

Bangladesh is living in high risk areas particularly for cyclones and floods. In an attempt to measure the level of health risks in these areas, a risk assessment model for the districts of Bangladesh has been developed by the Bangladesh Centre for Health Emergency Preparedness and Response (BCHEPR).

Methods: The model uses a number of indicators as determinants of vulnerability to public health emergencies: (1) Population density; (2) Under 5 years mortality rate; (3) Measles vaccination coverage rate; (4) Malnutrition rate of children under 5 year old; (5) Proportion of households with access to safe drinking water and sanitary latrines; (6) Proportion of people with incomes below the poverty level; (7) Proportion of people with access to health services; (8) Proportion of people without permanent households; and (9) Adult literacy rate. Based on the prevailing situation in the districts, the vulnerability is measured by computing a weighted index, and then each district is ranked for public health risks based on the computed score.

Results: Using data from the nationally representative sources, certain baseline standards and cut-off points for predicting public health risks in emergencies have been determined. These standards have been established based on past evidence as well as from international standards of best public health practice. The model is updated every year depending on the achievement of the districts in the selected indicators.

Conclusions: Application of this model can be used to identify the potential risk areas for public health emergencies whenever a natural hazard strikes the country. The model is used as a tool for assessing health needs in emergencies. By looking at the ranking of the districts in terms of vulnerability, the model offers opportunity for planning institutional measures that can reduce the public health risks of hazard-prone districts in Bangladesh.

Keywords: analysis; assessment; Bangladesh; best practice; emergencies; hazards; health; indicators; model; public health; ranking; risk

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Induction of Asthma in Susceptible Individuals Due to Changes in Weather Conditions

Shane Curran

Emergency Dept., Wagga Wagga Base Hospital, Wagga Wagga, New South Wales

In the Riverina region of southwest New South Wales, Australia, the occurrence of asthma epidemics is related to seasonal thunderstorms. During the last 15 years, there have been five such epidemics documented at the Wagga Wagga Base Hospital (a major non-metropolitan referral hospital) and in the surrounding areas. The most recent epidemic involved the management of 293 patients during a 24 hour period in seven different hospitals with 193 (65.9%) of these patients were managed at the Wagga Wagga Base Hospital. A number of innovative, predictive models have been developed that emphasize prediction algorithms based on interdisciplinary and interagency research.

The occurrence of epidemics of asthma has been shown to depend on the type of thunderstorm and the pollen load at the time of the storm. Longer range predictions depend

upon proximal and distal climatic conditions. Subsequent research has shown that the vast majority of patients presenting during an epidemic are allergic to rye grass pollen who had not been diagnosed previously with asthma.

A number of innovative preventive public health strategies have been implemented in an attempt to reduce the number of patients presenting with asthma during thunderstorms. The Emergency Department, hospital, and area-wide responses are based on a specific medical modification of the area disaster plan.

An overview of thunderstorm asthma that will detail available predictive models and the resources required to respond to an overwhelming influx of medical patients over a wide geographic area with a variety of medical providers are presented.

Keywords: asthma; disaster; epidemics; plans; responses; thunderstorms
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Forum: International Nursing

Chair: Dr. K. Joanne McGlown, RN

Adjunct Professor, Institute for Emergency Preparedness, Jacksonville State University, Jacksonville, Alabama USA; WADEM Vice-President, Member Services

Recommendations for Nursing Requirements at a Field Hospital Based on Israeli Defence Forces Field Hospital at the Earthquake Disaster in Turkey—August 1999

Gila Margalit, MHA, RN, BN; Yitzhak Rosen, MD; Dorit Tekes-Manova, MD; Maya Golan, MHA, RN, BN; Paul Benedek, MD, MPH; Avishay Goldberg, PhD, MPH, MA; Yehezkel Levy, MD; Giora Martonovits, MD, MPA, MPS; Yaron Bar-Dayam, MD, MHA

Israeli Defence Forces (IDF) Medical Corps and Department of Health Systems Management, Department of Emergency Medicine, Faculty of Health Sciences & School of Management, Ben Gurion University of the Negev, Beer Sheva, Israel

Introduction: On 17 August 1999, an earthquake of 7.4 magnitude on the Richter Scale struck the Marmara region in Turkey causing an event resulting in massive casualties with an estimated 2,680 deaths and 5,300 injuries just in the city of Adapazari alone. A field hospital was set up by the Israeli Defence Forces at Adapazari, in order to provide temporary medical services until regular medical forces recovered. The aim of this paper is to provide an overview of the requirements of the nursing staff at a field hospital based on our experience, and analysis of the nursing activity at the field hospital at Adapazari.

Methods: The methods implemented include interviewing all nurses and many of the doctors who took part in the field hospital as well as a review of medical literature on disasters.

