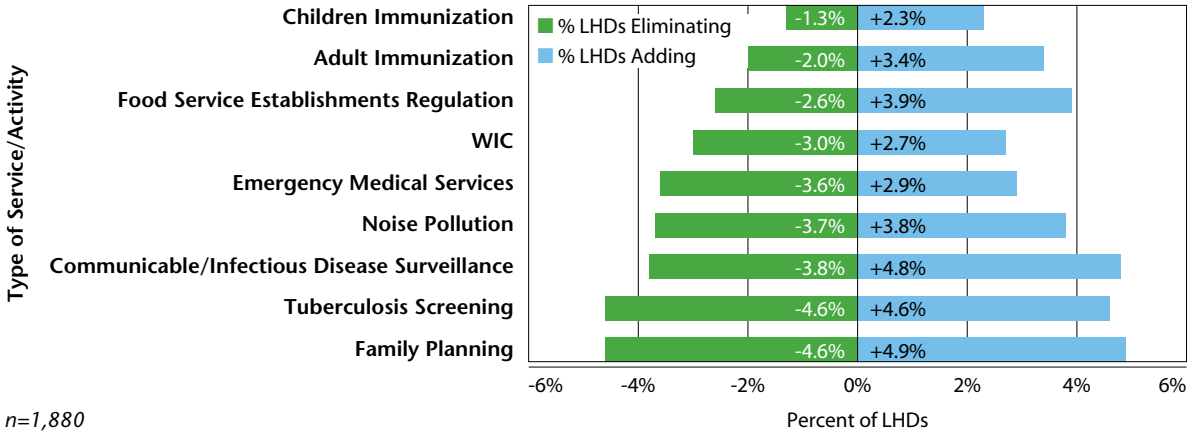
n=1,880

FIGURE 15. Services Most Frequently Eliminated by LHDs between 2005 and 2008

Service/Activity	Percent LHDs Eliminating
Behavioral Risk Factors Surveillance	17%
Chronic Disease Surveillance	16%
Surface Water Protection	14%
Diabetes Screening	14%
Food Processing Regulation	13%
School Health	13%
Groundwater Protection	13%
Prenatal Care	13%
Injury Prevention	13%
Health Related Facilities Regulation	13%

n=1,880

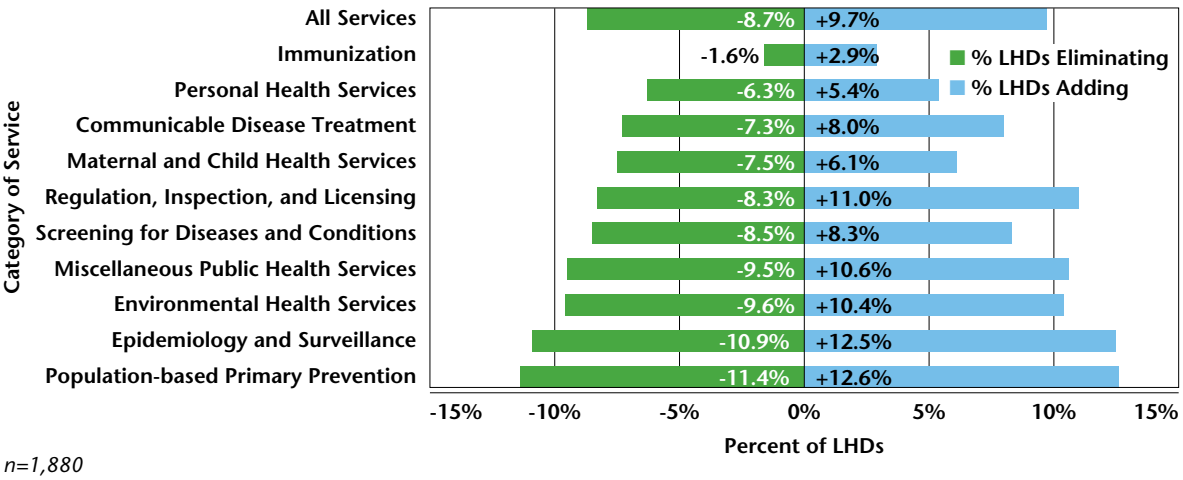
FIGURE 16. Services Showing Least Change in LHD Provision between 2005 and 2008



