

# Research Issues for Nursing and Midwifery Contributions in Emergencies

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**Keywords:** disaster nursing; emergency nursing research; emergency response; nursing research; nursing research collaboration

## Abbreviations:

DHHS = (US) Department of Health and Human Services  
INCMCE = International Nursing Coalition for Mass Casualty Education  
NEPEC = Nursing Emergency Preparedness Education Coalition  
WADDEM = World Association for Disaster and Emergency Medicine  
WHO = World Health Organization  
US = United States

Received: 18 July 2007

Accepted: 01 August 2007

Revised: 26 June 2009

Online publication: 3 May 2011

doi: 10.1017/S1049023X11000124

## Abstract

This special report was prepared as a white paper for the First World Health Organization (WHO) Consultation on Nursing and Midwifery Contributions in Emergencies held in Geneva on 22–24 November 2006. Pertinent issues related to research of nurses and midwives were identified based on prior international conferences. Using this information, gaps between the current and proposed state of preparedness research activities were identified. Global perspective recommendations were made for consideration by the WHO and other nursing organizations. Finally, possible discussion questions were posed that were used during the consultation, but could also be used in other international nursing conferences.

**Weiner E:** Research issues for nursing and midwifery contributions in emergencies. *Prehosp Disaster Med* 2011;26(2):109–113.

## Introduction

Issues of nursing and midwifery research in emergency planning and response often lag behind exploration of other, more easily identifiable, concerns. Part of this relates to the maturation of the discipline of emergency nursing and the need to establish its roots prior to engaging in identified research. Gebbie and Qureshi point out that nurses have been a part of emergency response as long as nurses have existed.<sup>1</sup> In their paper, they further describe the historical development of emergency nursing as a specialty and the formation in 1970 of the Emergency Department Nurses Association (the predecessor to today's US Emergency Nurses Association).

An increased emphasis on emergency response, and particularly mass-casualty response, led to the development of the International Nursing Coalition for Mass Casualty Education (INCMCE). The INCMCE first met during the spring of 2001 at Vanderbilt University with sponsorship from the US Department of Health and Human Services (US DHHS).<sup>2</sup> The Coalition was designed to have organizational representatives from schools of nursing, government agencies, nursing specialty organizations, and nursing accrediting agencies. Early in the development of the INCMCE, international representation was limited, but grew to 10 non-US members.

Initial work of the INCMCE related to the development of core competencies for all nurses in emergency planning and response. In addition, a survey was developed and distributed online to all US nursing programs in order to quantify the content related to emergency response that was being taught in all nursing program levels both prior to and after the terrorist attacks of 11 September 2001.<sup>3</sup> Results demonstrated that there is a lack of emergency preparedness content in the curriculum, with only four to five hours of disaster preparedness content taught throughout the US during the academic years of 2000–2001 through 2002–2003.

Nursing students are not the only ones lacking in the mastery of emergency preparedness content. In the US nursing programs survey, 74% of the respondents felt that faculty were not prepared or poorly prepared to teach disaster preparedness content.<sup>3</sup> Similar findings have been presented by researchers in Japan in relation to faculty and student learning needs.<sup>4,5</sup> Only 5% of institutions in Japan provided disaster nursing as a stand-alone subject, and about 60% had no subjects regarding disaster nursing.<sup>5</sup> About 60% of institutions that did not provide any disaster nursing education did not intend to provide it in the future.<sup>5</sup> If both faculty and students are feeling unprepared, it is highly unlikely that a program of research would be of interest to them.

The INCMCE continued to meet face-to-face, and in 2004 and 2005, there were work sessions related to research. Drawing on the results of those discussions, this paper will identify pertinent issues related to research of nurses and midwives in emergency response efforts. Also gaps will be identified between the current states of preparedness to meet these research challenges, followed by suggested recommendations. Members of the INCMCE voted in 2007 to change the name of their organization to the Nursing Emergency Preparedness Education Coalition (NEPEC). This name change reflected the emphasis on educational considerations and was viewed as more manageable than a broader focus that included the development of the research agenda, particularly given the issues noted below.

