

Guest Commentary

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It Takes More than Science

Introduction

Skilled environmental health professionals are defined by more than science-based technical competencies. Nontechnical competencies are equally important if a professional is truly going to be effective in delivering environmental health services. The pairing of the 10 essential public health services (U.S. Department of Health and Human Services, 1994) and the core competencies for environmental health practitioners (National Center for Environmental Health, Centers for Disease Control and Prevention [CDC] & American Public Health Association [APHA, 2001]) provides a framework for improved environmental health practice.

The Iowa Department of Public Health (IDPH) has applied this framework as a means of enhancing the capacity of Iowa's state and local departments of public health. IDPH has demonstrated the applicability of the framework for developing and administering local environmental health training programs and mini-grant programs and for the creation of model environmental health programs, workforce competency assessment tools, and interview methodologies. This article provides insight into the successes and findings that resulted from these efforts.

History

The relationship between the core functions of public health, the 10 essential public health services, and the core competencies for environmental health practitioners is not easy to define. All three are important to the field of environmental health, establishing a framework that provides consistency to the delivery of environmental health services as our responsibilities become more diverse and expand into areas not familiar to many practitioners in the environmental health field.

The Institute of Medicine (IOM) defined the core functions of public health in 1988 in response to findings that public health was "fragmented" and only effectively serving one-third of U.S. citizens (IOM, 1988). Assessment, policy development, and assurance of service became the most basic terms for explaining what public health does. Various interpretations of the core functions led to the development of the 10 essential public health services in 1994 by the Public Health Functions Steering Committee as part of the report *The Public Health Workforce: An Agenda for the 21st Century* (U.S. Department of Health and Human Services, 1994). The 10 essential public health services more clearly articulate the services that public health should provide.

While a large portion of the public health field in Iowa began to apply these concepts to practice, environmental health lagged behind. Initial reaction on the part of environmental health practitioners to the core functions and essential services was not overwhelmingly positive. Practitioners felt that this was just another government theory that would soon be replaced. Some even appeared to feel threatened that their duties were going to significantly change.

Iowa's Experience

The Iowa Department of Public Health (IDPH) works closely with local public health partners to clarify the role of environmental health in the provision of the 10 essential public health services. This partnership is important in helping the environmental health workforce become stronger advocates for the role that environmental health programs play in assuring the health of the public. To foster understanding of the environmental health role, a group of local practitioners were asked to pair environmental health activities with a corre-

sponding essential public health service. This exercise resulted in several model programs of environmental health service delivery. Models for onsite wastewater, water quality, food safety, public health nuisances, and other programs were developed to help practitioners consider the entire "system" that the core functions and 10 essential public health services establish.

The result of the model programs was a better understanding among practitioners of how the 10 essential public health services relate to environmental health. A better appreciation was gained for how a local program might apply the concepts and activities of the model programs to improve its environmental health services. To help convey the value of this framework, Iowa initiated a mini-grant program that required applicants to assess their environmental health program according to the core functions and the 10 essential public health services. The applicants were then asked to write a plan addressing weaknesses identified by the assessment. Over 40 examples are now available from which others can learn how local environmental health programs have improved their service delivery by using this framework. Many of the examples include training needs related to the 10 essential public health services and the core competencies of environmental health practice.

Identifying training needs for staff can be very difficult when the essential public health services at issue are services such as "monitor health status"; "mobilize community partnerships"; "develop policies and plans"; and "evaluate effectiveness, accessibility, and quality." Because the field of environmental health is based in the sciences, practitioners tend to seek science-based training. They often overlook the need to build competencies in other areas that would make them more effective in delivering environmental health

services. In May 2001, CDC's National Center for Environmental Health and APHA published the *Environmental Health Competency Project*. This project defined recommended core competencies for local environmental health practitioners. It looked beyond the science of environmental health and defined the nontechnical skills needed by an effective environmental health practitioner. The core competencies directly support a practitioner's ability to carry out the 10 essential public health services. In other words, if a practitioner is technically competent in the science of environmental health but unable to apply and communicate the science in a way that everyone will understand, the science is of limited value to the practitioner.

