Nursing Education for Disaster Preparedness and Response

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abstract

Catastrophic mass casualty events (MCEs), such as pandemic influenza outbreaks, earthquakes, or large-scale terrorism-related events, quickly and suddenly yield thousands of victims whose needs overwhelm local and regional health care systems, personnel, and resources. Such conditions require deploying scarce resources in a manner that is different from the more common multiple casualty event. This article presents issues associated with providing nursing care under MCE circumstances of scarce resources and the educational needs of nurses to prepare them to effectively respond in these emergencies.


In the past 50 years, there have been more than 10,000 reported disasters, both large and small, affecting 12 billion people and resulting in 12 million deaths (Chapman & Arbon, 2008; Pesik & Keim, 2002). It has been estimated that there is a mass casualty event (MCE), either naturally occurring or man-made, that requires rapid response and that exceeds the local and regional capacity to respond, somewhere in the world every day (World Health Organization, 2009), and that the...
frequency and intensity of these large-scale disasters are increasing (Pan American Health Organization, 2005). Although the impact of MCEs are most often felt in the Asia Pacific Region, flooding across Europe, tornados in the United States, and the 2011 earthquake in New Zealand and the tsunami in Japan have demonstrated that developed nations are also subject to MCEs in which even advanced public health and emergency response systems cannot adequately respond.

Most disasters are brief, self-limited events that preserve the community infrastructure while the ability of the system to care for people stays intact, although stressed by the rate of casualty presentation. MCEs create problems rarely faced by local and regional rescue agencies in day-to-day practice and which require a distinct approach and management (Phillips & Knebel, 2007; Quarantelli, 1993). A comprehensive definition of MCEs is a challenge to synthesize from the literature, as there are multiple definitions, many based in institution-specific contexts, and they are often very broad or very narrow (Strangeland, 2010). The Agency for Healthcare Research and Quality (AHRQ) defined an MCE as:

an act of bioterrorism or other public health or medical emergency involving thousands, or even tens of thousands, of victims that could compromise, at least in the short term, the ability of local or regional health systems to delivery services consistent with established standards of care. (AHRQ, 2013, p. 5)

The American Red Cross defined an MCE as:

a threatening or occurring event of such destructive magnitude and force as to dislocate people, separate family members, damage or destroy homes, and injure or kill people. A disaster produces a range and level of immediate suffering and basic human needs that cannot be promptly or adequately addressed by the affected people, and impedes them from initiating and proceeding with their recovery efforts. Natural disasters include floods, tornadoes, hurricanes, typhoons, winter storms, tsunamis, hail storms, wildfires, windstorms, epidemics and earthquakes. Human-caused disasters—whether intentional or unintentional—include residential fires, building collapses, transportation accidents, hazardous materials releases, explosions, and domestic acts of terrorism. (Strangeland, 2010, p. 422)

In general, MCEs fall into two major categories: (a) “big bang,” single incidents with immediate or sudden impact, such as bombings or earthquakes; and (b) “rising tide” incidents, slowly developing events with a prolonged impact, such as pandemic influenza or widespread ongoing exposures to chemical, biological, and nuclear agents (Challen, Bentley, Bright, & Walter, 2007). The first type yields large numbers of casualties at the outset of the event, with few added over time. The second type yields a gradual increase in the number of people affected, rising to a catastrophic number of victims and necessitating a more prolonged response (AHRQ, 2006).

One characteristic common to all definitions of MCEs is that these are such destructive events that the need for social and health services overwhelms the local and regional public health resources and places extraordinary burdens on fundamental societal functions, such as law and order, communication, transportation, water, and food supplies, so that they require assistance from outside the community (Guerrisse, 2005). Health care infrastructure may be devastated and the arrival of outside assistance delayed. Governmental agencies may be overstretched by multiple challenges and competing demands, or their ability to function may be degraded by the MCE, as seen during Hurricane Katrina in New Orleans in 2005. Thus, health and social service resources become scarce.

Not so well defined is the point in a disaster event at which medical and social resources are exceeded by demand (Sztajnkrycer, Madsen, & Baez, 2006). For example, an MCE may result in mass fatalities but few patients in need of care, as was the case in the World Trade Center bombing on September 11, 2001. A refinement of the above definitions designed to encompass both the size and the impact of the event has been suggested by Hogan and Burstein (2002), who clarified that an MCE with scarce resources is a situation in which the number of patients presenting for care within a given time period are such that the emergency response system cannot provide care for them in a timely manner and without external assistance. Underlying this definition is the concept of relative scarcity of available resources, where scarcity of resources is comparative to the local context and impact on local health and social service infrastructure.

