

# Public Health Worker Competencies for Emergency Response

Kristine Gebbie and Jacqueline Merrill

*Emergency preparedness is an expectation of public health organizations and an expectation of individual public health practitioners. Organizational performance standards for public health agencies have been developed during the last several years, providing a foundation for the development of competency statements to guide individual practice in public health program areas, like emergency response. This article provides results from a project that developed emergency preparedness and response competencies for individual public health workers. Documentation of the qualitative research methods used, which include competency validation with the practice community, can be applied to competency development in other areas of public health practice.*

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Key words: *competency, emergency preparedness, emergency response, practice standards, public health competencies, public health practice, workforce development*

## Introduction

As increasing attention is paid nationally to the potential for bioterrorism and emerging infectious diseases, as well as to urgent situations caused by natural forces such as hurricanes, tornadoes, floods, or earthquakes, public health organizations have joined other emergency responders in efforts to ensure that response is both timely and appropriate, whatever the event. From this perspective, emergency preparedness is both an expectation of public health organizations and an expectation of individual members of the public health workforce. The expected organizational performance standards in this area of practice have been drafted and continue to be refined.<sup>1</sup> The project reported here identified individual worker competencies necessary for an organization to meet these organizational performance standards. The competency statements thus are complementary to the performance standards, though many competencies are not specific to one organization or program.

Competencies may be defined in the following ways:

- a complex combination of knowledge, skills, and abilities demonstrated by organization members that are critical to the effective and efficient function of the organization<sup>2</sup>
- a combination of observable and measurable

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skill, knowledge, performance behavior, and personal attributes that contribute to enhanced employee performance and organizational success.<sup>3</sup>

### Competency in Public Health Practice

Although references to standards of practice in public health can be found in public health reports from at least 1923 onwards,<sup>4</sup> the concept of competency-based practice was adopted by public health primarily after the publication of the Institute of Medicine (IOM) 1988 report, *The Future of Public Health*,<sup>5</sup> which called for reassessment and retooling of public health education and training.

In 1997, the essential services of public health and corresponding generic professional competencies were defined by the Public Health Functions Project in its publication, *The Public Health Workforce: An Agenda for the 21st Century*.<sup>6</sup> These general competencies were further developed and recently finalized after a lengthy public review period by the Council on Linkages Between Academia and Public Health Practice.<sup>7</sup>

In 1998–99, the Public Health Practice Program Office (PHPPO) at the Centers for Disease Control and Prevention (CDC) developed state and local agency performance standards corresponding to the essential services of public health in collaboration with the public health practice community.<sup>8,9</sup> With general competencies and agency performance standards defined, the next step toward competency-based public health practice can be directed toward particular areas of public health practice. As general public health competencies are further clarified for categories of worker and levels of experience, there will be a continuing need to develop program specific and profession-specific competencies.

This project demonstrated a practical model for the development of individual competencies in any public health program area using emergency preparedness as an example. Work is currently under way in the practice community to refine general competencies for public health workers and to specify competencies in genomics, informatics, and public health law. The method described here is readily adaptable for use in these processes. The details of the research process and methodology used for this project are described fully elsewhere.<sup>10</sup>

### Methods

The project identified competencies needed to prepare local public health workers for response to public health emergencies in two stages:

1. identification of competencies most needed by state and local public health staff in order to be prepared to respond to any emergency situation, including bioterrorism, using a panel of experts in public health and emergency response
2. assessment of the identified competencies with local and state public health agency representatives, some with specific recent experience in bioterrorism response exercises and some with more general public health experience

### Competency identification

The first stage in competency identification used a Delphi survey method. The Delphi method is a qualitative research technique that uses a panel of experts who are surveyed on a subject in successive rounds of judgment and feedback to develop a consensus of opinion. It is typically employed in a topic area in which there is little previously documented knowledge.<sup>11,12</sup>

As a first step in the Delphi process, 42 statements of competency likely to be needed by an individual public health worker prepared to respond to a range of emergencies were generated. (Competencies needed for specific emergencies such as toxicology or hydrogeology were not included.) These statements were developed from competencies found in *The Public Health Workforce: An Agenda for the 21st Century*<sup>6</sup> and from state and local public health agency performance standards developed by the CDC PHPPO,<sup>8,9</sup> both of which are grounded in the essential services of public health.

A Delphi panel of 59 public health and emergency preparedness experts was recruited from federal, state, and local professionals identified in consultation with PHPPO, the Association of State and Territorial Health Officials (ASTHO), the National Association of County and City Health Officials (NACCHO), and through a literature search of recent publications on emergency response. Care was taken that panel composition reflected a range of expertise by both occupation and level of practice (Table 1).

