USING DISTANCE LEARNING TO ADDRESS THE PREPAREDNESS NEEDS OF THE PUBLIC HEALTH PRACTITIONER COMMUNITY

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ABSTRACT

In an effort to respond to the unmet needs of public health professionals for training related to bioterrorism, emergency response and disaster preparedness, the Public Health Leadership Program (PHLP) and the North Carolina Center for Public Health Preparedness (NCCPHP) are developing a new course to be taught in the Spring of 2004 at the University of North Carolina School of Public Health. Introduction to Public Health Preparedness will be based on the Public Health Preparedness Core Capacities for Threats and Emergencies and the Core Emergency Preparedness Competencies for All Public Health Workers. The course responds to needs identified in assessments of state and local level public health professionals in North Carolina, as well as the recommendations of national groups such as the Institute of Medicine's recent report, Who Will Keep the Public Healthy? This paper describes the background for why this course was developed and summarizes the process for developing the course. It also describes the modules of the course, with appendices including a complete syllabus, as well as sample assessments, case studies and evaluations.

In order to meet the needs of public health professionals as efficiently and effectively as possible, this course will take advantage of the existing resources of a leading academic center for public health and a center for public health preparedness practice center. Using distance-learning technology and case study based discussion forums, this course will provide accessible and relevant training through a partnership that will fulfill both the School of Public Health and the Preparedness Center's "responsibility to assure that appropriate, quality education and training are available to the current and future public health workforce" (IOM, 2003). This course will strive to meet the training needs of the public health workforce as required to apply their current skills in the context of bioterrorism, disasters and emergencies and to develop the new skills in leadership, strategic planning, communication and teamwork necessary to provide an effective response to emerging threats.

Introduction: The Need for Training

A strong public health system with a well-prepared workforce plays a critical role in preparing for and responding to the threat of bioterrorism and other disasters and emergencies. However, the U.S. Department of Health and Human Service's Health Resources and Services Administration estimates that only 20% of the nation's estimated 400,000 to 500,000 public health professionals have the education and training needed to do their jobs most effectively.[1] The evolving scientific, management and administrative skills necessary to deal with the threat of bioterrorism and other disasters means that there is a real need for additional training of a broad range of public health staff in basic bioterrorism response and disaster preparedness. Training materials that are currently available from the Centers for Disease Control and Prevention (CDC), Federal Emergency Management Agency (FEMA) and the Centers for Public Health Preparedness (CPHP) do not meet a number of identified needs specifically related to bioterrorism and emergency preparedness, particularly those that are applicable to all public health staff. Many training materials are not available via distance learning, with those that are available limited to video or web cast based programs with no opportunity for interactive learning from instructors, guest subject experts or fellow students. A large majority of trainings available via distance learning are highly scientific and are targeted to a clinical or laboratory audience.[2] However, new technologies that allow for innovations of both curriculum and delivery can more effectively address unmet training needs.

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[1] http://bhpr.hrsa.gov/publichealth/. Accessed 5/26/03.

[2] See Appendix C for a partial list of available trainings. A large number of online trainings are available. From the NCCPHP, trainings are available at http://www.sph.unc.edu/nccphp/training/training_list/. NCCPHP also provides links to trainings available from CDC, FEMA, and other Public Health Preparedness Centers at http://www.sph.unc.edu/nccphp/training/outside_list/. From the CDC, trainings are available from the Public Health Training Network at http://www.phppo.cdc.gov/PHTN/default.asp. FEMA's Emergency Management Institute trainings are available at http://training.fema.gov/EMIWeb/IS/crslist.asp. The Public Health Foundation provides a clearinghouse of distance learning materials at http://www.trainingfinder.org/.

Much progress has been made with regard to training the public health workforce since the Institute of Medicine's 1988 report, The Future of Public Health identified "a number of problems that limit leadership in public health," and identified the need for well-trained pubic health personnel as a crucial capacity for meeting the mission of public health (IOM, 1988). Schools of public health were encouraged to develop "firm practice links" between public health schools and local public health organizations that could "foster more appropriate and accessible professional education for public health practitioners" (Umble et al., 2003). Today, schools of public health offer an increasing number of master's degree programs and certificates in flexible formats to address training needs (Davis et al.). Yet the new Institute of Medicine report, Who Will Keep the Public Healthy? again focuses on the unmet training needs of both the future and the current public health workforce. The report encourages schools of public health to go further, by developing collaborations with community based research, learning and service organizations and rewarding faculty for the development of practical training for public health practitioners (IOM, 2003). The report also encourages schools to integrate training for current and future public health professionals, using distance learning not only as a way to increase access to training opportunities for remotely located professionals and students, but also as a way to include emerging areas of study into the public health curriculum and emphasize the application of concepts into the professional practice environment, including the use of technology. This paper will discuss a distance learning course being developed by the Public Health Leadership Program (PHLP) at the University of North Carolina at Chapel Hill School of Public Health in collaboration with the North Carolina Center for Public Health Preparedness (NCCPHP) to provide an introduction to bioterrorism and disaster preparedness to students enrolled in a distance MPH

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through the PHLP and public health professionals enrolled in continuing education through the NCCPHP training program.

The Need in North Carolina

"Urgent and serious needs," exist in public health, both "for upgrading the skills of those currently employed and for educating new professionals" (IOM, 2003). In North Carolina, as in the rest of the U.S., there is evidence of an unmet need for the training of public health professionals in bioterrorism and disaster response. According to surveys carried out by the Management Academy for Public Health (MAPH), the North Carolina Center for Public Health Preparedness (NCCPHP), part of the North Carolina Institute for Public Health (NCIPH), and the Mountain Area Health Education Center (MAHEC), public health professionals have identified a need for training in the following areas:

- basic bioterrorism
- smallpox and anthrax
- roles and responsibilities during an emergency and the organization of services
- training for administrative staff
- risk communication, emergency communication and media relations
- strategic planning for an emergency
- building partnerships for emergency response
- fundraising, grant management and reporting

While these surveys represent small samples, the needs identified by both state and local public health professionals are consistent across North Carolina and are likely generalizable

to some extent, although more research would be necessary to quantify needs more specifically.

Of surveyed participants in MAPH in 2002, over 60% of those surveyed indicated they had been personally involved in helping to develop a strategic plan to respond to a disaster or bioterrorism since September 11, 2000, while over 50% had been personally involved in managing staff and coordinating a response during a crisis related to disasters or bioterrorism, negotiating and partnering with other agencies, and training health professionals and staff in relation to disasters and bioterrorism (Orton, et al., 2002). In a survey of ten Western North Carolina Area Health Directors, four identified bioterrorism and disaster preparedness as training needs. Specific needs identified by the Health Directors included the improvement of local planning through simulated emergencies and drills, fundraising, strategic planning, smallpox recognition and vaccination policy, and the coordination of services among clinical providers and other community health resources. Seventy-five percent of respondents preferred that training be offered online or through videoconferencing.[3]

Public Health Regional Surveillance Teams (PHRST) from local health departments across North Carolina were surveyed regarding their need for training in the emergency preparedness competencies as part of the North Carolina Public Health Workforce Development Training Needs Assessment Survey (TNA). At least fifty percent of respondents indicated a need for training in all of the emergency preparedness competencies, with more than two-thirds indicating a need for training in the use of emergency equipment, carrying out your role and responsibilities in an emergency response, describing the signs and

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[3] Thach, Sarah, Director of Public Health Education and Coalition Coordinator, Mountain Area Health Education Center. Survey data collected at October 2002 meeting of 10 Mountain Area Health Directors. Email received April 30, 2003.

symptoms of exposure to chemicals that may be used in a terrorist attack, performing your

communications role in an emergency within the health department, with the media and with

the community, describing the responsibilities of the health department during an emergency,

and finding appropriate resources that will help you carry out your responsibilities during an

emergency. Over sixty percent of PHRST respondents to the TNA survey indicated that the

competency skills were important to their job (NCCPHP, 2003).

The Use of Technology to Meet the Need

The Institute of Medicine's new report, Who Will Keep the Public Healthy,

recommends distance learning as a way to address not only new areas of competency in

public health, but also as a way to effectively and concurrently address the needs of both

current and future public health professionals. Distance learning has already been shown to

be an efficient and effective methodology of providing public health education, allowing

student-professionals to "expand their skills within their current positions, organizations, and

communities, rather than have to leave them to improve their skills" (Umble et al., 2003). A

study of the first cohort of a distance learning MPH offered by the PHLP showed students'

confidence in their ability to deal with prospective situations in the fourteen skills related to

program objectives and curriculum had doubled after completion of the program (Umble et

al., 2003). This improvement in self-efficacy addresses the concerns expressed by many

respondents in the TNA survey, over 54% of who indicated a need for training in each of the

emergency response competencies in order to be able to do their job. Distance learning

students have been characterized by faculty as highly motivated and insightful, because of

their opportunity to directly apply learning materials to their professional environment

(Umble, et al., 2003). Using distance learning for this new course will allow for the integration of training for current and future public health practitioners, as opposed to these two groups being trained on separate tracks. Distance learning's "anytime anywhere" access gives non-traditional and traditional students a high level of flexibility, while technology provides for a high degree of interaction through discussion boards and other tools. Distance learning will also allow this course to be tailored to the emerging needs of public health professionals, or for separate modules to be used when training in only one area is necessary.

As part of the effort to meet the needs for training the public health workforce, the CDC, in partnership with the Association of Schools of Public Health (ASPH), National Association of City and County Health Officials (NAACHO), accredited schools of public health and local health departments, established and funded a network of thirty-one academic, specialty and advanced practice Centers for Public Health Preparedness (CPHP). The mission of the CPHPs is to improve the competency of the frontline public health worker and the capacity to respond to current and emerging public health threats and emergencies.[4] Some of the CPHPs, including the NCCPHP, provide site based and distance learning training for public health professionals for continuing education credit. The Public Health Leadership Program (PHLP) at the UNC Chapel Hill School of Public Health was established to prepare public health practitioners for leadership positions. By working together to create training materials, the PHLP and the NCCPHP can capitalize on many additional advantages of distance learning far above and beyond the ability to keep learners on the job by opening access to training and continuing education to working professionals. This collaboration between the PHLP and the NCCPHP presents the opportunity to provide cost effective access to quality curriculum, grounded in the public health essential services

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[4] http://www.phppo.cdc.gov/owpp/CPHPLocations.asp. Accessed 5/24/03.

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and core competencies by utilizing a broad range of resources. The results will be current and future public health professionals and leaders trained in the rapidly emerging and evolving subject areas of bioterrorism and emergency preparedness.

In order to better serve the unmet training needs of the broader public health workforce, a new graduate level distance-learning course is being developed in the PHLP in collaboration with the NCCPHP. This course, an Introduction to Public Health Preparedness (see syllabus in Appendix A), is designed to help public health professionals meet the Public Health Preparedness Core Capacities for Threats and Emergencies and the Core Emergency Preparedness Competencies applicable to all public health workers (Appendix B). Students will include graduate students enrolled in a distance learning MPH program through the PHLP, and public health professionals who are clients of the NCCPHP and are qualified for graduate level study. Overall course objectives include:

- Exposure to expert faculty through the utilization of training resources from all departments of the UNC-CH School of Public Health, NCCPHP and other Preparedness Centers, and the Centers for Disease Control and Prevention, as well as from enrolled students with public health professional experience

- Contributing significantly to students ability to perform bioterrorism and disaster related work by addressing the Core Competencies for Emergency Preparedness and Response for all public health workers within the framework of the Core Public Health Functions of Assessment, Policy Development and Program Planning, and Assurance

- Utilization of cross-cutting case studies that take a broad view of public health disasters and preparedness, such as weather events, food and water borne disease

outbreaks, environmental disasters, infectious disease outbreaks and bioterrorism with a focus on improving students perceived and actual efficacy in dealing with emergencies

- Application of concepts learned to prospective bioterrorism threats and emergency and disaster situations

- Significant increase in the student's confidence in their ability to meet emergency preparedness competencies that are important to their job and in the ability to take a leadership or coordinating role in an actual emergency situation in their own public health practice or community

- Fulfilling the missions of the NCCPHP and the PHLP

The course will be designed to take advantage not only of the leading academic research faculty at the UNC Chapel Hill School of Public Health, but also field based public health practitioners who have previously created training materials for NCCPHP and other Preparedness Centers, as well as the public health professionals who are enrolled in the course. The course will also take advantage of materials used in the UNC School of Public Health's new Certificate Program in Community Preparedness and Disaster Management. This course will address the target standards of the core competencies and unmet needs as identified by surveyed public health professionals.

