

2010 EPIDEMIOLOGY ENUMERATION ASSESSMENT

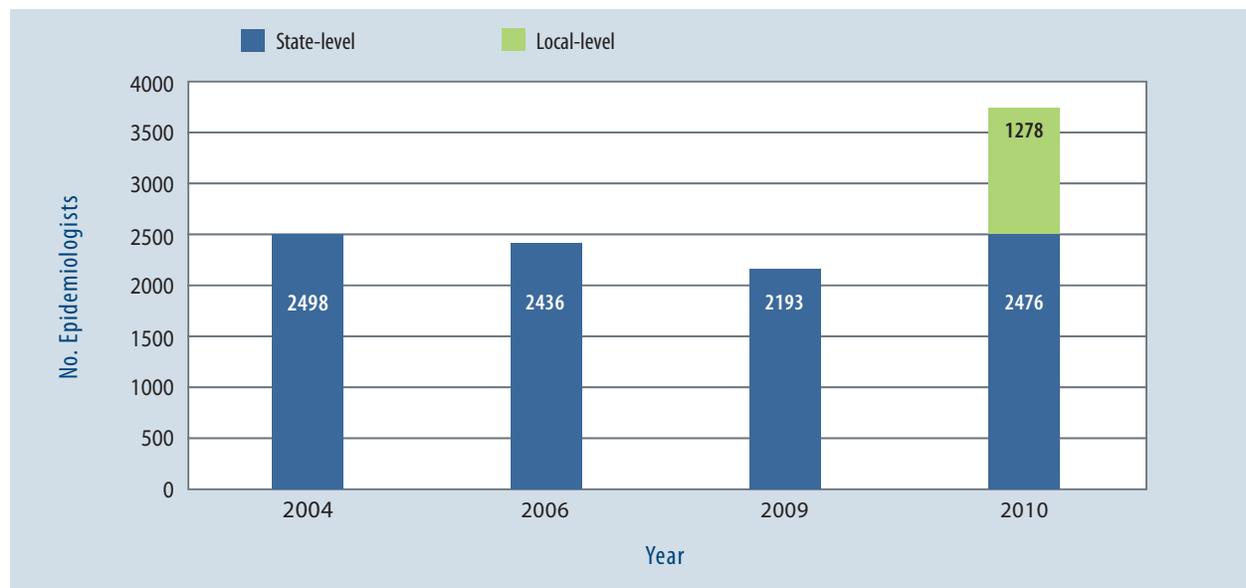
Findings and Recommendations

SUMMARY

The 2010 CSTE Epidemiology Enumeration Assessment aimed to enumerate state- and local-level epidemiologists working in the United States and to determine the effects of the fiscal crisis on the state and territorial epidemiology workforce.

The results comprise responses from all 50 states and the District of Columbia. In 2010, a total of 2476 epidemiologists worked at the state level for the 51 jurisdictions. An additional 1278 epidemiologists employed or contracted by local health departments were identified. Epidemiologists working for states or local jurisdictions totaled 3754 or 1.22 epidemiologists per 100,000 population in 2010. The 2476 state-level epidemiologists represented a 12.9% increase from the 2193 epidemiologists enumerated in 2009, a 1.6% increase from 2006, and a 0.9% decrease from 2004 (Figure 1). The number working in different program areas shifted noticeably from 2006, with increases in the numbers working in infectious diseases and in chronic disease and decreases in most other areas, except maternal and child health.

FIGURE 1. Number of epidemiologists working in the 50 state and District of Columbia health departments, by year—Epidemiology Capacity and Enumeration Assessments, 2004, 2006, 2009, and 2010



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RESULTS

The results of this assessment depict professionals working as epidemiologists at the state and local levels in the United States.

One third of all public health epidemiologists work within local health departments. A total of 384 epidemiologists (30.0% of local epidemiologists and 10.2% of all epidemiologists in states) are employed by the five most populous cities (New York City, Los Angeles, Chicago, Houston, and Philadelphia). These five cities comprise 5.9% of the total U.S. population.

The 3754 epidemiologists identified throughout the country resulted in an overall rate of 1.22 epidemiologists per 100,000 population. These epidemiologists were not distributed equally; smaller states reported more epidemiologists per 100,000 population than did larger states (1.48 vs. 1.14, Table 1). However, the five largest cities had more epidemiologists than either (2.10 per 100,000).

