

***Knowledge, Skills, and Attitudes  
(KSAs) for the Public Health  
Preparedness and Response  
Core Competency Model***

*Public Health*  
**Preparedness  
& Response**  
**CORE COMPETENCY Model**  
**KNOWLEDGE • SKILLS • ATTITUDES**

Centers for  
Disease Control  
and Prevention  
(CDC): Office of  
Public Health  
Preparedness  
and Response

Association of  
Schools of Public  
Health

September 2012

September 19, 2012

Dear Colleague,

Public health professionals traditionally have been trained to assess and address infectious disease outbreaks within their communities. With natural and or manmade disasters occurring more frequently across our nation, however, public health professionals are also facing new challenges that require competencies in public health preparedness and response.

The knowledge, skills, and attitudes (KSAs) to support competency-based training in public health preparedness and response that are described in this report have been defined and vetted by national work groups composed of content experts. The KSAs were selected to enable public health professionals, regardless of work setting, to identify areas of training needed in order to become proficient in the competencies required to address their areas of responsibilities.

The KSAs also provide a foundation for a national curriculum to develop core preparedness and response competencies required by public health professionals to address events within a community as well as a region of the nation. Frequently, workers from neighboring communities may need to be engaged in order to protect the health of our communities as we experienced in the NYC area following the 9/11 event or as experienced in Louisiana following Hurricanes Katrina and Isaac. As well, emergencies sometimes require an “all hands on deck” response within our public health organizations and, thus, we may need to draw from the energy and expertise of employees who may not typically fulfill public health functions.

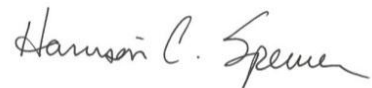
Knowing that agency colleagues in neighboring communities and staff in public health organizations have core competencies in public health preparedness and response required for team efforts is critical in addressing all-hazards events.



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# Knowledge, Skills, and Attitudes (KSAs) for the Public Health Preparedness and Response Core Competency Model

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## Executive Summary

The *Knowledge, Skills, and Attitudes (KSAs) for the Public Health Preparedness and Response Core Competency Model*, as outlined in this report, provide specific statements of observable and measurable behaviors necessary to master the competencies in the [Public Health Preparedness and Response \(PHPR\) Core Competency Model Version 1.0](#). The KSAs were developed and pilot-tested in an iterative process with representatives of the 14 Preparedness and Emergency Response Learning Centers (PERLC) funded by the Centers for Disease Control and Prevention (CDC). The resulting 172 KSAs are recommended for instructors, trainers, evaluators, learners, and other users to both improve and standardize preparedness training and curricula for public health with the ultimate aim of enhancing the public health workforce in protection of the nation's health. In addition, the report includes an overview of curriculum development steps to consider in using the KSAs to create or revise a training curriculum for competency-based education.

## Introduction

Based on the [Public Health Preparedness and Response \(PHPR\) Core Competency Model Version 1.0](#) (see description below in "Background"), the *Knowledge, Skills and Attitudes (KSAs) for the Public Health Preparedness and Response Core Competency Model* represents an important step forward in providing preparedness training for the mid-level public health worker. KSAs offer a means of operationalizing the competencies in the competency model, with learner knowledge described as "remembering" (cognitive abilities), skills described as "doing" (psycho-motor abilities), and attitudes described as "feeling" (affective abilities). KSAs combine to enable learners to demonstrate behaviors that will help assure effective and confident performance in real-world job situations.

The KSAs were drafted and piloted in 2011 and 2012 to enhance the consistency and quality of preparedness training developed for public health workers. They were developed by subject matter experts in preparedness and response from the 14 Preparedness and Emergency Response Learning Centers (PERLC) funded by the Centers for Disease Control and Prevention (CDC). The PERLC represent the current iteration of CDC's Centers for Public Health Preparedness (CPHP) program, the latter having been established in 2000 and closing in August 2010 (see "A Brief History and Overview of CDC's Centers for Public Health Preparedness Cooperative Agreement Program by Richmond, et al. at <http://www.publichealthreports.org/issueopen.cfm?articleID=2529>). Launched in September 2010, the PERLC provide competency-based education and training for state, tribal and local public health authorities. See the full issue of *Public Health Reports* on the CPHP at <http://www.publichealthreports.org/issuecontents.cfm?Volume=125&Issue=11>. Under the guidance and facilitation of ASPH and CDC, the PERLC collaborated as a national network to develop KSA statements during their first year of operation.

While the PERLC are expected to develop, implement and evaluate training based upon or supported by these KSAs, the ultimate goal is for these KSAs to be used by others for enhancing preparedness training and curricula designed for public health professionals. KSAs offer instructors, trainers, evaluators, learners, and other users guidance for achieving learning objectives in support of improving performance for protecting the nation's health.

## Background: The Core Competency Model

The federal 2006 [Pandemic and All-Hazards Preparedness Act](#) called for “a competency-based training program to train public health practitioners.” Between April 2009 and December 2010, ASPH and CDC developed a competency model to fulfill that mandate, releasing the [Public Health Preparedness and Response \(PHPR\) Core Competency Model Version 1.0](#) in December 2010. An article on the initiative is in the pre-publication stage as of the release of this report.

That model describes the core competencies that mid-level public health workers, regardless of their employment setting, are expected to demonstrate to assure performance readiness. The model defines a mid-level public health worker as an individual with:

- \* Five years experience with an MPH equivalent or higher degree in public health, or
- \* 10 years experience with a high school diploma, bachelors, or non-public health graduate degree.

Training based on the competencies focuses on learning outcomes, addressing what the learners are expected to *do*, rather than on what they are expected to *learn about*.

A transparent and participatory process was at the heart of designing the competency model. More than 400 individuals from federal, tribal, state, and local public health practice and from academic settings contributed to the process as volunteers in three rounds of electronic stakeholder input and in expert workgroups. A [16-member Leadership Group](#) worked with ASPH staff, CDC officials, and consultants to guide the project.

### **The Leadership Group stated that the competency model would:**

- Align with established capabilities (in particular, the Public Health Preparedness Capabilities)
- Utilize an all-hazards approach, spanning the prevent, protect, respond, and recover missions
- Propose a national standard for mid-level public health workers across all sectors and settings
- Be behaviorally-based, focusing on observable actions
- Reflect and build upon existing competency models
- Supplement existing core public health competency models
- Inform curricular planning for the workforce
- Be utilized by the CDC Preparedness and Emergency Response Learning Centers (PERLC)\* grantees in 2010
- Be available to other public and private entities.

