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Mary Ireland

Emma Kontzamanis
CUNY New York City College of Technology

Chantal Michel

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Integrating Disaster Preparedness Into a Community Health Nursing Course:

One School's Experience

Mary Ireland, RN, PhD, Emerson Ea, MS, APRN-BC, CEN, Emma Kontzamanis, MA, RN, and Chantal Michel, RN, BSN, CEN, SAE

It is not practical to wait for a disaster, whether natural or human-made, to learn how to respond and provide specialized care. The Long Island University School of Nursing in Brooklyn, New York, has developed a specific educational experience for undergraduate nursing students enrolled in community health. The course is offered in the senior semester and includes didactic material based on the International Nursing Coalition for Mass Casualty Education recommended competencies. Students are given the opportunity to apply the learning and develop additional skills by participating in a mock drill. Although anecdotal comments from the students indicate that the coursework has been helpful, additional research is planned to evaluate the program.

Nurses comprise the largest group of health care professionals in the United States (2.7 million) and are essential personnel in efforts to prepare for terrorism and disasters and to deal with the consequences of an attack. Although nurses may be willing to respond to a disaster or major public health emergency, their actual response may be determined by their sense of clinical competence, their perception of personal safety, and the confidence and safety of their family members and significant others.

An increasing concern of nursing faculty is that student nurses be trained for disaster preparedness and response in the event of a disaster or mass casualty event. (1- 3) For example, the School of Nursing at the University of Texas at Austin offers a Disaster Nursing course, (4) and the Vanderbilt School of Nursing established a National Center for Emergency Preparedness in December 2002. (5)

The American Association of Colleges of Nursing (AACN) envisions a professional nurse as a graduate of a baccalaureate program who is capable of providing holistic care to clients from diverse cultural backgrounds, can practice independently within the domains of nursing practice roles and collaboratively with other health team members, and acts responsibly in the event of a disaster. (6) As an active partner of the International Nursing Coalition for Mass Casualty Education (INCMCE), AACN has acknowledged that not all nurses can or should be prepared as first responders in the event of a mass casualty incident (MCI). An MCI is any incident, whether human-made or due to natural forces, " ... that results in significant disruption to the health and safety of the community or a segment thereof, or to the nation and that results, or is likely to result, in numbers of acuity that initially exceeds day-to-day operational capability of the local response community and healthcare system " (7)

INCMCE was convened in 2001 to assure a competent nurse workforce to respond to MCIs. It is composed of representatives from schools of nursing, nursing specialty organizations, nursing accrediting bodies, and health care and government agencies. In a recent report, (8) INCMCE advocated that all nurses, regardless of experience and specialty, should possess the basic knowledge and skills needed to appropriately respond to an MCI. The MCI competencies are

based on defining core competencies, core knowledge, and professional role development.

The Long Island University School of Nursing (LIUSON) Brooklyn Campus disaster preparedness program is modeled on the INCMCE nursing competencies and is embedded in the senior community health nursing course. Initially the program was limited to a 3-hour didactic component and a 1-day symposium. More recently, disaster drills have been organized that enable faculty and students to team up with a Brooklyn hospital emergency department. Mock drills have been organized to create an interdisciplinary approach that includes medical, nursing, and administrative staff. The drills link the theoretic aspect of disaster management with hands-on scenarios that simulate real-life possibilities, such as dirty bombs, plague, or other events.

Background: One School of Nursing's Educational Response Following the Events of 9/11

During the days that followed September 11, 2001, it became apparent that the magnitude of the impact of the attacks on health care systems in New York City would have far-reaching educational implications. Issues such as incident command systems, triage, prehospital care, forensics, weapons of mass destruction care, mass sheltering, media management, mass evacuation, and responder stress and safety were no longer just the purview of military or emergency nurses. These topics would be important content to be integrated into the curriculum, and the community health nursing course was determined to be a logical place to integrate disaster preparedness.

Disaster Preparedness and Management Education

Disaster preparedness and management is covered in a 3-hour lecture, followed by a 1-day mock drill. Administrative support for the course content has been provided by the School of Nursing dean, and funding of speakers has been provided by a McGrath Family grant.

Didactic Lectures

Theoretic framework. Students are introduced to the concepts of preparedness, management, and MCIs. The core competency objectives outlined in the INCMCE report (8) are used as the framework for content development and for validating student competency in an MCI. Course content includes the 4 stages of disaster work-mitigation, preparedness, response, and recovery (9); weapons of mass destruction (WMD), including agent identification and recognition of covert exposure in a population, patient decontamination, and mass triage; and mass immunization. (10) Stanhope and Lancaster's book *Foundations of Community Health Nursing: Community-Oriented Practice*, (11) which includes a chapter on disaster management, is used as the main lecture reference. Additional resources include current articles and publications on disaster preparedness and management.