## Issues

### *Extent of Current Literature and Data*

The research subgroup of the INCMCE in 2005 noted that the goal of defining the extent of current literature and data should supersede all others.<sup>6</sup> Until the existing evidence and resources are known, logical conclusions cannot be drawn on how to develop nursing practice or further research.

One of the difficulties in finding pertinent resources lies in the fact that there is not a standardized terminology. Although classic definitions have been identified by WHO and others, there is a tendency to use a variety of terms to mean the same thing (for example, emergency and disaster). The government of the US has further complicated matters by promoting bioterrorism over all other forms of disasters. Although grant funding specified "bioterrorism", the majority of developers realized the advantages of an all hazards approach and broadened the intent of their learning products. Further complicating the literature search is the fact that while emergency nursing has become a specialty the term emergency nursing typically means a specialty in the emergency department of various hospitals. Regardless of the search terms used for identifying published resources, nursing research on emergency and disaster planning and response is limited. Many articles indicate a propensity of descriptive case studies about singular events and organizations such as the 2005 Hurricane Katrina or 2004 Indian Ocean Tsunami efforts. However, descriptive studies are necessary in order to understand the complexities of the emergency planning and response efforts from both the perspective of victims and healthcare providers.

As knowledge synthesis tools emerge, nurses and midwives also need those tools (such as the Zynx product) that will assist them in making decisions about whether the evidence supports a change in their practice via a change in nursing order sets. For example, the Los Angeles-based Zynx Health (<http://www.Zynxhealth.com>) provides synthesized evidence resulting in order set management (Zynxorder) and content modules (Zynxevidence). However, these product offerings are based on acute and chronic care situations that typically are not exacerbated by disaster situations. Practitioners must understand how to extrapolate from the data. As a result, while knowing synthesis tools are beginning to be developed and used, they are not customized for use in emergency or disaster situations in which limited resources may be available. Priorities for research might change once the data gaps can be identified.

### *Research Priorities*

Regardless of the methods of funding or dissemination, future research priorities must be identified and operationalized. This

can be accomplished through policy development, or as individual granting organizations prioritize their funding mechanisms. One possibility is to validate the existing competencies that have been developed by various organizations. Are these the realistic and appropriate competencies that should be used? Although extensive effort has gone into the development of these competencies, validation studies have yet to be completed. While individual competency attainment is important, it also is important to view that in the context of the system capacity in which the nurse practices.

The second goal mentioned by the INCMCE in 2005 related to identifying the nursing roles in emergency events.<sup>6</sup> Particularly since there are multidisciplinary teams responding, unique roles for nurses must be identified. This examination must look at not only the incident itself, but how the preparedness and long-term consequences involve nurses. Identifying roles and skills also was an important focus of the WHO conference, particularly in relation to the use of international versus local response teams. Nurses and midwives must be able to identify when these new roles are appropriate and how to identify limits to their knowledge, skills and abilities.<sup>7</sup> The third goal reported by the INCMCE research work group was to identify research priorities.

Another suggestion for consideration as a research priority related to the use of high fidelity simulations and exercises. Phillips and Knebel describe that modeling responses to mass casualty events may take the form of tabletop exercise, actual but smaller events, or computer simulations and can provide examples of difficulties that may be faced during such an event.<sup>8</sup> They recommend using small numbers of casualties as a starting point, and then using rising victim number scalability models. The use of standardized modeling would allow for comparison of data across organizations.

### *Field Research*

The nature of an emergency or disaster contradicts the typical orderly nature of a research laboratory. There is no time to develop a research protocol, or to receive approval to use human subjects for data collection. The majority of research arising from the recent Hurricane Katrina efforts took place after the event, creating possible errors in recall of situations as they were. Approval for data collection was complicated because the institutions that housed the nurses who were being studied had in fact shut down due to the damage from flooding and winds. That is not to say that disaster research protocols cannot be developed and approved prior to an event, but the process entails waiting for an event suitable to the research question.

