A guide to emergency preparedness and disaster nursing education resources

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Abstract
Aim: This manuscript explores nurses’ emergency preparedness for disaster response and describes a variety of educational resources to support nurses’ preparedness competencies for disaster situations.

Methods: A literature review of emergency and disaster preparedness publications was analyzed and synthesized from eight major electronic databases. The universally recognized domains of emergency preparedness described by the revised Emergency Preparedness Information Questionnaire (EPIQ) served as the conceptual framework for the classification of these findings.

Results: Nurses do not possess the necessary knowledge and skills to respond to disaster situations. As trusted healthcare providers, all nurses are expected to acquire and sustain knowledge and skills that meet society’s contemporary healthcare demands, including the ability to provide care in disaster events. Previous research indicated that a scarcity of emergency preparedness resources has hindered nurses’ efforts to become knowledgeable and informed. Findings demonstrated a collection of peer-reviewed research studies, government websites, hospital training guides, academic training modules, continuing education courses, and professional organization guides focused on emergency preparedness and disaster nursing education.

Conclusions: Research has suggested that many nurses do not feel comfortable responding to disaster situations. A comprehensive narrative guide to US emergency preparedness and disaster nursing continuing education resources was scripted in a simple-to-use table format. This article will acquaint nurses with this guide, which provides a quick and easy means of accessing a multitude of free online continuing education resources to support the demand for nurses’ requisite training and education in emergency preparedness for disaster response, without incurring the burden of cost.

Key words: continuing education, disaster nursing, disaster preparedness, emergency preparedness, Emergency Preparedness Information Questionnaire

INTRODUCTION
According to the American Nurses Association (ANA, 2013) the need for nurses with disaster nursing education is vital to ensure the safety and well-being of the vast number of community members they serve. The American Association of Colleges of Nursing (AACN, 2008) and the Nursing Emergency Preparedness Education Coalition (NEPEC, 2010) also affirm that nurses must possess a minimum level of emergency preparedness knowledge and skills to respond to disaster situations. While nursing organizations and scientific research support the need for disaster nursing education (Duong, 2009; Fung, Loke, & Lai, 2008; Hsu et al., 2006; Jennings-Sanders, 2004; Veenama, 2006), findings demonstrate that nurses lack emergency preparedness education and skills (Fountain et al., 2015; Fung et al., 2008; Weiner, Irwin, Trangenstein, & Gordon, 2005). Moreover, evidence supports that nurses have access to only a paucity of educational resources to meet current competency demands required by the profession (Bistaraki, Waddington, & Galanis, 2011; Considine & Mitchell, 2009; Duong, 2009). The purpose of this article is to provide nurses with a reference guide to free online education resources.
emergency preparedness and disaster nursing education resources. It is designed to facilitate quick and simple access to a variety of continuing education courses in the US and supports the timely need for accessible and cost-effective preparedness education.

BACKGROUND

Nurses are the largest sector of the professional healthcare workforce (U.S. Department of Labor Statistics, 2014) and are characterized as key players in disaster response. The demand for nurses during a disaster is much greater than other healthcare professionals (Fung, Lai, & Loke, 2009; Lavin, 2006). Nurses’ ability to rapidly and effectively detect, manage, and mitigate disaster events can affect patients’ physical, emotional, and psychological well-being (World Health Organization [WHO] & International Council of Nurses [ICN], 2009). For this reason, emergency preparedness competencies are paramount for all nurses to meet diversified patient demands, including the needs of vulnerable populations such as the elderly, children, and persons with mental, visual, and mobility impairments during disaster situations (Baack & Alfred, 2013).

Although nurse scholars (Duong, 2009; Fountain et al., 2015; Fung et al., 2009; Veenema, 2006) and the AACN Essentials of Baccalaureate Education (2008) and Master’s Education (2011) agree that elements of disaster nursing education should be required in both undergraduate and graduate nursing programs, specific disaster nursing core competencies are not taught in many US nursing schools (Coyle, Sapnas, & Ward-Presson, 2007; Garbutt, Peltier, & Fitzpatrick, 2008). While scientific research and professional organizations uphold the demand for all nurses to acquire and maintain disaster nursing competencies (Duong, 2009; Fung et al., 2008; Hsu et al., 2006; Jennings-Sanders, 2004), evidence supports that training in disaster prevention, detection, management, and mitigation remains inadequate (Fung et al., 2008; Twedell, 2009; Weiner et al., 2005). Content in disaster nursing is lacking in many American nursing schools and, as a result, many nurses have received minimal or no disaster nursing education (Rebmann & Mohr, 2010) and are faced with the daunting task of acquiring requisite preparedness resources and competencies on their own (Bistaraki et al., 2011; Considine & Mitchell, 2009; Duong, 2009).