Learning Approach

Developing competencies in emerging areas of public health such as bioterrorism and emergency response is a key part of the assurance function of public health. Competencies seek to ensure equitable access to a quality public health response in all communities (IOM,

2003). This course will be developed using an interdisciplinary approach known as the "competency to curriculum" approach (Gebbie, 2002 and Public Health Service, 1999). Competencies are not curricula, learning objectives or performance standards; rather they are applied skills and knowledge, which must be actionable by all employees in order to deliver essential public health services during an emergency or disaster (Gebbie, 2002). For this reason, curricula to meet the competencies should be grounded in the necessary knowledge, skills and behaviors that will be applied in real workplace settings and emergency conditions. This course will take advantage of existing materials and resources, but will also develop new case studies and discussion forums where students will study the relevant literature on both theoretical and actual public health response to past emergencies and disasters and apply this learning through teamwork and strategic planning to simulated or future events. Curriculum driven by the core competencies for all workers meets much broader needs than training that is based only on job title or program area, facilitating future teamwork and communication across programmatic and organization lines. Competency based curriculum can also assist in efforts to collect data on training by providing categories for collection.

The most important advantage of this interdisciplinary approach is the facilitation of learning across boundaries[5] (Lytle, 1999). Competency statements do not make a distinction between academic and practice acquired knowledge and skills, so this course will combine learning from theory and research with learning from the experience of guest instructors, who are leading public health practitioners, as well as from fellow students. Course materials will provide the best combination of the most up-to-date field experience from the NCCPHP with current research based in the PHLP at the School of Public Health. Through collaboration

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[5] Lytle calls for leadership from aggressive "boundary spanners" made up of academics, trainers, corporations, knowledge workers and corporate leaders, to create a better knowledge workforce.

and delivery via distance learning, the PHLP and the NCCPHP can create flexible curriculum and training materials that respond quickly to rapidly changing needs and priorities identified by federal groups such as the Institute of Medicine and the CDC, and statewide groups such as the NCCPHP, MAPH, and MAHEC, as well as adapting materials to create specialized curriculum that address the specific needs of one segment of the public health workforce or one community. Training delivered via distance learning through the PHLP and the NCCPHP is a cost effective and efficient way to deliver up-to-date training to professionals in the field, including those enrolled in a distance learning MPH program. Open access enriches the learning experience of all participants, who can take advantage not only of the knowledge of the instructor, but of a diverse group of experienced public health practitioners and fellow students as well.

Asynchronous Learning Networks

The use of case studies and student moderated discussion forums in this course, generally called asynchronous learning networks (ALNs), further enhances the opportunity to learn from the experiences of fellow students and adds another important element to the boundary crossing benefits of distance education. By integrating isolated sources of knowledge, such as individual students and professionals in different physical locations with a range of public health experience, fellow students also gain experience as trainers or coaches, and provide an additional source of learning to be accessed through ALNs and integrated into learning. The unique cohort that will be enrolled in the course, a combination of distance learning MPH students from the PHLP and public health professionals from the NCCPHP network will make the use of ALNs a particularly rewarding learning tool.

According to Umble (2003), members of the first cohort of the PHLP distance MPH students had an average of 13 years of experience in health care, with over 30% of the students having an advanced degree. Public health professionals who participate in NCCPHP training programs have an average of 10 years of experience in public health, with one-third having masters degrees in public health or another field.[6]

A large body of research has been conducted to evaluate the effectiveness of distance learning, and the use of case studies and student moderated ALNs have been noted to be particularly effective learning tools for distance learners. These "learner-centered environments" are seen as very responsive to student needs (Poole, 2000). They provide an opportunity for students to learn significantly more than they would using only the resources and materials provided by faculty (Janoff, 2002). A quality benchmark for distance learning is to design courses so that 50% of student time is dedicated to active communication with the instructor, fellow students or subject area experts (Cavanaugh et al., 2002). ALNs can also facilitate learning by encouraging discussion of topics related to assigned readings and case studies, avoiding too heavy a reliance on online lectures. This design helps students shift from audience to participant as they gain skills and experience.

These types of communication tools can have great value to students when they utilize real-life situations similar to those that they will encounter in their work after the course. The use of case studies "makes learning relevant and meaningful to students through active participation in analyzing, discussing and solving real problems" (Flynn and Klein, 2001). The application of concepts, theories and techniques to real world problems develops students' critical thinking and situational analysis skills. In a study of MBA distance learners by Schrum (2000), students using discussion forums based on case studies say they prefer

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[6] Telephone conversation with Bill Browder, North Carolina Institute of Public Health.

"assignments and topics of study (that) are very relevant to my day-to-day work. Many of the issues that I deal with at work everyday are similar to the things that I am studying." This might include case study based problems where the discussion group works as a team, facilitated by a student moderator to solve a realistic problem. Case based instruction has also been shown to provide longer-term understanding of concepts that match the needs of employers (Flynn and Klein, 2001). However, instructors must design discussion questions and case study situations that "approximate the professional world and require high levels of interdependence for success (Cavanaugh, 2002).

In a study by Shaw (2000) of a distance learning nursing program, student surveys consistently show that a majority of students think the use of "ALN-supported learning made the materials easier to understand, the lecturer more accessible and enabled them to take a more active role in the learning process," making them more independent learners. A large majority of students find reading the contributions of other students useful, while 80% would recommend online learning to a friend (Shaw, 2000). Students also value the flexibility of asynchronous discussions and make the largest number of postings on Saturday and Sunday and between 4 pm and midnight (Poole, 2000). ALNs can provide an opportunity for students who generally do not participate in classroom-based discussions to post responses and contribute to discussions after taking time to consider or draft responses (Poole, 2000) Participants in a study by Janoff (2002) of continuing education for mental health professional consistently cite more equal participation and "increased shared leadership in online collaborations versus their face-to-face interactions." Since written contributions from previous discussion forums remain available online, earlier postings may also be reconsidered and commented on as they relate to later discussions (Bernath and Rubin,

2001). In a study by Flynn (2001) of students enrolled in an undergraduate business course in supply chain management, students felt that a group could cover a broader range of concepts more quickly than individuals, although individual preparation is still necessary for productive discussions. Discussion boards also have the ability to insert live links to websites or other readings or materials to provide support for new points or arguments the students make to the group.

ALNs are not without drawbacks. Even in surveys where students were strongly positive about their experiences, a majority said they would still prefer lecture-based classroom learning[7] (Shaw, 2000). Students often sight technical issues that lead to access problems as a reason for low participation in online discussion groups. Development of high quality materials requires a significant investment in faculty time for the planning, development, and instruction, and of organizational resources for the delivery and maintenance of course materials and technology, as well as the training of faculty and staff, and the costs to students for hardware and online access (Wright, 2002 and Matthews, 2002) Traditional courses, particularly seminars, cannot easily be transformed into distance education; they must be developed independently for web-based delivery (Wright, 2002). The use of case study based learning, already broadly applied in business and legal professional education may provide a solution to this issue. Also, instructors must exercise caution when participating in the discussions. While a responsive moderator is key to effective interactions between learners, a student moderator is ideal (Beaudin, 1999). While teaching assistants or instructors may in some cases have to post to the forum in order to keep discussions on topic or refine questions, their participation will likely reduce student

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[7] Although 80% of students would recommend the module to a friend, 76% still said they preferred the lecture-based environment.

participation as compared to a student moderator (Tagg, 1994). Beaudin's study (1999) also found that on a scale of one to six, the careful design of questions by the instructor received a mean score of 5.1778, because careful design was seen as critical in allowing student moderators to effectively lead and keep discussions on target and provide quality discussion summaries. Clear guidelines and strong summaries both aid student learners by maximizing the value of each posting and assisting learning by organizing a large amount of information that is posted to the discussion forum each week[8] (Poole, 2000).

Instructors can minimize the impact of these potential drawbacks by providing carefully designed, focused, and sometimes controversial or ethically difficult guiding questions for student moderated discussion based on case studies explained through readings or recorded lectures. With clear guidelines and stimulating topics, student messages are strongly focused on course content and specific readings[9] (Poole, 2000). One problem of ALNs is that students tend to post significantly more statement responses, such as "I agree" which are relatively low value in comparison with comparisons, analogies or cause and effect examples (Oliver and Shaw, 2003). Instructors must also provide prompt, specific and continuous feedback, including explanations of incorrect answers and references to up to date links to provide further information and reinforcement (Wright, 2002). Instructors should strive for 24-hour turnaround time on assignment feedback and answering student inquiries. In all cited studies and in anecdotal data, feedback is the most frequently mentioned concern of online learners. Students should also play a role in providing feedback to their peers by posting related references and experiences to the discussion forums.

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[8] Student moderators average nearly 15 posts during their assigned week, as compared with about 5 posts when they are not the moderator. Student posts were also significantly longer during their week as moderator.
[9] In Poole's study, 85% of 1025 postings by 14 students were messages related to course content.

Clear criteria for the evaluation of student participation and the quality of discussion postings are necessary to reap the learning advantages of ALNs. Students will be expected to relate theoretical materials to their own experiences and actively discuss examples with fellow students in order to gain a better understanding of the subject through the consideration of multiple perspectives and experiences (Tagg, 1994). Student postings should focus on relating the questions to potential situations that the students may confront in the future, or provide examples from the public health surveillance and other literature, particularly important in rapidly evolving emerging issues such as newly emerging infections, food borne illness and bioterrorism, which are likely to strike only in a limited area or population and to require immediate response. Grades for each module will be given based on a ten-point maximum, with one or two points given for each contribution.[10] Two points will be given for contributions that show active involvement and respond to the comments of fellow students by challenging a point of view, forwarding a new perspective, relating the theory of the discussion back to personal or professional experience, or offering support based on outside references. Postings should be concise and indicate the students' ability to frame arguments or put forward a point of view with clear comparisons, examples, applications and consequences (MacKimmon, 2000).

Each student will be responsible for moderating the discussion for one week with assignments based on student preference. Student moderators will be expected to "motivate, provide support and stimulate" as well as guide "the topic in order to keep it on the right track" throughout the week of discussion, and "facilitate discussion and ensure continuity"

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[10] 1 point will be given for a contribution that acknowledges the opinion of a classmate, poses an additional question, or offers an unsubstantiated evaluation of a comment; 2 points will be given for a contribution that makes comparisons or contrasts the current topic with another issue, gives a clear example or application of the subject, or discusses cause and effect using inference and discussion consequences

by providing an initial contribution that provides a framework for the discussion and the group's formation of ideas, and a summary to the group and the instructor at the end of the discussion period (Tagg, 1994). Students are "more involved and responsible for their participation" when student rather than instructor moderators are utilized, avoiding the influence of a dominate point of view and encouraging the development of a team among the students, all of whom shared the responsibility and experience of serving as the moderator (Poole, 2000). Also, although a benefit of ALNs is the flexibility to participate at any time, discussions are often more effective when the student moderator guides participation to some degree by setting a timeline for replies (Janoff, 2002).

Distance learning is more than just a format for the delivery of programming; it allows instructors and students to use new curricula, programs and learning paradigms to broaden the benefits to both students and society, preparing public health professionals for a rapidly changing future. By designing this course to include case based ALNs, students not only train locally while they stay in the workforce, they also gain skills in teaching, team building, ethics, strategic thinking, moderation and consensus building. Because bioterrorism and emergency preparedness is such a rapidly changing and diverse field, the use of case studies will be valuable to provide actual examples of emergency events which are likely to be similar to those faced by public health professionals in the future. The use of student moderated discussion forums encourages learners to share their own experiences, enriching the learning environment for all students and furthering the boundary crossing of academics and application that is such as effective part of the NCCPHP and PHLP structures and missions.

