Defining Bioterrorism Preparedness for Nurses: Concept Analysis
Rehmann T.
Reviewed by Joan Valas

PURPOSE: The purpose of this paper is to analyze and define the concept of nursing bioterrorism preparedness to guide nursing education and preparedness activities.

METHODS: The author conducted an extensive literature review of databases restricted to nursing-related references for the years 1966 to 2005. Out of 118 references identified using the key words “biological warfare”, “bioterrorism (BT)”, “nursing”, “nurse prepared” and “preparedness”, 41 were deemed relevant. The data were analyzed and themes identified according to Walker and Avant’s approach to a theoretical definition, which defines attributes, antecedents, consequences and related concepts. Other concepts from the literature that were considered and analyzed for their relevance to nursing included: all-hazards preparedness, hospital/healthcare facility bioterrorism preparedness, and BT preparedness for other professions.

RESULTS: While the term “bioterrorism preparedness” was used in the articles reviewed, none explicitly defined the concept nor described how to measure this concept. Often, BT preparedness was described more as an outcome or endpoint than a process. Based on this analysis, the author proposes a theoretical definition of nursing bioterrorism preparedness as an ongoing process of becoming prepared to recognize and respond to a BT event. The development of this definition is based on defining attributes, antecedents, and consequences. In their definition, the nursing BT preparedness process consists of acquiring BT management knowledge specific to nursing along with the planning of response strategies. The author suggests that this definition be incorporated into a nursing theoretical framework and proposes the use of the Health Belief Model or Pender’s Health Promotion in Nursing Practice to assess the proposed definition.

COMMENT: The relative importance of this article is that it points to the need for nurses, as health care’s largest group of providers and responders to a BT event, to define and articulate their specific role during a BT event. Emergency preparedness activities should be incorporated into all nursing curricula and continuing education. The development of theoretical frameworks to guide nursing research and evidence-based practice for emergency preparedness activities is just beginning. This author’s analysis of the current literature and attempt at a definition are important to this effort.

Although the author does not suggest any limitations to her study, the specific, selected databases and key-words used in the study may be limitations to the analysis. A broader keyword search as well as the inclusion of other databases (such as the social sciences) could likely result in richer literature. Another important limitation is that only 15% of the references used were research-based, and only 17% were international. Nonetheless, this article is of value in differentiating individual nursing BT preparedness from organizational preparedness. While there is definite overlap between the two, the unique and specific nursing issues must be identified.

Niska RW, Burt CW
Reviewed by Robert Powers

PURPOSE: To examine hospital terrorism preparedness emergency response plans.

METHODS: A Bioterrorism and Mass Casualty Supplement was included in the annual National Hospital Ambulatory Medical Care Survey of approximately 500 non-federal, general and short-stay US hospitals.

RESULTS: Almost all (97%) of the hospitals surveyed have response plans for natural disasters; plans for biological, radiological and chemical events were included in the response plans in 85%, 77%, and 85% of the hospitals, respectively. Although approximately three-quarters of the hospitals were integrated into community-wide disaster plans, less than half (46%) had a written memorandum of understanding (MOU) with other facilities regarding patient transfer. The portion of staff with some disaster training varied from 92% for nursing staff to 49% for medical residents. Drills were performed more frequently for natural disasters than chemical, biological, radiological explosive drills.
As noted by the authors, this survey information was obtained in 2003, a time when only partial funds from the 2002 Health Resources and Services Administration (HRSA) grant monies had been awarded to hospitals. Although HRSA grant money has been available since this survey, the study illustrates a lack of emphasis on disaster planning by a number of US hospitals. Unfortunately, many hospitals still operate under assumptions of “it won’t happen here” and “someone else will come to help.”

This study does demonstrate that a commendable number of US hospitals have made at least some effort, often unfunded by the government, to be prepared for disasters. However, it also reveals that: 27% of hospitals still had no plans in place to cancel elective surgeries in the event of a disaster; 33% had no plans in place for the establishment of an alternate care site; 37% were without all-hazard disaster plans; and 40% had no established supply chain disaster plan. In a disaster, elective surgeries will need to be cancelled because operating room space will be at a premium; an influx of patients will overwhelm existing bed numbers and will require the establishment of additional treatment areas; and everyday supply chains may be non-operable. Unfortunately, many hospital leaders still fail to realize that a disaster is not a “business as usual” day.

As reported in this study, the majority of US hospital nurses have had some type of weapons of mass destruction (WMD) training. Given that previous studies have shown a smaller percentage of nurses with WMD training, this finding indicates that there has been improvement in the amount of training provided to nursing staff. However, the question needing review is if the nurses are able to apply the training provided. Nurses must know their specific role within their hospital, how to obtain antidotes at their hospital, how to coordinate the flow of patients through the departments and how and when to don chemical protection suits.