*\* As noted earlier, the PERLC are the new iteration of the Centers for Public Health Preparedness*

The final model consists of four domains and 18 competencies as noted in Figure 1

**Figure 1: Public Health Preparedness and Response Core Competency Model Version 1.0**

Domains	Competencies
<b>1. Model Leadership</b>	<p><b>1.1</b> Solve problems under emergency conditions.</p> <p><b>1.2</b> Manage behaviors associated with emotional responses in self and others.</p> <p><b>1.3</b> Facilitate collaboration with internal and external emergency response partners.</p> <p><b>1.4</b> Maintain situational awareness.</p> <p><b>1.5</b> Demonstrate respect for all persons and cultures.</p> <p><b>1.6</b> Act within the scope of one's legal authority.</p>
<b>2. Communicate and Manage Information</b>	<p><b>2.1</b> Manage information related to an emergency.</p> <p><b>2.2</b> Use principles of crisis and risk communication.</p> <p><b>2.3</b> Report information potentially relevant to the identification and control of an emergency through the chain of command.</p> <p><b>2.4</b> Collect data according to protocol.</p> <p><b>2.5</b> Manage the recording and/or transcription of data according to protocol.</p>
<b>3. Plan for and Improve Practice</b>	<p><b>3.1</b> Contribute expertise to a community hazard vulnerability analysis (HVA).</p> <p><b>3.2</b> Contribute expertise to the development of emergency plans.</p> <p><b>3.3</b> Participate in improving the organization's capacities (including, but not limited to programs, plans, policies, laws, and workforce training).</p> <p><b>3.4</b> Refer matters outside of one's scope of legal authority through the chain of command.</p>
<b>4. Protect Worker Health and Safety</b>	<p><b>4.1</b> Maintain personal/family emergency preparedness plans.</p> <p><b>4.2</b> Employ protective behaviors according to changing conditions, personal limitations, and threats.</p> <p><b>4.3</b> Report unresolved threats to physical and mental health through the chain of command.</p>

### Developing the Knowledge, Skills & Attitudes (KSAs)

With the domains and competencies defined, the next step in operationalizing a training model was to define KSA statements for each of the 18 competencies. This task was referred to the newly-funded PERLC grantees. In January 2011, ASPH and CDC established an approach in which they formed workgroups among the members in the PERLC network. Seventeen workgroups were formed, one for each of the competencies in the model, less one workgroup for competency 3.4, "Refer matters outside of one's scope of legal authority through the chain of command." CDC's Public Health Law Program (PHLP) was undertaking a process that would fold competency 3.4 into its framework. The PHLP document, known as *Legal Preparedness for Public*

*Health Emergencies: A Model for Minimum Competencies for Mid-Tier Public Health Professionals*, will be available in late 2012.

**The workgroups began their task by defining the KSAs as follows:**

- *Knowledge* is a complex process of remembering, relating, or judging an idea or abstract phenomenon (cognitive abilities).
- *Skills* are the proficient manual, verbal or mental manipulation of data or things that allow for the execution of well-specified tasks (psycho-motor abilities).
- *Attitudes* represent a state of mind, feelings, or beliefs about a particular matter (affective abilities).

The workgroups compiled 332 draft KSA statements into a draft document that was completed by March 2011.

In the interim, ASPH and CDC formed a KSA Consultative Committee with representation from each PERLC to determine whether to: a) accept the statement as presented; b) accept it with modifications; or c) reject the statement. Staff at ASPH consolidated the responses into data analysis charts with tabulated percentages to determine which statements to include in the KSA document.

From June 2011 through June 2012, the draft KSAs were field tested by each PERLC in conjunction with their practice partners. The tool for the field study, consisting of a web-based self-reporting survey that collected quantitative and qualitative data, was used to determine the utility of the KSAs for new educational product development and/or revising previously developed training material.

This period also included review and comment by staff and members of the Leadership Group involved in leading the core competency initiative with an in-depth review by Dr. Kristine Gebbie, a core competency project subject matter expert.

The recommendations from the field study and subsequent analysis indicated that:

