Earthquakes and Rehabilitation Needs: Experiences from Bam, Iran
Raisi, GR
Reviewed by John Coleman, RN, BCEN

PURPOSE: The purpose of this study was to identify those victims of the December 2003 earthquake in Bam, Iran who sustained spinal cord injury (SCI) and to determine the place for rehabilitation in such a population.

METHODS: This is a simple information gathering study using descriptive methods. Demographic information to identify patients with SCI was collected immediately and 8 months after the earthquake. Issues relating to rehabilitation were identified.

RESULTS: Data collection proved to be problematic due to difficulty identifying patients, poor governmental data collection, patient dispersion/relocation, a shortage of trained personnel and loss of patient records. In the first three months after the earthquake, approximately 100 individuals with (SCI) were identified; of these only 34 patients were visited. Eight months later 54 patients were visited. Of these 54 individuals 29 (53.7 %) were female. The initial response lacked organized data collection and this, combined with the subsequent dispersal of patients and a lack of data collector expertise, meant that some patients with SCI, particularly patients with peripheral nerve injuries, failed to be categorized as having SCI. The author highlights that review of patients’ demographic distribution following an earthquake is important. He suggests that this distribution must be taken into account when doing short- or long-term rehabilitation planning. The author noted that lack of patient/family education led to improper care. He stressed that an important first step in the institution of a rehabilitation program involves accurate data gathering. Patient concerns associated with rehabilitation included lack of education for bowel and bladder problems, high technology assistive devices, such as wheelchairs, when traditional devices were more useful, lack of appropriate housing, lack of appropriate transportation, misinformation related to the possibility of cure and cultural beliefs about people with impaired function. Problems relating to psychosocial issues were identified as; difficulties with reintegration into society, problems related to loss of home/property, proper integration of rehabilitation with cultural, religious, and societal values that may result in problems with healthcare. Other impediments to rehabilitation involved ethical issues such as resource allocation, difficulty doing research that might help address future needs/solutions and, finally, education.

The author concludes that disasters frequently cause injuries that require rehabilitation. The resultant upsurge of rehabilitation needs of disaster victims necessitates international involvement in post-disaster rehabilitation programs.

COMMENT: This largely descriptive study would have been more valuable if the author had been more rigorous in his approach. However, he does point out that conducting research during disaster response operations is generally not a priority and if it is carried out, is fraught with difficulties. Nonetheless, this paper does add some information to the growing body of work aimed at reviewing and evaluating the effectiveness of disaster response relief efforts. While there is no explicit criticism by the author of the rehabilitative efforts of the NGOs involved, lack of coordination, some misinformation, culturally and technologically inappropriate care and a lack of a long term commitment to the victims are described. These issues more than likely illustrate the myriad difficulties associated with healthcare after a catastrophic event such as an earthquake. After the Bam earthquake, international relief was provided by several unnamed NGOs, but there were some issues with members of NGOs having minimal or no experience in working with patients with rehabilitative needs. This issue is probably not uncommon since many NGOs depend on volunteer staffing and volunteers often come from diverse backgrounds.

Iran, like many countries, especially those on the Pacific Rim, is located in a zone of high earthquake activity. The Bam earthquake on December 22, 2003 occurred at 05:26 hours and affected 100,000 people with at least 36,000 dead and 23,000 injured. Bam was a city mainly constructed of mud bricks and suffered extensive building collapses and this, combined with most of the population being asleep on the ground, and poor rescue techniques resulted in a substantial number of post-disaster victims with lower spinal cord injury. In the author's opinion, some of these injuries could have
been prevented by appropriate handling and treatment at the time and other functional deficits could have been reduced by timely intervention.

This paper is worth review because the concerns raised by the author reiterate those expressed by others involved in disaster healthcare. Although much of the information accrued by the author focuses on rehabilitation, it goes beyond the specific discipline of rehabilitation medicine and offers a first-hand description of potential health problems in the recovery phase from an earthquake.

Disaster Evacuation: An Exploratory Study of Older Men and Women in Georgia and North Carolina
Rosenkoetter MM, Covan EK, Bunting S, Cobb BK, Fugate-Whitlock E
Journal of Gerontological Nursing 2007(12);33:46–54
Reviewed by Jocelyn A. Farrar, DNP(c), MS, RN

PURPOSE: The purposes of this study were two-fold: to identify factors that predict the likelihood of evacuation by older adults and to identify factors that predict the likelihood of evacuation by older adults.

METHODS: The Older Adult Disaster Evacuation Assessment, a self-report survey, was administered to older adults living independently in two Georgia counties and three North Carolina counties that were deemed high-risk for flooding, hurricanes or other natural hazards. A non-probability, convenience sample of 280 low-income, older adults was recruited from individuals attending one of five congregate meal sites in Georgia and North Carolina. The survey provided data on the respondents’ demographic characteristics, factors that could impact evacuation decisions and attitudes toward disaster evacuation.