The Development of an Online Course in Emergency Preparedness

As previously stated, much of the bioterrorism and emergency preparedness training materials that are currently available (see list in Appendix C) do not address the needs identified by surveyed public health professionals or the Core Competencies for Emergency Preparedness and Response at a level appropriate for many public health workers. There is very little training available that meets the needs of entry level and non-scientific public health staff, particularly related to basic agents of bioterrorism and infectious diseases. There is also little or no training available on grant writing, financial reporting procedures, or strategic planning for an emergency. Some available training is quite costly, particularly trainings like this one that are developed as a graduate level course, and many are only available to enrolled students at a School of Public Health. However, many of the Centers for Public Health Preparedness and other organizations will make their content from trainings and other materials freely available for use or adaptation by other Public Health Preparedness Centers or Schools of Public Health. This course will take advantage of open access to these materials.

As a result of the passage of the Public Health Security and Bioterrorism Preparedness and Response Act (P.L. 107-188), and the recent formation of the Department of Homeland Security, over $2 billion in federal funding addressing bioterrorism preparedness and $1 billion has been made available for upgrading state and local public health and hospital preparedness. Training in program design, grant writing and evaluation are essential to ensure the most effective use of these funds. This course is designed to meet some of these needs.

This new course will be available for three hours of graduate credit in the spring of 2004 and students will include first year students in a distance learning MPH through the PHLP at the UNC School of Public Health and public health professionals who are clients of the NCCPHP. The course will be developed as modules and delivered in a sequence to students enrolled for the entire semester of graduate credit. A set of core modules will link closely with the emergency preparedness core competencies for all public health workers, while additional subset modules on specific training topics will be developed. The core modules and the additional modules of the course will also be available as stand alone trainings for continuing education credits for public health professionals. These will be accessible to learners through the NCCPHP website's training page.[11] Students who are not enrolled in the full course and instead utilize stand-alone modules for continuing education credits will view lectures and other materials online and work through interactive online case studies independently (see Appendix D for example materials).

The course consists of fourteen modules, which will require approximately one week to complete. Each module will include recorded lectures from the instructor or a guest expert or video presentations, readings, and a student moderated discussion forum that will revolve around either a case study or guiding discussion questions. Many of the discussion forums will be centered on case studies in public health preparedness, which will be drawn from the CDC, the CPHP academic, specialty or advanced practice centers, or media and journal archives about recent events. A selection of specific case studies will include:

- The Milwaukee cryptosporidum outbreak will be used to examine the federal, state and local coordination mechanisms of a public health emergency

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[11] http://www.sph.unc.edu/nccphp/training/. Accessed on 5/24/03.

- The Tampa Bay oil spill of 1993 will be used to examine responses to an unforeseen disaster and the use of GIS and other modeling technology

- Hurricane Floyd in North Carolina will be used to examine the implications of a large scale weather disaster

- The Anthrax cases in the fall of 2001 (in Florida, Washington and other locations) will be used to examine agency coordination, risk communications strategy, media relations, and public information

- The Hantavirus outbreak in the Four Corners in 1993 will be used to examine the role of laboratory and field based surveillance and the use of public health information systems

- A simulated hospital based outbreak of Group A Streptococcus to illustrate the application of the steps of an outbreak investigation

- The salmonellosis outbreak in Oregon in 1984 will be used to understand the recognition of natural disease outbreaks versus bioterrorist or other covert causes and the role of public health officials in working with law enforcement

A final paper will ask students to evaluate the response of one country, city, or organization to the SARS outbreak in 2003 in relation to each of the areas covered by course modules. Evaluation of student achievement should be observable and measurable against the core competencies in emergency preparedness learning objectives (Appendix E), in addition to other benchmarks.

In order to meet the goal of the expanding the distribution of high quality training materials already developed at the UNC-CH School of Public Health and through the NCCPHP, some of the materials used for the course will be drawn from existing materials,

such as the Certificate Program in Community Preparedness and Disaster Management administered through the department of Health Policy and Administration at the UNC-CH School of Public Health, and training materials available from other Preparedness Centers and the Centers for Disease Control which have not been actively distributed to a broader audience. All materials will be carefully reviewed and evaluated to ensure that it is appropriate for inclusion in the course. Materials should be clearly written or presented and avoid highly scientific or medical material. Materials such as videos and web casts should lend themselves to the creation of interactive materials and discussion questions that will be developed by the instructor. New student and instructor feedback and other evaluation materials will be created to go along with the materials to ensure that members of the class know when they have mastered and concept and where they may need improvement. Learning objectives, self-assessments, summaries and reviews will also be created to accompany existing materials.

Based on the literature review discussed above, the course materials will make use of case based discussion groups with student moderators, who will be encouraged to develop their skills as team builders, consensus builders, and strategic thinkers. Other materials, which will be included to enhance the effectiveness of the student moderated discussion forums include (see Appendix F for some examples of course materials):

- Reading lists (Required and Recommended)

- Updated links to other sites and references on discussion topics

- Downloadable copies of slides and handouts from online lectures

- Self-Assessment exercises

- Videos and other media used in the course

<u>Evaluation Strategy</u>

An effective training program has ten steps (see Appendix G), each of which must be evaluated in order to determine the overall effectiveness of this course and to identify areas in which the course may be improved to better meet the evolving training needs of public health professionals. This course will be evaluated using the four levels of evaluation as presented by Kirkpatrick in <u>Evaluating Training Programs</u>. Level one evaluation measures the learners' satisfaction with the training by collecting learner reactions to the course technology and the interaction with the instructors (Kirkpatrick, 1998). In this course, concurrent learner satisfaction will be evaluated with a student evaluation between modules three and four, about one-quarter through the course, that focuses on learner access problems related to technology and instructor responsiveness, as well as the quality and timeliness of feedback from the teaching assistants and the instructor. This evaluation will attempt to ensure that student expectations regarding responsiveness and feedback are met.

Level two evaluations address learning by examining "the extent to which participants change attitudes, improve knowledge, and increase skills" (Kirkpatrick, 1998). All students will complete an evaluation of the overall course and the individual modules when the course is complete. Trainees taking only selected modules for continuing education credit will evaluate each module separately. This second level evaluation will address the extent to which learning from the course improved the efficacy of learners in relation to the Public Health Preparedness Core Capacities for Threats and Emergencies and whether they developed each of the skills listed in the Core Emergency Preparedness Competencies applicable to all public health workers. NCCPHP's existing Training Needs Assessment Survey could be used to collect baseline data from enrolled students at the start of the

semester, with a goal of significantly reducing the number of respondents who report that they feel that they require additional training in each competency after the completion of the complete online course. Additional baseline and impact data might be collected using part of the existing MAPH survey, including questions relating to the level of contribution that the course made in students "ability to do disaster and bioterrorism-related work" (Orton et al., 2002). Attitude change could also be measured by incorporating an evaluation questions regarding the students self-efficacy, or their "belief in their capability to organize and execute the course of action required to deal with prospective (emergency and bioterrorism) situations" (Umble et al., 2003). As part of the larger overall evaluation of the distance-learning MPH offered by the PUBH, level three and level four behavior change and impact measures such as career advancement opportunities, the applicability of the program curriculum to public health practice, and other perceived benefits of the degree will continue to be measured (Davis, et al.).

Student evaluation will be heavily weighted towards the strength of their contributions to the discussion forums and case studies, including their effectiveness in serving as the group moderator. Both peer and teaching assistant evaluations will be components of this evaluation, giving each student a rating ranging from one to five two times during the semester. The rating should be determined by evidence of participation, effective teamwork, preparations and the use of outside resources, and the timely submission of summaries. Peer and teaching assistant evaluations will each contribute twenty percent each towards the final grade of the student. The instructor will monitor all discussion forums and case studies and evaluate the weekly summaries written by the moderator for each group which should show ample preparation, be well expressed and represent a group consensus if

possible. The effectiveness of the moderator as a leader and the quality of the summary paper will contribute twenty percent towards the student's final grade.   In lieu of a final exam, a final paper will give students the individual opportunity to relate the emerging problem of Severe Acute Respiratory Syndrome to each of the course modules from the perspective of a local, state, federal or international health organization or official. This paper will determine forty percent of the student's grade for the course. Those taking individual modules for continuing education credits will only be evaluated only as it relates to the completion of all components of the module.

Expected Impact

The use of a modular distance-learning course created in collaboration with the PHLP and the NCCPHP solves a three-part problem in addressing bioterrorism and emergency preparedness competencies in public health. It facilitates open access to training opportunities in emerging subject areas for current public health professionals without necessitating that competent and experienced public health professionals leave the workforce and stop serving their clients. This is particularly important in helping avoid "brain drain" from rural areas and other communities that lack a supply of highly trained public health workers. It also supplements the limited number of accredited schools of public health, reducing a barrier to access for those not located near a graduate program and takes advantage of the strengths of collaboration between academic and practice models.[12] The modular structure of the course and the distance-learning format allow for straightforward dissemination of information among instructors and students and easy access to the most up-

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[12] http://www.asph.org/document.cfm?page=200. Accessed 5/26/03. There are 39 accredited Schools of Public Health in the US that are members of APHA.

to-date scientific knowledge, all while enhancing students' technical skills. Finally, it promotes collaborative relationships among colleagues and communities by giving students experience in moderating case study based discussion groups and the opportunity to develop their own skills as facilitators, trainers and leaders. Class members could easily continue to serve as resources to one another and to other public health professionals as future issues in bioterrorism and preparedness arise and they are able to effectively apply what they have learned to new situations.

Training public health workers to meet the core competencies will provide other benefits in addition to an improvement in the skills of the public health workforce. By creating training materials with are tailored to address the emergency preparedness competencies for all public health workers, in addition to clinical and scientific staff, these trainings address the future skills of the public health workforce, including teamwork, learning from peers, the use of technology, and the creation of mutually beneficial virtual organizations and collaborations. By using distance-learning modules, course content can be tailored to the structure and function of organizations or individuals. Training materials can also facilitate the measurement of progress of public health workers and organizations towards meeting competencies, to update and revise job descriptions, to guide community assessments, to set policymaking agendas, and contribute to assurance that public health is "fulfilling society's interest in assuring conditions in which people can be healthy" (IOM, 1988). These materials can be easily and continually reviewed, evaluated and improved by students and faculty from both public health practice and academia.

Conclusions

Distance learning provides a cost effective way for public health professionals to meet evolving competencies in emergency preparedness. By using the established network of Centers for Public Health Preparedness, the creation of quality materials with a sound basis in the latest in academic and field based applications will be ensured, bridging the academic and practice communities. Taking advantage of the Certificate Program in Community Preparedness and Disaster Management at the UNC-CH School of Public Health and the NCCPHP is also crucial because of the high initial investment in creating distance learning materials, particularly those that can be customized to meet needs of specific positions or competencies. A decentralized approach which adapts materials developed by other CPHP also facilitates the creation of materials that respond quickly to the latest recognized needs from both the academic and public health practitioner perspective, while the distance learning format ensures national and international distribution of training materials. This collaboration also provides the required combination of pedagogical and course content expertise with technical and clinical expertise to ensure quality content. The additional collaboration of student-professionals in moderated discussion groups completes this boundary crossing learning triangle (learner-learner, learner-instructor, and learner-content) and returns accessible, high quality distance learning training materials to address public health competencies in bioterrorism and emergency preparedness at a reasonable cost.

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Appendix A: Syllabus for Introduction to Public Health Preparedness (PUBH 140)

Introduction to Public Health Preparedness
Offered Online via Blackboard, Spring 2004

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Course Objectives:

This course in intended to introduce students to the core capacities and competencies for all public health workers relating to disasters and emergencies. Building on the recommendations in the Institute of Medicine's Who Will Keep the Public Healthy and the Emergency Preparedness Competencies for all Public Health Workers, this course will address issues related the structure of the public health system, such as roles and responsibilities, policy development and program planning, public health law and other topics. The course will also cover tools related to the competencies, including communication, grant writing and surveillance. The basic agents of bioterrorism will be covered, but the course will draw upon crosscutting case studies that take a broad view of public health disasters and preparedness, including weather events, outbreaks of food and water borne illness, infectious diseases, and other emergencies.

This course is designed to take advantage of the expertise of both public health practice professionals and academic experts from the UNC-CH School of Public Health and the NC Center for Public Health Preparedness. There will be a number of guest lecturers and materials created by the CDC, FEMA, and other Centers for Public Health Preparedness will also be utilized. It is also expected that students themselves share their personal and professional expertise and experiences in order to further the learning of all members of the class.