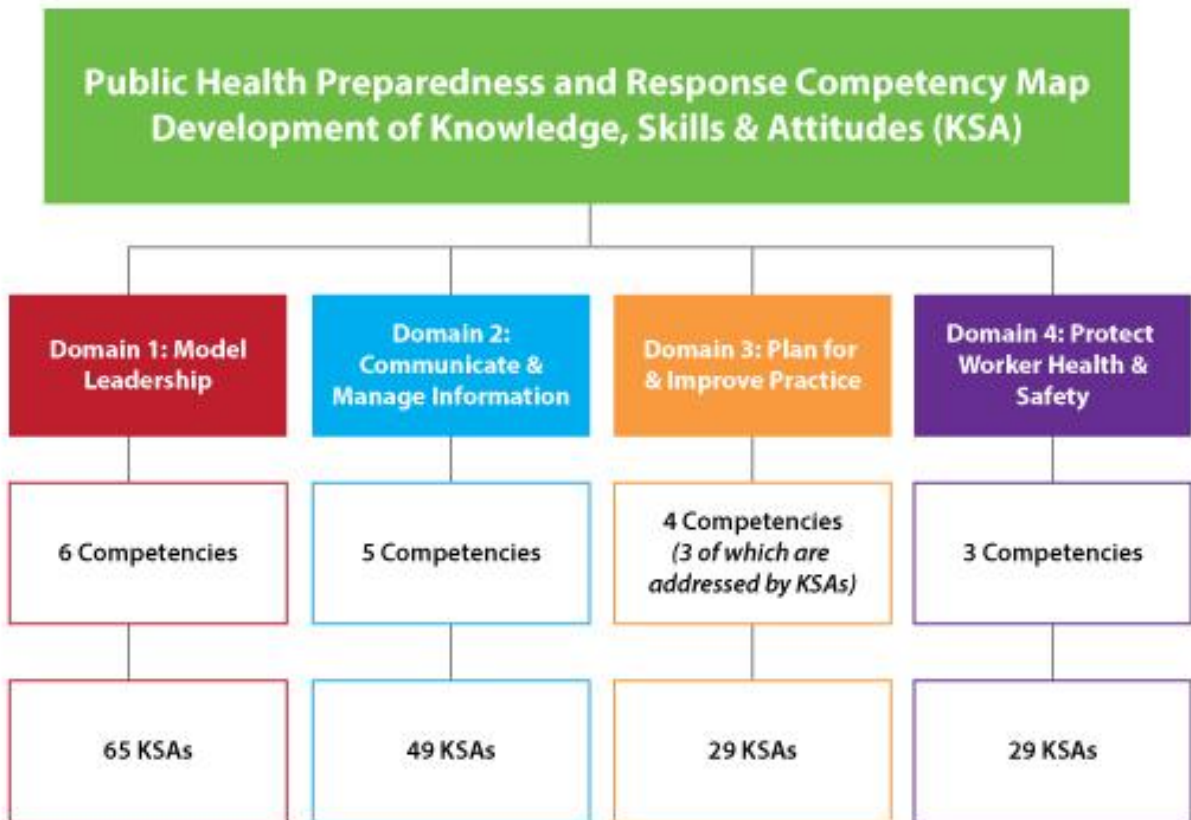
- a. The KSAs were most useful for new training development, as compared with their utility for revising existing preparedness course material.
- b. In situations where limited resources are available to develop new training, the KSAs can be used to assess gaps in current curriculum offerings and integrated accordingly, based on audience and organizational needs.
- c. Future emphasis should be placed on the creation and implementation of sub-competencies (aligned with the KSAs) for targeting discrete performance, rather than improving the KSAs themselves.
- d. KSAs and competencies were of limited use in consulting with practice partners about their needs. Partners indicated that they prefer to think about training and training products based on addressing capability gaps. Competencies specify individual requirements; capabilities address organizational requirements.
- e. Efforts to cross walk the competencies with the Public Health Preparedness Capabilities (see <http://www.cdc.gov/phpr/capabilities/>) were somewhat useful, however training specified for a

particular capability would need to be examined beyond the individual level and should be considered in the wider context of the institution/system.

- f. Since the competencies, and corresponding KSAs, are stated for mid-level workers, they should be adapted for use with entry-level and less-experienced staff.
- g. Further validation of the competency model and utility of the KSAs should continue as training products are implemented and evaluated in the field.
- h. ASPH and CDC might explore the feasibility of defining characteristics of a “national curriculum” for core preparedness and response training based on the competency model and KSAs.

As a result of the activities described here, ASPH created the *Knowledge, Skills, and Attitudes (KSAs) for Public Health Preparedness Core Competency Model*, in August 2012, which includes 172 KSA statements (See Figure 2). The four domains and 17 competencies addressed in this effort were unchanged from the original December 2010 competency document on which the KSAs are based.

**Figure 2: KSAs for Public Health Preparedness and Response Core Competencies**





## Knowledge, Skills, and Attitudes

### Figure 3: Domain 1—Model Leadership

**MODEL LEADERSHIP** refers to the responsibility of each mid-level worker to stand up and contribute in all phases of an emergency by demonstrating the following competencies:

<b>Competency 1.1 - Solve problems under emergency conditions.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Recognize emergency conditions and the resulting problems.	X		
2. Evaluate the level of hazard or risk.		X	
3. Prioritize problems based on level of hazard and degree of risk.		X	
4. Analyze dysfunctions within a public health emergency response system.		X	
5. Assure responsibility for responding when needed in the event of a public health emergency.			X
6. Summarize the means, methods, and processes for solving the problems.	X		
7. Prioritize problems based on severity, urgency, and solvability.		X	
8. Assess information, resources and procedures necessary to address the problems in emergency situations.		X	
9. Implement action to solve the problems(s) in a timely fashion.		X	
10. Differentiate among the consequences of specific decisions.		X	
11. Assume responsibility for taking specific actions that further organizational mission or population health in the presence of a public health emergency.			X
12. Explain how different personality types impact performance during emergency situations.	X		
13. Maintain awareness of one's own tolerance for risk.			X
14. Recognize the ethical and moral implications of decisions made through a chain of command.	X		
15. Refer problems that fall outside one's scope of authority to the appropriate person in the chain of command.		X	

<b>Competency 1.2 - Manage behaviors associated with emotional responses in self and others.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Distinguish among the possible signs of personal stress, burn-out, and vicarious trauma.	X		
2. Apply techniques for maintaining awareness of possible signs of personal stress, burn-out, and vicarious trauma.		X	
3. Apply intervention techniques to support emotional health needs.		X	
4. Describe the importance of mitigating acute distress and fostering adaptive functioning and coping.	X		
5. Demonstrate personal behavioral techniques for mitigating acute distress and fostering adaptive functioning and coping.		X	
6. Discuss the elements of self-care principles and practices.	X		
7. Use self-care principles and practices to mitigate potential adverse effects.		X	
8. Develop a willingness to support the emotional health of others.			X
9. Maintain willingness to be an active listener.			X
10. Maintain a non-judgmental and respectful manner.			X
11. Evaluate the emotional support needs of others.		X	
12. Assess individuals requiring immediate care.		X	
13. Distinguish among well-functioning, distress, and dysfunctional emotional responses.		X	
14. Describe referral resources for serving as a liaison and advocate.	X		
15. Distinguish among the types of referrals needed for intensive care.		X	
16. Act as a liaison and advocate.		X	

<b>Competency 1.3 - Facilitate collaboration with internal and external emergency response partners.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Compare the roles of relevant internal and external emergency response partners (including, but not limited to, agencies, organizations, authorities, elected leaders, and stakeholders).	X		
2. Develop partnerships among internal and external emergency response partners.		X	
3. Develop collaborative emergency response plans and/or policies with appropriate internal and external emergency response partners.		X	
4. Apply communication strategies to effectively communicate with internal and external response partners.		X	