**Table 1**

Delphi Panel Membership by Expertise: Strata of Public Health Practice\*

	PH Fed	PH State	PH Local	PH NGO	Not PH	Total
MD	5	4	6	0	3	18
RN	0	2	4	0	1	7
Admin	5	11	13	0	3	32
E&L	1	7	0	2	0	10
Environmental	0	4	3	0	0	7
ER	6	7	2	1	4	20
Communications	1	0	0	1	0	2
Academic	1	0	0	2	1	4
Bus/Trade	0	0	0	1	1	2
Clerical	0	3	0	0	0	3
	14	32	18	7	9	

\*Columns do not add to 59; individuals have more than one area of expertise.

The Delphi survey asked respondents to rate the importance of each emergency response competency statement on a Likert-type scale. For each statement, this rating scale was applied to the four major occupational categories of workers: (1) administrators, (2) professionals, (3) technicians, and (4) clerical/support staff, using definitions adapted from the U.S. Office of Personnel Management.<sup>13</sup> The Round I Delphi Survey had a response rate of 98 percent.

A Round II survey was developed that provided feedback from Round I to the panel. Round II panelists were asked to indicate by answering yes or no whether each competency should be selected for each category of public health worker. An 85 percent response rate to Round II was achieved. Competen-

cies receiving support from at least 75 percent of the participants were selected as those necessary for each occupational category of public health worker to respond to an emergency event. As a result, 43 out of 43 competencies were selected for administrative staff; 43 out of 43 were selected for professional staff; 28 out of 43 were selected for technical staff; and 7 out of 43 were selected for clerical support.

### Competency Assessment

The resulting four sets of identified competencies, one for each level of worker, then were explored in a series of six focus groups with representatives from federal, state, and local health departments (Table 2). Focus groups were used for this process to allow dis-

**Table 2**

Focus group participants by agency

	Local PH	State PH	ER agency (not PH)	Federal	Other
CDC	6	5		10	
New Hampshire		23	3		1
Denver	7	2	4		5

cussion among participants, thereby enriching observations and allowing the research team to probe for clarity when comments were brief or unclear.

Two focus groups were conducted at CDC/PHPPO with a mixture of federal, state, and local personnel. Four additional groups were held at two sites that recently participated in major bioterrorism preparedness drills: the New Hampshire Department of Health and Human Services and the Denver Department of Public Health and Environment.

Federal focus group participants were selected by PHPPO. State and local focus group sites were identified with the assistance of PHPPO and NACCHO. Participants in the focus groups were selected with the assistance of a state or local contact person identified by NACCHO. At the state and local sites, one focus group was composed of leaders/administrators and professional staff and a second focus group was composed of technical and support staff to ensure that the full spectrum of the workforce was represented in a setting that encouraged free exchange of opinions.

The participants in the focus groups were asked to consider the following questions:

1. Do staff of federal, state, and local health agencies generally agree that the identified competency statements are an appropriate statement of what staff should be able to do in the area of emergency preparedness?
2. To what degree can the existing staff of state and local public health agencies perform the identified competencies?
3. To the extent that staff cannot now meet the identified competencies, what should be the priority for staff development of training?

## Findings

The focus group feedback confirmed that the competencies identified through the Delphi process were an accurate reflection of what was needed in the practice setting for successful response to emergency situations. The participants suggested three major changes:

1. Employ straightforward language and format competencies that apply to all workers into a brief and user-friendly core set that will not overwhelm practitioners.

2. Condense the competencies that apply specifically to each of the four levels of workers into shorter subsets that can be used more readily, given that fewer workers need these additional competencies.
3. Increase emphasis in the public health leader/administrator set on competencies in communicating, coordinating, and planning for emergency response, both within and without the agency.

Based on this feedback, a core set of nine competencies applicable to all public health workers was extracted from the four competency sets identified by the Delphi panelists. Competencies beyond this basic set were merged and consolidated for each occupational category of public health worker, resulting in seven competencies in addition to the core set for the administrator/leader, three competencies in addition to the core set for the professional, and two competencies in addition to the core set for technical and support staff. An introduction was crafted to guide usage. The introduction reflects focus group feedback on the importance of each public health agency customizing the competencies to represent the unique role and responsibility that agency has for emergency preparedness and response within its jurisdiction. Also based on focus group feedback, short clarifying statements were added to some competencies. The resulting *Core Public Health Worker Competencies for Emergency Preparedness and Response* are found in the box titled, "Emergency Preparedness Competencies for All Public Health Workers."