RESULTS: The study sample mainly consisted of women (74.6%). A majority of the participants (60.6%) reported age between 70 and 89 years. Fair or poor health status was reported by 45.9% of the women and 47.6% of the men. The most commonly reported health problems included high blood pressure (64.5%), arthritis (47.6%), foot or leg problems (30.0%), and diabetes (28.9%). Analysis of risk factors by gender revealed that significantly more men than women reported that they still drove a car. No significant differences were found between genders for the risk factors of reported level of health, ability to ambulate or possession of a cell phone or computer. A greater percentage of women than men lived alone. Pet ownership was reported by 78 (29.8%) of respondents; 14 individuals indicated that they would not evacuate because of their pet; and 16 reported that they would not evacuate without their pet. Significantly more women than men reported that they would be more likely to evacuate based on reports of Hurricane Katrina.

Odds ratio analysis indicated that individuals who were influenced by Hurricane Katrina were three times more likely to evacuate, and those who followed the advice of county officials were more than eleven times more likely to evacuate. No significant difference was noted among the likelihood to evacuate, gender or trust in television and county officials.

COMMENT: The findings of this study validate what we know from past disasters: there is a cohort of individuals who, by self-report, may not heed evacuation orders. The question becomes, why not? Although the study provided information on risk factors such as health status, mobility deficits, pet ownership and communication and transportation limitations, more information is needed to explain the actions of those individuals who choose to shelter in place. The findings support the importance of emergency planners focusing on mitigation and prevention activities for individuals who will remain within the disaster area. It will be important to identify their locations and risks, such as co-morbid conditions, social isolation or sensory or mobility deficit, well in advance. Prevention activities including outreach and education must be provided. Mitigation efforts such as providing funding to increase the resilience of residences or establishing shelters with pet care resources may be appropriate. For health care providers and institutions, it is likely that when a disaster occurs, local hospital emergency rooms and other health care facilities will become the default shelters of last resort for these individuals. Again, proactive planning will allow these facilities to appropriately meet the needs of this vulnerable group. The second area of significance for emergency planners is that individuals who are willing to follow the advice of county officials are more likely to evacuate than those who are unwilling. These findings underscore the importance of proactive collaboration between emergency officials, state and county leaders, aging networks and community members. Clear and trustworthy crisis communication may be the key factor influencing the evacuation decision. This communication must exist in modes that are used by older adults (few reportedly used cell phones or computers) and must facilitate the development of trust and a willingness to follow official evacuation recommendations. Finally, findings suggest that the events surrounding Hurricane Katrina impacted the likelihood of elders to evacuate. The authors appropriately question whether or not this influence will persist over time and, more importantly, if the individuals actually would evacuate. A limitation of the study included the use of a convenience sample, which increases the potential for sample bias and limits generalizability. Self-reporting also increases the risk for response bias. The study design could be improved if it was more focused. Finally, the sample studied had access to transportation to the meal support agency, which may have excluded important information from less mobile elders belonging to a more underserved population. Therefore, it may be critical to gather further information on individuals who are socially isolated without transportation or access to similar support resources. Future research studies should focus on the characteristics, location, attitudes and needs of this highly vulnerable population to allow the development of appropriate prevention and mitigation initiatives.
Pandemic Policy and Planning
Considerations for Universities: Findings from a Tabletop Exercise

Reviewed by Hideat Tewolde, BSN, RN

PURPOSE: To identify policy gaps during a pandemic flu at major universities and to offer planning recommendations.

METHODS: A tabletop exercise with four storyboards covering all phases of a pandemic influenza event was utilized at the University of Washington (UW) in order to assess the response to a pandemic threat. Participants’ verbal responses were recorded; debriefing follow-up, written surveys and evaluators’ reports were collected. From these data, strengths and weaknesses of the University’s response to pandemic influenza were identified.

SUMMARY: Several elements of emergency operations during a pandemic influenza disaster were evaluated. These elements included: continuity of operations, continuity of laboratory research programs, definitions of levels of essential personnel, procedures for isolation and quarantine, use of personnel to assist during pandemic influenza outbreak, tracking of faculty, students and staff, communications, considerations for stranded international students and faculty, and mental health needs. The exercise exposed several weaknesses: the UW had no selection and training process for the emergency operation center (EOC) representatives prior to the exercise. The importance of EOC roles within the UW operations was identified from Hurricane Katrina. It was determined that a detailed operations plan must be in place for the university’s research laboratories; planning should include the goods, services and personnel of research laboratories, including animals. Other considerations that were identified involved defining several phases of operation instead of expecting an all-or-none response. During the drill, questions arose regarding isolation and quarantining on campus. Other areas that were identified centered on who had jurisdiction on campus to make decisions, and the provision of mental health services. Furthermore, there was no plan to utilize university faculty, students and staff volunteers in disaster response. Recommendations were made to network and use outside agencies such as the American Red Cross and Medical Reserve Corps who rely on volunteers for disaster response. One consideration was tracking the travel of faculty and students in high-risk areas. Training all counseling staff in the elements of basic mental health also was recommended. Communicating risks to intended employees was identified as a significant challenge. The authors recommend that universities and colleges not delay in creating plans for their institutional response in the event of a pandemic influenza outbreak.

