

**Introduction:** Hospital disaster response may expose emergency workers to hazardous environments and an increased potential for occupational injuries. Personal safety, hygiene, and public health practices may be overlooked when lives and infrastructure are jeopardized. The Disaster Medicine literature contains little information regarding the ability to monitor and prevent occupational injuries during hospital disaster response.

**Objective:** To develop a system for injury control during hospital disasters.

**Methods:** The Hospital Emergency Incident Command System was used as a tool to define disaster roles and responsibilities for the Occupational and Employee Health Department of a university hospital. A unique mission statement was created that endorses a multidisciplinary and proactive approach to the prevention of work-related injuries during disaster operations.

**Results:** The Occupational and Employee Health Department will work jointly with other hospital departments to assess employees for signs of fatigue, inadequate nutrition/hydration, mental stress, dangerous work practices, and compliance with [U.S.]OSHA standards. An active injury surveillance system utilizes occupational health providers to continually assess individual and group work practices. Specific trends in worker behavior that may be modified through immediate feedback and education to prevent exacerbation or further injury. Operations will be coordinated with the Risk Management Department, whose responsibility is to rapidly assess employee injury claims for hospital administration.

**Conclusion:** A defined role for occupational medicine in hospital disaster planning includes injury surveillance, prevention, and control. This may lead to decreased work-related injuries and a more successful hospital disaster response.

**Keywords:** disaster; disaster planning; hospital responses; injury prevention; injury surveillance; occupational injuries; risk management

## G-9

### Model Emergency Department Plan in Support of Disaster Relief Efforts in an Urban Community: A Review of Emergency Department Plans of Public Hospitals in Singapore

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Singapore is an urbanised and industrialised society with a dense population. Due to the geographical situation of the island, natural disasters fortunately are a rarity. Nonetheless, the government over the years has developed and practiced plans dealing with various probable disaster scenarios. The focus has been on disasters that could affect a highly urbanised, densely populated community. These include mass transit disasters (ferry, rail, vehicle), industrial disasters (chemical accidents), air-crashes in housing estates and building collapses.

The main medical response for disasters comes from the emergency departments (ED) of government and restructured hospitals and the ambulance services of the Singapore Civil Defence Force (SCDF) and the Singapore Armed Forces (SAF). A review of the ED disaster plans of various government and restructured hospitals was carried out to determine the model ED plan for supporting national disaster relief efforts in an urbanised community.

The participating hospitals in this review were Changi General Hospital, National University Hospital, Singapore General Hospital, and Tan Tock Seng Hospital that respectively cover the eastern, western, southern, and northern sectors of the island.

**Activation Plan:** In a disaster situation, the Ministry of Health Co-ordination Centre (MOHCC) activates the EDs.

**Staff Mobilisation:** Staff will be mobilised from hospital and home in a tiered response fashion, depending upon the nature of the disaster and the expected number of casualties. A mechanism for augmentation of staffing also is in place to manage an escalating disaster situation.

**Preparations:** The EDs have the task of sending up to four field medical teams to the disaster scene and to organise themselves to manage casualties. The functional areas in the ED then are divided to segregate normal activities from those owing to the disaster.

**Staff Deployment:** The staff mobilised is grouped into teams consisting of two doctors and three nurses with the most senior person heading the team. The teams then are assigned to the respective work areas (P1, P2, P3).

**Command and Control:** An emergency department operations room is setup to manage all aspects of ED function, in coordination with activities of the Hospital Command Centre.

**Triage:** Casualties will be triaged into P1, P2, P3, and P0 (dead) at a designated triage point in the ED.

**Clinical Management:** Disaster casualties are managed with standardised ED protocols based on established Advanced Trauma Life Support (ATLS), Advanced Cardiac Life Support (ACLS), and Pediatric Advanced Life Support (PALS) principles. CARE teams also are available to provide psychological support to casualties as well as staff. After stabilisation, casualties are transferred to respective areas in the hospital (OT, ICU, or ward).

**Stand-down:** The cessation of ED disaster support operations will be determined by the CEO of the hospital or the head of ED when approved by the MOHCC.

**Debriefing:** This will be carried out after stand-down of operations at the ED, hospital, and MOH.

**Keywords:** activation; armed forces; Civil Defence; command and control; disaster; emergency department; operations; plans; relief efforts; Singapore; staffing; teams, field; tiered response; triage; urban