Course content. Specifically covered in the lecture is a discussion of the following concepts: (1) types of disasters (ie, human-made versus natural); (2) MCIs; (3) triage; (4) WMDs; and (5) chemical, biologic, radiologic, nuclear, and explosive agents. The 4 phases of emergency management-preparedness, response, recovery, and mitigation-and the different roles that nurses

play in each of these phases are emphasized.

Within the discussion of the 4 phases of emergency response and preparedness (personal, professional, and community), students are taught that there are levels of disasters and corresponding types of response. These factors can affect allocation of limited resources, involvement of local, state, and federal emergency response systems, activation of emergency communication systems, and creation of an interdisciplinary team to manage a disaster.

The didactic session focuses on assessment, communication, and problem resolution. An emphasis is placed on moving from a crisis basis for nursing care delivery to a plan of action. Students are encouraged to develop a proactive rather than a reactive approach to providing care. The lecture emphasizes the central role of the nurse, the use of critical thinking skills in clinical judgment and decision making, and the need to set priorities in order to ensure appropriate care for individuals, families, special groups (for example, elderly persons, pregnant women, and children), and communities. Students learn to develop a personal, family plan of action for disasters and practical information, such as how to locate and become familiar with the Emergency and Disaster Preparedness Plan for the clinical facility to which they have been assigned.

Psychological content. The psychological effects of a disaster or an MCI (eg, the mental health needs of both victims and responders) are discussed within the context of crisis theory. Faculty reinforce that one cannot not respond, that human responses to stressors are expected at the physical, cognitive, and affective levels, and that the emotional trauma should be dealt with as

soon as possible. Distinctions between adult and child responses are made, as are initial versus delayed reactions. Should a nurse's family or community be directly affected, it is emphasized that this factor will intensify a nurse's stress response.

Students are encouraged to discuss issues that may limit a person during an MCI, such as fear, panic, and posttraumatic stress. This content is then followed with a discussion of appropriate coping strategies for the management of personal and client responses to an MCI. The discussion is concluded with stressing the importance of clear lines of communication before, during, and after an MCI.

Ethical aspects. Some of the ethical aspects of a disaster also are covered, such as how triage in a disaster differs from traditional medical triage. The dictum, "The greatest good for the greatest number of people" is used as a template for discussion. Examples of patients with different types of clinical manifestations and how they are classified and managed are used to further clarify the process of disaster triage.

Symposium and Field Experience

In 2002, a 1-day symposium was implemented that features lecturers who are experts in the field of emergency and disaster medicine who had experienced first-hand the events of September 11, 2001, and Severe Acute Respiratory Syndrome in Toronto, Canada, in 2003. Speakers also included topics such as the general signs and symptoms and psychological effects of exposure to

selected chemical, biologic, radiologic, nuclear, and explosive agents. After 2 years, the symposium was expanded to include an afternoon hands-on experience. Students were invited to assist at the emergency department (ED) of Woodhull Medical Center during their joint Commission on Accreditation of Healthcare Organizations-required, semi-annual disaster mock drill. (See Table 1 for various drill scenarios.) Students were allowed to participate in the virtual MCI, which allowed them to see and experience the relationship between disaster preparedness theory and practice. It gave them the opportunity to utilize and demonstrate critical thinking, assessment, technical and communication skills within a new context. In December 2005, the faculty added an evaluation component to empirically test knowledge transfer by using a newly developed Student Attitudes Toward Disaster Preparedness Questionnaire.

Students and faculty were integrated into the Woodhull Emergency and Disaster Preparedness Plans located within individual departments. They worked alongside hospital police, who cordoned off the doors to the ED. They worked with the nurse ED director, who took the role of ED treatment leader and was responsible for setting up appropriate triage areas and ensuring that the ED would have the appropriate space to care for an influx of patients. The director carefully scrutinized admissions and encouraged discharges. Students found that observing the nurse ED director taking a management lead in an MCI helped to reinforce the central role of nursing in disaster response in an institutional setting.

Students are encouraged to be either a responder or a victim during the mock drill scenario. As a responder, student participants are able to apply the principles of containment and decontamination, scene assessment and management, and a hands-on experience regarding how

to use personal protective equipment. They also perform triage, initiate physical assessment, and carry out interventions with the use of appropriate antidotes and medications, depending on types of injury. Most of all, they realize the Importance of team play and the pivotal role of the nurse in a disaster. As victims, students experience first-hand how the aforementioned procedures are executed, but more importantly, they are provided the opportunity to live the process of being in a crisis. As the recipients of care, they begin the journey of discerning the ethics of triage.