The course is divided into 14 modules. Each module will include a selection on online lectures, videos, readings, discussion questions and case studies. Participation in the weekly discussions and case studies will be an important component of your grade for the course. To avoid disappointment due to connectivity problems and to allow for spell checking and proofreading, many students prefer to type their postings in a word processing program and paste them into the discussion forum in Blackboard.

Modules will begin each week on Wednesday and conclude on the following Tuesday. Discussion forum summaries will be due to the instructor by email from the week's moderator by 5 pm (eastern time) on Tuesday and should be sent as an email attachment in a word processing program. Final summaries should also be posted to the discussion board for the benefit of others in the group. Please include the group name and the module title in the subject heading of your email. You will receive a confirmation email that your summary has been received.

It is important to try to check into the discussion every day or at least every other day. In addition to posting your own responses, read and respond to the comments of others. During the week when you are the moderator, schedule time to check in each day to spark and guide discussion. As the moderator, it is often helpful to establish a timeline in the beginning of each week, letting classmates know when they should make postings in order for their ideas to be included in your summary. Late summaries will automatically be marked down by one whole grade (i.e. 100 becomes 90) each day unless the instructor has given approval in advance. No summaries will be accepted after 5 pm on Thursday.

Required Readings:

The textbook for the course will be:
Landesman, Linda (2001) Public Health Management of Disasters: A Practice Guide American Public Health Association.

Additional readings for each module will be available via .pdf or other downloadable from within each module. It is generally helpful to complete the readings before listening to the online lectures. A page will be provided in Blackboard for students to post additional readings, websites or other materials of interest relating to each module's topic.

Grades:

Grades will be earner based on the following scale:
90-100: H
75-89: P
<75: L

Grades will be posted on Blackboard. To check your grades, please look under the Tools folder on the Blackboard menu.

Student Responsibilities:

Contributions to module discussion questions and case studies, including serving at least one week as moderator and reporter, will make up 60% of your grade for the course.
Peer evaluation: 20%
TA evaluation: 20%
Evaluation of moderator summary report: 20%
Extra credit will be available for serving as the moderator for an additional module should there be additional modules after each student has served as the moderator.

Remember, based on the quality and frequency of your contributions, the maximum number of points to be awarded for each week's forum is ten, with one or two points given for each contribution. Two points will be given for contributions that show active involvement and respond to the comments of fellow students by challenging a point of view, forwarding a new perspective, relating the theory of the discussion back to personal or professional experience, or offering support based on outside references. Postings should be concise and indicate your ability to frame arguments or put forward a point of view with clear comparisons, examples, applications and consequences. Postings that essentially say "I agree" will not receive any points. When it is useful to provide examples from current public health literature, access to many online journals is available through the UNC Library website at www.lib.unc.edu using your PID. Students will not be required to read all cited materials, but you should certainly explore those that relate to your interests.

Instructor Responsibilities:

The instructor and the teaching assistants will provide prompt responses to student questions and timely feedback on discussion summaries. In most cases, questions should be answered within 24 hours, and feedback will be received within 48-72 hours. All assignments should be emailed to the instructor by the assigned deadline.

Paper Assignment

The final paper, which will serve as a final exam for the course, will count for 40% of your grade for the course. This should be a research paper of 15-20 pages, with all references cited according to APA style. Please remember the university honor code, which may be accessed at **http://www.unc.edu/depts/honor/studinfo.html** applies to all assignments completed for this class. Remember to decide on a perspective (local, state, national or international health director or organization president such as Secretary General of

WHO, Secretary of HHS, State Health Director, etc.) and examine the concepts from each module from that person's perspective. Remember to refer to the Public Health Preparedness Core Capacities for Threats and Emergencies and the Core Emergency Preparedness Competencies applicable to all public health workers, which are available in the introductory lecture from module one.

Week	Topic	Readings	Learning Objectives:	Lectures	Discussions / Interactive Case Studies:
1	Workforce / Org. Design	Landesman, Chapter 1 The Public Health Workforce: An Agenda for the 21st Century http://www.health.gov/phfunctions/pubhlth.pdf	Differentiating among different types of public health emergencies and disasters, their definitions and the terminology related to them Identifying the main characteristics of the principal natural disasters and their effects Explaining the concepts of vulnerability, risk, disaster prevention, and the links to longer term effects Describing why emergencies and disasters are a problem for which the public health system must be an integral participant across a range of disaster activities	Introduction to the Public Health Competencies for Threats and Emergencies	Group Member, Instructor and TA Introductions

| 2 | Workforce / Roles and Responsibilities | Landesman, Chapter 2 and Chapter 3

http://www.naccho.org/files/documents/Final_Effective_Bioterrism.pdf
Elements of Effective Bioterrorism Preparedness: A Planning Primer for Local Health Agencies, National Association of City and Country Health Officials (Roles and Responsibilities)

Flowers, L.K. Bioterrorism preparedness. II: The community and emergency medical services systems. Emerg Med Clin North Am 2002 May;20(2):457-76 (For Charlotte NC)

Morse, A. Bioterrorism preparedness for local health departments. J Community Health Nursing 2002 Winter;19(4):203-11 | Describing the roles and responsibilities of public health professionals in emergency preparedness and response

Describing the role of federal public health officials such as the CDC in local outbreaks

Understanding the responsibility of individuals and organizations in disaster response

Understand how coalitions are formed to respond to disasters | Lecture: Public Health Infrastructure | Milwaukee Crypto Outbreak Case Study |
| 3 | Communications (Internal, | Landesman, Chapter 6, Appendix 1 and B | Understand and be able to define a "panic" situation in your community and | Tom Linden, UNC School of Journalism | Discussion Questions based on |

	External, Media, Family)	Lichtveld, M.J. (CDC) Preparedness on the frontline: what's law got to do with it? Law Med Ethics 2002 Fall;30(3 Suppl):184-8	organization Know your role in the communications plan of your organization Understand the balance between security and the provision of information to the public and the media	CDC Responds: Risk Communication and Bioterrorism (videostream lecture with powerpoints and discussion) Communication During Crisis: The Role of Media During Public Health Emergencies (Univ. of Albany Public Health Preparedness)	Communica-tion During Crisis
4	Public Health Data: Using, Managing and Accessing	http://www.cdc.gov/nchs/data/phdsc/phdsc0206.pdf Public Health Data Standards Consortium, CDC/DHHS	Know primary and secondary sources for public health data Understand your reporting responsibilities re: bioterrorism and other emergencies	Dan Sosin CDC	Discussion of the smallpox vaccination plan
5	Public Health Data: Public Health Information Systems	Landesman, Chapter 4 Lewis, M. Disease outbreak detection system using syndromic data in the greater Washington DC area Am J Preventive Med 2002 Oct;23(3):180	Understand basic GIS terminology and mechanics Introduce simple GIS techniques for spatial analysis of public health questions Understand the application of GIS to disease surveillance and outbreak control	Introduction to GIS, Dionne Law Using GIS for Disease Surveillance and Outbreak Investigation, Dionne Law	Hantavirus Case Study

			Understand how GIS might be applied to future disease surveillance and outbreak investigations		
6	Surveillance and Investigation: Labs	Witt-Kushner, J. Core functions and capabilities of state public health laboratories: a report of the Association of Public Health Laboratories. MMWR Recomm Rep 2002 Sep 20;51(RR-14):1-8 (Division of Laboratory Systems, CDC)	Understand the basic epidemiological concepts necessary to understand an investigation of an outbreak or incident	Lou Turner, Laboratory Surveillance The Role of the Public Health Lab in Surveillance (Available from JHU Center for Civilian Biodefense)	Hantavirus Case Study Continues
7	Surveillance and Investigation	Less, S.H. Surveillance for waterborne-disease outbreaks--United States, 1999-2000. MMWR Surveill Summ 2002 Nov 22;51(8)	Understand the stages of an outbreak investigation	Stephanie Kordick, Infectious Disease Surveillance in NC Pam Jenkins, Foodborne Outbreak in NC	Strep A Hospital Outbreak Case Study
8	Prevention and Education	Sharp, T.W. Medical preparedness for a terrorist incident involving chemical or biological agents during the 1996 Atlanta Olympic Games. Ann Emerg Med 1998 Aug;32(2):214-23	Understand the strategic planning process Gain confidence in your ability to contribute to your organization's strategic planning for bioterroriam	Hollie Pavlica (From HPAA 137 in Certificate in Community Preparedness)	Hurricane Floyd Case Study
9	Policy Development	Landesman, Chapter 5	Understand the stages in policy development	Lecture materials adapted from Public Health 430 (series of 7	

| | | Patriarca, P.A. Influenza pandemic preparedness plan for the United States. J Infect Dis 1997 Aug;176 Suppl 1:S4-7

Strikas, R.A. Influenza pandemic preparedness action plan for the United States: 2002 update. Clin Infect Dis 2002 Sep 1;35(5):590-6 | including placing your message on the agenda, building and maintaining coalitions, working with advocates, champions and decision makers, etc. | Lectures on Policy Development from Univ. of Illinois Preparedness Center including (policy development, policy making, advocacy, legislative, regulatory, operational, evaluation) | |
|---|---|---|---|---|---|
| 10 | Overview of Bioterrorism | Landesman, Chapter 10

Miller, JM. Agents of bioterrorism. Preparing for bioterrorism at the community health care level. Infect Dis Clin North Am 2001 Dec;15(4):1127-56

Hughes, James. Anthrax Bioterrorism: Lessons Learned and Future Directions Emerging Infectious Diseases 8(10) 2002 | Know the primary agents of bioterrorism

Recognize the medical and public health effects of these agents

Understand the role of the clinical and public health professional within a community where a bioterrorism event occurs | CDC Overview of Bioterrorism | Anthrax Case Study |
| 11 | Allocation of Resources | http://www.bt.cdc.gov/plan ning/coopagreementaward/ index.asp | Know the history of public health funding and the recent legislation and | DHHS, CDC, NIH, Homeland Security, APHL Resources for Hospital | Anthrax Case Study Continues |

		CDC Public Health Preparedness and Emergency Response Grant Guidance Bill Frist, Public Health and National Security: The Critical Role of Increased Federal Support Health Affairs 21(6):117-130, 2002	funding associated with post Sept. 11 public health preparedness Understand federal, state and local priorities and funding mechanisms Understand the development of a grant for funding, including developing budgets, workplans, technical approaches, and evaluation plans	Preparedness, Community (State and Local) Preparedness	
12	Public Health Response	Landesman, Chapter 12 Speech by Senator Sam Nunn, The Future of Public Health Preparedness. J Law Med Ethics 2002 Fall;30(3 Suppl):202-9 Jacobs, L.M. Bioterrorism preparedness. Conn Med 2003 Feb;67(2):95-101	Understand the current priorities of public health leaders and what role you will play in realizing those priorities	Jim Curran, CDC Responds to HIV	Tampa Bay Oil Spill Case Study
13	Public Health Response	http://www.naccho.org/gen eral483.cfm Principles of Collaboration Between State and Local Public	Understand the role of law enforcement in public health emergencies Understand the roles and	Public Health and Law Enforcement (Chris Woods, Pia McDonald, David Weber)	Discussion Questions: Balancing the rights of individuals

		Health Officials, National Association of City and County Health Officials	responsibilities of local, state, and federal public health officials in the event of an emergency		and the community Working with law enforcement
14	Public Health Law	Gostin, L.O. The Model State Emergency Health Powers Act: planning for and response to bioterrorism and naturally occurring infectious diseases. JAMA 2002 Aug 7;288(5):622-8 Bayer, R. Bioterrorism, public health, and the law. Health Aff (Millwood) 2002 Nov-Dec;21(6):98-101 Matthews, G.W.(CDC) Legal preparedness for bioterrorism. J Law Med Ethics 2002 Fall;30(3 Suppl):52-6 Aginam, O. International law and communicable diseases. Bulletin of the World Health Organization	Understand reporting requirements for emerging infectious diseases and other outbreaks Understand the legal response of local, state and federal officials to a bioterrorist event or emergency	Jill Moore: 3 lectures newly available summer 2003 Lecture Series available from CDC	Oregon Salmonell-osis Case Study: Natural versus covert outbreaks

		2002;80(12):946-51			.
	Paper Due	Assessment of the International Response to SARS (Public Health Response, List and Describe Stakeholders, Role of Leaders and Decision Makers, Necessary Technical/Clinical and Managerial Competencies Needed, Review of Communications, The Role of Politics and Funding)		Introductory Lecture on SARS: Ralph Baric, EPID	

Appendix B: Core Capacities for Threats and Emergencies and Emergency Preparedness
Competencies for All Public Health Workers[13]

Public Health Preparedness for Threats and Emergencies: Seven Core Capacities
- Workforce
- Information Systems
- Communication
- Epidemiology and Surveillance
- Laboratory
- Policy and Evaluation
- Preparedness and Response

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 heath 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:
   a. Within agency
   b. Media
   c. General public
   d. 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).