**CRISIS STANDARDS OF MEDICAL CARE DURING AN MCE**

Irrespective of the exact definition of an MCE with scarce resources, many questions arise concerning the allocation of health and social service resources and how those decisions are justified. Should health providers treat patients with the most serious illnesses and injuries first? Will victims be treated on a first-come, first-served basis? On the basis of individual worth to society? Should health providers treat the most people with the available resources, recognizing that some otherwise salvageable individuals may be allowed to die (Sztajnkrycer et al., 2006)? What are the ethical obligations of emer-
During MCE conditions, the tactical application of medical care shifts from providing the optimal highest level of care for each individual patient to providing the greatest good (resources) to the greatest number—that is, to maximize the number of lives saved. However, how and in what ways standards should be altered should always be based on existing conditions during the medical surge responses, which allows for flexibility and responsiveness to local conditions and does not represent a single standard of care (Hodge, Hanfling, & Powell, 2013; Sasser, 2006). The difference between everyday delivery of first aid and the management of a large mass casualty situation is the type, rather than the degree or scale (Guerisse, 2005). For example, crisis standards of care could mean applying principles of field triage to determine who gets what kind of care. It could mean changing infection control standards to permit group isolation, rather than single-person isolation units. It could mean limiting the use of ventilators to surgical situations. It could mean creating alternate care sites from facilities never designed to provide medical care, such as schools, churches, or hotels. It could also mean changing who provides various kinds of care or changing privacy and confidentially protections (AHRQ, 2006).

The IOM Committee recommended that ethical considerations and ultimate decisions made about the allocation of resources under an MCE are made explicit and transparent and are based on community consensus, so that when instant decisions must be made, they are consistent with the spirit of the ethical judgments and public input that guided the planning process (IOM, 2009, 2012). Paramount in the Committee’s consideration of these issues was the recognition that plans and protocols that shift desired patient care from the individual to the population must be grounded in the ethical allocation of resources, which ensure fairness to everyone. As the Committee stated, “The emphasis in a public health emergency must be on improving and maximizing the population’s health while tending to the needs of patients within the constraints of resource limitations” (IOM, 2012, p. 6).

The IOM Committee also recommended that the basis for allocating health and medical resources under crisis standards of care with scarce resources must be fair and clinically sound. The process for making these decisions should be transparent and judged by the public to be fair. Protocols for triage also need to be flexible enough to change as the size of a mass casualty event grows or diminishes and will depend on both the nature of the event and the speed with which it occurs (AHRQ, 2006). If health and medical care delivered under these crisis standards is to be as effective as possible in saving lives, it is critically important that current preparedness planning be expanded to explicitly address this issue and to provide guidance, education, and training concerning these crises care standards. Disaster plans need to be targeted to the epidemiology of the disaster, coordinated on a regional level, and contain an organizational structure where functional job descriptions and responsibilities of all agencies and organizations involved should be clearly delineated (Cooper, 2006).

CHALLENGES FOR NURSES

Under normal circumstances, the health care system, especially emergency care, is already strained by routine daily volumes. Furthermore, emergency departments
and inpatient units and intensive care units in acute care hospitals are chronically overcrowded and resources are constrained. Health care and public health providers need to anticipate the profound challenges in adequately caring for the surge of victims following an MCE in the face of systems already stretched to the margins. Any incident in which the available resources are outstripped by the demand for care will necessarily result in a shift in the delivery of care from conventional toward contingency (functionally equivalent care) to crisis care (i.e., care may not be initiated or may be withdrawn from selected patients so it can be reallocated to others who may be considered more likely to survive; IOM, 2012). Some of the issues that disaster response planners and providers will need to address during an MCE with scarce resources include (a) the challenge to some providers of making the shift from individual-based disaster care to population-based care, (b) the challenge of existing and vulnerable health care populations needs and those MCE emergent care needs, (c) the limits of current triage systems, and (d) the potential conflict of interest between a providers’ ethical obligation to report to work versus concern for personal and familial safety faced by individual practitioners under these conditions.