TABLE 1. Number and rate per 100,000 population of state-level only and state- and local-level epidemiologists, by state population—2010 Epidemiology Enumeration Assessment

EPIDEMIOLOGISTS/ STATE POPULATION	JURISDICTIONS*	EPIDEMIOLOGISTS			RATE PER 100,000 POPULATION		
		No.	MEDIAN	RANGE	No.†	MEDIAN‡	RANGE‡
State-level only							
≤5 million	29	864.5	23.5	4.4–97.0	1.33	1.33	0.26–3.66
>5 million	22	1611.61	62.1	13.8–205.0	0.66	0.71	0.11–1.73
TOTAL	51	2476	37.6	4.4–205.0	0.80	0.81	0.11–3.66
State and local levels							
≤5 million	29	963	25	4–104	1.48	1.52	0.44–4.08
>5 million	22	2790	81	51–468	1.14	1.10	0.47–2.41
TOTAL	51	3754	58	4–468	1.22	1.20	0.44–4.08

*50 states and the District of Columbia.

†Based on sum of all epidemiologists in category and total population of category.

‡Based on state-specific number of epidemiologists and population.

The state-level epidemiology workforce has increased for the first time since 2004, most likely as a result of increased federal funding.

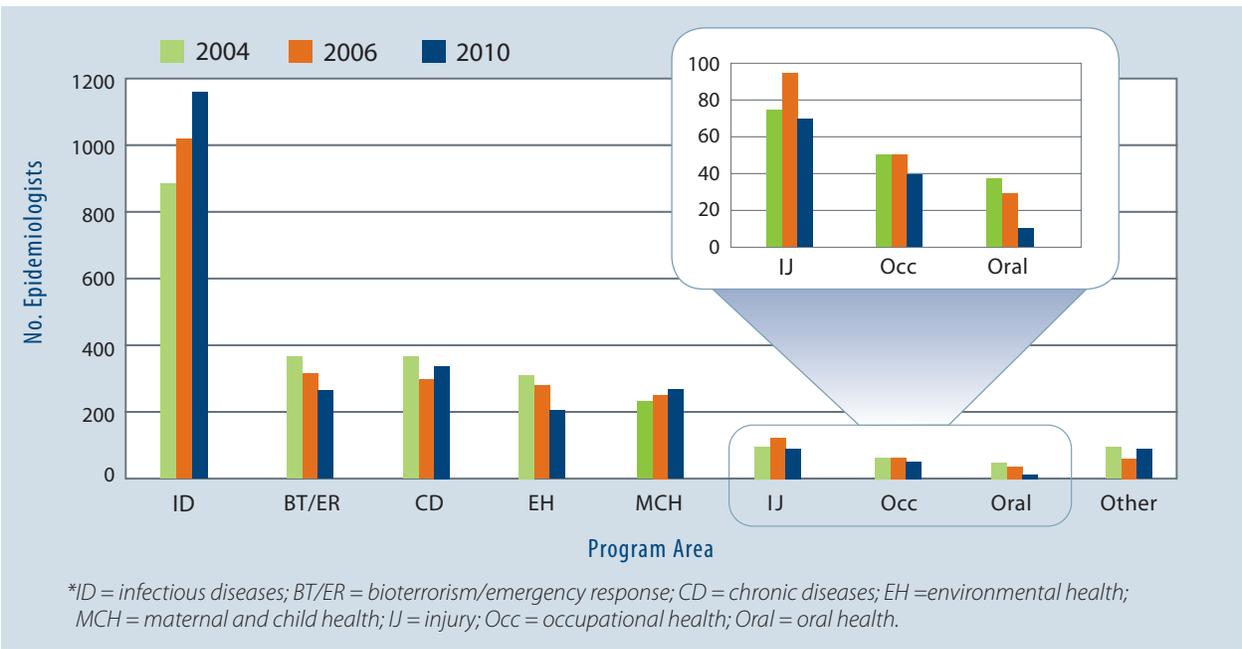
From 2009 to 2010, the number of state-level epidemiologists increased by 12.9% (Figure 1). Increases were not uniform across states: even though the number increased in 53% of states by at least 10%, in 24% of states, the number decreased by at least 10%. Whereas 63% of jurisdictions reported decreases in the number of state-funded positions since the fiscal crisis was recognized in September 2008, only 24% reported decreases in the number of federally funded positions ($p < 0.0001$, chi square). Overall, of the 2343 state positions with known source of funding, 72.5% were federally funded, 23.1% were state-funded, and 3.1% were supported with funds from other sources.

RESULTS

In some state-level program areas, the number of epidemiologists has decreased progressively since 2006.