ROLE OF ETHICS IN CONTINUING EDUCATION

One of the most critical considerations regarding accessibility of emergency preparedness resources is rooted in the ethical underpinning of the profession. The American Nurses Association’s Code of Ethics for Nurses with Interpretive Statements (ANA, 2015) clearly provides an impetus for all nurses to acquire continuing education in emergency preparedness competencies to meet their ethical obligations to the profession during disaster events. The Code explicates the primary values, goals and obligations of all nurses and provides a detailed guide to the ethical expectations of the profession (ANA, 2015). As professional caregivers, educators, administrators, and researchers, all nurses are expected to adhere to these ideals in all work situations and settings. The uncertain and isolated nature of disasters does not provide immunity from the moral norms of professional practice, rather, all nurses are expected to assume responsibility and maintain the same work ethic as they would in routine practice situations and settings (ANA, 2015).

Careful scrutiny of the Code reveals several provisions that support the need for all nurses to seek and acquire current emergency preparedness competencies to practice in disaster situations. For example, the Code’s seventh provision clearly states that nurses are expected to participate in the advancement of their own knowledge to meet contemporary societal demands, and that ongoing academic inquiry is not a supplementary expectation, rather, a necessity to move the nursing profession forward (ANA, 2015). The eighth provision more explicitly identifies that nurses have a responsibility to be knowledgeable about existing threats that affect the health and safety of the public (ANA, 2015). This is especially pertinent in disaster situations. The fourth provision also establishes that nurses are culpable for their own judgments and actions, regardless of the nature of the situation (ANA, 2015).

It is equally important to distinguish that the fifth provision of the Code recognizes that “nurses have a duty to take the same care for their own health and safety” as the patients they serve in the community (ANA, 2015, p. 19). Although it is unclear when duty to perform professional obligations supplants duty to safeguard protection from harmful situations (Twedell, 2009), evidence demonstrates that lack of disaster preparedness education (Garbutt et al., 2008), lack of communication skills in mitigating disaster situations (Coyle et al., 2007), and lack of self-efficacy and perceived disaster
nursing knowledge (Baack & Alfred, 2013; Melnikov, Izhaki, & Kagan, 2014) may skew the judgment process and effect nurses’ preparedness to report for duty. Because it is also clear from the second provision of the Code that “the nurse’s primary commitment is to the patient,” (ANA, 2015, p. 5), and from the fifth provision that nurses are “committed to lifelong learning,” including “continuing education and self-study” (ANA, 2015, p. 22), emergency preparedness competencies should be viewed as a professional priority, to endow all nurses with current preparedness knowledge that will ultimately affect their ability to provide care when society needs it the most; that is, during disasters.

CONCEPTUAL FRAMEWORK

The conceptual underpinning of this article consists of the seven domains of emergency preparedness competencies, specified in the revised Emergency Preparedness Information Questionnaire (EPIQ) survey (McKibbin, Sekula, Colbert, & Peltier, 2011), an instrument pioneered to assess the learning and training needs of Wisconsin nurses to respond to large-scale emergency events (Wisniewski, Dennik-Champion, & Peltier, 2004). First developed by Wisniewski et al. (2004), the three-part EPIQ survey is a result of the collaborative efforts of the Wisconsin Nurses Association, Wisconsin Division of Public Health, and Wisconsin Nursing Coalition, to advance emergency preparedness research and assess the training needs of registered nurses to respond to disaster situations (Garbutt et al., 2008; McKibbin et al., 2011; Wisniewski et al., 2004). Today, the EPIQ is the primary instrument used in scientific research to comprehensively assess nurses’ perceived knowledge of emergency preparedness (Baack & Alfred, 2013; McKibbin et al., 2011).