Senior nursing students possess core knowledge and have had clinical experiences that help prepare them to respond to an MCI. This foundation is built on by using community health nursing concepts as the context in which this core knowledge is extended. Unfortunately, the faculty teaching the course agree that there is not enough time to cover everything, especially the regulatory and legal aspects and the cultural, spiritual, and social issues of disasters. If time permits, additional content may include other possible nursing roles in a disaster or MCI: (1) researcher, epidemiologist; (2) first responder; (3) direct care provider; (4) on-site coordinator of care/ incident commander; (5) triage officer; (6) information provider/educator; (7) generalist nurse; (8) advanced practice nurse; and (9) mental health counselor. Furthermore, it is recommended that a nurse know his or her limitations regarding knowledge, skills, abilities, and authority; the role he or she will be expected to perform; and which essential equipment (eg, stethoscope, registered nurse license, packaged snack, change of clothing, bottles of water) will likely be needed.

Table I. Scenarios used to help undergraduate community health nursing students experience mass casualty events

Drill Scenario No. 1

At approximately 2 pm a delivery truck filled with high-yield explosives (ie, a dirty bomb) drives up to the security checkpoint of the new Brooklyn Navy Yard Movie Studio. The driver bursts through the checkpoint and crashes the truck into the main building, causing a massive explosion that results in numerous fatalities and severe injuries. Ten ambulatory student patients who have sustained numerous injuries present to Woodhull Hospital. In addition, Student victims are transported to Woodhull Hospital via Emergency Management Systems.

Students and 2 faculty members were briefed by the nurse director of the ED on their roles as either victims or responders in the event of mock chemical attack. Some student victims were made to look as though they had received burns, whereas others had lacerations and fractures sustained while in flight from the scene of the assault. Student victims experienced decontamination in the "decon" van adjacent to the hospital prior to being triaged in the ED.

As the student victims converged on the ED, 2 faculty functioned as triage nurses, along with Woodhull ED nursing staff. Within a manner of minutes, our students, who took their role as victims seriously, poured through the ED doors, crying and terror-stricken. Amidst this pandemonium, the triage nurses quickly assessed victims, separating those who needed to be treated immediately from those who could wait for intervention. As the adrenalin pumped, the experience had every hallmark of a disaster, that is, little time to think and yet the need for rapid

response. This was real!

Drill Scenario No. 2

Fifty persons attend a conference in Wyoming, 10 of whom go on a hunting trip while in the region. Two days later, while returning from Wyoming on a bus to Brooklyn, several persons become very ill. Enlarged lymph nodes, fever, vomiting, and diarrhea develop in 5 persons, and 5 others report cough, chest pain, and tachypnea.

Exiting the Williamsburg Bridge, the driver of the bus hurriedly drives to the nearest Brooklyn hospital, Woodhull Medical Center. Again, faculty and students were oriented to their roles as either victims or ED staff, but this time in response to a biologic event, pneumonic plague. On this occasion, students participated with faculty in assessment, triage, intervention, and transfer of victims to appropriate settings based on postexposure need.

Drill Scenario No. 3

In this scenario, Woodhull Medical Center tested infection control disaster plans and the triage system when faced with a stream of patients, some of whom potentially harbored contagious organisms. Ten student victims presented to ED; 5 represented day care staff who reported fever and a rash, and 5 represented persons who recently had traveled outside the United States and now were reporting fever and respiratory symptoms such as cough and congestion. The remaining students shadowed the ED nurses, who had to distinguish between patients who required quarantine versus those who could be treated and sent home. The drill was multifaceted

in its attempt to test triage processes, established isolation protocols, and the adequacy of communication from the point of triage to movement of victims to the immediate clinical area.

Future Plans

Having had several years of experience with integrating this content into one course, LIUSON is ready to consider integration of these concepts across the curriculum. Through curriculum mapping, we will learn how disaster preparedness and MCI response content builds upon or supports existing content and experiences. The next step, especially if additional content or experiences seem to be required, will be to locate pedagogical techniques best suited to prepare graduates in related competencies. (12) We believe that: (1) continuing to focus on the consensus-based competencies included in the INCMCE framework, as well as collaboration with hospitals and like facilities, will help us in educating LIUSON's future practitioners; and (2) empirical evaluation of knowledge gained through the administration of reliable and valid measurement tools not only will provide data but will help respond to the evaluation gap in INCMCE that currently exists. To successfully accomplish the latter, face and content validity must be established for the Student Attitudes Towards Disaster Preparedness Questionnaire by the LIUSON Test Review Committee. Test-retest reliability then can be achieved through subsequent administration of the questionnaire to student participants.

Summary

Natural and human-made catastrophic events will continue to occur and can involve major urban centers in the United States. Disaster preparedness requires that all health care providers are knowledgeable, skilled, and able to respond to a variety of threats. Because it is not practical to wait for a disaster to learn how to provide specialized care, the LIUSON faculty developed a specific educational experience for undergraduate community health student nurses. The course includes specific didactic material that is based on recommended standards. Students are given the opportunity to apply the learning and to develop additional skills by participating in a mock drill. Anecdotal comments from the students indicate that the course work has been helpful, and additional research is planned for evaluating the program.

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