Compared with 2006, the most recent CSTE Epidemiology Capacity Assessment (ECA) that measured the number of epidemiologists by program area, the workforce shifted noticeably by program area. From 2006 to 2010, the total number of state-level epidemiologists increased by 1.6%. The increase in the number of epidemiologists was largest in the infectious diseases and chronic diseases subject areas, with 16% and 11% gains, respectively, from 2006 to 2010. Five epidemiology subject areas had decreases: bioterrorism/emergency response (-25%), environmental health (-27%), injury (-27%), oral health (-62%), and occupational health (-23%) (Figure 2). When data from the 2004 ECA are considered, the number of epidemiologists has progressively increased only for infectious diseases and maternal and child health. For bioterrorism/emergency response, environmental health, occupational health, and oral health, the numbers have progressively decreased.

FIGURE 2. Number of state-level epidemiologists in the 50 state and District of Columbia health departments, by program area*—Epidemiology Capacity Assessments, 2004, 2006, and 2010



DISCUSSION

Given the relative magnitude and overlapping functions, the local health department workforce will be important to include in future estimates of the entire state public health epidemiology workforce. Changes in local health department epidemiology workforce size and skill level can clearly affect a state's functional epidemiology capacity.

The enumeration of 1278 local health department epidemiologists is within the range estimated in 2010 by the National Association of County and City Health Officials (NACCHO) and reported in its 2010 National Profile of Local Health Departments. The enumeration is also close to the estimate of 1100 by the Bureau of Labor Statistics in 2010.

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DISCUSSION (CON'T)

The CSTE count would seem to validate the methods used by NACCHO and the Bureau of Labor Statistics and suggests that collaboration with other organizations interested in the local epidemiology workforce could be the simplest way to produce the combined state–local workforce data.

The increase in the number of state-level epidemiologists was not expected. From 2004 to 2009, the number of state-level epidemiologists had decreased by 12.2%, and the fiscal crisis beginning in 2008 was thought to have further reduced the numbers. Even though most states reported decreases in the number of state-funded positions, federal stimulus and pandemic influenza funding appear to have more than compensated to preserve and enhance the workforce. Less than one quarter of states reported decreases in federally funded positions, and the increases in infectious disease and chronic disease epidemiologists are consistent with the thrust of these new federal funding streams.

Although increases in the number of state-level epidemiologists in several program areas are encouraging, the program areas in which the number of epidemiologists has progressively decreased are of concern. In particular, environmental health, injury, occupational health, and oral health have never had high levels of functional epidemiology capacity as measured by the CSTE ECAs. Decreases in the number of epidemiologists working in each of these areas will further diminish the scientific data gathering needed to recognize current and emerging issues, monitor changes, and direct public health efforts at prevention.

RECOMMENDATIONS

- CSTE should continue to monitor the size of the epidemiology workforce, not only at the state level, but also at the local health department level, possibly in collaboration with NACCHO and/or the Bureau of Labor Statistics.
- Future assessments of the training and competency levels of the state epidemiology workforce should include epidemiologists based at local health departments.
- Higher public health priority needs to be given to maintaining and enhancing the number of epidemiologists in program areas that, at best, have marginal functional epidemiology capacity and a diminishing number of epidemiologists over the past 6 years. These areas need continued monitoring of functional epidemiology capacity to identify gaps and address future needs, particularly as federal funding fluctuates with the implementation of the Affordable Care Act and most states continue to struggle under the strain of lingering budget deficits.

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RESOURCES

Previous assessments of epidemiology capacity:

1. CDC. Assessment of the epidemiologic capacity in state and territorial health departments—United States, 2001. *MMWR* 2003;52:1049–51.
2. CDC. Assessment of epidemiologic capacity in state and territorial health departments—United States, 2004. *MMWR* 2005;54:457–9.
3. Boulton, ML, Lemmings J, Beck AJ. Assessment of epidemiology capacity in state health departments, 2001–2006. *J Public Health Manag Pract* 2009;15:328–36.
4. CDC. Assessment of epidemiology capacity in state health departments—United States, 2009. *MMWR* 2009;58:1373–7.
5. Boulton, ML, Hadler J, Beck AJ, Ferland L, Lichtveld M. Assessment of epidemiology capacity in state health departments, 2004–2009. *Public Health Rep* 2011;126:84–93.

Sources of data on the local health department epidemiology workforce:

6. NACCHO. 2010 National profile of local health departments. August 2011. Available at <http://www.naccho.org/topics/infrastructure/profile/resources/2010report/index.cfm>. Accessed September 15, 2011.
7. Bureau of Labor Statistics. Occupational employment statistics, May 2010. Available at <http://www.bls.gov/oes/home.htm>. Accessed September 22, 2011.