Recently, McKibbin et al. (2011) revised the first part of the EPIQ in their assessment of South Carolina nurses’ perceived knowledge of emergency preparedness. They explored a random sample of 207 survey participants utilizing SPSS, version 17.0, statistical software (SPSS Inc., Chicago, IL, USA). Results demonstrated that data was normally distributed and assumptions were upheld. Factor analysis with orthogonal (Equamax) rotation derived seven dimensions of the EPIQ, a departure from the original eight dimensions designed by Wisniewski et al. (2004). Two dimensions from the original survey (epidemiology and clinical decision-making, and biological agents) had similar relationships between the variables and were collapsed into one dimension, called “clinical decision-making in epidemiology and biological agents”. The seven new emergency preparedness dimensions serve as the conceptual framework of this article; these include: (1) epidemiology and biological agents (modes of transmission; suspected biological or chemical exposure, signs and symptoms of exposure; antidotes, vaccines, and/or prophylactic medications; adverse reactions to vaccines; exacerbation of underlying diseases; and care for the deceased); (2) the incident command system (preparation for response, emergency operation plans, knowledge of group assignment and work location, decision-making in disasters versus non-emergency events, task delegation, and site safety issues); (3) communication and connectivity (documentation of care, presentation of risks, chain-of-custody, debriefing activities, key partners’ abilities, communication of patient information, and accession to the Strategic National Stockpile); (4) psychological issues and special populations (evaluation for post-traumatic stress and/or mental health issues in children, teenagers and the general population; psychological support; care for children and all vulnerable populations; and counseling about the long-term effects of exposure); (5) isolation, quarantine, and decontamination (quarantine process, decontamination procedures, selection of appropriate personal protective equipment, and the impact on the environment); (6) triage (basic first-aid and treatment, evaluation of personal actions, and performing rapid physical and mental assessments); and (7) reporting and assessing critical information (diseases immediately reportable to local and state health departments, when and where to report symptoms, and where to access up-to-date resources), as described by McKibbin et al. (2011).

Reliability and construct validity were evaluated to support the psychometric quality of the new instrument. Chronbach’s alpha for each of the seven subscales of the EPIQ was very high, ranging from 0.92 to 0.96, whereas the alpha value for the entire instrument was 0.98, demonstrating exceptionally high reliability. Analysis of variance supported a statistically significant difference between familiarity with emergency preparedness and the seven dimensions, $F(7, 199) = 104.81, P < 0.01$, while multiple linear regression confirmed that the seven dimensions explained participants’ familiarity with emergency preparedness, $R^2 = 0.787$. Moreover, the beta regression coefficient demonstrated that each of the seven dimensions had a significant effect on explaining overall emergency preparedness ($P < 0.01$). Overall, factor analysis, reliability analysis, and regression results support that the revised EPIQ is a reliable and valid instrument (McKibbin et al., 2011).
**METHODS**

**Inclusion and exclusion criteria**

In order to synthesize the foremost emergency and disaster preparedness resources, several electronic databases were reviewed. Primary research, literature reviews, and professional organization white papers written in English and published in both national and international electronic journals, along with professional organizations and United States government websites, served as the foundation for the expert evidence presented in these findings. Opinion papers and news briefs were excluded.

**Search strategies and critique methods**

An extensive literature search was conducted on eight major electronic databases: (1) the Cumulative Index of Nursing and Allied Health Literature (CINAHL), (2) Education Resources Information Center (ERIC), (3) Medical Literature Analysis and Retrieval System Online (MEDLINE), (4) Health Source (Nursing/Academic Edition), (5) PubMed, (6) Education Research Complete, (7) PsycINFO, and (8) the World Catalog (WorldCat) from 2005 through 2015. These eight databases were selected to ensure the evidence included a wide array of disciplines and resources applicable to nursing professionals, and to result in a comprehensive review. All databases were searched using the same search strategy. A Boolean search using the nested terms *disaster prep* or *emergency prep* and “continuing education” yielded a total of 1,640 results among the eight databases. Databases yielding over 325 returns (Health Source and Education Research Complete) were further narrowed by adding the term *nurs* to the search strategy. This yielded a total of 686 findings, which were evaluated by using the inclusion and exclusion criteria and by reviewing abstracts to identify research that contributed to the understanding of emergency and disaster nursing education. Seminal resources and supportive literature that explicated the conceptual underpinnings of disaster nursing practices were also scrutinized and incorporated if they provided insight.

**RESULTS**

The findings demonstrate a collection of peer-reviewed research studies, government websites, hospital training guides, academic training modules, continuing education courses, and professional organization guides focused on emergency preparedness and disaster nursing education. Each resource was summarized, then sorted into one (or more) of the seven domains of emergency preparedness. Collectively, the results represent a comprehensive emergency preparedness and disaster nursing training and education guide presented in table format (Table 1).

The quick access guide supports the NEPEC (2010), ANA (2013), and the AACN (2008) demands for knowledge and skill in emergency preparedness and disaster nursing competencies. Each resource is free-of-charge and includes the author’s name, course title, and website link for easy access. Likewise, brief course descriptions, time constraints, identification of applied learning strategies, interactive learning components, self-assessments, and availability of certificates of completion are also identified. Moreover, the availability of free continuing education credits, audio and video support is included. The guide is structured in a table format to provide organization, consistency, and quick points of reference and recovery for locating material. This format also provides the nurse with the ability to survey multiple resources in a brief period of time and select courses based on personal learning needs.