CAPABILITY, WILLINGNESS, AND ABILITY TO REPORT TO DUTY DURING AN MCE

A concern exists that in the event of a bioterrorist attack or pandemic event, there would be an interruption in normal staffing resources, both due to conflicts in duty to care and due to the exacerbation of the strained staffing resources already apparent under normal circumstances. The emergency nursing workforce shortage already provides a challenge to daily hospital operations, and in the event of a large scale disaster or MCE, it would become a critical issue, particularly when some nurses may decide not to contribute or to refuse to work (Strangeland, 2010).

Health care workers are a critical component of the emergency management system of prevention, mitigation, preparation, response, and recovery. Historically, most medical and emergency response personnel typically report to duty in their usual or emergency role during disasters or the immediate aftermath (Gershon et al., 2010). However, factors exist that can influence the decision of a health care worker about whether to report to duty (Schroeter, 2008). Research since the 1990s, nursing research in particular, has been exploring the willingness, ability, and intentions of health care workers to respond to disasters, as well as identifying potential and real barriers and facilitators to this decision. Overall, the research has consistently demonstrated that health care workers are more likely to be willing and able to respond to natural disasters and are less likely to be willing and able to respond during infectious outbreaks or incidents with potential exposure to harmful agents (e.g., biological, chemical, nuclear, or radiological; Couig, 2012).

Specifically, research findings indicate that when fear of contagion with novel or potentially lethal agents is high, willingness to report to duty among health care workers is low, with predicted nonillness-related absenteeism rates in the United States ranging from 35% to 80% (Gershon et al., 2010). For example, a study of emergency health care providers in New York revealed that from 18% to 84% of workers indicated they would be willing to report to work during an MCE (Syrett, Benitez, Livingston, & Davis, 2007). The variation in willingness to report depended on whether the cause of the incident was known, a treatment or a vaccine was available, providers became ill, the agent was transmissible, and family members could receive treatment (Syrett et al., 2007). Another study looked at willingness (e.g., the personal decision of the individual) and ability (e.g., the capability for the individual) to report to work under different catastrophic scenarios and found a difference in willingness and ability to respond based on the type of event—for example, 83% indicated an ability to respond to an MCE versus 48% for a severe acute respiratory syndrome outbreak. Obstacles to willingness included personal health problems and concern and fear for their family and themselves, child and elder care responsibilities, pet care, and transportation (Qureshi et al., 2005).

Couig (2012) conducted a literature review concerning willingness and ability to respond to disasters between 1990 and 2012 and identified more than 50 studies, 21 of which were published by nurses (Couig, 2012). Findings were consistent with other research in this area in that willingness and ability to respond varies by type of disaster, ranging from a high of 93% (willingness) and 90.6% (ability) for an MCE to a low of 10% of sampled junior and senior nursing students for an infectious disease outbreak, unless their families were provided protection (Adams & Berry, 2012; Chaffee, 2009; Young & Persell, 2004). The main barriers to response were concern for the safety of themselves or their family and caretaking commitments; availability of protective equipment, medicines, or vaccines for self and family; and their education and training in disaster preparedness (Couig, 2012).

ROLE OF NURSES IN DISASTERS

Nurses are an invaluable resource, both under normal conditions and during disaster emergencies. Indeed, nurses are one of the largest groups of emergency re-
sponders during a disaster, but many nurses are unprepared to respond due to a lack of knowledge or skills (De Jong et al., 2010; Hearne, Segal, Earls, Juliana, & Stephens, 2005; Littleton-Kearney & Slepski, 2008; Medscape Medical News, 2010; Strangeland, 2010; World Health Organization, 2007). Recent reviews of the literature examining disaster preparedness research and nursing disaster response found much of the research focuses on health and medical surge capacity (e.g., beds, personnel, facilities, equipment, pharmaceuticals); crises standards of medical care; population versus military triage; and the identification of core competencies and knowledge needed by nurses in the event of a large scale disaster or MCE (Chapman & Arbon, 2008; Polivka et al., 2008; Strangeland, 2010). Competencies have been defined as a “combination of knowledge, skills, and abilities demonstrated by organization members that are critical to the effective and efficient function of the organization” (Gebbie & Merrill, 2002, p. 73).