5. Maintain agreements (e.g., Mutual Aid Agreements or MAAs, Emergency Management Assistance Compacts or EMACs, Memoranda of Understanding or MOUs) with external emergency response partners to secure and provide assistance and resources in all phases of emergency preparedness and response.		X	
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<b>Competency 1.4 - Maintain situational awareness.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Explain the importance of a shared mental model in the development of a coordinated response to an emergency.	X		
2. Analyze information regarding the status, attributes, and dynamics of relevant factors impacting response activities.	X		
3. Use information and resources that identify changes in the situation and/or response.		X	
4. Detect cues that the situation may be rapidly changing.		X	
5. Classify key resources used in problem solving for specific types of incidents and the immediate needs of victims.	X		
6. Recognize critical elements impacting situational awareness.	X		
7. Distinguish between critical and non-critical elements of the emergency.	X		
8. Create steps for evaluating the success of actions taken during an emergency situation.		X	
9. Develop a method for realigning response actions as crisis events evolve.		X	
10. Communicate methods for aligning response actions to leaders and one's team.		X	
11. Cooperate with others to resolve discrepancies or misperceptions regarding elements impacting situational awareness.		X	
12. Detect loss of situational awareness.		X	
13. Develop strategies to minimize distracters impacting situational awareness.		X	
14. Apply techniques that aid in recovery of situational awareness.		X	
15. Prioritize actions to recover situational awareness.	X		
16. Distinguish between existing and future needs in response environments.		X	
17. Demonstrate the ability to communicate oral and written information impacting situational awareness in a clear, concise, and accurate manner.		X	

<b>Competency 1.5 - Demonstrate respect for all persons and cultures.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Demonstrate the ability to incorporate factors of diversity in all phases of emergency preparedness and response.		X	
2. Apply principles of cross-cultural communication, equity, social justice, and respect for persons.		X	
3. Develop partnerships with key stakeholders from diverse populations.		X	
4. Describe cultural differences that might impact all phases of emergency preparedness.	X		
5. Develop cross-cultural strategies to address emergency situations and disseminate information.		X	
6. Assess the needs of vulnerable populations into all levels of emergency preparedness and response.		X	
7. Recognize the benefits of diverse perspectives within the public health workforce.			X

<b>Competency 1.6 - Act within the scope of one's legal authority.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Identify the legal powers, duties, and restraints associated with the scope of one's legal authority.	X		
2. Apply appropriate public health authority to minimize adverse outcomes (e.g., persons, property, etc.).		X	
3. Access the emergency preparedness and response policies and procedures of one's own organization.		X	
4. Respond legally and consistently within the values and mission of one's public health organization.		X	
5. Document appropriate information relative to the application of the law.		X	

## Figure 4: Domain 2—Communicate and Manage Information

**COMMUNICATE AND MANAGE INFORMATION** refers to the mid-level workers’ need to communicate before, during, and after an emergency, and includes the following competencies:

<b>Competency 2.1 - Manage information related to an emergency.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Interpret procedures in emergency operations plan related to information management.	X		
2. Distinguish the roles of staff involved in collecting and disseminating information for audiences (e.g., self, coordinator, Public Information Officer or PIO, technology/IT departments).	X		
3. Compare the different types of routine and urgent information management.	X		
4. Verify the credibility of information sources.	X		
5. Classify information for internal and external audiences.	X		
6. Demonstrate composure when managing information.			X

<b>Competency 2.2 - Use principles of crisis and risk communication.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Differentiate among the responsibilities of a receiver, transmitter, and translator during events (before, during, and after).	X		
2. Employ communication responsibilities for an event (before, during, and after).		X	
3. Differentiate between crisis communication and emergency risk communication.	X		
4. Deliver messages using the guidelines for crisis and risk communication.	X		
5. Classify the general tenets in crisis and emergency risk communication principles.	X		
6. Maintain empathy when communicating during a crisis.			X
7. Utilize credible sources in relaying risk messages.		X	
8. Value cultural sensitivity as essential to communicating with diverse populations.			X
9. Summarize CDC-recommended guidelines on crisis and risk communication regarding the development and delivery of messages.	X		
10. Use consistent names, acronyms, and pronunciation in oral and written communications.		X	
11. Encourage inclusion of diverse populations in planning messages.		X	
12. Differentiate between the mental and emotional factors that might create barriers to communication (e.g., reception and interpretation).	X		

13. Distinguish among the needs of the diverse audiences within the community.	X		
14. Identify subject matter experts within the community who can help with delivering messages.	X		
15. Maintain diverse community partners to assist with communicating preparedness planning and population-specific messages.		X	
16. Participate in multi-agency coordination activities to identify pre-event and event Crisis and Emergency Risk Communication (CERC) materials, related to one's subject matter expertise.		X	

<b>Competency 2.3 - Report information potentially relevant to the identification and control of an emergency through the chain of command.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Interpret the learner's role in emergency identification and control as outlined in relevant Emergency All-Hazards Plans.	X		
2. Communicate within the organization's defined command structure (i.e. report up, communicate down).		X	
3. Assess relevant emergency situational information coming into the agency.		X	
4. Alert appropriate staff to unusual events based on identified trigger points and/or thresholds as outlined in the Communications Annex.		X	
5. Communicate relevant information to personnel in a timely fashion.		X	
6. Clarify the roles of team members in an Incident Command Structure.		X	

<b>Competency 2.4 - Collect data according to protocol.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Use standardized protocol to collect data.		X	
2. Identify key local sources of data.	X		
3. Identify the barriers to communicating when interviewing diverse populations.	X		
4. Value the confidentiality of interviewee information.			X
5. Distinguish among strategies for properly documenting the data collection process.		X	
6. Differentiate between primary and secondary data.		X	
7. Organize data accurately into database or statistical packages.		X	
8. Distinguish among different types of electronic information sources.		X	
9. Utilize primary and secondary data collection methods to inform preparedness and emergency responses scenarios.		X	

10. Point out the importance of threats to validity including various forms of bias.	X		
11. Appreciate how strongly held personal beliefs and convictions might impact the validity and acceptance of data collected.			X

<b>Competency 2.5 - Manage the recording and/or transcription of data according to protocol.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Adhere to relevant ethics guidelines, state, and federal laws regarding data collection, management, and dissemination.			X
2. Compare agency procedures for handling Freedom of Information Act requests.	X		
3. Secure and stabilize data storage.		X	
4. Interpret the responsibilities and expectations of data entry personnel.	X		
5. Apply data entry quality control procedures that ensure accuracy and reliability.		X	
6. Categorize common data and management issues.	X		
7. Prepare a list of cases of affected individuals (e.g., disease, emergency care, disaster victims and fatalities) with specified variables (line listing).		X	
8. Analyze public health threat data.		X	
9. Explain the importance of data for informing scientific, ethical, economic, and political discussions of public health response issues.	X		
10. Use descriptive techniques to summarize public health data.		X	