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[13] http://cpmcnet.columbia.edu/dept/nursing/institute-centers/chphsr/COMPETENCIES.pdf. Accessed on 5/24/03.

Appendix C: Available Training Programs in Public Health Preparedness

A. Centers for Disease Control and Prevention Public Health Training Network: Provides primarily video and on-demand web cast materials, for general audiences including child care providers, community leaders, environmental health specialists, epidemiologists, food inspectors, health care providers, health educators, laboratorians, nurse practitioners, nurses, nutritionists, physician assistances, physicians, policy makers, public health officials, and sanitarians and water plant operators.

General Public Health Practice

Anthrax: What Every Clinician Should Know
Anthrax: What Every Clinician Should Know Part II
CDC Responds: Coping with Bioterrorism--The Role of the Laboratorian
Exposure to Blood: What Health Care Workers Need to Know
Introduction to Media Relations
Management Perspectives for Public Health Practitioners
Practical Evaluation of Public Health Programs
Setting Community Health Priorities
The Legal Basis of Public Health
Ticks of Public Health Importance and Their Control

Vaccine Safety Post-Marketing Surveillance: The Vaccine Adverse Event Reporting System

Core Public Health Skills Training

Epidemiology, Biostatistics and Informatics
Epidemiology and Prevention of Vaccine-Preventable Diseases
Session 1 - Principles of Vaccination, General Recommendations on Immunization, and Immunization Strategies
Epidemiology and Prevention of Vaccine-Preventable Diseases
Session 2 - Pertussis, Poliomyelitis, *Haemophilus influenzae* type b, and Pneumococcal Disease of Children
Epidemiology and Prevention of Vaccine-Preventable Diseases
Session 3 - Measles, Rubella, Varicella, Vaccine Safety, and Vaccine Storage and Handling
Epidemiology and Prevention of Vaccine-Preventable Diseases
Session 4 - Hepatitis B, Hepatitis A, Influenza, and Pneumococcal Disease of Adults
Epidemiology and Prevention of Vaccine-Preventable Diseases - 7th Edition *The Pink Book*
Investigating an Outbreak: Pharyngitis in Louisiana
Principles of Epidemiology
Principles of Epidemiology by Satellite
Setting Community Health Priorities

Management and Leadership of Public Health Programs
Continuous Quality Improvement for Public Health
Management Perspectives for Public Health Practitioners
Setting Community Health Priorities
The Legal Basis of Public Health

Prevention Program Training

General Infectious Disease Prevention and Control
Communicable Disease Control
Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis in Health Care
Facilities
Medical Management of Biological Casualties
Vector-Borne Disease Control

Tuberculosis Prevention

A Satellite Primer on Tuberculosis Videotape
Core Curriculum on Tuberculosis
Self-Study Modules on Tuberculosis, (Print-based)
Web-based Modules on Tuberculosis, (Web-based)

Sexually Transmitted Disease Prevention

Laboratory
Darkfield Microscopy

Immunization

Epidemiology and Prevention of Vaccine-Preventable Diseases
Session 1 - Principles of Vaccination, General Recommendations on Immunization, and
Immunization Strategies
Epidemiology and Prevention of Vaccine-Preventable Diseases
Session 2 - Pertussis, Poliomyelitis, *Haemophilus influenzae* type b, and Pneumococcal
Disease of Children
Epidemiology and Prevention of Vaccine-Preventable Diseases
Session 3 - Measles, Rubella, Varicella, Vaccine Safety, and Vaccine Storage and Handling
Epidemiology and Prevention of Vaccine-Preventable Diseases
Session 4 - Hepatitis B, Hepatitis A, Influenza, and Pneumococcal Disease of Adults
Epidemiology and Prevention of Vaccine-Preventable Diseases - 7th Edition *The Pink Book*
The Immunization Encounter: Critical Issues
The Immunization Encounter: Critical Issues
Immunization Update 2001
Immunization Update 2002 (Web on Demand, Videotape)
Increasing Adult Vaccination Rates:WhatWorks

Smallpox: What Every Clinician Should Know [CD Rom or Internet version]
Smallpox: What Every Clinician Should Know
Surveillance of Vaccine-Preventable Diseases
Surveillance of Vaccine-Preventable Diseases Manual
Update: Preparing for the Next Influenza Pandemic

Other Infectious Diseases

Program
Hantavirus Pulmonary Syndrome Clinical Update
Hantavirus Pulmonary Syndrome (HPS) and Sin Nombre Virus (SNV) (online slideset)
Hepatitis C: What Clinicians and Other Health Professionals Need to Know (Web-based)
Preventing Emerging Infectious Diseases: A Strategy for the 21st Century, 1999
Preventing Hantavirus Disease

Laboratory
E. coli O157:H7--What the Clinical Microbiologist Should Know
Hantavirus Pulmonary Syndrome Clinical Update
Hantavirus Pulmonary Syndrome (HPS) and Sin Nombre Virus (SNV) (online slideset)
HPLC Basics and the Future of HPLC
Laboratory Diagnosis of Infections Caused by Coccidian Parasites
The Formalin Ethyl-Acetate Concentration Techniques for Intestinal Parasites

Environmental Health

General
Basic Mathematics in Environmental Health
Case Studies in Environmental Medicine (CSEM): Benzene Toxicity
Case Studies in Environmental Medicine (CSEM): Lead Toxicity
Case Studies in Environmental Medicine (CSEM): Radon Toxicity
Case Studies in Environmental Medicine (CSEM): Taking An Exposure History
Environmental Protection
Environmental Health Sciences
Envirorisk
Medical Management of Biological Casualties
Nasopharyngeal Radium Irradiation: Current Medical Issues
Public Health Data: Our Silent Partner
Working with Communities for Environmental Health (Webcast on Demand)
Water Fluoridation

Public Health Practice Updates

Foodborne Disease Outbreak Investigation: Botulism in Argentina Computer-based
Epidemiologic Case Study
Management Perspectives for Public Health Practitioners
Public Health Data: Our Silent Partner

The Legal Basis of Public Health
Ticks of Public Health Importance and Their Control

Centers for Disease Control and Prevention Public Health Practice Program Office offers trainings in anthrax, smallpox, miscellaneous agents, laboratory, epidemiology, risk communication, leadership and safety.

Anthrax

An Anthrax Outbreak Averted: Public Health Response to a Contaminated Envelope on Capital Hill
Anthrax: What Every Clinician Should Know, Pat I
Anthrax: What Every Clinician Should Know: Part II
Bacillus anthracis
CDC Responds: Clinical Diagnosis and Management of Anthrax
CDC Responds: Treatment Options for Postal and Other Workers Exposed to Anthrax
Clinical Diagnosis and Management of Anthrax
Importance of Bacillus anthracis Molecular Sub-typing during the Recent Multi-State Bioterrorism
Inhalation Anthrax: New York City, October-November 2001
Letter form Trenton: The Anthrax Investigation and the Source, New Jersey, 2001
Rapid Adaptation of a Serologic Assay for the Bioterrorism-Related Anthrax
Update on Options for Preventative Treatment for Persons at Risk for Inhalational Anthrax
CDC Interim Recommendations for Protecting Workers from Exposure to Bacillus anthracis in Work Sites Where Mail Is Handled or Processed

Smallpox

CDC Reponses: Smallpox: What Every Clinician Should Know
Tele-briefing Transcript: MMWR Updated Smallpox Response Plan and Guidelines
Smallpox Vaccination Clinic Guide and Response Plan

Miscellaneous Agents

Bioterrorism 2002: Lessons Learned
CDC Responds: Influenza Prevention, Detection and Control
Response to Bioterrorism: Part I: Overview and Clinical Aspects of Critical Biological Agents
The Threat of Biological Attack: why Concern Now?

Laboratory
CDC Response: Copy with Bioterrorism: The Role of the Laboratorian
Response to Bioterrorism: Part II: The Laboratory Response Network and Agents of Bioterrorism
Response to Bioterrorism: The Role of the Clinical Laboratory

Comprehensive Procedures for Collecting Environmental Samples for Culturing Bacillus anthracis

Epidemiology

CDC Responds: Bioterrorism and Healthcare Epidemiology/ Infection Control Team
Epidemic Information Exchange (Epi-X)

Risk Communication

CDC Responds: Risk Communication and Bioterrorism

Leadership

CDC and US Department of Education Collaborate to Help Schools Prepare for Possible Terrorism
CDC Responds: Update on the State and Local Preparedness Grant Program
Suggested Guidance for Supervisors at Disaster Rescue Sites

Safety

Protecting Investigators Performing Environmental Sampling for Bacillus anthracis: Personal Protective Equipment
Interim Recommendations for Firefighters and Other First Responders for the Selection and Use of Protective Clothing and Respirators Against Biological Agents

B. The Federal Emergency Management Agency offers training courses through the Emergency Management Institute. Most courses are available in downloadable .pdf format.

IS-1 Emergency Manager: An Orientation to the Position

IS-2 Emergency Preparedness, USA

IS-3 Radiological Emergency Management

IS-7 A Citizen's Guide to Disaster Assistance

IS-8 Building for the Earthquakes of Tomorrow: Complying with Executive Order 12699

IS-10 Animals in Disaster - Module A Awareness and Preparedness

IS-11 Animals in Disaster - Module B Community Planning IS-15 Special Events Contingency Planning for Public Safety Agencies

IS-55 Household Hazardous Materials - A Guide for Citizens

IS-111 Livestock in Disasters

IS-120, An Orientation to Community Disaster Exercises

IS-139 Exercise Design

IS-195 Basic Incident Command System

IS-208 State Disaster Management

IS-230 Principles of Emergency Management

IS-235 Emergency Planning

IS-240 Leadership & Influence

IS-241 Decision Making and Problem Solving

IS-242 Effective Communication

IS-244 Developing and Managing Volunteers

IS-271 Anticipating Hazardous Weather & Community Risk

IS-275 The EOC's Role in Community Preparedness, Response and Recovery Activities

IS-279 Engineering Principles and Practices for Retrofitting Flood-Prone Residential Structures

IS-288 The Role of Voluntary Agencies in Emergency Management

IS-292 Disaster Basics

IS-301 Radiological Emergency Response

IS-324 Community Hurricane Preparedness

IS-330 Refresher Course for Radiological Response

IS-346 An Orientation to Hazardous Materials for Medical Personnel

IS-386 Introduction to Residential Coastal Construction

IS-393 Introduction to Mitigation

IS-394 Mitigation for Homeowners

IS-513 The Professional in Emergency Management

IS-600 Special Considerations for FEMA Public Assistance Projects

IS-630 Introduction to the Public Assistance Process

IS-631 Public Assistance Operations I

IS-632 Introduction to Debris Operations in FEMA's Public Assistance Program

C. Several other Centers for Public Health Preparedness offer training programs. A selection include:

Emory University Rollins School of Public Health

The following courses are only available for academic credit to enrolled students:

Public Health Preparedness and Bioterrorism - EPI/IH 591U

National Security and the Public Health Consequences of Disasters and Terrorism - EOH 581

Public Health Impacts of War and Terrorism - EOH 591B/IH591R

Introduction to Public Health Surveillance - IH 515

Emerging Infectious Diseases - EPI 562

Nutrition and Health in Complex Emergencies - IH 512

Crisis Communications and Public Health - BSHE 560R

University of Albany Center for Public Health Preparedness Grand Rounds

The following seminars are available on videotape:

Challenges in the Detection and Identification of Biological Agents
Dr. Jonathan Hibbs, MD, Vice President of Biotechnology Research at Evident Technologies in Albany, NY
The Public Health Response to Smallpox
Dr. Guthrie Birkhead, MD, MPH, Director, Center for Community Health; NYS Department of Health (NYS DOH) and Dr. John Treanor, MD, Associate Professor, Division of Infectious Disease, University of Rochester

Managing Chemical and Radiological Threats
Dr. Wanda Lizak Welles, PhD, Research Scientist and Section Chief; Hazardous Substances
Events Surveillance Section; Bureau of Toxic Substance Assessment at the NYS DOH;
Stephen Gavitt, CHP, Asst. Director; Bureau of Environmental Radiation Protection; Center
for Environmental Health, NYS DOH

Terrorism Preparedness: Effecting Local Response from a National Plan
Dr. Amy E. Smithson, PhD, Director, Henry L. Stimson Center Chemical and Biological
Weapons Nonproliferation Project

Public Health and Safety: Ensuring Civil Rights in a Time of Crisis
The Honorable Ralph F. Boyd. Jr., Assistant Attorney General and Chief of Civil Rights
Division; US Dept of Justice

Surveillance Systems for Biological and Other Events
Dr. Anita Barry, MD, MPH, Director, Communicable Disease Control, Boston Public Health
Commission

Enteric Diseases: Real Threats to our Public's Health
With Stan Kondracki, Recently retired as Regional Epidemiology Program Manager in the
Bureau of Communicable Disease Control within the New York State Department of Health.