Abbreviating the long list of competencies for use in the field was an essential step toward creating a product readily useable by the overall workforce. However, the process of condensing the material left out details found in the 43 competencies originally identified by the Delphi panel. To recapture this substantial detail, which would be needed to develop preparedness programs at the agency level, the original Delphi-identified competencies were mapped back into the core sets to create annotated competencies for each level of worker. That is, the content of each of the 43 original competency statements was listed under its corresponding core competency. The annotated competencies provide detailed statements to support the use of the competencies by public health educators and planners to develop educa-

***Abbreviating the long list of competencies for use in the field was an essential step toward creating a product readily useable by the overall workforce.***

tional programs on emergency preparedness and response for public health workers.

The finalized sets of core competencies and annotated competencies were validated via review by public health workers in a large urban health department. These workers included both administrative and professional leadership and staff. The core competencies were perceived as generally valid by these groups. A sample definition of the emergency response role of a typical health department was recommended and subsequently added.

The finalized sets of competencies also were mailed to all original participants of the Delphi panel. Although invited, no further comments were received from panel members. The competencies currently are being used by the Mailman School of Public Health Center for Public Health Preparedness to develop an emergency preparedness program for approximately 5,000 workers employed at the New York City Department of Health.

## **Workforce Competency**

All focus groups indicated that public health staff members at all levels at best are prepared unevenly to respond to emergencies. Key findings include:

- Public health work generally is considered to be regular hours/weekday work in contrast to the schedules of hospitals and other care facilities. Most workers are not prepared for round-the-clock response if it is not already routinely part of their job. Local union contracts need attention during response planning, as these contracts often do not address response-related labor issues specifically.
- Understanding both the public health agency's mission in emergency response and the individual's own role in response were consid-

ered key for competent response. This understanding was considered to be underdeveloped among public health workers.

- Public health leadership's role in establishing the public health agency as a collaborator with other emergency responders was considered underdeveloped. Likewise, more is needed from leaders in establishing internal agency awareness and preparedness for emergency response.
- Public health workers normally are not exposed to Incident Command System (ICS) protocols and terminology used by traditional responders like fire and police. This was felt to place public health workers at a disadvantage organizationally when called upon to partner with these agencies.
- Emergency response plans were perceived as not in place, not well developed, not available to all levels of staff, or not regularly reviewed and updated. The need for establishing a routine protocol for updating emergency contact information was stressed. Participants in all focus groups made the point that important practical knowledge regarding an agency's emergency response protocols might reside only in the head of an experienced administrator or other longstanding staff member.
- Public health workers' capability to operate the communication equipment that might be required in emergency response, from fundamental telephone call transfers to broadcast faxing, was considered unevenly developed.

## **Discussion**

This project has developed a valid, useful, and acceptable set of competencies in the emerging area of public health emergency preparedness through a process of:

- drafting potential competencies using literature and experts
- validating and expanding draft competencies using a Delphi panel of experts
- confirming and clarifying the identified competencies with a range of public health practitioners by means of focus groups

Other competency identification projects have used or are using methods similar to those used by

this project. The Council on Linkages Between Academia and Public Health Practice has used a process of e-mail, focus groups, conference presentations, and Web feedback to develop a consensus set of core competencies for general public health practice.<sup>7</sup> Emergency preparedness and response competencies complement these general public health competencies by providing the detail required for a specific area of public health practice.

The process of developing specific program or practice-specific competencies will continue. For example, genomic competencies<sup>14,15</sup> and competencies in public health law<sup>16</sup> are being developed through processes that resemble this one. In both cases, small groups of experts have proposed competency sets and a wider range of experienced practitioners are providing feedback. In all cases of competency development in emerging areas, final validation must wait until field implementation.

Key to the project's success was regular consultation with experts in emergency response and with public health practitioners. Development of draft statements for inclusion in the first Delphi round ensured that competency statements were consistent with the full range of essential public health services. The Delphi process allowed a wide range of expertise and opinion to be included at relatively low cost. Finally, the use of focus groups in the field ensured that the final product was both consistent with the expert Delphi panel's findings and presented in a form readily understood by and useful to busy public health practitioners.

Follow through on this project includes development of competency-based emergency preparedness curriculum for all levels of workers and all types of public health agencies. Education about specific possible emergencies, such as bioterrorism, is offered in the response community and continues to be developed for use by public health. Some of this work is being undertaken in seven academic Centers for Public Health Preparedness recently funded by CDC/PHPPPO. At the agency level, adjustment of job descriptions and agency orientation to include emergency preparedness will require attention. Public health will continue to respond to emergencies of all types. These competencies in emergency preparedness can be used to ensure that each individual worker is ready to participate when needed.