### Figure 5: Domain 3—Plan for and Improve Practice

**PLAN FOR AND IMPROVE PRACTICE** refers to mid-level workers' contribution of subject matter and program expertise to prepare for, and increase, responder effectiveness in emergency situations, and includes the following competencies:

<b>Competency 3.1 - Contribute expertise to a community hazard vulnerability analysis (HVA).</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Differentiate the major components of a hazard vulnerability analysis.		X	
2. Interpret the relevance of subject matter expertise in HVA development process.	X		
3. Distinguish an agency's role in addressing the public health consequences from HVA events.		X	
4. Use subject matter expertise in the development of the HVA assessment tool.		X	
5. Justify the importance of using data and information contributed to HVA development.			X
6. Compare the role of subject matter expertise to HVA external partners and community needs.		X	
7. Assess the impact of HVA on an agency's operational functions.		X	
8. Value expertise of others in developing an HVA.			X
8. Volunteer in a community HVA development process.		X	
9. Endorse the use of HVAs as an important tool for community preparedness.			X

<b>Competency 3.2 - Contribute expertise to the development of emergency plans.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Differentiate among the stages of an emergency plan.		X	
2. Categorize local populations at risk for broad-scale health emergencies.		X	
3. Summarize the roles and responsibilities of public health mid-level workers during an emergency and in the Incident Command System (ICS).	X		
4. Justify the role of HVAs and Continuity of Operations Plans (COOP) in emergency planning.			X
5. Express the importance of routine review of emergency plans.			X
6. Select methods for evaluating and improving preparedness and/or response related to one's area of expertise.		X	
7. Discuss the importance of planning for the psychological needs of a community during a disaster.	X		



8. Recognize the value in having an incident command structure during an emergency situation.			X
9. Value creating preparedness partnerships within community organizations.			X
10. Justify the rationale for using a team approach in emergency planning.	X		
11. Assess the relationship of exercises to emergency planning.		X	

<b>Competency 3.3 - Participate in improving the organization's capacities (including, but not limited to programs, plans, policies, laws and workforce training).</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Differentiate among public health emergency response legislation, regulations, and organizational policies.		X	
2. Describe the key role of public health workers in an emergency response.	X		
3. Adapt skill sets to meet organizational needs during an emergency response situation.		X	
4. Apply knowledge and skills gained through participation in emergency preparedness and response activities to improve organizational capacities.		X	
5. Apply organizational policies and plans during an emergency response.		X	
6. Prioritize critical emergency preparedness responsibilities in one's own program.		X	
7. Apply mitigation strategies to one's own organization during an emergency response.		X	
8. Implement recommendations identified in After Action Reviews.		X	
9. Communicate the need for and importance of a coordinated public health and other agency response to emergencies and disasters.		X	

<b>Competency 3.4 - Refer matters outside of one's scope of legal authority through the chain of command.</b>	<b>N/A, referred to CDC's Public Health Law Program (PHLP)</b>
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## Figure 6: Domain 4—Protect Worker Health and Safety

**PROTECT WORKER HEALTH AND SAFETY** refers to the need for individual workers and workers deployed in teams to prepare for, respond to, and recover from emergencies through the following competencies:

<b>Competency 4.1 - Maintain personal/family emergency preparedness plans.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Describe essential elements of a personal/family emergency preparedness plan.	X		
2. Create a standard household inventory list to maintain personal/ one's family's ability to function during an emergency.		X	
3. Assess one's family's special needs during an emergency.		X	
4. Create a family emergency plan to include resources, supplies, and contacts.		X	
5. Create a checklist of basic family needs, special needs, and life-saving medications or assistive devices for household members with sensory and/or functional/ developmental disabilities.		X	
6. Categorize the known or potential emergencies.		X	
7. Assemble in-house family emergency supplies and go-kit.		X	

<b>Competency 4.2 - Employ protective behaviors according to changing conditions, personal limitations, and threats.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Discuss the need to protect worker health and safety in emergencies and disasters.	X		
2. Categorize potential threats and emergencies.		X	
3. Promote taking protective actions in response to current and changing threats.		X	
4. Describe the relationship among protective measures, behaviors, and reduction of worker risk of injury or illness.	X		
5. Describe the hierarchy of control measures.	X		
6. Describe how the selection of control measures may evolve as conditions change.	X		
7. Summarize organizational roles and responsibilities related to worker health and safety.	X		
8. Discuss public health worker's roles and responsibilities in designing, implementing and evaluating engineering, administrative, work practice and Personal Protective Equipment (PPE) control measures.	X		
9. Organize a system for reporting injuries, illnesses, and potential emergency harmful exposures to protect workers.		X	

10. Apply decontamination procedures as necessary during the emergency or disaster response		X	
11. Employ practices to minimize exposures to agents and hazards during an emergency.		X	
12. Construct a plan for monitoring personal physical and psychological responses to emergency situations.		X	
13. Exhibit personal hygiene practices that minimize exposure to chemical, biological, or radiological agents that may be present during emergencies and disasters.		X	
14. Demonstrate proper use and maintenance of assigned Personal Protective Equipment (PPE) in an emergency.		X	
15. Demonstrate correct donning of chemical protective clothing, respiratory protection, protective eyewear, protective footwear, hearing protection, gloves, and any other assigned Personal Protective Equipment (PPE).		X	
16. Apply the proper methods to maintain, store, decontaminate and dispose of different types of Personal Protective Equipment (PPE).		X	

<b>Competency 4.3 - Report unresolved threats to physical and mental health through the chain of command.</b>	<b>K</b>	<b>S</b>	<b>A</b>
1. Discuss the types of physical hazards and resulting injuries one might encounter while performing one's role during emergency planning and response.	X		
2. Distinguish between potential threats to physical and mental well-being in the response environment.		X	
3. Recognize the signs and symptoms of fatigue, mental distress and unresolved physical injury.	X		
4. Identify how and to whom one should report unresolved physical and mental health threats.	X		
5. Recognize the importance of reporting unresolved physical and/or mental health threats.			X

## Curriculum Development

Planning and process steps to consider in developing or adapting a training curriculum for competency-based education follow.