n=1,880

In addition to comparing the magnitude of changes for specific services, changes in service provision for broad categories of services were also examined. The data presented in Figure 17 show which categories of services are more "stable" (i.e., LHDs are less likely to add or eliminate these services) and which categories of services are more "unstable" (i.e., LHDs are more likely to add or eliminate these services). The relative stability of a service category was assessed by generating a group mean value across all services in that category and comparing it to the mean for all services in the Profile questionnaire. Immunization was the most stable service category between 2005 and 2008; population-based primary prevention services were the least stable service category during this period. On average, services in the immunization category were added by 2.9 percent of LHDs and eliminated by 1.6 percent of LHDs between 2005 and 2008. Other service categories that were relatively stable were personal health services, communicable disease treatment, and maternal and child health services. At the other end of the spectrum, services in the population-based primary prevention category were, on average, added by 12.6 percent of LHDs and eliminated by 11.4 percent of LHDs during this period. Other service categories that were relatively unstable were epidemiology and surveillance, environmental health services, and miscellaneous public health services.

FIGURE 17. Mean Percentages of LHDs Adding and Eliminating Categories of Services between 2005 and 2008



n=1,880

** Percentages of LHDs adding and eliminating individual services within each broader service category were first computed and then an average of those percentages was computed for the service category. Refer to methods section for detailed description.*

By subtracting the percentage of LHDs that eliminated a service from those that added a service between 2005 and 2008, a net percentage change is produced that helps to illustrate trends in service provision across the country. Enforcement of smoke-free ordinances showed by far the largest positive net change (21%). Other services showing a net increase of greater than 5 percent between 2005 and 2008 were syndromic surveillance (8%), outreach and enrollment for medical insurance (8%), and regulation of tobacco retailers (6%; Figure 18). No services showed a net decrease in LHD provision greater than 5 percent. Services showing the largest net decreases were correctional health (-5%), prenatal care (-4%), and home healthcare (-3%; Figure 19). Most of the 73 activities and services included in both the 2005 and 2008 Profile questionnaires showed negligible net change; for example, 56 services exhibited net changes of +/- 2 percent or less, and 26 exhibited net changes of +/- 1 percent or less.

FIGURE 18. Services with Largest Positive Net Change in LHD Provision from 2005 to 2008

Service/Activity	Net Change
Smoke-Free Ordinances Regulation	21%
Syndromic Surveillance	8%
Outreach and Enrollment for Medical Insurance	8%
Tobacco Retailers Regulation	6%
Tobacco-Use Prevention	5%
Laboratory Services	4%
Campgrounds & RVs Regulation	4%
Schools/Daycares Regulation	3%
Unintended Pregnancy Prevention	3%

n=1,880

FIGURE 19. Services with Largest Negative Net Change in LHD Provision from 2005 to 2008

Service/Activity	Net Change
Correctional Health	-5%
Prenatal Care	-4%
Home Health Care	-3%
Diabetes Screening	-3%
Substance Abuse Services (Clinical)	-2%
Blood Lead Screening	-2%
Obstetrical Care	-2%

n=1,880

To better understand how many services and activities are conducted by LHDs and how these services and activities changed between 2005 and 2008, the number of activities conducted at the two time points, as well as the number of services added and eliminated, were calculated for various percentile cut points. This provides an indication of the range of experiences of the 1,880 LHDs examined in this analysis. Of the 73 services included in both the 2005 and 2008 Profile questionnaires, the median number provided by LHDs was 30 in 2005 and 31 in 2008. Ninety percent of LHDs provided 17 or more services in 2008, compared to 16 or more services in 2005. Ten percent of LHDs provided 44 or more services in 2008, compared to 45 or more services in 2005. The average LHD added six services and eliminated five services between 2005 and 2008 (Figure 20).