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## REFERENCES

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- Centers for Disease Control and Prevention. *Draft: Emergency preparedness model standards*. Atlanta: U.S. Department of Health and Human Services, 2000.
- Nelson, J.C., Essien, J.D.K., Latoff, J.S., and Wiesner, P.J. *Collaborative competence in the public health agency: Defining performance at the organizational and individual employee levels*. Paper presented at the PREVENTION 97 Conference: Research Linkages between Academia and Practice, Atlanta, Georgia, 1997.
- American Compensation Association. "The role of competencies in an integrated HR strategy." *American Compensation Association Journal* 5, 2 (1996): 6–21.
- U.S. Treasury Department/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*. No. 164 (1926).
- Institute of Medicine, Committee for the Study of the Future of Public Health. *The future of public health*. Washington, DC: National Academy Press, 1988.
- U.S. Department of Health and Human Services. *The public health workforce: An agenda for the 21st century*. Washington, DC: Government Printing Office, 1997.
- Council on Linkages Between Academia and Public Health Practice. *Core competencies for public health professionals* (2001) [www.trainingfinder.org/competencies](http://www.trainingfinder.org/competencies).
- Centers for Disease Control and Prevention. *Draft: National Public Health Performance Standards Program State Public Health System Performance Assessment Instrument-Version: State Tool September 1999*. Public Health Practice Program Office (1999) [www.phppo.cdc.gov/dphs/nphpsp/state\\_instrument.asp](http://www.phppo.cdc.gov/dphs/nphpsp/state_instrument.asp).
- Centers for Disease Control and Prevention. *Local public health performance assessment: Pilot instrument, March 1999* (1999) [www.phppo.cdc.gov/dphs/nphpsp/local\\_instrument.asp](http://www.phppo.cdc.gov/dphs/nphpsp/local_instrument.asp).
- Gebbie, K., Merrill, J., Hwang, I., Gupta, M., Btoush, R., and Wagner, M. Identifying individual competency in emerging areas of practice: An applied qualitative research approach. *Qualitative Health Research*. In press.
- Adler, M., and Ziglio, E. *Gazing into the oracle: The Delphi method and its application to social policy and public health*. Bristol, PA: Jessica Kingsley Publishers, 1996.
- Linstone, H., and Turoff, M. *The Delphi method: Techniques and applications*. Reading, MA: Addison-Wesley Publishing Company, 1975.
- U.S. Office of Personnel Management. *Federal civilian workforce statistics: Occupations of federal white-collar and blue-collar workers, As of September 30, 1997* (1999) [www.opm.gov/feddata](http://www.opm.gov/feddata).
- CDC Office of Genetics and Prevention. *Competencies for the public health workforce: Integrating genetics into public health practice* (2001) <http://www.cdc.gov/genetics/activi->

- ties/public.htm.
15. National Coalition for Health Professional Education in Genetics. *Core competencies in genetics essential for all health care professionals* (2000) <http://www.nchpeg.org/>.
  16. Center for Law and the Public's Health. *Core legal competencies for public health practitioners* (2001) <http://www.publichealthlaw.net/Training/TrainingPDFs/PHLCompetencies>.

## Emergency Preparedness Competencies for All Public Health Workers

### Introduction: Using Core Competencies

- I. Some core competencies in emergency preparedness are applicable to every public health worker; others are specific to those in administrative, professional, and technical or support positions. Core competencies can be used in:
  1. Updating/revising job descriptions:  
*Does each job description in public health include reference to emergency responsibilities and tasks?*
  2. As an outline for new employee orientation and employee training:  
*The specifics of the agency plan, the organizational chart, and the employees place in the jurisdictional plan are needed to make these competencies meaningful. The size of the jurisdiction and agency will dictate how general or specific an individual's job may be.*
  3. Self-assessment by public health employees:  
*Am I able to ...*

Training for and measurement of these core competencies in public health emergency preparedness requires tailoring them to the structure and function of the individual public health agency.

- II. The general role of public health in emergencies is an extension of the general mission of public health: *to promote physical and mental health and prevent disease, injury, and disability* (from *Public Health in America*).

Depending upon the type of emergency and the decisions about emergency response made within a given jurisdiction, the public health agency may be in the lead position, in a collaborative role, or in a secondary/supportive role. In order for the agency to fulfill its role, the public health agency staff must be competent to carry out their responsibilities.

Core competencies such as these cannot replace the specific description of any job in public health, nor the specific emergency plan for any public health organization. They can ensure, if mastered, that the individual public health worker will be able to perform his/her job and his/her functions in emergency circumstances.