Few studies have examined the issues, concerns, attitudes of nurses regarding disaster response or their perceived preparedness. One study of nurses who worked during Hurricane Katrina in New Orleans found that these nurses had to cope with the great uncertainty of the situation and had to quickly adapt to the needs that arose in both patient care and self-preservation situations (Strangeland, 2010). The study identified that the primary resources needed by nurses working during a disaster included excellent basic nursing skills, intuitive problem solving, and a sense of staff unity/teamwork in the face of challenges. In addition, the study found that a major consequence of the nurses’ disaster response participation was increased problems due to stress, including changing sleep patterns, changes in mood, eating disorders, substance abuse, and avoidance behaviors, while at the same time, these nurse participants were able to practice in harmony with duty to care values and demonstrated behaviors of strength, courage, and resilience.

Other research has shown that nurses are extremely concerned about their level of knowledge and skills under “difficult, disorganized and poorly resourced situations,” such as large-scale disasters or mass casualty events and where they are required to work “outside their scope of practice...including carrying out unfamiliar procedures for patients with injuries rarely seen in usual practice” (Arbon et al., 2006, p. 176; Bergin & Khosa, 2007; De Jong et al., 2010). A survey of nurses who volunteered for the Sumatra-Andaman earthquake and tsunami of 2004 revealed that more than 80% of the nurses had no previous experience in disaster response and no language skills other than English (Arbon et al., 2006). In addition, the lack of nursing involvement in disaster response planning and the lack of disaster response education and training left many nurses feeling “fearful of abandonment by management, unable to communicate effectively, helplessness to assist some people, and working in an atmosphere of pandemonium and uncertainty” (Littleton-Kearney & Slepski, 2008, p. 104; Strangeland, 2010).

Several issues regarding disaster response and mass casualty events are yet to be resolved within the nursing profession. One problem consistently identified in the literature concerns the perception by frontline nurses that they are left out of disaster response planning and decision making. For the most part, it is administrators, community leaders, disaster response professionals, and midlevel health care provider managers who are directly involved in a facility or organization’s disaster planning and response activities, without input from those who will actually be working and taking care of patients during and after the disaster. This appears to cause the majority of nurses to perceive that their needs and concerns during disaster events have not been considered (Strangeland, 2010). For this reason, as Hughes, Grigg, Fritsch, and Calder (2007) argued, frontline nurses should be involved at the onset of the emergency planning process.

In addition, nurse responders in previous disasters have consistently identified the importance of education in emergency and disaster preparedness, arguing that it is essential that undergraduate nursing education curriculum includes the content and practical experience necessary to adequately prepare nurses for this role (Usher & Mayner, 2011). However, health care professionals, including nurses, are unprepared to cope with mass casualty events, and concerns have been raised about their current understanding of the required knowledge skills, abilities, and competencies needed to adequately prepare for disasters (Strangeland, 2010).

**NURSING EDUCATION IN DISASTER PREPAREDNESS AND RESPONSE**

As the majority of frontline responders in disasters, nurses need to be prepared and to have the necessary knowledge and skills needed to efficiently manage large-scale disaster events (Usher & Mayner, 2011). Disaster medicine and emergency public health care are relatively new fields, comprising much more than clinical medical services and issues and requiring significant contributions from many disciplines, most of them far from the usual clinical practice (Guerisse, 2005). Even emergency department personnel, who are the first receivers of victims of a bioterrorism, chemical, or nuclear MCE, are provided no specific coursework on MCE education.
Prior to 2001, few schools of nursing included content related to emergency preparedness or disaster response. After the terrorist attack on the World Trade Center in New York City in 2001, this figure increased to 53% in the United States (Usher & Mayner, 2011). Most experts now agree that an all-hazards approach to the education of health care professionals is the most effective; however, it is not known to what extent nursing faculties teach disaster preparedness in nursing programs, even though it is required (Weiner, 2005).

A number of international professional organizations have developed a wide range of recommendations concerning nursing education and competencies in disaster preparedness and mass casualty events. For example, the World Health Organization and the International Council of Nurses collaborated on the development of a set of competencies required for disaster nursing (Usher & Mayner, 2011). Educational competencies for RNs related to MCEs have also been developed by the International Nursing Coalition for Mass Casualty Education (INCMCE), an international coalition of organizational representatives of schools of nursing, nursing accrediting bodies, nursing specialty organizations, and government agencies interested in promoting mass casualty education for nurses, and the National Health Professions Preparedness Consortium (NHPPC), which is a coalition of three universities focusing on education in MCE for health professionals, including Vanderbilt University (focusing on nursing education), the University of Alabama-Birmingham (focusing on physician education), and Louisiana State University (focusing on emergency medical technicians; Weiner, 2005).