Japanese nurses have successfully implemented an approach that provides for evaluators from outside a region requiring help to assess an emergency situation. This is particularly important due to the fact that those involved in the event are suffering from their own psychological stress and hampered in their ability to problem solve.

### *Access to Data and Information Resources*

Meaningful access to data and information resources plays a critical role in whether changes are made in nursing practice, education, or research. In many cases, this means that the information must be accessed quickly so that decisive action can be taken. Spending hours looking at Web pages is not a luxury that nurses have during an emergency event. For those information resources that have been pre-determined to be helpful, attempts should be made for distribution throughout the organization prior to the

emergency event. Electrical outages may make access to electronic resources impossible. Communication via cell phones has become ubiquitous, yet cell phone towers may be down, making this form of communication impossible as well. System overload during emergencies is reported frequently (such as the London Bombing Incident in 2005). Cellular telephone text messages from Hurricane Katrina victims were delayed and held on a server with relay later when system traffic was decreased.

“Meaningful” access requires that the data and information are presented in such a way that users can easily find the information or data that they need. User interface issues become important, and how these databases are organized presents challenges for those nurses specializing in informatics. Their contribution to emergency relief could be in database design and inventory.

Researchers must be able to access databases that contain information about funding resources. Unfortunately, this has become a disjointed effort, so that potential researchers are caught searching different databases from varied organizations, or resorting to trusting someone in their organization to search and forward that funding information to them. Regardless, the funding sources generally are specific to only one country or region and typically are not international in scope.

An additional informatics contribution to the emergency planning and response effort would be data repositories. This arrangement would allow for data mining as well as warehousing functions. Collaborations could provide the infrastructure for granting appropriate access to the data so that information can influence knowledge in emergency planning and response.

#### *Funding for Nursing Research*

Competition for research funding has become greater, regardless of the topic being studied. At the same time, funding for nursing research in emergency planning and response is limited. Part of the reason for this limitation lies in the fact that decision-makers view funding sent to aid in emergency response efforts in the same category as necessary research funds. When the time comes to fund research in emergency planning and response, these decision-makers will rationalize that they have “already given” to that topic.

It also may be possible to leverage research funding across several organizations, which would optimize scarce financial resources. However, access and searching become critical functions that are pre-requisite to this approach.

Walker, Garmon, and Elberson categorize research and funding related to mass-casualty events, disaster, war, and terrorism into three areas: (1) studies related to the training, preparedness, and safety of providers along with the impact of mass-casualty events on provider mental health; (2) studies related to patients (individuals, families, and communities); and (3) studies related to communication and collaboration in the context of response and recovery by healthcare delivery systems.<sup>9</sup> They noted that little research by civilian groups was found however, a growing body of knowledge generated by military researchers has emerged. They also noted that little research has been reported in this area, largely because of difficulties in obtaining subjects, collecting data, the time of the research endeavor in relation to the occurrence of an event, and the sensitivity required to deal with disaster victims.

#### *Other Support for Nursing Research*

New researchers must be mentored and developed in the area of emergency planning and response. Yamamoto described an educational and research program called “Disaster Nursing in

a Ubiquitous Society in Japan”. Part of the national Center of Excellence program, unique attributes were the mentoring of new researchers, as well as a doctoral program to educate graduate students as researchers in the field of disaster nursing.<sup>4</sup> Additional strategies included sending researchers to establish information networks, and organizing global training programs.

Wright and Vesala-Husemann note that development of capacity in vulnerable populations and disaster management must go hand in hand.<sup>10</sup> Resources from outside have been vital in disaster management and have made a difference, but these must be coupled with a development approach. The transition from receiving relief aid to community development can be difficult. How does the research agenda get supported when basic human needs are such a priority?

Walker, Bibb, and Elberson encourage researchers to plan both prospective and retrospective research projects so that care during mass-casualty events ultimately will improve.<sup>9</sup> They also point out that emphasis must be placed on legal and ethical issues in regards to sensitivity extended not only to disaster victims, their significant others, and community members, but also to healthcare providers and other first responders.