### Competencies for All Public Health Workers

*In order for the public health system to meet performance standards in emergency preparedness all public health workers must be competent to:*

1. **Describe** the public health role in emergency response in a range of emergencies that might arise (e.g., *"This department provides surveillance, investigation, and public information in disease outbreaks and collaborates with other agencies in biological, environmental, and weather emergencies."*)
2. **Describe** the chain of command in emergency response
3. **Identify and locate** the agency emergency response plan (or the pertinent portion of the plan)
4. **Describe** his/her functional role(s) in emergency response and **demonstrate** his/her role(s) in regular drills
5. **Demonstrate** correct use of all communication equipment used for emergency communication (phone, fax, radio, etc.)
6. **Describe** communication role(s) in emergency response
  - within agency
  - media
  - general public
  - personal (family, neighbors)
7. **Identify** limits to own knowledge/skill/authority and **identify** key system resources for referring matters that exceed these limits
8. **Apply** creative problem solving and flexible thinking to unusual challenges within his/her functional responsibilities and **evaluate** effectiveness of all actions taken
9. **Recognize** deviations from the norm that might indicate an emergency and **describe** appropriate action (e.g., communicate clearly within the chain of command)

### Additional Competencies for Public Health Leaders/Administrators<sup>1</sup>

The following competencies will be combined with those of the Professional (see below) for leader/administrators who also have medical, nursing or other professional duties.

1. **Describe** the chain of command and management system (“incident command system” or similar protocol) for emergency response in the jurisdiction
2. **Communicate** public health information/roles/capacities/legal authority accurately to all emergency response partners, such as other public health agencies, other health agencies, and other government agencies during planning, drills, and actual emergencies (e.g., includes contributing to effective community-wide response through leadership, team building, negotiation, and conflict resolution)
3. **Maintain** regular communication with emergency response partners (includes maintaining a current directory of partners and identifying appropriate methods for contact in emergencies)
4. **Ensure** that the agency (or agency unit) has a written, updated plan for major categories of emergencies that respects the culture of the community
5. **Ensure** that the agency (or agency unit) regularly practices all parts of emergency response
6. **Evaluate** every emergency response drill/emergency response to identify needed internal/external improvements
7. **Ensure** that knowledge/skill gaps identified through emergency response planning, drills and evaluation are filled

### Additional Competencies for Public Health Professionals<sup>2</sup>

The following competencies will be combined with those of the Leader/Administrator (see above) for professionals who also have management duties.

1. **Demonstrate** readiness to apply professional skills to a range of emergency situations during regular drills (e.g., access, use, and interpretation of surveillance data; access to and use of lab resources; access to and use of science-based investigation protocols and risk assessment; selection and use of appropriate personal protective equipment)
2. **Maintain** regular communication with partner professionals in other agencies involved in emergency response (e.g., includes contributing to effective community wide response through leadership, team building, negotiation and conflict resolution)
3. **Participate** in continuing education to maintain up-to-date knowledge in areas relevant to emergency response (e.g., emerging infectious diseases, hazardous materials, diagnostic tests, etc.)

### Additional Competencies for Public Health Technical<sup>3</sup> & Support<sup>4</sup> Staff

1. **Demonstrate** the use of equipment (including personal protective equipment) and skills associated with his/her functional role in emergency response during regular drills
2. **Describe** at least one resource for back up/support in key areas of responsibility

<sup>1</sup>**Leader/administrative** occupations involve the exercise of analytical ability, judgment, discretion, personal responsibility, and the application of a substantial body of knowledge of principles, concepts, and practices applicable to one or more fields of administration or management. NB: Public health leaders/administrators *also may be public health professionals serving in a leadership/administrative capacity.*

<sup>2</sup>**Professional** occupations require knowledge in a field of science or learning characteristically acquired through education or training equivalent to a bachelor’s or higher degree with major study in or pertinent to the specialized field. The work of a professional occupation requires the exercise of discretion, judgment, and personal responsibility for the application of an organized body of knowledge that is studied constantly to make new discoveries and interpretations and to improve the data, materials, and methods.

<sup>3</sup>**Technical** occupations involve non-routine work and typically are associated with and supportive of a professional or administrative field. Such occupations involve extensive practical knowledge gained through on-the-job experience or training less than that represented by college graduation and involve substantial elements of the work of the professional or administrative field but requires less than full competence in the field involved.

<sup>4</sup>**Clerical/support** occupations involve structured work in support of office, business, or fiscal operations; duties are performed according to established policies or techniques and require training, experience, or working knowledge related to the tasks to be performed.

Adapted from the U.S. Office of Personnel Management.