Overall, the INCMCE and the NHPPC identified 21 performance standards focusing on recognition, communication, effective decision making, integration and management of resources, and response and recovery roles during MCEs. Specifically, the INCMCE recommends that every nurse must have sufficient knowledge to be able to recognize the potential for an MCE, know how to protect oneself, know how to provide immediate care for those individuals involved, be able to recognize their own role and limitations during such events, and know where to seek additional educational information and access to resources (INCMCE, 2003). Curricula incorporating six disaster education modules specific for nurses based on the performance level competencies designed by the INCMCE and the NHPPC can be found at http://www.incmce.org. Another online training continuing education program is at St. Louis University (http://nursing.slu.edu.cne_disaster_prep_home.html). Completion of this nurse-focused program provides a certificate in disaster preparedness.

The competencies identified by INCMCE are consistent with the American Association of Colleges of Nursing’s (AACN, 2008) The Essentials of Baccalaureate Education for Professional Nursing Practice. The AACN recommends competencies in using clinical judgment appropriately and providing timely interventions when making decisions and performing nursing care during disasters, mass casualties, and other emergency situations. In addition, the AACN recommends that nurses should understand their role and participation in emergency preparedness and disaster response, with an awareness of environmental factors and the risks these factors pose to themselves and patients (Strangeland, 2010).

The National League for Nursing, with support from the National Organization of Associate Degree Nursing, have identified educational core competencies for associate degree nurses but do not specifically explicate the responsibilities of these nurses during emergency situations. Their major recommendation for educating nurses is to develop the ability to adapt patient care to changing health care environments (Strangeland, 2010). Gebbie and Qureshi (2006), who are leading international experts in disaster management nursing, with support from the U.S. Centers for Disease Control and Prevention, developed 14 core emergency preparedness competencies for nurses. These and a number of other sets of competencies were developed for the generalist RN practicing in the hospital setting.

Polivka et al. (2008) built on these earlier recommendations to develop a consensus set of competencies for public health nursing, resulting in 25 competencies categorized into the following:

- Preparedness (n = 9) focuses on personal preparedness; comprehending disaster preparedness terms, concepts, and roles; and knowing the local health department’s disaster plan, communication suitable for disaster situations, and the role of the public health nurse in a surge event.
- Response (n = 8) focuses on conducting a rapid needs assessment, outbreak investigation, and surveillance; public health triage; risk communication; and technical skills, such as mass dispensing.
- Recovery (n = 7) focuses on the debriefing process, contributing to disaster plan modifications, and coordinating efforts to address the psychosocial and public health impact of the event. In addition, these competencies have not been translated into consistent nursing curricula.

Despite these and many other efforts by professional and international governing bodies to identify and establish MCE competencies and educational tools to be included in nursing curriculum, nursing schools
are still lacking in the preparation of nursing students for disaster nursing (Strangeland, 2010; Weiner, 2005). Research conducted in the United States and Australia have documented a serious lack of content or curricula focused on emergency and disaster response in nursing schools and have pointed to the difficulty in finding adequate teaching expertise in the area of emergency and disaster preparedness. In addition, much of the content that is included in nursing curricula tends to be theoretical and not practice based (Usher & Mayner, 2011; Weiner, 2005). Nursing faculty continue to feel inadequately prepared to teach disaster nursing content and argue that nursing curricula are already content packed, with little room available to add emergency- and disaster-specific content (Littleton-Kearney & Slepiski, 2008). Major gaps in the literature on clinician education in MCE planning and response include means and methods for updating and reinforcing existing clinician training, use of Web- or telephone-based central information sources for education and reporting of incidents, and how to train clinicians to communicate with other health care professionals during an MCE (Weiner, 2005).

EDUCATION NEEDS

Depending on the scope, nature, and size of an MCE, treatment for injuries or for existing conditions may be unavailable or delayed. Pain and other symptoms will likely be the primary issues faced by disaster response and medical personnel (Domres, Manger, Steigerwald, & Esser, 2003). Therefore, effective pain and symptom management should be a basic minimum of service delivery and training for palliative care during MCEs. Clinicians must understand the use of opioid medications, free from the usual misleading myths. Education and training should be tailored to the individual’s role in emergency response and should cover, at a minimum, the basic philosophy and goals of palliative care (including the principle of double effect), basic symptom management (e.g., for pain and shortness of breath), the use and titration of oral and injectable opioid medications in patients in pain or near death, symptom recognition in the case of pandemic influenza or chemical or radiological attack, and basic psychosocial counseling and support. Basic disaster planning should include stockpiling palliative care medications at accessible sites away from acute care hospitals (e.g., in nursing homes) and should train disaster responders how to locate, access, and use them. In addition, the broad community will need to come to understand the changes required in the standards of care under MCE circumstances.