University of Southern California at Los Angeles

The Center offers a number of graduate level courses through the Departments of
Community Health Sciences and Epidemiology, UCLA School of Public Health. Non-UCLA
students are able to take the courses offered through UCLA Extension, but the courses are
not available via distance learning.

CHS 256 Bioterrorism: A Deliberate Public Health Disaster

Offered Winter quarter, this 2-unit course in bioterrorism and public health, strives to
recognize the public health significance of bioterrorist events and to identify strategies that
public health professionals can use to prevent, detect, and intervene in these events in order
to limit morbidity and mortality in the population.

- Considers issues of surveillance, prophylaxis and treatment of exposed populations
- Explores the roles of pre-hospital and hospital/clinic-based practitioners in
  recognition of such exposures and notification of public health authorities
- Considers the role of the public health practitioner in laboratory identification/
  confirmation of suspected agent, isolation and treatment of exposed/ infected patients,

cooperative interagency incident management involving law enforcement, medical community, and federal agencies
- Addresses the roles and responsibilities of public health officials when working with the media in biological/chemical public health hazards

CHS 257 Program Planning in Community Disaster Preparedness: Hazard Risk Assessment and Response Planning

4-unit course on designing, implementing, and evaluating community disaster preparedness programs:

- Combines health education and emergency management principles
- Provides a how-to of needs and hazard assessments
- Examines ways of identifying of target populations
- Identifies program planning principles for disaster response
- Explores different methods of process, outcome, and impact evaluation of disaster response plans.

CHS 258 Cooperative Interagency Management in Disasters

4-unit course on interagency management from a public health perspective:

- Provides an overview of the complexities of managing mass population emergencies
- Explores how governments, non-profit, and private agencies interface in planning and responding to disasters
- Examines the actions of local, state, and federal agencies in disasters
- Critically looks at how health care infrastructures of hospitals, public health programs, and emergency medical services are challenged by disasters

CHS 295 Selected Topics in Disaster Relief and Humanitarian Assistance

2-unit introductory course in public health and disasters:

- Examines physical forces that result in disasters
- Explores principles of civilian and municipal service preparedness and response
- Looks at role of international community and relief agencies in humanitarian assistance
- Investigates the delivery of health care to displaced populations
- Provides an overview of research methods in disasters

CHS 440 Public Health and National Security at the U.S.-Mexico Border

2-unit course focuses on the issues of health and national security along the U.S.-Mexico border:

- Examines the concepts of borders and the common definitions and legal principles that exist with human determined geographic boundaries
- Explores the public health challenges that exist when borders separate populations of differing cultures and economic status
- Looks at the differences in health care delivery methods and goals that exist across borders
- Examines the risks and difficulties that exist at borders with regard to national security and terrorist activity
- Provides an overview of the public health issues at borders that center on free trade and mutual cooperation between nations

CHS 451 Post-Disaster Community Health

4-unit course examining the public health role in post-disaster community health:

- Defines the role of public health before, during, and after a disaster
- Examines research and practice approaches to addressing the public's health in the context of disasters
- Identifies ways that public health practitioners interface with the pre-existing health management structure
- Evaluates the impact of disaster on health by using data collection, management, and analyses
- Looks at the surveillance of health status before and after disasters
- Explores ways to disseminate health information in relation to disasters

Epi 259 Disaster Epidemiology

2-unit introduction to epidemiologic methodology to study disasters and their health outcomes:

- Examines the fundamentals of epidemiologic methodology as applied to disasters
- Identifies risk factors for morbidity and mortality due to disasters
- Explores practical approaches to surveillance and disaster studies
- Looks at ways to develop and evaluate intervention and injury control programs

University of Illinois at Chicago Center for Public Health Preparedness
The following courses are freely available to registered students. All materials are available online.

Public Health System
- PUBH 411: What Is Public Health
- PUBH 412: Understanding and Measuring Health
- PUBH 413: Population Based Prevention
- PUBH 414: Law, Government and Public Health
- PUBH 415: Core Functions and Public Health Practice
- PUBH 416: Public Health Infrastructure

- PUBH 417: Public Health Interventions

Community Health Improvement
- PH 421: What is Community Health Assessment?
- PH 422: Applying Informatics to Community Health Assessment
- PH 423: Assessing Community Assets and Capacity
- PH 424: Community Risk and Protective Factors
- PH 425: Community Agenda Setting
- PH 426: Community Problem Solving
- PH 427: Community Engagement

Policy Development, Advocacy and Public Health Law
- PH 431: What is Public Health Policy, Advocacy and Law
- PH 432: Making Public Health Policy
- PH 433: Advocating Public Health Policy
- PH 434: Legal and Legislative Processes
- PH 435: Regulatory Processes of Public Health Law
- PH 436: Operational Processes of Public Health Law
- PH 437: Evaluating Public Health Policy

Program Development and Evaluation
- PH 441: What is Public Health Program Development and Evaluation
- PH 442: Planning Public Health Programs
- PH 443: Developing Public Health Programs
- PH 444: Implementing Public Health Programs
- PH 445: Evaluating Public Health Programs
- PH 446: Outcome and Cost Evaluation
- PH 447: Evidence Based Program Decisions

Public Health Administration
- PH 451: What is Public Health Administration
- PH 452: Public Health Organizations
- PH 453: Information Management
- PH 454: Community Applications
- PH 455: Resource Management
- PH 456: Communications and Marketing
- PH 457: Public Health Leadership

Public Health Emergency Preparedness and Response
- PH 461: What is Public Health Emergency Preparedness and Response
- PH 462: Bioterrorism Preparedness and Response
- PH 463: Public Health Emergency Preparedness and Response Planning
- PH 464: Public Health Emergency Response Management
- PH 465: Surveillance and Assessment in Public Health Emergencies

- PH 466: Recovery and Evaluation
- PH 467: Risk Communication in Public Health Emergencies

Environmental Health
- PH 471: What is Environmental Health
- PH 472: Human Health Effects of Environmental Exposures
- PH 473: Source and Hazard Assessment
- PH 474: Qualitative Risk Assessment
- PH 475: Environmental Health Risk Communication
- PH 476: Qualitative Exposure Assessment
- PH 477: Environmental Prevention and Control

Applied Epidemiology
- PH 491: What is Applied Epidemiology
- PH 492: Frequency Measures Used in Epidemiology
- PH 493: Measures of Central Location and Dispersion
- PH 494: Organizing Epidemiologic Data
- PH 494: Public Health Surveillance
- PH 496: Investigations Outbreaks

Infectious Disease Preparedness
- PH 501: Infectious Disease Overview
- PH 502: Vaccine Preventable Infectious Diseases
- PH 503: Smallpox Preparedness
- PH 504: Anthrax Preparedness
- PH 505: Other Bioterrorism Agents
- PH 506: Emerging Infections

University of Iowa

Grand rounds materials are available for purchase on videotape and on archived web cast for no charge.

Dimensions of Terrorism: Assessing the Threat in Iowa
Preparing for Bioterrorism: An Update from the University Hygienic Laboratory
Greater New York City Disaster Response: 9/11 and Beyond
Detecting Agents of Bioterrorism: An Overview of Environmental Sampling Techniques
Risk Communication: Lessons from the Field
Managing Chaos: Responding to Mass Fatalities Incident

University of Michigan

The following courses are only available to registered students on site.

Risk Communication in Bioterrorism for Public Health Leaders

This competency based course will provide participants with comprehensive knowledge of the following: how to effectively communicate bioterrorism-related risk to the public; respond to public health concerns at the local, state, and federal levels, understand how the application of risk communication tools during a bioterrorism act can boost a health-care facility's and community's ability to direct most appropriately its resources during the response and recovery.

Graduate Summer Session in Epidemiology

The Michigan Academic Center for Public Health Preparedness is pleased to partner with the Graduate Summer Session in Epidemiology and to sponsor tuition scholarships for one member of the Michigan local public health workforce from each of Michigan's 45 jurisdictions, and one member of Michigan's state public health workforce assigned to each of Michigan's eight regions. Courses eligible include:

- EPID 776 Bioterrorism and Other Weapons of Mass Destruction: How Can Public Health Respond to the Threat? (1 wk.)
- EPID 709 Fundamentals of Epidemiology (3 wk)
- EPID 729 Epidemiology in Public Health Practice (3 wk)
- EPID 702 Basic Computer Applications in Epidemiology (1 wk)
- EPID 775 Public Health Informatics (1 wk)
- EPID 777 Geographic Information Systems (Weekend)

Crisis and Emergency Risk Communication (for Public Health Officers, Hospital Public Information Officers, Emergency Preparedness Coordinators and Public Health Medical Directors)

The Crisis and Emergency Risk Communication conference is a fast-paced, interactive course that gives participants essential knowledge and tools to navigate the harsh realities of communicating to the public, media, partners and stakeholders during an intense public health emergency, including terrorism. Emergency risk communication encompasses the urgency of disaster communication with the need to communicate risks and benefits to stakeholders and the public. Emergency risk communication is an expert "risk/benefit" opinion provided by an official--under intense time pressure and with less than complete information--to empower the public's decision making and advance a behavior that allows for rapid and efficient recovery from the event.

Bioterrorism and Emergency Preparedness

This competency-based course provides public health personnel from a variety of disciplines or functions with a comprehensive overview of the public health role in emergency management and homeland security. Although applicable to every phase and level of emergency management for all hazards, the course emphasizes bioterrorism preparedness and response at the state level. The course is designed to enhance attendees' awareness, effectiveness and confidence in their respective roles in public health emergency preparedness and response. It will also allow participants to receive updates on the State's Strategic National Stockpile Drill results, TOPOFF II Exercise results, MDCH/CDC Bioterrorism Preparedness Grant Program, Office for Domestic Preparedness (ODP) State Homeland Security Grant Program and the Michigan Homeland Protection Board and Advisory Council Reorganization.

Psychosocial Issues Related to Bioterrorism (Continuing Nursing Education credits offered)

This competency based training course focuses on methods for recognizing, minimizing, managing, and treating the severe psychological stresses associated with a bioterrorist event. The course will focus on the clinical skills appropriate to working with disaster-impacted families, children, emergency service personnel, health care workers and other vulnerable groups. Concepts such as post-traumatic stress disorder, critical incident stress debriefing, defusing, recognizing and avoiding burnout will be included.

Bioterrorism Agents and their Clinical Manifestations / Surveillance and Epidemiology for Public Health Nurses

This competency based course is designed to provide health professionals with an understanding of the threat posed by several Class A biological agents, combined with an understanding of practical principles and techniques of epidemiological and surveillance methods utilized to detect agents introduced into the population in the event of a bioterrorist attack. Although the course will focus mainly on biological agents, it will also include descriptions of other weapons of mass destruction (chemical and radiological). Consideration will be given to issues related to the production and delivery of biological agents as weapons of mass destruction. Instruction will focus on detection and identification methods, treatment, and prevention of infection by these agents. The course will conclude with a discussion of future research aimed at detecting biological agents and treating victims of bioterrorism.

