

technologic disasters.

**Keywords:** disaster, natural; disaster, technological; international law;

### G-23

#### Identification File and Guidelines for Identifying Disaster Victims Before Evacuations

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The concept of evacuating comatose victims is valid in disaster situations, particularly in fire disasters (Los Alfaques-Spain, Dabwali-India, Mecca) because burn patients require care in a specialized hospital unit in a neighbouring country.

Each emergency unit should have both evacuation and identification files at its disposal. Such files must:

- 1) Enable simple, rapid comparable identification (Interpol);
- 2) Allow comparison with information supplied by teams investigating close families and structures possessing useful information; and
- 3) Enable follow-up of this identification by the medical unit receiving the patient.

For this, it is necessary to organise, in each emergency service, an initial training in identification data for all physicians, nurses, emergency medical technicians, and paramedics who might be the first on-site at a disaster. This organization requires the coordination with the forensic physicians.

This lecture presents the different examples of files (USA, Austria, France, and Interpol) and the programme of this teaching for the emergency and prehospital medical team.

**Keywords:** disaster; identification; prehospital medicine

### G-24

#### Complex Emergency and Its Health Impact in Indonesia

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**Introduction:** Recently, the people of Indonesia have been plagued by an economic crisis, political instability, imbalance, and unequal people's welfare as well as decreasing ability of the people to pay. Indonesia has shifted from a peaceful country to one that is vulnerable and prone to man-made disasters such as civil unrest, terrorism, social/ethnic conflict, as well as other conditions that tend to create a high tension environment. Since the 1998, riots have killed more than 2,000 people, injured approximately 50,000 persons, and more than 2,000,000 people suffered from psycho-traumatic diseases, and, thousands of people were homeless. Pre-hospital and hospital emergency services in Indonesia

have functioned normally during the crises.

**Purpose:** To observe and identify emergency and disaster medical services problems at the affected provinces.

**Methods:** Observation and site visits were conducted in some affected areas in Indonesia by personnel from the Crisis Center to collect information about emergency medical relief activities during one month after the disaster from hospitals, health centre administrations, police departments, and the local governments.

**Results:** The existing hazards and economic crisis have caused budget constraints. Thus, funds were not available for drugs including emergency drugs, medical supplies/consumable goods, laboratory reagents, emergency operations, and maintenance costs of medical equipment.

**Conclusion:** The integrated Emergency Medical Services System did not function well at hospitals surrounding the emergency and disaster site. The public health problems in the affected areas should be controlled soon after disaster, because of the possibility for outbreaks of infectious diseases.

**Keywords:** budget; civil unrest; complex emergency; disaster; economic constraints; economic crisis; emergency medical services; health; Indonesia; public health; riots; terrorism

### G-25

#### 15 Multi-Casualty Incidents Caused by Terrorist Bombing Explosions — Treated by Magen David Adom in Israel

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Ever since the Oslo agreement, scores of terrorists bombing explosions have been perpetrated by Palestinian terrorists. Fifteen of these incidents were multi-casualty events in that in each event, at least 20 casualties were treated and evacuated from the scene. In all these incidents, the prehospital treatment was provided by Magen David Adom.

In the 15 incidents that occurred in urban localities, there was a total of 143 persons killed, and 678 wounded (an average of 45 per incident). About one-third of the wounded were urgent cases (ISS: 9–75). The average number of medical teams per incident was 62 consisting of all levels — physicians, paramedics, emergency medical technicians (EMTs), and volunteers. The average number of evacuating vehicles per incident was 23 ambulances and mobile intensive care units (MICUs). Total evacuation time (until the last casualty was evacuated from the scene) averaged 38.4 minutes.