COMMENT: Planning for a pandemic influenza event is a challenge for most universities, especially those who have an academic medical center as a component of the university.

This tabletop exercise was a much-needed first attempt to model possible scenarios that might impact the operation of a university and its medical centers. It created a quality learning environment, provided a forum for a variety of staff, integrated different disciplines, allowed participants to problem solve, and identified areas for improvement. The design of storyboards included five-to-six prompts encouraging participants’ response related to objectives. The recommendations were broad in nature and certainly would need to be more detailed to actually determine what resources are required, or if implementation of the general policies is feasible. The university’s emergency response plan to pandemic flu still must be developed and not all the pieces were identified in this study. In addition, it is essential that other similar drills be run to test the plan once adjustments have been made to the existing plan. The exercises and evaluation of responses cited in this article emphasize the magnitude of work and complexity of planning that goes into a pandemic flu response and the effects on major metropolitan universities.

Influenza Pandemic and Professional Duty: Family or Patients First? A Survey of Hospital Employees
Ehrenstein B, Hanses F, and Salzberger B
BMC Public Health 2006; 6:311–312

Reviewed by Karen Nager, RN, BSN

PURPOSE: To better understand healthcare professionals’ (HCP) fear of contracting influenza or transmission to family members, and their opinions on the ethical obligation to treat patients during an influenza pandemic. This study was prompted by HCP’s response to the SARS epidemic in 2003 and the lack of official ethical guidelines balancing public needs against HCP’s personal risk.

METHODS: A survey was sent to HCPs in the form of an anonymous, self-administered, multiple-choice, paper questionnaire. Those who were invited to complete the questionnaire included: 637 physicians/final-year medical students (FYMS), 994 nurses, and 267 hospital administrators at the 1,000 bed university hospital in Regensburg, Germany. The survey consisted of eight questions, four testing the HCP’s knowledge about H5N1 (avian) influenza in the True/False/Don’t Know format; and four statements pertaining to the ethical issues of influenza pandemic management using a five-point scale: strongly disagree, disagree, no opinion, agree, strongly agree. Data on gender, age (above or below 35 years), having minor children, and professional group designation were collected. A chi square analysis was employed to test statistically significant differences between the three groups.

RESULTS: Six hundred forty-four (34%) of the surveys were returned completed: 233 of 637 (37%) from physicians and FYMs; 264 of 994 (27%) from nurses, and 147 of 267 (55%) from hospital administrators. No significant differences were found in age or gender of the respondents. Of the four questions related to knowledge of H5N1 influenza, 88% knew about the absence of human-to-human transmission of H5N1, 84% had correct information regarding...
the lack of commercially available anti-H5N1 vaccine, 27% had knowledge of descriptions of resistance to neuraminidase inhibitors of H5N1 strains, and only 10% believed that prophylactic use of neuraminidase inhibitors could protect them from H5N1 influenza in the event of human-to-human transmission. In reviewing the opinion of HCPs on ethical topics regarding management of an influenza pandemic, the following were noted: 28% of the respondents believed that it is professionally acceptable for the HCP to abandon his/her workplace in order to protect themselves or family; the majority (52%) considered it unethical to not report to work. Of those who believed that HCPs had a duty to report for work significant differences were observed among the groups. Both physicians (65%) and nurses (54%) believed that the HCP had an obligation to report for work, while only 30% of the administrators thought that they should come to work ($p < 0.001$). (The administrator group was used as a representative sample of the general population, i.e., individuals not educated as health care providers.) Of the 644 respondents, 79 (12%) agreed and 496 (77%) disagreed with the statement that a HCP should be permanently dismissed for not reporting to work during a pandemic. Lastly, 21% of all the respondents believed that HCPs without small children should be the primary care providers for patients with influenza. Based on the results of this study, the authors concluded that, for the most part, HCPs feel obligated to provide care during an influenza pandemic. They suggest that professional ethical guidelines be generated and made available to HCPs.

**COMMENT:** This study was well executed and illustrates some of the ethical complexities that need to be addressed when planning for a pandemic. After the SARS epidemic, HCPs have become more aware of the risks to themselves as well as their family members when caring for a certain patient population. When planning for a pandemic, planners must take into account the potential for a substantial percentage of HCPs not reporting to work, as revealed by this study. Pandemic preparedness plans must include guidelines about staff duty to report to work as well as consequences for those staff that refuse to report. Most HCPs understand their duty and obligation to care for patients, but making the decision to report to work during the time of the event may be too great a burden. Addressing these issues now will allow staff to clearly understand their obligations, and prepare themselves to report to work. These guidelines could be applied to many other events such as a chemical or biological incident.

One of the limitations of this study is that there was a low response to the anonymous survey—only 34% of HCPs completed the survey rate. This may lead to an overestimation of positive responses since those not returning the questionnaire may be uncomfortable with answering questions regarding their willingness to put themselves at risk. This is an important study that should be repeated in many hospitals. It would provide a baseline regarding staff attitudes toward reporting to work during a pandemic. The study topic is intriguing and should be an essential part of pandemic preparedness planning.