University of Okalahoma

Course are only available on-site. Most of the courses focus on local content.

Chlorine Release for Water Operators and Firefighters

Emergency Preparedness for County Health Administrators

University of South Florida, Florida Center for Public Health Preparedness

Recovering from Terrorist Acts: Strategies to Aid the Public Health Professional and Agency (1.5 hrs)

Program Description: Acts of terrorism threaten and often paralyze a society by instilling fear of harm and evoking helplessness. As a result, individuals and organizations may feel as if they are being held in emotional hostage. The aim of this program is to aid the public health professional and agency in recovering from the acute stress and trauma of terrorism by offering strategies and interventions for helping self, agency, clients, and community. Through active dialogue among panelists and program participants, an expert panel provides an overview of the psychosocial impact of the trauma of terrorism on society and its citizens, and offers strategies for recovering from traumatic events.

Program Objectives: This program is intended to provide public health professionals with: § An understanding of the effects of and differences among primary, secondary, tertiary, and systemic trauma associated with human-caused domestic disasters, such as terrorism, and the strategies for recovering from the impact of such crises on self, agency, clients, and community; § An overview of the psychosocial effects of a terrorist or traumatic event; § Strategies and resources for helping self, agency, and clients recover from the primary, secondary, tertiary, and systemic effects of terrorism as a traumatic event, including identifying when self and others should seek professional assistance

Public Health and Anthrax in Florida: A Report and Recommendations- A 15-minute update on Anthrax in Florida.

Quality Improvement: Tools and Techniques - (4-hours)

Program Description: Quality management in public health practice is highly dependent upon people and facts. By combining the communication needs of people with the quantitative and visual power of statistical tools, a common language has been developed. Through real life examples of actual applications to public health practice settings, this program is intended to assist public health practitioners in applying the QIC Story® (Quality Improvement and Control) and its supporting statistical tools and techniques to day to day problem assessment and solving. Practical and regular application of quality improvement tools and techniques throughout the public health organization can lead to the improved delivery of the Public Health Essential Services through individual employee and agency-wide continuous improvement.

Program Objectives: To provide learners with the tools, methods, and techniques to improve the quality of public health practice and address and solve organizational problems encountered in delivering the ten Essential Services of Public Health.

Risk Management: Practices, Processes, and Principles - (1hr. 45 mins.) The second part of a 2-part series on risk management in public health practice. *Program Objectives*: To provide a general overview of the risk management process; to emphasize the importance of tracking and trending risk and loss; and to introduce strategies for managing risk and reducing loss.

Understanding and Valuing Risk Management - (1 hr. 45 mins.) The first part of a 2-part series on risk management in public health practice. *Program Objectives*: To provide a

history and a general overview of risk management; to introduce learners to the general concepts, terminology, and laws (Florida) related to risk management; and to create an awareness, appreciation, and understanding of risk management in the public health setting; and to identify the benefits of risk management to public health practice.

University of Washington

Bioterroist Attach on Food for Public Health and Emergency Response Professionals (CD ROM)

Preparing for and Responding to Bioterrorism: Information for the Public Health Workforce (Powerpoint Modules on Web)

Preparing for and Reponsing to Bioterrorism: Information for Primary Care Clinicians (Powerpoint Modules on Web)

University of North Carolina Center for Public Health Preparedness

The following courses are available online for continuing education credit.

Acute Disease Surveillance and Outbreak Investigation

Introduction to Surveillance
Communicable Disease Surveillance in North Carolina
Hemorrhagic Fevers and Other Zoonotic Viruses
International Emerging Infections Surveillance
Investigating Outbreaks of Psychogenic Illness
Laboratory Surveillance: The State Public Health Lab Perspective
Outbreak Investigations
Public Health Burden of Foodborne Disease

Biostatistics

Confidence Intervals
Tests of Significance
Inference for the Mean of a Population
Comparing Two Means
Introduction to Linear Regression
Confidence Intervals and Significance Tests
The ANOVA Table

Bioterrorist Agents

Recognition and Management of Bioterrorist Agents: AN Overview
Recognition and Management of Plaque, Tularemia, and Q Fever

Community Assessment

Introduction to Assessment
Assessment Competencies
Assessment Models
Settings and People

Emerging and Reemerging Disease Agents

Animal Bites and Rabies

Epidemiology Methods

Cohort Studies

Geographic Information Systems

Introduction to Geographic Information Systems (GIS)
Using GIS for Disease Surveillance and Outbreak Investigations

Tools

Sampling Case Studies
Survey Sampling: Precision, Sample Size and Conducting and Survey
Survey Sampling Terminology and Methods

D. Training Finder, a clearinghouse operated by the Public Health Foundation at
http://www.trainingfinder.org/ catalogues over 600 training programs, 90 of which relate to
bioterrorism and emergency preparedness. Course listings may be searched by subject,
audience, type of credit received or keyword. Many of these courses require payments for the
use of materials from $25 to $200.

A Health Professionals Response to the Terrorist Threat by First Responder Inc.
Emergency Medical Update/Basic Skills Training Program by Pulse Emergency Medical
Update
Bioterrorism: Implications for Public Health by University of North Carolina at Chapel Hill
Use of Anthrax Vaccine in the United States: Recommendations of the ACIP by Centers for
Disease Control and Prevention
Hazard Communications by National Environmental Health Association
Disaster Preparedness in Schools of Public Health by Association of Schools of Public
Health and the Centers for Disease Control and Prevention
Anthrax by Wild Iris Medical Education
Bioterrorism: The Threat And The Response by Bloomberg School of Public Health
Bioterrorism Preparedness 101 by Illinois Public Health Preparedness Center
Clinical Diagnosis and Management of Anthrax - Lessons Learned (Webcast) by PHTN,
CDC, American College of Emergency Physicians and others/UNC School of Public Health

Clinical Diagnosis and Management of Anthrax - Lessons Learned (Videotape) by Public Health Training Network, CDC, American College of Emergency Physicians, PHF and others

CDC Responds: Risk Communication and Bioterrorism (Videotape) by CDC, PHTN, APIC, NPHIC, Others/PHF

CDC Responds: Influenza — Prevention, Detection, and Control (Videotape) by PHTN, CDC, AHA, AMA, AOA, NMA, IDSA, and others/PHF

Update on Options for Preventive Treatment for Persons at Risk for Inhalational Anthrax (Webcast) by AHA, AMA, AOA, APIC, AAMC, NMA/PHF and UNC School of Public Health

How to Handle Injuries from Acts of Violence by Wild Iris Medical Education

Biological & Chemical Warfare and Terrorism: Medical Issues and Response (Webcast) by U.S. Army Medical Command

Medical Management of Biological Casualties by USAMRIID/CDC/PHTN/FDA

Emergency Preparedness: What's Your Competency by T2B2 - University at Albany School of Public Health

Coping with the Ecological Aftermath of 9/11: Long-term Effects and Mental Health by T2B2 - University at Albany School of Public Health

Assessing Facility Bioterrorism Preparedness: A Guide for ICPs by Association for Infection Control and Epidemiology

Emergency Planning and Management Self-Study Course by ABS Consulting, Government Institutes

Responding To Communication Challenges Posed By Bioterrorism And Emerging Infectious Diseases by ASTHO

AIDS, Hepatitis & the Emergency Responder by Emergency Film Group

Air Monitoring: Contamination Assessment by Emergency Film Group

Chemical Protective Clothing by Emergency Film Group

CO: Response to Carbon Monoxide Incidents by Emergency Film Group

Investigations: HazMat Investigations by Emergency Films Group

Investigations: Introduction to Investigation by Emergency Films Group

Confined Space Emergency: Understanding Confined Spaces by Emergency Film Group

Oil Spill Response: Initial Response by Emergency Film Group

The 8 Step Process: Decontamination by Emergency Films Group

The 8 Step Process: Hazard and Risk Evaluation by Emergency Films Group

The 8 Step Process: Identifying the Problem by Emergency Films Group

The 8 Step Process: Implementing Response Objectives by Emergency Films Group

The 8 Step Process: Information Management & Resource Coordination by Emergency Films Group

The 8 Step Process: Protective Clothing & Equipment by Emergency Films Group

The 8 Step Process: Site Management & Control by Emergency Films Group

The 8 Step Process: Terminating the Incident by Emergency Films Group

I.C.S. - the Incident Command System by Emergency Films Group

Emergency Response to Terrorism Quick Study Course by ABS Consulting, Government Institutes Division

Public Health Grand Rounds: Disasters, People and Public Health by UNC School of Public Health and the Centers for Disease Control and Prevention

Anthrax Bioterrorism and Health Care by LearnWell Resources

Smallpox Epidemic: Could You Deal With It? by LearnWell Resources

CDC/US Dept. Education Collaborate to Help Schools Prepare for Possible Terrorism (Webcast) by U.S. Department of Education, DHHS, CDC/PHF

The Role of Nursing and Public Health During Times of War and Terrorism (Webcast) by DHHS, US Public Health Service/PHF

Mass Casualty and Bioterrorism Planning for Healthcare by HCPro Corp.

Preparing for Decontamination Procedures by HCPro Corp.

Public Health Preparedness and Response Series by Illinois Public Health Preparedness Center

Public Health Emergency Management by UMass, Amherst School of Public Health and Health Sciences

Medical Response to Chemical Warfare and Terrorism by The United States Army Medical Research Institute

CDC Responds: Update on the State and Local Preparedness Grant Program (Webcast) by CDC, PHPPO, PHTN/PHF

Emergency Preparedness: What's Your Competency? by School of Public Health, University of Albany

CDC Bioterrorism Update: Smallpox Preparedness by CDC, PHPPO, NIP, PHTN/PHF

Public Health Implications of Exposure to Radiation From Nuclear Weapons Production and Testing by The American College of Preventive Medicine

Bioterrorism Agents by Medway Interactive Education

Smallpox Preparedness: Considerations for Response Team Volunteers by CDC, APHL, ASTHO, NACCHO/PHF

Communication During Crisis: The Role of Media During Public Health Emergencies by University at Albany Center for Public Health Preparedness

ED Preparedness by Denver Center for Public Health Preparedness

Epidemiological Surveillance by Denver Center for Public Health Preparedness

Incident Command System: Coordination in a WMD Event by NTPI, St. Petersburg College

Smallpox and Vaccinia Laboratory Testing: A National Training Initiative by PHTN, CDC/PHF

Clinical Management of Adverse Events Following Smallpox Vaccination: A National Training Initiative by PHTN, CDC/PHF

Protecting Your Health for People Who Process, Sort, and Deliver the Mail (Webcast) by Centers for Disease Control and Prevention

Medical 'Grand Rounds' Smallpox Threat and Treatment by University of California Television

Infectious Disease Preparedness by Illinois Public Health Preparedness Center

Unified Command in a WMD Event (Webcast) by NTPI

The Public Health Response to Smallpox by University at Albany School of Public Health

Terrorism Preparedness: Effecting Local Response From a National Plan by University at Albany Center for Public Health Preparedness

Smallpox Vaccination Basics: A Comprehensive Guide to Screening, Techniques, Post-Care by The California Distance Learning Health Network and Total Recall Learning, Inc.

Increasing Clinician Preparedness for Severe Acute Respiratory Syndrome (SARS) by Public Health Training Network (PHTN)

Toxins as Biological Warfare and Terrorism Agents by Department of Veterans Affairs
Smallpox: What Every Clinician Should Know 2003 Update by PHTN, CDC/PHF

Appendix D: Example of an Interactive Case Study

A CLUSTER OF GROUP A STREPTOCOCCAL POSTOPERATIVE WOUND INFECTIONS

Question 1:

You are the hospital epidemiologist at a hospital in Michigan. On August 12, 1998, you are at your desk in your office, enjoying your morning coffee and writing up a report on your last outbreak investigation when the phone rings................(Answer the phone by clicking on it)
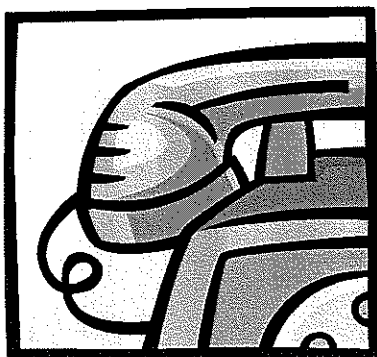
On the phone is the head of the surgical unit in your hospital, she informs you that she suspects that there is an outbreak of Group A streptococcus (GAS) in the hospital surgical unit. There have been 7 cases of GAS postoperative wound infections in the surgical unit since April 23, 1998. Of the 7 patients with infections, 2 developed bacteremia, and 1 died.

