

From 28 July to 28 August 1976, a total of 15,351 wounded persons were transported to hospitals in other places by air, and 72,818 to other places by train.

**Keywords:** casualties; condition; damage; earthquake, Tong-shan Area of northern China; earthquakes; infrastructure; injuries; medical practitioners; procedures; surgery; transport; treatment

*Prehosp Disast Med* 2002;17(s2):s72.

### Survival in the Age of Bioterrorism: Is the Healthcare System Prepared?

*Christina L. Catlett, MD*

Deputy Director, The Johns Hopkins Office of Critical Event Preparedness and Response, Department of Emergency Medicine, The Johns Hopkins University, Baltimore, Maryland, USA

The concept of "hospital disaster planning" has evolved from preparation for natural disasters into "healthcare system disaster planning" for weapons of mass destruction. Preparation for critical events, which used to take place in a disjointed fashion, now requires maximal coordination of all available resources. Healthcare systems, a vital component of the nation's response effort, have a tremendous amount of resources, including elements such as hospitals; community healthcare facilities (clinics); home healthcare services; schools of medicine, nursing, and public health; undergraduate campuses; and advanced science facilities. Through a series of Johns Hopkins Applied Physics Lab Warfare Analysis Laboratory seminars designed to analyze the issue of resource collaboration, The Johns Hopkins Office of Critical Event Preparedness and Response (CEPAR) evolved. The primary mission of this office is to coordinate a comprehensive healthcare system disaster response, utilizing and unifying all components of the Hopkins Healthcare Enterprise. Furthermore, the office has been charged with coordinating this healthcare system's response with federal, state, and local disaster response agencies, through collaboration and the establishment of memoranda of understanding. Other major issues that the Office of CEPAR is analyzing include critical event risk assessment, healthcare system surge capacity, communications infrastructure and redundancy, procurement and distribution of accurate and timely information, establishment of alert levels with preparation effort standards, and education and training. The culmination of these efforts will result in a regional WMD disaster response template that then could be used as a national model.

**Keywords:** alert levels; communications; disaster; hospital; information; preparedness; surge capacity; weapons of mass destruction

*Prehosp Disast Med* 2002;17(s2):s72.

E-mail: ccatlett@jhmi.edu

### Delayed Diagnosis of Appendicitis in the Elderly

*Dr. Meng-Jung Chen*

Chi-Mei Medical Center, Tainan, Taiwan

**Introduction:** An elderly patient with abdominal pain presents a difficult problem for the emergency physician, who must decide whether the patient can be sent home, should only be observed, or requires immediate referral. The aim of this study is to identify what can be done to avoid delayed diagnosis of appendicitis in the elderly.

**Method:** Records of patients whose ages were older than

65 years who had a final diagnosis of appendicitis within the year 2000 were reviewed retrospectively to identify what was missed in the assessment.

**Results:** There were 69 elderly patients with a final diagnosis of appendicitis in the year of 2000. The average age was 73 years. The average delayed time to arrive at the diagnosis of appendicitis was 40 hours. The average stay in the hospital was 14 days. Delayed diagnosed patients had a higher incidence of ruptured appendix, more extensive surgical procedures, longer stays in hospital, and higher complication rates, including readmission. Delayed cases usually had normal white blood cell counts, made fewer complaints of right lower quadrant pain, received fewer rectal examinations, and more often were discharged with a diagnosis of acute gastroenteritis or gastritis.

**Conclusions:** The solution to this problem begins with the first impression of diagnosis. One must avoid making a diagnosis at any level higher than the facts can support, and leave the door open to further development. The emergency physician must only record "Abdominal pain—cause undetermined." A repeated examination may be needed within a very short period of time.

**Keywords:** abdomen; appendicitis; diagnosis; elderly; impact; pain; signs; symptoms

*Prehosp Disast Med* 2002;17(s2):s72.

### Characteristics, Problems, and Suggestions for Evacuation of Mass Wounded and Sick

*Senior Colonel Wen-Liang Chen*

Health Service Research Division of Health Department, General Logistics Department, Chinese People's Liberation Army

During disasters or emergency events, there are always large numbers of wounded and sick to be evacuated and transported by air or by land vehicle to steady hospitals where they will be offered better treatment. People involved in the work should be familiar with the following characteristics: (1) characteristics of different cases of the wounded; (2) continuity of care during evacuation; (3) adaptability of care and the surroundings; and (4) complexity of organizing the process. The priority of evacuation is to minimize the likelihood of death for the wounded and for other patients; to prevent a worsening of their condition; and to protect from further wounding. The following suggestions are offered:

1. Formulating rules and regulations for evacuation;
2. Standardizing recording forms for affixing case histories and forms for transportation by air, land, or sea.
3. Standardizing technical standards for stretchers and international standards for stretcher supporting equipment, and mounting hardware on medevac planes, helicopters, trains, or ships.
4. Regulating the intensity of noise, vibration, and temperature in medical helicopters, and standards for the height of the empennage of medical helicopters.
5. Developing evacuation vehicles with a capability for decontamination of the cabins that meet the requirement for anti-epidemics.

**Keywords:** decontamination; epidemics; evacuation; helicopters; records; regulation; standards; vehicles

*Prehosp Disast Med* 2002;17(s2):s72.