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Use of Mental Health Services among Disaster Survivors: Predisposing Factors

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BMC Public Health (2007);7:173-182*

Reviewed by Vivienne C. Tippet

PURPOSE: Earthquakes are devastating natural disasters and can cause injuries or deaths that often number in the hundreds of thousands. The authors of this paper address such issues as triage, establishment of a medical transport corridor and common patterns of injury after an earthquake.

METHODS: In this paper the elements of disaster triage, medical evacuation and the rapid evaluation of characteristic traumatic injuries following an earthquake are comprehensively reviewed. The typical problems and pitfalls associated with rapid diagnoses during triage, patient stabilization and evacuation from the scene are discussed within the context of the related literature. Tables are used to highlight the numbers of dead and injured in earthquakes from 1906 to 2006. In addition, the authors show tables depicting the International Red Cross triage categories as well as a scoring system for the injured with extremity trauma (Mangled Extremity Severity Score).

SUMMARY: Following earthquakes the rapid extrication and transport of injured to definitive care facilities is essential to reduce mortality. During initial triage prompt injury diagnoses and evacuation may mean the difference between life and death for many of the injured. Older data indicate that if entrapped individuals are freed by 24 hours after the quake they have an 85-95 % chance of survival. However, more recent data from earthquakes in China and Turkey suggest that the injured have a greater chance of survival if freed from entrapment between 2- 6 hours and if local medical care can be provided quickly. The authors emphasize that triage must occur not only at the scene, but also at resuscitation areas and upon arrival at the hospital. Establishment of a "medical transport corridor" is essential and must involve cooperation with community and highway transport systems, coordination of communications systems and sharing of resources. Following initial triage, transport to hospitals outside of the immediate earthquake site may be essential to reduce saturation of local medical facilities and improve patient outcomes.

The authors go on to review triage and primary care for victims' specific traumatic injuries. It is stressed that the first goal must be to stabilize airway, breathing and circulation, then to begin emergency interventions of other life-threatening injuries prior to transport. Basic emergency treatment considerations are reviewed for skull/brain, spinal and skeleton, thoracic, abdominal, kidney and crush injuries. The authors give special attention to the importance of securing the airway and fluid resuscitation of patients with burn injuries. Finally, they discuss elements of post-traumatic stress disorders and the need for early mental health interventions.

COMMENT: This interesting, well-written review focuses on the precepts of disaster triage, transport and immediate patient care. The authors identify common traumatic injuries associated with major earthquakes and the immediate interventions. The article is well organized and informative. The data depicting the numbers of dead and injured after earthquake from 1906-2006 are impressive. These data point out the need for effective extrication, triage, transport and immediate medical care so as to reduce these numbers. There are enormous obstacles associated with patient retrieval and the authors do a nice job emphasizing the need for proper planning for and coordination of rescue operations. For healthcare providers not familiar with initial care of polytrauma patients this article could serve as a valuable primer. However, for those that do work with trauma patients the discussion of the immediate interventions will likely be a review. What is fairly unique about this article is the fact that not only do the authors address physiological problems that earthquake victims suffer, but they also acknowledge some of the psychological issues such as post-traumatic stress disorders. It would have been nice to have a little more information about specific interventions for the patients with other forms of psychological trauma. Nevertheless, this article is a nice summary of many aspects of the immediate care of patients injured in major earthquakes and is worth reading.

Disaster and Emergency Management: Canadian Nurses Perceptions of Preparedness on Hospital Front Lines

O'Sullivan TL, Dow D, Turner MC, Lemyre L, Corneil W, Krewski D, Phillips KP, Amaratunga CA
Prehosp Disaster Med 2008;;23(3):s11-s18

Reviewed by John Coleman, RN

PURPOSE: To assess the perceptions of preparedness for disasters and nurses' access to support mechanisms. The survey was particularly aimed at nurses working in emergency and critical care units. The three hypotheses that were tested focused on nurses' perception of preparedness to respond to disease-related, natural or man-made terrorist-created disasters. The assumptions that were tested were that perceptions of preparedness would vary according to previous experience and institutional preparedness.

METHODS: The instrument used for this study was "Caring about healthcare workers as first responders: a survey of nurses". The items in the tool were taken from the Canadian Community Health Survey (CCHS) and Canadian APEX study. In addition, some new items were added to the survey tool by members of the study team. Using a 4 point Likert scale, respondents were asked to evaluate their perceptions of professional preparedness to respond to a variety of disasters, including infectious disease, natural events, nuclear and chemical events. Respondents were also given the option of not responding to a particular question via a fifth item on the scale. The survey had four sections and included a section on nurse's estimation of their personal preparedness, their prior work experiences with infectious disease outbreaks, support during the outbreak and their satisfaction with work during the crisis. The survey was conducted anonymously online, targeting 1,500 nursing professionals who had worked in Emergency Departments and Intensive Care Units across Canada within the last 3 years. Recruitment was performed using flyer mail outs and email notices. The numbers of flyers that were distributed to provinces in Canada were based on the approximate number of professional nurses in the province and were adjusted based on an expected response rate of 10%.

The participants were asked to assess their awareness of their hospital's response plans and policies in the event of an infectious disease outbreak. They were requested to rate their familiarity with these plans and their perception of the availability of supplies and supports for front-line workers. Other survey questions related to the nurses' confidence in their institution's preparedness and their personal protection during a future, large scale, infectious disease outbreak. Demographic data were also collected.