Local disaster management initiatives could recruit and train palliative care and long-term care professionals, retired health care professionals, and lay volunteers to take on defined palliative care roles during emergencies. Local disaster palliative assistance teams (DPATs) could combine interdisciplinary experience from diverse practice settings (e.g., hospitals, hospice, long-term care) as part of the Medical Reserve Corps or organized under the National Disaster Medical System (Domres et al., 2003). Each DPAT sponsor could recruit the team, arrange for training their members, and coordinate team deployment to supplement remaining local palliative care services rapidly (Domres et al., 2003). Just as for other disaster response personnel, DPAT members could be paid as part-time Federal employees, all states could recognize their licensure and certifications, and they could provide services under the protection of the Federal Tort Claims Act (should a malpractice claim occur; K.D Acquaviva, personal communication, April 16, 2006).

Training in palliative care must occur prior to an MCE and can be incorporated into current community emergency response team training activities. Disaster planners should build on existing models of emergency response training to develop and implement a variety of training methodologies that incorporate generic and just-in-time palliative care services for all disaster response team members. Cross-training of personnel from other areas of expertise, other areas of the state and region, and the lay public (e.g., bus drivers, mail deliverers) could augment the work of palliative care providers by allowing these first responders to begin to offer comfort care and basic assistance to the onsite physicians and nurses until enough professional staff are available (Matzo, Wilkinson, Gatto, & Lynn, 2009).

Community planners face several significant challenges in the integration of palliative care services and personnel into mass casualty event planning and response. Of special concern for the meeting experts were the identification and location of vulnerable populations already in the community; addressing the ethical and legal issues during the development process and in the resulting MCE disaster response plan; ensuring public education regarding crises standards of care and the appropriate use of palliative care in MCEs; and the need to generate the requisite political will to initiate and support complex, and potentially controversial, MCE community planning efforts.

CONCLUSION

Naturally occurring or man-made disasters are common occurrences and often exceed the local and regional capacity to respond. Many ethical issues arise in such situations concerning what care, to whom, and in what
place the allocation of scarce resources will be provided. Crisis standards of health and medical care requires the emphasis to shift from providing the optimal level of care for each individual to providing the greatest good to the greatest number to maximize the number of lives saved. Nurses are an invaluable resource during disaster emergencies, as they are one of the largest groups of health professional emergency responders during a disaster. Nurses in MCEs often have to be able to cope with great uncertainty and to quickly adapt to the needs of victims, as well as for their own self-preservation. However, as documented above, nurses themselves are extremely concerned about their level of knowledge and skills during large-scale disaster events, as well as their lack of involvement in regional disaster and preparedness planning. Indeed, nurses perceive that their needs and concerns during disaster events are often not considered by policy makers and planners.

It has been recommended that nurses, as the majority of frontline responders in disasters, be prepared and have the necessary knowledge and skills needed to efficiently manage large scale disaster events. The authors, as well as many others, have suggested building on the expanding number of international professional organization recommendations concerning nursing education and competencies in disaster preparedness, such as those of the World Health Organization, the International Council of Nurses, and the INCMCE, that focus on the recognition of the type of disaster, communication, effective decision making, integration and management of resources, and response and recovery roles during an MCE. However, to do this, nursing education must expand to incorporate this important curriculum and make it practical, not just theoretical.

This article has identified a set of basic minimum knowledge and skills, tailored to the individual’s prospective role in emergency response, but specifically it has identified training in effective pain and symptom management and in palliative care principles and practice, as vital basic clinical skills. Under altered standards of medical care in large-scale disasters, nurses and first responders may be required to make extremely difficult choices in allocating scarce resources. It is vital that basic symptom management and palliative care are provided to those victims and those vulnerable populations existing in the community who may not survive such events. Although many ethical, legal, service delivery, and community involvement issues are still to be resolved, preparing the health care workforce to respond appropriately and effectively requires nursing education programs to take on the important role of training nursing students in preparation for and in response to large-scale disasters and MCEs.

REFERENCES