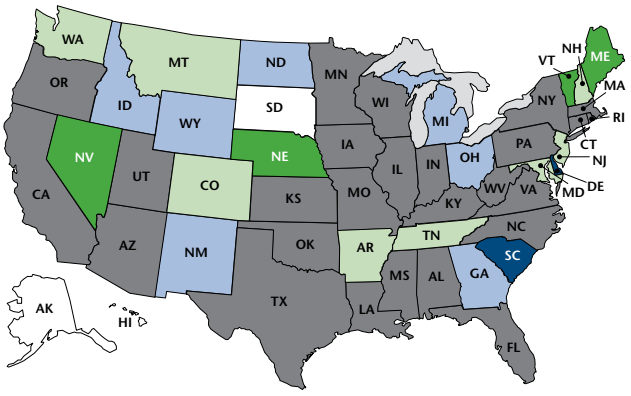
FIGURE 20. Selected Percentiles of Total Number of Services, Services Added, and Services Eliminated from 2005 to 2008

	Percentile				
	10th	25th	50th (median)	75th	90th
2005: Total Number of Activities	16	23	30	38	45
2008: Total Number of Activities	17	24	31	38	44
Number of Services Added Between 2005 and 2008	2	3	6	9	13
Number of Services Eliminated between 2005 and 2008	3	3	5	9	12

n=1,880

Changes between 2005 and 2008 in the total number of services provided by LHDs were also analyzed by state. The states where LHDs showed median net increases of five services or more were Nebraska, Nevada, Maine, and Vermont. The states where LHDs showed median net decreases of five services or more were Delaware and South Carolina (Figure 21).

FIGURE 21. Median Change in Number of Activities and Services Provided by LHDs between 2005 and 2008, by State



Increase by 5 or more services
Increase by 2 to 4.9 services
Little or no change in services (-1.9 to +1.9)
Decrease by 2 to 4.9 services
Decrease by 5 or more services
Data missing or insufficient

n=1,878

Conclusions and Discussion

This report examined changes in three primary dimensions of LHD infrastructure—financing, workforce, and activities—between 2005 and 2008. This study documents a period of modest growth in LHDs' expenditures and workforces. It also illustrates the constantly changing mix of services and activities provided by LHDs and some overall national trends in service provision.

The 2005 and 2008 Profile studies bookend a period that began as a time of strong economic growth in the United States but ended during the early months of a recession. The U.S. gross domestic product (GDP) grew at a rate of 6.3 percent in 2005.[3] The total local government spending in the "health" sector (which includes more than LHDs) grew from $34 billion in 2003–2004 to $37 billion in 2006–2007, an increase of 8.8 percent.[4] Total local government employment in the health sector grew from 246,000 to 260,000 people between 2005 and 2008, an increase of 5.7 percent.[5] However, this period ended in the early months of a recession (which officially began in December 2007). GDP growth slowed to 3.3 percent in 2008. U.S. unemployment rates began to increase at the end of this period, from 5.1 percent in 2005 to 5.8 percent in 2008.[6]

Finance

Four out of five LHDs experienced an increase in their expenditures reported in 2008 as compared to 2005. The median change in expenditure for these LHDs was an increase of 23 percent. Even during this period of economic growth, roughly one in five LHDs experienced a decrease in expenditures. Locally governed LHDs (regardless of jurisdiction size) had a greater likelihood of reduction in their expenditure than state-governed LHDs. In the most severely affected seven states, 30 percent or more of the LHDs had reduced expenditure. The median change in expenditure among LHDs with reduced expenditure was a 13 percent decrease.

The data collected in the Profile study do not allow NACCHO to determine the reasons for decreases in expenditures in some LHDs, but two explanations seem plausible. Some LHDs that experienced decreased expenditures during this period may show the beginning of the trend of decreased LHD budgets and staffing

that have been documented in 2008 and 2009.[7] Alternatively, some LHDs may have experienced expenditure decreases for reasons unrelated to economic conditions, such as eroding political support for governmental spending generally or public health services specifically or transitioning of certain public health services (and their associated expenditures) to other government agencies or non-governmental organizations.

Workforce

Noteworthy changes in LHD staffing between 2005 and 2008 were also evident from this analysis. Overall, the total number of FTE workers grew by 5 percent between 2005 and 2008, and the level of growth varied by different occupations. When change in the size of LHDs' workforce was examined relative to the population served (i.e., as FTEs per 100,000 population), the average growth in LHD workforce between 2005 and 2008 was negligible.