The INCMCE Research subgroup (2004) suggested that capacity must be built.<sup>11</sup> In order to do that effectively, we need to develop interest and methodology for use in emergency planning and response research. Multi-site studies would provide an opportunity to compare different regions and/or countries in data comparison activities. A methodology workshop could be offered in conjunction with some international meetings.

#### *Multidisciplinary Research*

Because of the interdisciplinary nature of emergency response, research that includes more than one discipline becomes more important. The World Association for Disaster and Emergency Management (WADEM), in conjunction with The Task Force on Quality Control of Disaster Management and the Nordic Society for Disaster Medicine, has developed a suggested standardized framework for evaluation and research.<sup>12</sup> The five volume series is called “Health Disaster Management: Guidelines for Evaluation and Research in the Utstein Style.” Volume 1 has been published as a supplement to Volume 17, Number 3 of *Prehospital and Disaster Medicine*. The guidelines presented in this document propose a structural framework for investigations into the medical and public health aspects of disasters that could be used to appropriately design, conduct, and report findings of evaluation and research. There are three major impediments to the conduct of research and evaluations of disasters: (1) the lack of uniformly accepted, standardized definitions regarding disasters; (2) the lack of a conceptual framework to provide a structure for the study of disasters; and (3) the lack of an endorsed set of indicators for the evaluation of specific aspects of disasters.<sup>12</sup> Two research templates are provided: (1) an evaluation-research template; and (2) a project design template.<sup>12</sup> Furthermore, they describe an additional three pillars of importance to research: (1) conceptual framework of standardized definitions and concepts; (2) scientific methods applied to disaster research and evaluation; and (3) an inventory of the basic societal functions as well as the appropriate indicators of change from pre-event baselines.<sup>12</sup>

#### *Policy Development*

A proactive method to shape nursing and midwifery research efforts in emergency planning and response is to promote policy

development at various levels worldwide. Developed policies should then drive the research agenda. Participants in the Policy Work Group of the INCMCE (2004) identified policy as a “plan to deal with a problem that could be a law, regulation, guidelines, organization or agency procedure, or a standard”.<sup>11</sup> Furthermore, they thought that policy goals would help in an effective, unified response and motivate commitment to emergency planning and response. Nursing roles could be better valued and emergency planning and response efforts could be integrated into core nursing values.

Another observation of the INCMCE group was that nurses must help develop the policy and not just implement policies developed by others. Nurses must take leadership roles in organizations that have the ability to influence policy formation and implementation. In addition, it was identified that readiness needed to be a priority area. Part of the readiness effort includes the ability to access larger databases. Disaster complacency was also identified as a policy problem and barrier.

### Gaps

1. A gap exists between current literature and data regarding emergency planning and response and the end-users who would like to influence their practice, research, and educational activities.
2. Research priorities have been developed by individual organizations and governments, but these priorities have not been identified in a global sense.
3. Field research activities could prove valuable, but there is a gap between the research community and those providing direct emergency response efforts.
4. Data and information resources may exist regarding emergency planning and response efforts, but sharing and access further serve as a barrier to effective research.
5. Nurses and midwives interested in researching emergency planning and response need to have a global basis of funding in order to promote and elevate the status of their work.
6. Young researchers must be mentored by others in the field so that research in the area will have a promise for the future.
7. Research in emergency planning and response is available, but a gap exists between current research and any standardized framework for evaluation and research.
8. Globally, there is no method identified for nurses and midwives to drive policy development that would provide the infrastructure for research in emergency planning and response.

