

from four states: (1) New South Wales; (2) Victoria; (3) Western Australia; and (4) Queensland.

Of particular importance was the need for self-sustainability in such an austere environment, and the NSW Fire Brigades were vital in providing essential logistics through their urban search and rescue capability. The task force deployment included 17 tons of medical and logistics equipment on 16 pallets, including pharmaceuticals, generators, lighting, tentage, water and ration packs, completely filling an RAAF 707.

The team performed over 90 surgical operations in total and up to 300 consultations and interventions per day with over 70 in-patients managed at all times. This treatment was undertaken in very difficult conditions with no running water, sterilization, laboratory infrastructure, and only intermittent power through our generator capability deployed with the teams.

The other task force (Charlie Team sent to the Maldives) and public health team (Delta Team sent to Sri Lanka) also were configured in Sydney and were deployed by the CDU on 30 December from the Sydney airport. These teams provided vital public health and primary care support.

In all, 50 personnel were deployed from these four teams (28 from NSW), three additional staff from Canberra Hospital were deployed to Phuket as an assessment team, and two mental health workers were deployed to Jakarta to assist United Nations staff. Many other forensic experts are embedded with the Australian Federal Police in Thailand.

The arrangements and actions will be described.

Keywords: Banda Aceh; conditions; Indonesia; limitations; medical care; planning; preparedness; staff; surgery; task forces; teams; tsunami

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What Types of Patients Were Seen after the Tsunami in Banda Aceh in an International Committee Red Cross (ICRC) Field Hospital Outpatient/Emergency Department?

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Southeast Asian Tsunami—Australian ECHO Team Response

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The tsunami that occurred following an earthquake in the closing days of 2004 proved to be a disaster on a large scale. The initial information came from the less dramatically damaged areas, while the information from population centers nearest the epicenter was suspiciously absent. As the picture cleared, it became apparent that the northern part of Indonesia had been severely devastated with massive losses of life and injury.

Australia, along with many other nations, sent relief teams to the area. The ECHO Team was the second relief team from Australia and consisted of a plastic surgical reconstructive capability and an infectious diseases capabil-

ity. The 26-member team contributed to the international relief effort in Banda Aceh working with teams from all around the world. A number of useful lessons learned from this experience should be shared with a wider audience.

The scale of the international relief effort presented very significant challenges to prior conceptions of disaster relief based on single nation responses. Logistical and communication issues predictably caused some difficulty. Maintaining effective team welfare and dynamics in an environment that was both physically and psychologically challenging required a considerable conscious effort in terms of leadership.

The clinical challenges included re-establishing routine clinical care, dealing with aspiration pneumonia, providing plastic reconstructive surgery in challenging conditions, and coping with a tetanus outbreak. The logistical issues and the pre-existing medical conditions of the patients hampered all clinical work. The most important lesson demonstrated in the ECHO Team response was the value of accepting cultural differences and managing the situation through the local providers, rather than imposing pre-conceived solutions on an already traumatized community.

A total of 130 reconstructive operations were performed at two sites, approximately 50 medical cases were managed, and a functional hospital, including laboratory and X-ray support was re-established.

One of the most challenging features was ensuring smooth, effective collaboration between local Indonesian personnel and the multitude of International aid providers from around the world.

Keywords: aid; Australia; challenges; collaboration; culture; ECHO Team; Indonesia; international; relief; support; tsunami

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Culturally Sensitive Care in Disaster Areas

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The medical team provided services to a rural camp of survivors in Aceh, Indonesia after the tsunami. What differentiated the care provided was that the beliefs of the locals were integrated in order to provide culturally sensitive care.

This contrasted starkly with the approach used by many of the other aid groups encountered. This resulted in a more warm reception by locals, who had developed a sense of distrust for other aid groups and their motives. This model of providing care during a disaster, by people respectful of local traditions, is a strategy that should be replicated consistently in the future.