Although the workforce for roughly half of the LHDs grew, it shrank for one-third of all LHDs. The level of both reduction and growth varied considerably across LHDs. For instance, 10 percent of all LHDs lost more than 20 percent of their FTEs, whereas 23 percent of LHDs experienced an increase of more than 20 percent in the size of their workforces.

Changes in total FTEs employed by LHDs between 2005 and 2008 varied by occupation. For example, the numbers of nurses, epidemiologists, and health educators decreased, whereas other occupations, such as EH specialists, remained relatively stable. Certain specialized occupations (e.g., IT specialists, PI specialists, emergency preparedness coordinators) showed increases in employment. These changes in staff by occupation may reflect shifting roles for LHDs. For example, the decline of nursing positions could signal a trend away from direct provision of clinical services, perhaps as a result of increasingly limited funding for core public health functions or transitioning these functions to other community providers. The increase in emergency preparedness coordinators reflects staffing supported through federal funding for emergency preparedness. Increases in IT and PI specialists reflect the increasing importance of information and communication to the missions of LHDs.

Activities and Services

This report also examined several measures of changes in LHDs' activities and services. Overall, the total number of services provided by LHDs (either directly or via contract) changed very little between 2005 and 2008. Of the 73 activities and services included in both the 2005 and 2008 Profile questionnaires, the median number provided by LHDs was 30 in 2005 and 31 in 2008.

Analyses of net changes in service provision illustrate broad, national trends in local public health practice. For example, enforcement of smoke-free ordinances showed by far the largest net increase between 2005 and 2008 (+21%), reflecting the growth in the number of localities with smoke-free ordinances during this period. Other activities with relatively large net increases during this period were syndromic surveillance (+8%), reflecting continued emphasis on and categorical funding for preparedness, and outreach and enrollment for medical insurance (+8%), reflecting some LHDs' change in role from provision to assurance of care and new opportunities for access to healthcare during this period. The services showing the largest net decreases in provision were nearly all clinical services, reflecting a trend away from provision of personal health services that has been occurring in LHDs for decades.[8]

The analyses of services and activities most and least likely to change within individual LHDs illustrate that LHDs are continuously adjusting the service mix offered, in response to both local needs and existing resources. Some categories of services are more prone to change than others. For example, population-based primary prevention services, epidemiology and surveillance, and environmental health services show higher than average levels of change, whereas immunization, personal healthcare service, communicable disease treatment, and maternal and child health services show lower than average levels of change. Notably, the services most prone to change are all population-based, whereas those least prone to change are clinical services. This may reflect the relative costs associated with undertaking clinical versus population-based programs, the perceived importance of these programs to the community or elected officials, or the greater political difficulty of eliminating more visible programs with identifiable clients. Other research on reasons for cutting services suggests that a multitude of interrelated factors influence these decisions,

including changes in program-specific funding, availability of certain services from alternative sources (duplication of services), prioritization of mandatory or core services as opposed to discretionary services, perceived importance of different services in terms of their demand and number of clients served, and perceived health effects of adding or eliminating certain services.[9]

Further Research

NACCHO undertook a series of surveys to assess the effects of the recession on LHD budgets, workforce, and activities in 2009 and 2010.[10,11,12,13] This series of surveys showed the growing effect of the recession on LHDs, with the percentage of LHDs reporting decreases in their core funding increasing from 27 percent in December 2008 to 53 percent in January 2010. During 2008 and 2009, LHDs eliminated more than 23,000 staff positions though layoffs or staff attrition, approximately 15 percent of the LHD workforce. Half of all LHDs made cuts in at least one program area for budgetary reasons in 2009, and a more than a quarter of LHDs had more pervasive cuts affecting three or more program areas.

Data collected in the 2010 Profile study will enable further analyses of the effects of the recession on LHD financing, workforce, and activities, including changes in total expenditures, sources of revenue, total employment, employment of specific occupations, and changes in services provided. In addition, further development and standardization of the Profile questionnaire will support new analyses, including assessment of LHD reserve funding and changes in total revenues. Items adapted from NACCHO's economic surveillance surveys will be added to the 2010 Profile questionnaire, including questions on numbers of employees laid off, numbers of positions eliminated through attrition, and programmatic areas where services were reduced.

