Applied Epidemiology Competencies: Perspectives of a State Health Officer

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Epidemiology is a fundamental discipline within the field of public health. The very nature of our work in public health, as described by the 10 Essential Public Health Services, is deeply rooted in the science of epidemiology. Whether it is monitoring health risks, investigating diseases, responding to emergencies, educating the public, developing health policies, or evaluating the effectiveness of our efforts, epidemiology is woven into our daily work.

As State Health Officials, we are charged with safeguarding the health of the state's citizens. To make informed decisions to accomplish that mission, we rely heavily on the expertise of senior management who, in turn, rely on the expert knowledge of their staff. Epidemiologists are critical to this process, providing vital input that affects decision-making on a wide range of health issues, from stopping the spread of infectious diseases to preventing cancer and heart disease. Furthermore, as the chief investigators and problem solvers for unusual health events, epidemiologists are critical to our nation's emergency readiness. To be effective in achieving public health goals, it is essential that public health agencies recruit, develop, and maintain a highly functioning epidemiology workforce.

Unfortunately, recent assessments reveal that we are falling short in these efforts. A 2003 Association of State and Territorial Health Officials (ASTHO) survey² identified a significant shortage of epidemiologists in state health agencies, and a 2004 report from the Council of State and Territorial Epidemiologists (CSTE)³ revealed that only 52% of the epidemiology workforce received formal training in epidemiology. These findings provided the foundation for the agenda laid out in the first CSTE Workforce Summit in January 2004. As a result of this summit, CSTE, together with the Centers for Disease Control and Prevention, initiated the development of the Competencies for Applied Epidemiologists in Governmental Public Health Agencies (AECs), with the goal of improving the practice of epidemiology in public health agencies.⁴

VALUE AND USE OF AECS

The establishment of the AECs is a welcomed development for public health agencies. Now, for the first time, governmental public health epidemiologists

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have a defined discipline provided by the competencies framework, outlining the skills governmental epidemiologists should have to be effective in their profession, from entry-level to advanced epidemiologists. The competencies can be utilized on several fronts: by schools of public health to establish curricula, by individuals to guide career progression, and by agencies to guide recruiting and workforce/career development activities. Indeed, public health agencies have a responsibility to continue the process of training epidemiologists after they have completed formal training; it is not reasonable to expect schools of public health to fulfill all of the training tasks defined by the competencies.

Many states already utilize the Core Competencies for Public Health Professionals developed by the Council on Linkages Between Academia and Public Health Practice in 2001 in their workforce development activities.⁵ Because the core competencies provide the foundation for the epidemiology competencies, state health agencies can easily adapt these new competencies into training materials for epidemiologists.

Several other potential uses for the epidemiology competencies exist. The most obvious relates to the new certification process for students completing their Master of Public Health degree. The National Board of Public Health Examiners should consider these competencies as it integrates epidemiology principles into the certification exam. The competencies also can be used to augment various quality-improvement initiatives at the state and local health agency levels, such as individual performance-management processes, agency-wide quality-improvement activities (i.e., National and Local Public Health Performance Standards Programs), and could possibly play a role in the evolving national accreditation system of state and local health departments.

While the competencies are overall a very useful tool in strengthening the public health epidemiology workforce, we need to be careful to avoid unintended consequences. We should avoid using the competencies in a manner that would create barriers for those who would like to become epidemiologists or work in public health epidemiology positions. This is most likely to be an issue in states that do not have access to an adequate number of master's-level trained epidemiologists. Also, there must be significant collaboration between public health academia and practice to avoid unmet expecta-

tions and to assure that the competencies achieve their full potential. As mentioned previously, achieving the goal of an adequately trained epidemiologist is a collaborative effort among schools of public health and state and local agencies.

CONCLUSION

The practice of epidemiology has a long and proud history in the improvement of health in the U.S., from stemming outbreaks of cholera and yellow fever, to defining the risk factors and preventive measures for cancer, heart disease, and injuries. The AECs will help strengthen public health's role in keeping the nation healthy. This effect will be amplified as other disciplines develop competencies. State chronic disease managers, public health informants, and the Directors of Health Promotion and Education are all engaged in competency development for their workforce.

Furthermore, the contribution the competencies make will not only benefit the epidemiology workforce, but also the practice of public health as a whole, as the competencies provide guidance for management and leadership development—skills that epidemiologists will need to assume higher levels of responsibility in local and state public health agencies. Through these competencies, health agencies will be better equipped to recruit, train, and retain qualified workers and aid in quality-improvement efforts, leading to a stronger capacity to protect and improve the public's health.

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