**DISCUSSION**

Although the significance of emergency preparedness has been recognized for many years, gaps in our nation’s disaster preparedness and emergency response systems still exist (ANA, 2010). Evidence supports that nurses are not prepared to respond to disaster situations (Baack & Alfred 2013; Fung et al., 2009; Garbutt et al., 2008). As disaster nursing is not a focus in all academic curricula (Coyle et al., 2007; Garbutt et al., 2008), and research suggests that many nurses do not feel comfortable in responding to disaster situations in the workplace, additional steps need to be taken to empower nurses to acquire and maintain disaster preparedness education and skills. According to the ANA (2015) *Code of Ethics for Nurses with Interpretive Statements*, forgoing actions to acquire these competencies is not an option, as continued learning outside of the classroom and workplace is an expectation of the profession. Because many nurses must juggle the challenges of work, family, academic, and community demands, time to seek out resources that are cost-effective and geared to professional advancement may be limited. The detailed reference guide introduced in this article provides multiple resources for busy nursing professionals that are self-paced, self-directed, fit different learning needs, and can be conveniently completed in an online environment. It supports emergency preparedness education and competencies among bedside nurses, managers, administrators, educators, and...
Table 1: Emergency preparedness and disaster nursing US education guide

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<td><strong>Domain #1: Epidemiology and Biological Agents</strong></td>
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<td>Columbia Regional Learning Center at the National Center for Disaster Preparedness, Earth Institute, Columbia University, &amp; the Mailman School of Public Health. (2012). Chem rad bio: Fundamentals for the public health workforce.</td>
<td><a href="http://ncdp.crlctraining.org/catalog/course.asp?id=33&amp;cid=3">http://ncdp.crlctraining.org/catalog/course.asp?id=33&amp;cid=3</a></td>
<td>Exposure, dose, symptoms, treatment, antidotes, prophylaxis, and DECON; chemical, biological, and radiological PPE. Supports applied learning, self-assessments, and free CE credit. Includes audio/video content and interactive lessons.</td>
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**Domain #2: Incident Command System (ICS)**

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| **Domain #3: Communication and Connectivity**

Guide to communication during crises, core principles, psychology of crises; stakeholder and partner communications. Supports applied learning and self-assessments. Offers free CE credit, printable transcripts, audio/video content, and interactive lessons.  
150

45

Communication basics with the community in an emergency and preparing for oral presentations. Supports applied learning and self-assessments. Offers free CE credits, printable transcripts, audio/video content, and interactive lessons.  
480

Triggers, access to strategic national stockpile, procedures for distribution, dispensing, and planning. Offers self-assessments, printable transcripts, free CE credits, and audio content.  
30

Trust Determination and Mental Noise Theory; risk, health, and emergency risk communication. Supports self-assessments. Offers printable transcripts and audio content.  
40

**Domain #4: Psychological Issues and Special Populations**

Care for the medically fragile in a mass care setting; role specific orientation for Primary Care Providers, Registered Nurses, Student Nurses, and Volunteers. Supports self-assessments. Offers printable transcripts and audio content.  
15

Psychosocial reactions (phases of disaster, stigma, at-risk groups) and preparation of professionals to respond to RAD emergencies. Supports applied learning and self-assessments. Offers printable transcripts, audio/video content, and interactive lessons.  
90

Stresses self-care and support for healthcare providers participating in large-scale emergency events. Includes audio/video content.  
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## Domain #5: Isolation, Decontamination, and Quarantine

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**Domain #6: Triage**

| Pacific EMPRINTS at the University of Hawaii at Manoa, Department of Anthropology. (2012n). Disaster triage for epidemics. | http://www.emprints.hawaii.edu/training/course.aspx?ID=47&cat=1 | Triage with surge capacity, lethality, duration, and aggressiveness; ethical and moral conflicts. Offers self-assessments, printable transcripts, and audio content. | 18 |

*Continued on next page.*
nurse scientists, and serves as a supplement to formal nursing academic curricula. As nurses are committed to lifelong learning, emergency preparedness and disaster nursing must be encouraged as a part of all nurses' professional growth. This guide serves as the first step to help facilitate this process.

DISCLOSURES

The author has no involvement, financial or otherwise, with any individuals, organizations, or governing bodies that would bias the results reported in this manuscript.

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REFERENCES


Dickens, P. (2006b). Emergency preparedness and the need to include persons with disabilities: Basic issues for organizations to consider. [Cited 26 May 2016.] Available from URL: https://nciph.sph.unc.edu/tws/HEP.DIS1/certificate.php


Madrid, P. A., & DiMaggio, C. (n.d.). Dealing with disaster-related...


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