Results: An inverted nurse:physician ratio of 1:1.77 existed, as opposed to a 2.5–3:1 ratio in regular civilian hospitals. The nurses in this field hospital had to work longer and more intensive shifts than in a regular hospital. They also had to overcome language barriers and cultural differences, and faced difficult hygienic conditions.

Conclusions: First, although it is not possible to predict the number and types of casualties, it is recommended to provide an adequate number of nurses (1-1.5:1 nurse:physician ratio). Furthermore, the nurses should be specialized and rotated as needed. Second, the language and cultural barriers, despite the abundance of translators, should not be undermined. And finally, the hygienic status in a field hospital requires management by nurses with active participation of all members.

Keywords: barriers; casualties; earthquake; field hospital; Israeli Defence Forces (IDF); medical services; nurse:physician ratio; nursing; translators; Turkey
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E-mail: bardayan@netvision.net.il

Using Disaster Simulations to Prepare Emergency Nurses for the "Real Thing" in Emergency, Post-Graduate Programmes

Joy Lynehan, RN, BApp Sci, Grad Cert EN, MHSc, FRCNA; Lt. CMD Mark C. Leddy, RAN

Monash University School of Nursing, Frankston, Australia

Recent global events have tragically highlighted the need to include disaster management and bio-terrorism in the post-graduate curriculum for emergency nurses. Monash University School of Nursing has developed a relationship with the Australian Navy, and now include, as a compulsory component of the Graduate Certificate/Diploma of emergency nursing, a simulated disaster exercise at HMAS Cerebus. Emergency students work with the Navy medics, fire services, air rescue, and paramedic students from the university on a simulated disaster. Students assume various roles such as victims or emergency nurses. There are multiple learning modes in this type of simulation. This paper will describe the setting up of the simulation, the preparation required, the multiple levels of learning that occur during this exercise and debriefing as an experiential learning tool. The objectives of such an exercise will be discussed along with the learning outcomes, both expected and unexpected.

The students' responses to this exercise have been overwhelmingly positive, and the learning outcomes continue even after the completion of the course. This type of simulation allows for emergency nursing students to be placed in situations in which they have little or no experience such as patient triage or being in-charge. This occurs under the watchful eye of the educators.

This type of learning that occurs outside of the traditional classroom, is a valuable experience that begins to prepare emergency nurses to cope clinically and to gain insight into their own coping mechanisms in situations of high stress and emotion.

Keywords: disaster education, nursing education, disaster simulation training
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Ability and Willingness of Healthcare Personnel to Report to Duty During Severe Disaster Response

Kristine Qureshi, RN, MSN, DNS [c]; Robyn R.M. Gershon, DrPH, MS; Stephen S. Morse, PhD; Boaz Tadmor, MD

Columbia University Center for Public Health Preparedness at the Mailman School of Public Health, New York, New York USA

As terrorism escalates around the world, the role of the healthcare workforce is being redefined and expanded to include increased attention to disaster preparedness and response for biological, chemical, mass casualty, nuclear, and radiological events. A well-prepared workforce that is willing and able to report to duty during times of crisis is essential for effective response capabilities, yet little work has been done in this area to examine the actual intentions and abilities of staff to report to work for disaster duty.

This paper will present the results of two studies conducted at the Columbia University Center for Public Health Preparedness at the Mailman School of Public Health to identify the ability and willingness of healthcare personnel in the public health and hospital sectors to report to duty during disaster situations. Facilitators and barriers for reporting were identified. This information is useful for preparedness planning, as employers may initiate strategies to reduce barriers and influence willingness, thus increasing the probability of having a ready and willing workforce for disaster response.

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Keywords: disaster; healthcare personnel; hospitals; planning; preparedness; public health; report for duty; workforce
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Enhancing Standards in Rural CBR Management

Mr. Thomas Niederle; Ms. Pat Standen

Dept. of Human Services, Grampians

There is a recognised need for a more systematic approach toward effective multi-agency responses to Chemical, Biological, and Radiological (CBR) incidents in the Grampians Region. In addition, an improved understanding and level of cooperation between key stakeholders in planning and response arrangements are required. To address these issues, Public and Acute Health personnel from the Department of Human Services (DHS) are working with Emergency Departments from referral hospitals in the Region to:

- a. Increase skill levels through a program developed and delivered free of charge by DHS Regional staff; and
- b. Assist with CBR planning arrangements.

Critical to the education is a training program targeting Registered Nurses in Emergency Departments. On the completion of the "C" (chemical) component, the model will be used to provide "B" (biological), and "R" (radiological) training. The initial "C" program is divided into five packages:

- I. Increasing awareness
- II. Enhancing knowledge
- III. Developing skills
- IV. Practical fitting and removal of personal protective