While many of the hospitals surveyed indicated they do have a written disaster plan in place, the mere existence of such a “paper plan”, which satisfies the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) requirement, does little to properly prepare a hospital. Assessing the actual status of hospital preparedness requires further evaluation of the specifics of the disaster plan (e.g., not just how many chemical suits a hospital has, but also, how many nurses know when to use them and can capably function within them; not just identifying how many alternate care sites have been identified, but performing drills in the use these sites to determine the time required to properly supply, staff and make the site operational; and not simply counting the number of drills performed, but identifying the objectives tested during a drill, determining what problems arose during the drill, and how the hospital’s plan was adjusted to remedy those identified problems. Such questions would assess the level of a hospital’s preparedness beyond the limited information provided by superficial counts. They also serve as meters for indirectly measuring the level of administrative support for hospital disaster preparedness.

Of note from this study was the finding that only 24% of hospitals had drills that involved explosive devices, even though explosions are the most common method used by terrorists. Hospitals must have plans in place for managing patients with blast injury, from drill practices screening potential blast lung patients to the incorporation of services such as dialysis for crush injury patients. Clearly, hospitals must do more to prepare for this most prevalent form of terrorism through a higher prioritization of these planning efforts.

The 13-question survey supplement used by the US Centers for Disease Control and Prevention to obtain information from hospitals regarding preparedness is included in this article and would be of value for all persons involved in hospital preparedness planning. It could also provide essential benchmarks in assessing the ongoing process of preparedness.

Hawaii Physician and Nurse Bioterrorism Preparedness Survey
Katz AR, Nekordsch DM, Holck PS, Hendrickson LA, Imrie AA, Effler PV
Prehospital and Disaster Medicine 2006;21(6):404–413
Reviewed by Elaine Daily

PURPOSE: The purposes of this study were to assess, objectively, Hawaiian physicians’ and nurses’ knowledge of bioterrorism agents and diseases and determine their perceived readiness and willingness to respond during a bioterrorist (BT) event.

METHODS: A survey was sent to a stratified, random sample of 282 physicians and 285 nurses registered and residing in the state of Hawaii. The survey consisted of 25 questions, 12 of which were knowledge-based questions regarding bioterrorism agents, syndrome surveillance and recognition of signs and symptoms associated with diseases caused by the US Center for Disease Control and Prevention’s (CDC) “Category A” agents. The majority of these questions were obtained from the post-tests of Web-based, continuing medical education programs of the CDC. The remaining questions addressed demographics and perceived BT knowledge and abilities.

RESULTS: The survey was completed by 115 physicians (45%) and 146 nurses (52.5%) who worked primarily in patient care settings. Average BT knowledge-based test scores were 8.4 (70% correct) for physicians and 7.2 (60% correct) for nurses. The scores of both nurses and physicians who had BT preparedness training (20% and 21%, respectively) and who perceived themselves able to respond effectively to a BT event were significantly higher than those without prior training or those who perceived themselves unable to respond. The scores of registered nurses and advanced practice nurses were similar (60% and 65%, respectively) while nurses in academic settings scored higher than nurses working in patient care settings. Thirteen percent of physicians and 11% of nurses felt they were able to respond effectively to a BT event. The willingness to assist in a bioterrorism response was indicated by 74% of physicians and nurses.

COMMENT: Although numerous studies have addressed healthcare workers’ perceived knowledge and readiness to
participate in a BT event, this study provides valuable data relating objective measures of BT knowledge with perceived abilities and willingness to participate in a BT event. Data from this study support the value of ongoing provision of BT continuing education programs for healthcare workers as well as the inclusion of such education and training in medical and nursing school curricula. Of considerable interest in this study’s findings is the fact that despite the paucity of physicians and nurses who felt they were prepared to assist in a BT response, the majority of them indicated a willingness to respond! This is similar to findings in other studies of both physicians and nurses. Clearly, there is a need, if not an ethical obligation, to match necessary education and training with the altruistic willingness expressed by healthcare workers.

Also of interest is the finding that nurses working in patient care settings had the lowest knowledge scores (mean 58%) compared to nurses working in public health (mean score 69%) or academic settings (mean score 75%) or even to retired or inactive nurses (mean score 65%). As nurses working in patient care settings likely will be the ones initially involved in the identification and treatment of BT victims, it is imperative that this group be targeted for BT education and training.

Limitations of this study primarily concern the survey used. Although nine of the 12 knowledge-based questions were obtained from tests from accredited medical education offerings, the questions were not validated and, clearly, included questions directed primarily to medical versus nursing practice. Nonetheless, the information provided points to the need for ongoing BT preparedness education and training, particularly for nurses working in patient care settings where initial encounters will occur.

International Guidelines and Standards for Education and Training to Reduce the Consequences of Events that May Threaten the Health Status of a Community: A Report of an Open International WADEM Meeting, Brussels, Belgium, 29–31 October, 2004

Archer F, Seynaeve G
Prehospital and Disaster Medicine 2007;22(2):120–130

Reviewed by Joan Valas

PURPOSE: The World Association for Disaster and Emergency Medicine (WADEM) was called upon by the international medicine and emergency health community at the 13th World Congress on Disaster and Emergency Medicine (WCDEM-13) in 2003 to develop international standards and guidelines for disaster education and training programs.