### **Step 1: Conduct a Needs Assessment**

A needs assessment should be conducted to establish the organization's purpose in undertaking training (e.g., to teach new concepts or improve current performance). Needs assessments help determine:

- Target audience
- Learning and/or performance gaps
- Overall goals
- Desired KSAs
- Resources needed to reach learning outcomes
- Concepts and principles to be addressed in discrete learning objectives
- Instructional strategies and learning activities
- Selection and timing of assessment methods

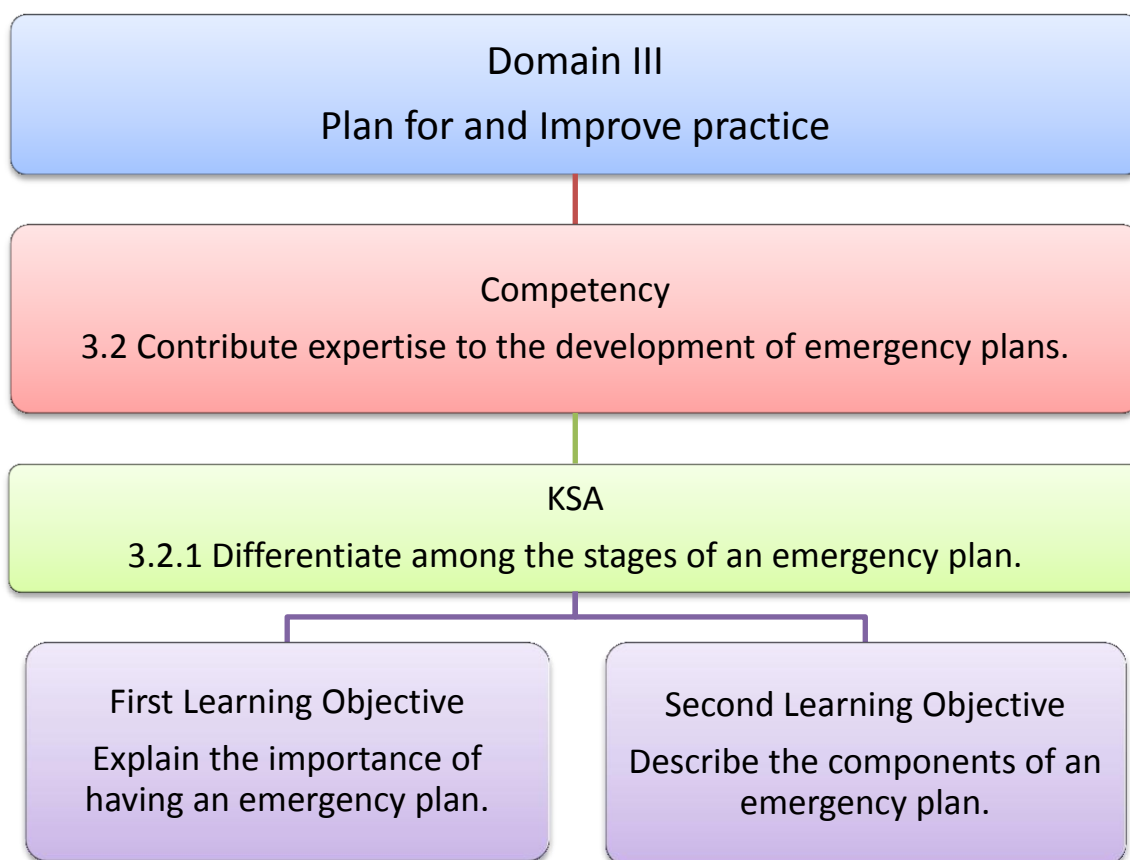
### **Step 2: Align Domains, Competencies, KSAs, and Learning Objectives**

Aligning domains, competencies, KSAs and learning objectives is critical to developing the curriculum. Alignment helps to ensure that learning outcomes are realized and also helps in selecting appropriate instructional and evaluation methods.

A **domain** is a grouping of competencies in a set by subject area; the set often crosses learning taxonomies. A **competency** is the ability to perform a defined real-world task in a specific context. A **sub-competency** is a discrete action or behavior that is demonstrated in a particular "parent" or "top-level" competency. **KSAs** are more specific statements of observable and measurable behaviors necessary to mastering each competency; they suggest how students' knowledge, skills, and attitudes will be different because of the learning experience. **Learning objectives** are educational building blocks that instructors use to lead learners to the desired knowledge, skills or attitude necessary to achieve an educational outcome.

The following flow chart illustrates how the alignment of a domain, a competency, a KSA and two learning objectives is achieved.

**Figure 7: Aligning Learning Objectives with a Skill to Demonstrate Competency**



To contribute expertise, the learner has to be able to differentiate among the stages of an emergency plan. Two building blocks towards achieving that skill are to explain its importance and describe its components.

### **Step 3: Select Instructional Strategies**

The selection of competencies, KSAs, and learning objectives will dictate the appropriate instructional strategy, which can include lectures, discussion, exercises, cases studies and more. ASPH has developed a [Learning Taxonomy Levels for Developing Competencies and Learning Outcomes Reference Guide](#) to offer help in selecting action verbs, instructional strategies, and evaluation methods based on the learning taxonomy levels for the cognitive and affective domains.

### **Step 4: Create Learning Activities and Resources**

Once the instructional strategies are selected, learning activities and resources can be developed. The [CDC Emergency Preparedness and Response](#) website (<http://emergency.cdc.gov/>), [CDC Learning Connection](#) (<http://www.cdc.gov/learning/>), the Public Health Foundation's [TRAIN](#) (<https://www.train.org>), and the

Federal Emergency Management Agency website (<http://www.fema.gov/>) help learners locating resources to support preparedness and emergency response trainings. In addition, each PERLC has a website, found at <http://www.cdc.gov/phpr/perlc.htm> that describes its offerings.

Curriculum developers are encouraged to become familiar with Public Health Preparedness Capabilities since these are important areas where training and skill development are needed at state, tribal and local levels.