The *Environmental Health Competency Project* identified 14 core competencies for local environmental health practitioners grouped into three main functions: assessment, management, and communication. Assessment includes the competencies of information gathering, data analysis and interpretation, and evaluation. Management includes the competencies of problem solving; economic and political issues; organizational knowledge and behavior; project management; computer and information technology; reporting, documentation, and recordkeeping; and collaboration. Communication includes the competencies of educating, communicating, conflict resolution, and marketing.

The introduction of the core competencies to the workforce was more challenging than the introduction of the core functions and essential services. The notion of seeking training on topics such as conflict resolution, economic and political issues, or data analysis and interpretation was foreign to many in the environmental health workforce. Often, the response was along the lines of "I just need to know how to inspect a septic tank." It quickly became apparent when the core competencies were introduced that practitioners were defensive and resistant to the suggestion that there was room for personal improvement. IDPH took several approaches to addressing this concern. First, to link the concepts of the competencies and essential services, a matrix was created. Secondly, a set of sample interview questions was developed and offered to local public health departments hiring environmental health staff. Finally, IDPH developed a self-assessment for identification of personal strengths and weaknesses in the core-competency areas.

The matrix placed the essential public health services (and, for each essential service, the corresponding core function) on one axis and the core competencies on the other axis. IDPH looked at which essential public health service a core competency most closely corresponded to and delineated those relationships. This process created a clear picture of how the core competencies support the delivery of the 10 essential public health services. For example, conflict resolution competencies allow staff to deal effectively with challenges that arise from enforcement actions taken as part of the essential public health service "enforce laws and regulations...." Marketing competencies increase effectiveness in the promotion of health programs and services when practitioners are carrying out the essential public health service of "inform, educate, and empower people...." Project management competencies help staff develop clear project goals and activities to address the essential service of "develop policies and plans...." Numerous other examples exist of how the core competencies are a vital component of an effective workforce.

The sample interview questions are of particular benefit because Iowa has no minimum education or experience requirements for employment in the field of environmental health. Without qualification requirements, local public health administrators find identification and hiring of competent staff to be challenging. Administrators who have used the sample interview questions to assess skills in the areas of the core competencies are very pleased with the candidates they hired. When an applicant possesses skills consistent with the core competencies and a desire to learn the science of environmental health, the conditions exist for the creation of a competent professional practitioner. In Iowa, many of these applicants have proven to be some of the most progressive and successful practitioners.

A self-assessment tool was developed following the introduction of the core competencies to Iowa's environmental health workforce. This tool helps practitioners assess their competencies in assessment, management, and communication so that they can develop an education plan to strengthen their own skills. IDPH worked with the Upper Midwest Center for Public Health Preparedness and the University of Iowa College of Public Health to provide the assessment tool electronically through the learning management system. This arrangement allows practitioners to do

an initial assessment and to update their assessment once training is completed.

If anyone would like information about the self-assessment or any other product described in this article, please contact the authors.

Training Beyond Science

Ideally every position in environmental health would be filled by a graduate from an accredited environmental health program, or a bachelor's program in a related field, who has two to five years of experience. It would also be ideal if everyone in the field of environmental health possessed the highest level of skills related to the core competencies for local environmental health practitioners. But the ideal is simply not the reality.

It is widely understood that a strong science background is critical to environmental health practice. To this end, an infinite number of scientific-based training programs are available through venues like NEHA, its affiliates, and others. It is now time for practitioners and for academicians preparing our future workforce to incorporate and seek out training related to the core competencies. During NEHA affiliate conferences, sessions can be offered in risk communication, marketing strategies, conflict resolution, and other core competencies. The Iowa affiliate has offered this kind of session to great interest and success, with the result that the membership has requested more diversified training in the core competencies. Academic programs can include activities that introduce the core competencies to students. Assignments can be revised: Instead of just writing a scientific report on a particular issue, the student could be required to also write a press release for the general public or to develop a marketing plan to educate the public about why the issue is of particular public health concern.

The inclusion of the core competencies into academic programs and professional development opportunities adds a new and highly beneficial dimension to the profession of environmental health. Take the opportunities afforded to you and make sure that the core competencies become a key consideration in your professional development. 🌱

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