METHODS: A working group of the WADEM Education Committee developed an Issues Paper that was distributed to all WADEM members, participants of WCDEM-13 and select international leaders in the fields of emergency and disaster management. A total of 29 responses were received and contributed to a 2-day Open International Meeting of 51 participants representing 19 countries and 21 disciplines to discuss the development of international standards and guidelines for the education and training of disaster managers and members of the healthcare community. Participants were assigned to small groups, and asked not to reach consensus but rather to explore and record their views on:

1. The definition or description of the term “disaster medicine”;
2. The need for international standards and guidelines for education and training; and
3. What could be learned about developing standards from kindred disciplines.

Speakers were invited to present case studies representative of a range of recent major events to set the scene for the meeting and serve as a basis for further discussion by the groups. General support of or consensus regarding these issues was the focus of the two final plenary sessions.

RESULTS: The meetings resulted in a consensus view in support of a conceptual model framework that would guide standards for the primary disciplines (defined as clinical and psychosocial; public health; and emergency and risk management), support disciplines (geography; engineering; anthropology), community response, resilience and communications, as well as cultural, socio-political, and economic contexts. There was an agreement that a “Core of Disaster Health” (i.e., initial competency-based programs) common to all three disciplines should be developed for undergraduates in relevant professions as well as continuing education programs for those professionals already in practice. It was further suggested that a “Breadth of Disaster Health” be developed at a Masters Degree level for professionals who wished to practice specifically in this area and to be recognized as “disaster specialists”. The group could not, however, determine which body/agency should be charged with the responsibility of developing, approving or endorsing such standards. Those identified as possible lead agencies included the WADEM, the United Nations Office for Coordination of Humanitarian Affairs, and the World Health Organization. One of the most contested issues discussed was the term “disaster medicine”, due to the multidisciplinary nature of those involved in a disaster. One suggestion was use of the term “disaster health”, although there was not complete agreement on this proposal.

COMMENT: Disaster preparedness, response, and recovery are multidisciplinary and multiprofessional efforts. Standards development is a complex process beginning with understanding and articulating the competencies necessary for professional practice. In this realm, the “kindred” nursing profession has taken the lead and several nursing organizations/institutions have developed emergency response competencies. The Center for Health Policy at Columbia University School of Nursing (http://www.nursing.columbia.edu/chphsr/projects/emerg/epIntro.html) has done extensive work in developing competencies for emergency preparedness that can lead to the development of educational standards. These competencies are multidisciplinary and include: Clinician Competencies; Hospital Competencies; Hospital Leaders Competencies; Hospital Workers Competencies; and Bioterrorism Competencies.
through an introduction phase; fact phase; thought phase; reaction phase; symptom phase; teaching phase; and re-entry phase.

The authors of this review cited meta-analyses of 20 studies of CISD-type interventions following a variety of crisis events. A number of the reviewed studies failed to demonstrate positive results. However, some of the studies used CISD as a one-time approach, some included both individual and group debriefings, and, in some studies CISD occurred at varying time periods (up to 9 months) after the traumatic event. Several studies even have suggested that debriefing could cause harm to the individual by potentiating Post-Traumatic Stress Disorder or other psychological sequelae.

The lack of demonstrated efficacy of CISD in some studies could be due to the use of the definition, altered social support mechanisms as a result of CISD intervention, altered interpretation of the intervention, the inclusion of non-distressed participants, and ineffective use of the process.

CONCLUSIONS: Although there is some evidence to support the practice of CISD as a group debriefing technique used by trained professionals, it is neither strong nor non-empirical. Further research is needed to delineate critical incidents, clarify the intervention model, ensure training of appropriate personnel, and assess CISD effectiveness.

COMMENT: While the authors of this study claim to have reviewed meta-analyses of CISD research studies, they provide no description of the methods used to obtain this material. Failure to provide this information always raises the question of completeness and objectivity. Nonetheless, it is clear that evidence supporting one type of debriefing technique over another, is lacking. Randomized, controlled studies of prescribed debriefing approaches are necessary to determine their effectiveness and role in disaster healthcare. However, as no other widely acceptable, early and low-cost intervention exists to assist distressed and traumatized disaster victims and healthcare workers, it is imperative that mental health professionals be actively involved in the planning, response and recovery phases of a disaster to avoid long-term mental health problems.

Critical Incident Stress Debriefing: Implications for Best Practice
Mitchell AM, Sakraida TJ, Kameg K
Disaster Management Response 2003;1:46–51
Reviewed by Elaine Daily

PURPOSE: To identify methods, results, strengths and weaknesses of studies that can be used for evidence-based practice of critical incident stress debriefing (CISD).

METHODS: A review of pertinent CISD and psychological debriefing literature including individual and meta-analysis studies.

SUMMARY: CISD was developed in 1983 based on crisis theory and psychoeducational theory and is used to relieve stress at an early stage of crisis and to accelerate recovery processes. CISD is provided by specially trained mental health professionals and peer counselors to a small group of individuals ideally between 24 and 72 hours after a critical incident. Within a 1 to 3 hour session, participants are led through an introduction phase; fact phase; thought phase; reaction phase; symptom phase; teaching phase; and re-entry phase.

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