RESULTS: Of the 1,543 nurses who participated in the survey, 48.7% indicated that they had previous experience with an infectious diseases outbreak. Ratings of perceived preparedness varied significantly according to type of disaster scenario, age, gender and previous experience with an infectious diseases outbreak. High proportions of respondents reported that they did not know (or had no answer) regard-

ing the adequacy of nearly all the supplies/resources listed. Similarly, respondents reported a lack of continuing education on emergency planning. In fact, only 44.6% indicated that their institution had a formal emergency plan for a large scale infectious outbreak. Generally, the nurses reported low confidence in the preparedness of their institution and their personal protection during a large scale infectious outbreak. Fewer than 10% had participated in emergency training or drills and those nurses. Nurses having experience with disaster drills or experience with infectious diseases outbreaks expressed higher levels of perceived preparedness. The authors suggest that greater experience may lead to increased confidence and mastery of disaster-related content.

COMMENT: This survey has significant implications for hospital emergency planners because many of the points raised are valid across the members of the healthcare workforce. There are several limitations of the study and these are acknowledged by the authors. These limitations include; a relatively low response rate compared with the total Canadian population of nurses and participant self selection for participation in the on-line study may have introduced some bias. In addition, the survey did not measure nurses' actual knowledge levels, nor did it identify if the participants felt unprepared for specific disaster response elements. It is interesting to note that asking about knowledge of more obscure aspects of emergency planning (emergency food and water supplies) will reflect a low level of knowledge (in this case 11%) and may have contributed to the nurses' feelings of discomfort and unpreparedness. Another limitation is that this survey assessed only perceptions of preparedness and not actual knowledge levels. Consequently, the findings of the study may be based on opinions and not necessarily reality. However, staff perceptions are important factors that influence healthcare workers willingness to report for work. It should be noted that the authors intend to conduct future analyses to evaluate the complex relationship between survey constructs and how these constructs may cluster around certain categories of preparedness. This additional analysis should enhance an already valuable body of work. The findings of this study support those of Irvin *et al* (2008) and Qureshi *et al* (2005) who identified that willingness to report for work during a disaster event is influenced by event type and the perceived safety of the potential responder. Thus, the results of this study contribute to a growing body of knowledge. The message is clear: Hospital and health emergency planners must be transparent and effective communicators. Training in emergency response and specific procedures will increase the confidence of staff in emergency preparedness.

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Evaluation of an Instrument to Measure Nurses' Familiarity with Emergency Preparedness

Garbutt SJ, Peltier JW, Fitzpatrick, JJ
Mil Med 2008;173(11):1073

Reviewed by Roberta Lavin

PURPOSE: To assess the psychometric characteristics of the Emergency Preparedness Information questionnaire (EPIQ) used to measure nurses' self-reported familiarity with emergency preparedness. The authors propose that additional evaluation of the EPIQ will help to refine the tool so it can be used to effectively evaluate nurses' preparedness to respond to mass casualty and disaster events.

METHODS: In this study the investigators performed a secondary data analysis using principle components factor analysis to re-evaluate the items in the EPIQ questionnaire. The EPIQ was previously employed by Wisniewski to survey the emergency preparedness educational needs of nurses in Wisconsin. The EPIQ is a 44 item self-reported questionnaire used to evaluate 8 dimensions of emergency preparedness. After completion of the factor analysis, items were realigned into the dimension where they fit the best. Then a Cronbach's α test was conducted to re-assess the item reliability.

RESULTS: Nurses perception of their level of preparedness in eight key areas was evaluated: (1) incident command system; (2) triage; (3) communication and connectivity; (4) psychological issues and special populations; (5) isolation, decontamination, and quarantine; (6) epidemiology and clinical decision-making; (7) reporting and accessing critical resources; and (8) biological agents. The EPIQ was shown to be a powerful tool to evaluate each nurse's perception of his/her preparedness for large-scale disasters. The realignment of configuration of the dimensions was found to be valid and reliable. Each of the 8 EPIQ areas was significantly linked to a nurse's familiarity with the disaster-related elements contained in the dimensions. The familiarity scores ranged from 2.1 for communication and connectivity to a high of 3.2 for triage on a 5-point scale with one being not familiar and five being very familiar. Most importantly the reliability and validity of the EPIQ was confirmed.

COMMENT: The EPIQ has only been used during the original study by Wisniewski. The additional validation contained within this study work will open the doors for future usage of the EPIQ. It will provide investigators with a tool to assess nurses' knowledge of at least 8 dimensions of emergency preparedness. The authors contend that this will enable the design and implementation of curricula that targets disaster preparedness for nurses. The additional analyses of the items contained in the questionnaire confirmed the reliability and validity of the EPIQ. It showed that the tool is psychometrically sound and by doing so has made it a more inviting tool to use for future research.

There is a great need for competency-based education for emergency and disaster education. Several colleges and

universities have developed or are in the process of developing programs focused on emergency/disaster management and many colleges of nursing are adding curriculum specifically addressing the nurse's role and responsibility in emergency management/disaster preparedness. Even more hospitals and public health departments are attempting to enhance nurses' skills by developing targeted training programs. While this is important work the authors correctly point out that a critical first step is identifying training needs. Once the needs are identified it is then possible to develop more relevant curriculum.

Now that the EPIQ is validated for nurses it can be expanded to use with other health care professionals. It would then be beneficial to determine whether self-reported familiarity equates to actual knowledge and actual ability to perform during a disaster. As stated by the authors, the EPIQ is the beginning of a program of research to better understand nurses' familiarity with emergency preparedness and thus elucidate competency-based training needs.

Earthquakes and Trauma: Review of Triage and Injury-Specific, Immediate Care

Gautschi OP, Cadosch D, Rajan G, Zellweger R
Prehosp Disaster Med 2008;23(2):195-201

Reviewed by Marguerite Littleton-Kearney

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