After talking with the head of the surgical unit, do you think there is a real outbreak?

$\bigcirc$ a. Yes

$\bigcirc$ b. No

$\bigcirc$ c. Really don't know - not enough information yet.

Submit | Reset

Our suggested answer is:

c. There is really not enough information yet to conclude that there is or is not an outbreak of Strep A in this hospital.

Wound Infections Rate per 100 Operations (Jan 1, 1997- Aug 15,1998)
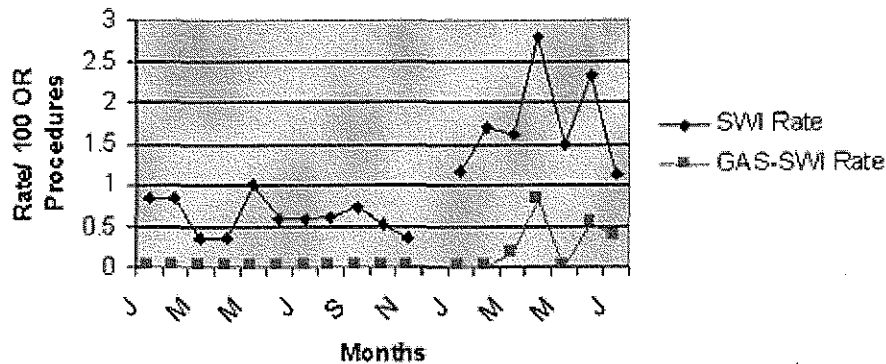
The number of surgical wound infections appears to have been fairly constant in 1997; beginning in March 1998 there was an increase in the number of surgical wound infections overall; the increase in group A strep infections began in April 1998. From these data it is still difficult to determine whether there is an outbreak. You realize that even though this does look like an true outbreak what you may be seeing is a pseudo-outbreak. Click here to continue with the case study.

Question 2:

Do you think there is sufficient evidence to continue the investigation?

Indicate yes or no and list at least two reasons why you came to this conclusion.

Question 3.

The investigation of an outbreak can be divided into many steps. The order may not be the same in every investigation, in fact you may do some steps at the same time, but for the purposes of this exercise we will move through each step individually. Remember, you should always use a systematic and logical approach. Please select the first step that you would take:

Steps in an outbreak investigation

○ a. Communicate findings

○ b. Communicate with the proper authorities

○ c. Confirm the hypothesis - case control, cohort studies.

○ d. Develop a hypothesis

○ e. Develop the case definition

○ f. Implement case finding and develop line listing

○ g. Institute temporary control measures

○ h. Plot the epidemic curve

○ i. Prove that an epidemic exists (calculation of rates)

○ j. Update control measures, (Change polices and procedures if possible and document efficacy of control measures by continued surveillance)

○ k. Verify the diagnosis

(adapted from D. J. Weber, M.D., M.P.H.)

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Appendix E: Learning Objectives for the Emergency Preparedness Competencies for All Public Health Workers[14]

1. Define the terms emergency and disaster.
2. Explain the differences between man-made and natural emergencies/disasters.
3. Select examples of man-made emergencies/disasters that are likely to occur in your locale
4. Describe three common features of large-scale man-made or natural emergencies/disasters.
5. Select examples of natural emergencies/disasters that are likely to occur in your locale.
6. Describe at least 3 man-made or natural disasters/emergencies with significant public health implications.
7. List at least 5 functional roles of the public health system in an emergency response.
8. Describe at least 4 responsibilities of the DOH response to emergencies/disasters.
9. Describe the role of the Office of Emergency Management (OEM).
10. Define the term: Incident Command System (ICS).
11. Identify three levels of government agencies that may collaborate in natural disasters. An example(s) of collaboration between different levels of government agencies in an emergency/disaster are:
12. Specify DOH employees are needed during an emergency or disaster response. For a department of health, effective emergency /disaster response requires mobilization of:
13. Describe how your agency's chain of command operates in an actual emergency.
14. Explain the major roles and responsibilities of the divisions or program sections in your department of health during times of emergency/disaster response.
15. Describe your functional role(s) in an emergency/disaster.
16. Give examples of unusual instances that might indicate an impending emergency that should be reported.
17. Assess limits of your own knowledge/skills/authority in an emergency/disaster.
18. Identify at least two resources for referring matters that exceed your knowledge/skills/authority in an emergency/disaster.
19. Describe your communication role(s) with the media during emergency/disaster response. During an emergency/disaster how would you communicate with the media?
20. State the major component(s) of a Family Emergency Plan and a Personal Emergency Plan.
21. Demonstrate correct use of all communication equipment available for emergency communication (e.g., Nextel phone, fax, radio).
22. Apply creative problem solving and flexible thinking to unusual challenges within your functional roles and responsibilities.
23. Describe a method to evaluate the effectiveness of all your actions taken during an emergency/disaster.

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[14] http://www.mailman.hs.columbia.edu/CPHP/pdf/Emergency-Preparedness.pdf. Accessed on 5/26/03

Appendix F: Screen Captures of Additional Blackboard Materials:

1. Sample Self Assessment Materials
2. Sample Module

Since most students and public health professionals enrolled in this course have many years of professional experience that may be applicable to course material, but may be new to the medium of distance learning or hesitant to share these experiences with classmates, self-assessment questions will be used to develop learners' confidence and encourage them to share their experiences with other students as they relate to the case studies and discussion forum questions (Race, 1992).

Self-assessment questions will be developed for several course modules. Students will answer a selection of multiple choice, true-false and ordering questions and will then see the correct answer on the following screen. If their answer was incorrect, the correct answer along with an explanation of why their answer was not correct will be shown. This immediate feedback is important to build student confidence and does not require active instructor time during the course. Scores from these self-assessments do not count towards the student's grade.

Assessment Builder

Add Item

Name: Self Assessment Module 1   (Modify)

Description:

Instructions: Go through the following questions to assess your learning from the readings and lecuture from Module 1. Your answers will not be graded, but it is important to understand the correct answers.   (Modify)

Question 1   **Multiple Choice**   0   (Modify) (Remove)
Points

Question: How do you define a disaster and an emergency?

Answer:
✗ Disasters are natural events while emergencies are man-made events.
✓ Disasters require response from outside the effected community, while emergencies can be address with local resources.
✗ Emergencies typically require evacuation, search and rescue, coordination among jurisdictions, triage and casulty distribution.
✗ All of the above

Correct Feedback: Correct!

Incorrect Feedback: Sorry, this is incorrect. Both disasters and emergencies can be either natural or man-made; planning for both types is important. Remember, "disasters are emergencies of a severity and magnitude that cannot be managed by the application of routine procedures or resources." (Landesman, p. 1)

Cancel   Save   Save and Make Available

COURSES > PUBH396.019.SPRING2003 > CONTROL PANEL > ASSESSMENT MANAGER > ASSESSMENT BUILDER

Assessment Builder

▢ Add Item

Name:	Self Assessment Module 2	(Modify)
Description:		

Instructions:	Go through the following questions to assess your learning from the readings and lecture from Module 2. Your answers will not be graded, but it is important to understand the correct answers.	(Modify)

Question `1 ▾` **Ordering**   `1` Points   (Modify) (Remove)

Question: Put the following notification procedures for a bioterrorist incident in the appropriate order from the perspective of a local or state health official.

Answer:

Display Order	Correct Order
1. Confirm probable bioterrorist incident	1. You suspect that an unusual case of illness may be due to a bioterrorist incident
2. Notify the FBI and other predetermined response partners	2. Inform and involve state health department
3. Inform and involve the CDC	3. Inform and involve the CDC
4. Inform and involve state health department	4. Confirm probable bioterrorist incident
5. You suspect that an unusual case of illness may be due to a bioterrorist incident	5. Notify the FBI and other predetermined response partners

Correct Feedback: Correct! Reponse partners might include state and federal agencies, public health laboratories, hospitals, emergency responders, 911 centers, medical teams,

EMS, clinics, HMOs, and alert networks.

Incorrect Feedback: Sorry, this is not correct. You should inform and involve the State Health Department as soon as you suspect a bioterrorist incident or an unusual illness. It is the responsibility of the State Health Department to notify the CDC. Also, remember the importance of having a predetermined notification list of agencies and organizations that can help cover all of the essential public health services as they relate to a potential bioterrorist incident.

(Cancel) (Save) (Save and Make Available)

Course Documents

Current Location: Course Documents

Module 1: Public Health Workforce

Module 2: Roles and Responsibilities

Module 3: Communications

Module 4: Using, Managing and Accessing Data

Module 5: Public Health Information Systems

Module 6: Surveillance and Investigation: Public Health Labs

Module 7: Surveillance and Investigation: Water and Foodborne Diseases

Module 8: Bioterrorism

Module 9: Allocation of Resources

Module 10: The Public Health Response to Bioterrorism

Module 11: Federal, State and Local Responses to Bioterrorism

Module 12: Public Health Law

Final Paper

Course Documents

Current Location: Module 3: Communications

[Top] : Module 3: Communications

Readings
Public Health Management of Disasters: The Practice Guide

Chapter 6, Disaster Communication (p. 73-79)
Appendix A: Terms Commonly Used in Disaster Preparedness and Response (p. 169-190)
Appendix B: Acronyms Commonly Used in Disaster Preparedness, Response and Recovery (p. 191-195)

Lichtveld, M. "Preparedness on the Frontline: What's Law Got to Do With It" Journal of Law, Medicine and Ethics. Fall 2002 (p. 184-188)

Lecture Materials
CDC Responds: Risk Communication and Bioterrorism

December 2001, Approximately 90 minutes

http://www.sph.unc.edu/about/webcasts/2001-12-06_risk/
and click on the View Entire Webcast link.

Discussion Forum Materials
Watch the video: Communication During Crisis: The Role of the Media During Public Health Emergencies"

University of Albany School of Public Health

December 2002, Approximately 1 hour

After watching the video, discuss the following questions using the discussion forum.

How would you define panic in your organization or community? How can a communications plan help you deal more successfully with the media, the public, policy makers and others?

What do you think about the need to balance the security requirements that sometimes mean information is kept from the public and the need for public awareness, education and information? Give specific suggestions for working with policy makers to reduce impediments to your distribution of critical information.

Give examples from your own experience of providing "access and context" to the media on a specific isssue. What problems may arise in an emergency if reporters are not a member of your team?

Appendix G: Ten Steps for an Effective Training Programs (Kirkpatrick, 1998)

Determining Needs	IOM, <u>Who Will Keep the Public Healthy</u> Health Resources and Services Admin. Policy Makers: CDC, FEMA, Dept. of Homeland Security Public Health Professionals as surveyed by NCCPHP, MAPH, MAHEC
Setting Objectives	Reducing the need for training for public health professionals, including administrative and leadership staff to meet the Core Capacities for Threats and Emergencies Core Emergency Preparedness Competencies by providing case-studies which may be applied to emerging issues
Determining Subject Content	Bioterrorism Disasters Emergencies
Selecting Participants	Distance Learning MPH students in the PHLP Public health professionals who are clients of NCCPHP
Determining the Best Schedule	Spring 2004, Distance Learning
Selecting Appropriate Facilities	UNC-CH Distance Learning facilities
Selecting Appropriate Instructors	Content experts from UNC-CH School of Public Health and public health professionals in community, state and federal public health organizations with coordinating instructor
Selecting and Preparing Materials	Reading lists, materials developed by other preparedness centers such as videos and lectures, and cross cutting case studies and discussion forum questions for weekly, student moderated ALNs
Coordinating the Program	PHLP MPH graduate
Evaluating the Program	Level 1: learner satisfaction Level 2: improved learner self-efficacy Level 4: career advancement opportunities, applicability of the program curriculum to public health practice