### Suggested Recommendations

1. Design and implement an information based repository of knowledge. While this sounds like a simple task, it will require collaboration with other organizations that house pertinent data. Decisions will have to be made in order to allow access to researchers without making the data public via the Internet. This recommendation also supports the access issues described in Gap #4.
2. Select areas in which to focus research efforts. For example, should the focus be on vulnerable populations? Vulnerable populations certainly fall within the area of responsibilities for the WHO.
3. Promote research tool development for use in the field during and following emergencies. Tools that can be

used for both prospective and retrospective studies would standardize data collection across countries. Consider a methodology workshop at one of the international nursing meetings such as the International Council of Nurses (ICN) or Sigma Theta Tau's Research Conferences.

4. Promote funding resources so that potential researchers are aware of funding possibilities in the area. Funding resources generally have been specific to a country or an organization. Funding that would encourage international data collection would allow for data comparison across and between countries.
5. Devise a nursing support network for research in emergency planning and response. Encourage new researchers to explore this area of research. Consider promoting mentoring pairs with the mentor and mentee being from different countries.
6. Consider the standardization framework for evaluation and research to be the Utstein Style. These documents are being developed from a global perspective and offer researchers the opportunity to conduct research in a variety of settings. Continued work by the developing partners would provide more opportunities for collaboration.
7. Develop policy guidelines that would influence the nursing and midwifery research agenda globally. These guidelines should have funding sources in order to make operational the guidelines.

### Possible Questions for Discussion Groups

1. How do we globally influence standardization of terminology? How can the developers of knowledge-based products be influenced to include variables related to emergency planning and response?
2. Should specific research topic areas be identified so that a critical mass of research can be conducted in various international settings? If so, what might some of the topics be?
3. Should the focus on nursing research be targeted at the systems level for better international comparisons? If the focus is on systems, how do we stimulate individual nurses to engage in research?
4. Is there a way to promote research tool development for use in the field internationally prior to an emergency event?
5. How do we promote and provide funding for nursing research globally? Are there organizations that we should be collaborating with who have similar goals? Should some of the funding be specific to midwives?
6. How do we balance the needs of developing researchers and developing countries so that the research agenda can be better addressed?
7. How can we promote a standardized framework for evaluation and research so that it can be tested worldwide?
8. How do we drive the policy agenda for nursing globally so that other organizations can contribute to the overall vision?

### Conclusions

This white paper was presented to the First WHO Consultation on the Contribution of Nursing and Midwifery in Emergencies as a stimulus for further discussion and action at the international level in relation to nursing research issues. According to the recommendations of the report, funding should be allocated

through WHO and other available channels to develop a priority research agenda including a focus on the following areas: (1) quality outcomes for nursing; (2) community recovery and measures of recovery and long-term recovery; (3) clarification of emergency and crisis nursing agenda; (4) ethics; (5) identification of areas to prepare for emergency; (6) validation of competencies, competence, and confidence of nurses; (7) monitoring and evaluation of sectoral performance in emergency settings; (8) indicators and monitoring process for nursing and midwifery that are inclusive of psychological issues; and (9) effective inter-professional teamwork. Qualitative and operations research (including case studies) should be encouraged in order to strengthen nursing practice during emergencies and crises. A standardized approach would assist in the comparison of various case models.<sup>7</sup> The research agenda is comprehensive and will require the collaborative efforts of WHO, the International Council of Nurses, and WADEM as

essential partners. An update to the original WHO report was provided in a later issue of *Prehospital and Disaster Medicine*.<sup>13</sup>

### Acknowledgements

The author thanks those who contributed to the 2004 and 2005 research work groups for the meetings of the International Nursing Coalition for Mass Casualty Education. The membership consisted of the following: 2004: Kristine Gebbie, Marguerite Littleton-Kearney, Patricia Hinton Walker, Lynn Slepiski, Sally Phillips, Helen Burns, Randal Beaton, Janet Hale, and Laura Talbot.

2005: Yoshie Yamase, Mitsue Nakamura, Ray Coe, Liz Bridges, and Noriko Katada;

2004 policy work group for the INCMCE meeting: Colleen Hughes, Gail Russell, Mary Chaffee, Donna Dorsey, Marilyn Edmunds, Habiba Sulemana, JoAnn Webb, and Meg Irwin.

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