### **Step 5: Select Assessment Methods**

Selecting the appropriate assessment method is essential in determining whether an outcome is met. Possible assessment methods include:

- Actual performance
- After action reports
- Blogs
- Case studies
- Critiques, reports
- Debates
- Essays
- Exercises, drills
- Interviews
- Portfolios
- Pre/post tests
- Presentations
- Reflection papers
- Self-evaluations
- Self-reports
- Simulation performances
- Standardized assessments
- Theses

### **Step 6: Evaluate Curriculum Development Process and Tools Used**

After testing the training, making adjustments, and implementing the course/curriculum, gauging whether the curriculum met the educational objectives in improving the learner’s knowledge, skills, and/or attitudes is valuable for informing subsequent instruction. Lessons learned from the strategies and tools used in the training can be mined for improving the training for similar or different sets of learners.

### **Acknowledgements**

Special thanks go to the workgroup members from the PERLC, as listed in Appendix A, and the KSA Consultative Committee, indicated in Appendix B, as well as the project staff from ASPH and CDC/OPHPR Learning Office. ASPH would also like to recognize Dr. Kristine Gebbie for appraising the draft KSAs and submitting feedback and Dr. Audrey Gotsch for providing valuable review and comments on the final draft of the report.

## Appendix A: Workgroup Members by Competency

<b>Domain 1: MODEL LEADERSHIP</b>		
<b>1.1</b>	Solve problems under emergency conditions.	<b>Columbia</b> (David Abramson); <b>Oklahoma</b> (Aaron Wendelboe, Vicki Tallchief)
<b>1.2</b>	Manage behaviors associated with emotional responses in self and others.	<b>Johns Hopkins</b> (George Everyly, Lee McCabe, Jonathan Links, Marum); <b>Iowa</b> (Norhashidah Abd Hamid); <b>Oklahoma</b> (Aaron Wendelboe, Tallchief); <b>South Florida</b> (Lisa Brown, Nadine Mescia)
<b>1.3</b>	Manage behaviors associated with emotional responses in self and others.	<b>UAB</b> (Lisa McCormick, Lisle Hites); <b>UIC</b> (Louis Rowitz); <b>South Florida</b> (Nadine Mescia, Lisa Brown); <b>SUNY Albany/UMDNJ</b> (Mark Waldenmaier, Concetta Polonsky); <b>Texas A&amp;M</b> (Jill Artzberger, Kay Carpender, Lori Graham)
<b>1.4</b>	Maintain situational awareness.	<b>Minnesota</b> (Mary Hoepfner)
<b>1.5</b>	Demonstrate respect for all persons and cultures.	<b>Arizona</b> (Agnes Attakai); <b>Harvard</b> (Linda Marc, Sarah Short); <b>Iowa</b> (Dena Fife); <b>South Florida</b> (Nadine Mescia, Lisa Brown); <b>Washington</b> (LuAnn D’Ambrosio); <b>Texas A&amp;M</b> (Jill Artzberger, Kay Carpender, Lori Graham)
<b>1.6</b>	Act within the scope of one's legal authority.	<b>Washington</b> (Susan Allan); <b>Arizona</b> (Brenda Granillo); <b>Johns Hopkins</b> (Lainie Rutkow)

<b>Domain 2: COMMUNICATE AND MANAGE INFORMATION</b>		
<b>2.1</b>	Manage information related to an emergency.	<b>UIC</b> (Geri Aglipay); <b>Johns Hopkins</b> (Paul Biddinger); <b>Oklahoma</b> (Boatright, Elledge); <b>Washington</b> (Schulman); <b>Harvard</b> (Stoto)
<b>2.2</b>	Use principles of crisis and risk communication.	<b>SUNY Albany</b> ( Mark Waldenmaier,George DiFerdinando); <b>Arizona</b> (Agnes Attakai); <b>Columbia</b> (Karen Levin); <b>UIC</b> (Geri Aglipay); <b>Johns Hopkins</b> ( Ben Lozare); <b>Oklahoma</b> (Brenda Elledge)
<b>2.3</b>	Report information potentially relevant to the identification and control of an emergency through the chain of command.	<b>Arizona</b> (Brenda Granillo); <b>SUNY Albany/UMDNJ</b> (Edward Waltz, Rebecca Baron)
<b>2.4</b>	Collect data according to protocol.	<b>UNC</b> (Amy Sloane, Lorraine Alexander); <b>Harvard</b> (Marcia Testa, Elena Savoia)
<b>2.5</b>	Manage the recording and/or transcription of data according to protocol.	<b>UNC</b> (Amy Sloane, Lorraine Alexander); <b>Harvard</b> (Marcia Testa, Elena Savoia)

<b>Domain 3: PLAN FOR AND IMPROVE PRACTICE</b>		
<b>3.1</b>	Contribute expertise to a community hazard vulnerability analysis (HVA).	<b>UIC</b> (Geri Aglipay, Guddi Kapadia, Barney Turnock);
<b>3.2</b>	Contribute expertise to the development of emergency plans.	<b>UAB</b> (Lisle Hites, Andrew Rucks, W. Jack Duncan); <b>Iowa</b> (Laurie Walkner); <b>Johns Hopkins</b> (Jonathan Links, Ed Hsu, Lee McCabe); <b>Washington</b> (Carl Osaki)
<b>3.3</b>	Participate in improving the organization's capacities (including, but not limited to programs, plans, policies, laws, and workforce training).	<b>UAB</b> (Lisle Hites, Peter Ginter, W. Jack Duncan); <b>Johns Hopkins</b> (Jonathan Links, Agnes Agnew); <b>SUNY Albany</b> (Kristin Murphy); <b>Texas A&amp;M</b> (Jill Artzberger, Carpenter, Lori Graham)
<b>3.4</b>	Refer matters outside of one's scope of legal authority through the chain of command.	<i>URL pending from CDC's Public Health Law Program (PHLP)</i>

<b>Domain 4: PROTECT WORKER HEALTH AND SAFETY</b>		
<b>4.1</b>	Maintain personal/family emergency preparedness plans.	<b>Columbia</b> (Karen Levin); <b>UIC</b> (Geri Aglipay); <b>Iowa</b> (Laurie Walkner); <b>Johns Hopkins</b> (Sara Hill)
<b>4.2</b>	Employ protective behaviors according to changing conditions, personal limitations, and threats.	<b>Minnesota</b> (Peter Raynor, Lisa Pogoff, Susan Larson)
<b>4.3</b>	Report unresolved threats to physical and mental health through the chain of command.	<b>UAB</b> (Lisle Hites, Will Bruer, McCormick)