Keywords: acceptance; beliefs; culture; Indonesia; team; traditions; trust

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The Asian Tsunami: Experience on the Indian Coast

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Introduction: An earthquake with a magnitude of 8.5 on the Richter scale occurred near Sumatra, 10 kilometers below sea level, triggered a tsunami wave, which traveled at

approximately 1,000 kilometers per hour to strike the Indian coastline. The disaster response at a crippled, 100-bed hospital situated on the beachfront (2,028 kilometers from the epicenter) is described. This paper underlines the effectiveness of the Pan-American Health Organization/World Health Organization (PAHO/WHO) guidelines for natural disasters in the Indian Ocean setting.

Methods: The demand on the healthcare system in the affected area (population 40,000) was measured in terms of time, casualties, personnel, and resources.

Results: The total death toll in the area was 62 (with 56, four, and two bodies being brought in on Days 1, 2, and 3, respectively). Of the 62 total deaths, 17 (27%) were male and 45 were (73%) female. Among them, 19 were children and four persons were >60 years of age. The bodies immediately were handed over to the relatives on identification or sent to the mortuary. The attendance in the makeshift Accident and Emergency Department from the day of the tsunami was 219, with a surge of 339 patients on Day 2. Thereafter, there was a progressive decline: 149, 138, 116, 94, 73 on Day 7, which indicated a return to the baseline census. Injuries essentially were minor. Treatment for pulmonary edema, secondary to salt-water drowning, yielded results in two children. The outreach programs consisted of medical camps, health education, chlorination of drinking water supply, and spraying bleaching powder on wet areas. There were no outbreaks of water-borne illnesses. Post-traumatic stress disorder (PTSD) symptoms, such as panic attacks, nightmares, insomnia, fear of water, being startled by loud sounds, and palpitations were found in 15–17% of the patients.

Conclusion: Strict adherence to the PAHO/WHO guidelines proved to be cost-effective, in terms of resource allocations and disaster response. Unnecessary mass vaccinations, mass disposal of bodies without identification, and an influx of untrained volunteers were avoided. Though on Day 3, the hospital was cleaned of debris and seaweed and the equipment was restored, it could not be made functional by the hospital staff due to fear, rumors of a fresh tsunami, PTSD, and having their own homes destroyed.

Keywords: bodies, disposed of; deaths; guidelines; hospitals; Pan-American Health Organization (PAHO); post-traumatic stress disorder (PTSD); resource allocation; tsunami; water-borne illnesses; World Health Organization (WHO)

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Management of the Dead following the Southeast Asian Tsunami Disaster: A Regional Perspective

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Introduction: Management of the dead is one of the most challenging aspects of disaster response. Existing knowledge of methods and approaches largely has been developed from aviation and transportation crashes. To develop a better evidence base and inform emergency response during future disasters, it is vital that lessons from natural disasters are systematically documented and considered.

Objective: To document the management of the dead from a public health disaster management perspective, following the Southeast Asia tsunami.

Methods: A descriptive, multiple case study design was used. Case studies were elaborated for Indonesia, Thailand, and Sri Lanka. Data sources included media reports, key documents, and semi-structured interviews with key informants both in the affected countries and internationally.

The management of the dead was considered with regard to the following propositions:

1. Risks of infectious disease from dead bodies are negligible for the public. However, those who handle the dead may be exposed to blood-borne viruses, tuberculosis, and gastrointestinal infections. To avoid possible contamination of groundwater, cadavers should be buried at least 250 meters away from drinking water sources, and at least 0.7 meters away from the saturated zone.
2. Countries are recommended to develop a preparedness plan for managing fatalities following disasters. This plan should consider four main steps in the management of the dead: (a) recovery of the bodies; (b) transfer and storage of cadavers; (c) identification; and (d) final disposal of remains.
3. There currently is little information about the resources needed to respond to mass-casualty disasters. However, for any operational intervention, manpower, equipment, and finances are likely to be important. These can be considered for each step in the management of the dead.

Fieldwork for this study will take place during February–March 2005. The following results will be presented: (1) a description of how the dead were managed in Indonesia, Thailand, and Sri Lanka; (2) good practices will be highlighted and suggestions on how to improve practice in the future will be made; and (3) recommendations for response in future mass-casualty, natural incidents also will be made.

Keywords: management of the dead; natural disasters; preparedness; resources; response; risk; tsunami

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Membership of an International Forensic Investigation Team—A Personal Perspective

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