Researchers will also be able to combine data from the Profile studies with other data sources to explore important research questions. Examples include the following:

- What factors influence the extent to which LHDs are affected by economic conditions?
- How are changes in LHD funding and staffing related to changes in indicators of public health system performance or community health?
- To what extent are other organizations in the public health system changing their activities in response to cuts in LHD programs?
- Have LHDs increased collaboration with other organizations (either other LHDs or non-governmental organizations) to provide public health services?

Endnotes

1 National Association of County and City Health Officials (NACCHO). *2005 Profile of Local Health Departments,* (Washington, DC: 2005). Retrieved May 7, 2010, from http://www.naccho.org/topics/infrastructure/profile/upload/NACCHO_report_final_000.pdf.

2 NACCHO. *2008 Profile of Local Health Departments.* (Washington, DC: 2008). Retrieved May 7, 2010, from http://www.naccho.org/topics/infrastructure/profile/resources/2008report/upload/NACCHO_2008_ProfileReport_post-to-website-2.pdf

3 U.S. Department of Commerce, Bureau of Economic Analysis. *Economic Indicators*. Retrieved April 19, 2010, from http://www.gpoaccess.gov/indicators/browse.html.

4 U.S. Census Bureau. *State & Local Government Finance.* Retrieved April 19, 2010, from http://www.census.gov/govs/estimate/.

5 U.S. Census Bureau. *Government Payroll and Employment.* Retrieved April 19, 2010, from http://www.census.gov/govs/apes/historical_data_2005.html.

6 U.S. Department of Commerce, Bureau of Economic Analysis.

7 NACCHO. *Local Health Department Job Losses and Program Cuts: Overview of Survey Findings from January/February 2010 Survey.* (March 2010). Retrieved May 25, 2010, from http://www.naccho.org/advocacy/upload/JobLossSurvey_Overview-3-10-final.pdf.

8 NACCHO. *2005 Profile of Local Health Departments*.

9 Shah, G; Leep, C; and Willard, R. *The Impact of Economic Downturn on Local Public Health: Qualitative Data Analysis of Decision Drivers*. Conference presentation, Keeneland Conference, Lexington, KY, April 21, 2010.

10 NACCHO. *Local Health Department Job Losses and Program Cuts: Overview of Survey Findings from January/February 2010 Survey.*

11 NACCHO. Local Health Department Job Losses and Program Cuts: Findings from January/February 2010 Survey. (May 2010). Retrieved May 25, 2010, from http://www.naccho.org/topics/infrastructure/lhd-budget/upload/Job-Losses-and-Program-Cuts-5-10.pdf.

12 NACCHO. *Local Health Department Job Losses and Program Cuts.* (November 2009). Retrieved May 25, 2010, from http://www.naccho.org/advocacy/upload/JobLossProgramCuts_ResearchBrief_final.pdf.

13 NACCHO. *NACCHO Survey of Local Health Departments' Budget Cuts and Workforce Reductions.* (January 2009). Retrieved May 25, 2010, from http://www.naccho.org/advocacy/upload/2008-LHD-budget-cut-report.pdf.

Acknowledgments

Many NACCHO staff contributed to this report:

- Carolyn Leep and Vivian Levy did the jurisdiction matching.
- Nathalie Robin and Gulzar Shah conducted the longitudinal analysis and developed the figures, tables, and maps.
- Carolyn Leep and Gulzar Shah drafted the report.
- The entire Research and Evaluation Team (all those named above plus Reba Novich, Rachel Willard, and Sam Yu) reviewed and commented on report drafts.

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 (CDC) and Award Number 61911 from the Robert Wood Johnson Foundation® in Princeton, NJ. Funding for the 2005 Profile study was provided by Award Number U50/CCU302718 from CDC. 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.

NACCHO

National Association of County & City Health Officials

The National Connection for Local Public Health

1100 17th Street, NW 7th Floor
Washington, DC 20036

profileteam@naccho.org
www.naccho.org/profile

July 2010