## Appendix B: KSA Consultative Committee Members

Columbia University Mailman School of Public Health	Karen L. Levin	Director, Columbia Regional Learning Center
Harvard School of Public Health	Marcia A. Testa	Director/PI, Harvard School of Public Health PERLC
Johns Hopkins Bloomberg School of Public Health	Sara Hill	Lead Instructional Designer
Texas A&M Health Science Center School of Rural Public Health	Lori Graham	Instructional Designer
University of Alabama at Birmingham School of Public Health	Lisle Hites	Lead Evaluator
University at Albany SUNY School of Public Health	George T. DiFerdinando	Director
University of Arizona Mel and Enid Zuckerman College of Public Health	Ralph Renger	CO-PI and Director of Evaluation
University of Illinois at Chicago School of Public Health	Geri Aglipay	Projects Specialist
University of Iowa College of Public Health	Nor Hashidah Abd-Hamid	Lead Instructional Designer
University of Minnesota School of Public Health	Lisa Pogoff	Continuing Education Specialist
University of North Carolina at Chapel Hill Gillings School of Public Health	Lorraine Alexander	UNC Epidemiology Faculty and Distance Learning Coordinator
University of Oklahoma College of Public Health	Brenda L. Elledge	Director
University of South Florida College of Public Health	Nadine Mescia	Instructional Designer
University of Washington School of Public Health	Jack Thompson	NWCPHP Faculty, Principal Lecturer
	LuAnn D'Ambrosio	Associate Director
University of North Carolina at Chapel Hill Gillings School of Public Health	Allison George	Research Associate, PERLC
University of Washington School of Public Health	Tara Melinkovich	Outreach and Training Design Manager
ASPH	Monica Minor-Exum	Curriculum & Instruction Specialist

CDC	Joan Cioffi	Associate Director, Learning Office and PERLC Program Official, Learning Office, Office of Public Health Preparedness and Response
CDC	Gabrielle O'Meara	Public Health Advisor, Learning Office, Office of Public Health Preparedness and Response

## Appendix C: Glossary of Terms

**Attitude:** a state of mind, feelings, or beliefs about a particular matter (affective abilities).

**Competency:** the ability to perform a defined real-world task in a specific context.

**Competency-based education:** teaching that focuses on the outcomes of learning and addresses what the learners are expected to *do* rather than on what they are expected to *learn about*.

**Domain:** a grouping of competencies into a set by subject area; the set often crosses learning taxonomies.

**Knowledge:** the complex process of remembering, relating, or judging an idea or abstract phenomenon; mental operations (cognitive abilities).

**KSAs (Knowledge, Skills, and Attitudes):** specific statements of observable and measurable behaviors necessary to mastering each competency; they suggest how students' knowledge, skills, and attitudes will be different because of the learning experience.

**Learning objectives:** educational building blocks that instructors use to lead learners to the desired knowledge, skills or attitude necessary to achieve an educational outcome.

**Skill:** the proficient manual, verbal or mental manipulation of data or things that allows for the execution of well-specified tasks (psycho-motor abilities).

**Sub-competency:** a discrete action or behavior that is demonstrated in a particular "parent" or "top-level" competency.

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## Appendix D: References by Competency

### Domain 1: MODEL LEADERSHIP

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#### 1.2 Manage behaviors associated with emotional responses in self and others.

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N/A

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#### **1.6 Act within the scope of one's legal authority.**

N/A

### **Domain 2: COMMUNICATE AND MANAGE INFORMATION**

#### **2.1 Manage information related to an emergency.**

N/A

#### **2.2 Use principles of crisis and risk communication.**

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#### **2.3 Report information potentially relevant to the identification and control of an emergency through the chain of command.**

N/A

## 2.4 Collect data according to protocol.

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## **Domain 3: PLAN FOR AND IMPROVE PRACTICE**

### **3.1 Contribute expertise to a community hazard vulnerability analysis (HVA).**

N/A

### **3.2 Contribute expertise to the development of emergency plans.**

N/A

### **3.3 Participate in improving the organization's capacities (including, but not limited to programs, plans,**

<p><b>policies, laws, and workforce training).</b></p> <p>N/A</p>
<p><b>3.4 Refer matters outside of one's scope of legal authority through the chain of command.</b></p> <p>N/A</p>
<p><b>Domain 4: PROTECT WORKER HEALTH AND SAFETY</b></p>
<p><b>4.1 Maintain personal/family emergency preparedness plans.</b></p> <p>N/A</p>
<p><b>4.2 Employ protective behaviors according to changing conditions, personal limitations, and threats.</b></p> <ul style="list-style-type: none"> <li>• Protecting Emergency Responders <a href="http://www.cdc.gov/niosh/npptl/guidancedocs/rand.html">http://www.cdc.gov/niosh/npptl/guidancedocs/rand.html</a></li> <li>• Guide for the Selection of Personal Protective Equipment for Emergency First Responders, NIJ Guide 102-00 (Volume I)</li> <li>• Fatah, A. Alim, John A. Barrett, Richard D. Arcilesi, Jr., Charlotte H. Lattin, Charles G. Janney, and Edward A. Blackman. November, 2002. Guide for the selection of personal protective equipment for emergency first responders. NIJ Law Enforcement and Corrections Standards and Testing Program. Vol. 1. <a href="http://www.ncjrs.gov/pdffiles1/nij/191518.pdf">http://www.ncjrs.gov/pdffiles1/nij/191518.pdf</a></li> <li>• Canadian Centre for Occupational Health and Safety <a href="http://www.ccohs.ca">http://www.ccohs.ca</a></li> <li>• Job Hazard Analysis, US Department of Labor, 2002; Appendix 1: Hazard Control Measures</li> <li>• OSHA Safety and Health Guides <a href="http://www.osha.gov/SLTC/emergencypreparedness/guides/index.html">http://www.osha.gov/SLTC/emergencypreparedness/guides/index.html</a> These guides provide an overview of worker hazards related to various emergencies. They were designed for use as a general handout during an emergency event, or as a training supplement for emergency preparation.</li> </ul>
<p><b>4.3 Report unresolved threats to physical and mental health through the chain of command.</b></p> <p>N/A</p>

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