The main conclusions regarding treatment, evacuation, and channeling of casualties from these terrorist incidents include:

- 1) Despite the short length of treatment time on the scene, lifesaving procedures were carried out (intubations and clearance of airways, tourniquets, and chest drainage) in 30% of the severely injured;
- 2) A correct dispersion of the casualties was carried out

between the hospitals in the region. About 50% of the severely injured reached the Trauma Centers (there are six in Israel);

- 3) There was a significant difference between damage caused by explosions in closed areas such as buses or explosions in an open space. In closed spaces, the percentage of fatalities is 40% as opposed to 13% in open spaces; and the percentage of urgent cases is higher, 38% as compared to 24%; and
- 4) In incidents where more than one explosion occurred, the teams who reached the scene quickly, were greatly endangered — however, the number of casualties per incident in open spaces did not rise significantly.

**Keywords:** bombings; environment; evacuation; explosions; multi-casualty incidents; teams; terrorists; trauma centers; treatment at scene

## G-26

### The Nairobi Bombing: The Israeli Medical Team Experience

*M. Lynn, MD; U. Farkash, MD; R. Maor, MD; A. Abargel, MD; Y. Levy, MD; A. Eldad, MD*

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On Friday, 07 August 1998, at 10:35 hours local time, a massive bomb blast rocked the American Embassy and its surroundings, in Nairobi, Kenya. The attack killed 213 people and injured more than 4,000 civilians. A rescue team of 180 soldiers was deployed by the Israeli government to assist local authorities in the complicated rescue mission. A medical team of 26 members joined the rescuers.

During the first hours after the bombing, the information received from Nairobi regarding types of injuries was very poor. But, it was obvious that the local medical facilities were intact and functioning. With this assumption in mind, the deployment policy was constructed: The medical team would include various experts to assist at local hospitals and "light" medical equipment to help provide primary medical care to survivors and rescuers at the bombing site. The personnel consisted of: Team Commander and deputy, five general surgeons, three orthopedic surgeons, one neurosurgeon, four anesthesiologists and 11 nurses, paramedics, and medics. The equipment consisted of standard military medical bags, which included appropriate tools for airway management, chest drainage, external hemorrhage control, initial fluid resuscitation, immobilization, and various drugs. Non-standard equipment included: one pulse oximeter in each medical bag, pediatric equipment, a large amount of bicarbonate, type "O" positive blood, and frozen plasma.

Thirty hours after the bombing, the Israeli team arrived in Nairobi. Soon, it became evident that all survivors already were evacuated to local hospitals. At this time, the medical team was split into two components: 1) Medics, paramedics, and one physician remained at the bombing site in case more survivors would be dis-

covered; and 2) All others joined local physicians at Kenyatta Medical Center. Israeli anesthesiologists and surgeons, in conjunction with the local teams, performed a total of eight operations.

Important epidemiological information was discovered only after the arrival of the Israeli teams in Nairobi: there were a large number of penetrating eye injuries. If this information had been obtained earlier, ophthalmologic surgeons would have joined the team.

**Keywords:** bombing; eye injuries; Nairobi; surgery; teams, international; teams, Israeli medical; trauma

### Panel Discussion-II

## Lessons Learned from the Great Hanshin-Awaji Earthquake

Tuesday, 11 May 8:00–10:00 hours

Chair: *Ernesto Pretto, Kiyoshi Tatemichi*

### PN2-1

#### A Survey of Emergency Medical Requirements following the 1995 Hanshin-Awaji Earthquake: An Overview of Morbidity and Mortality of Hospitalized Patients

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**Objective:** The objective of this study was to provide an overview of the morbidity and mortality of hospitalized patients during the Hanshin-Awaji earthquake.

**Methods:** Medical records of 6,107 patients admitted to 95 hospitals (48 affected hospitals within the disaster area and 47 back-up hospitals in the surrounding area) during the initial 15 days after the earthquake were analyzed retrospectively. Patient census data, diagnoses, dispositions, and prognoses were considered.

**Results:** A total of 2,718 patients (44.5%) with earthquake-related injuries were admitted to the 95 hospitals, including 372 patients (6.1%) with crush syndrome and 2,346 (93.9%) with other injuries. There were 3,389 patients (53.5%) admitted with illnesses. Seventy-five percent of the injured were hospitalized during the first three days. In contrast, the number of patients with illnesses continued to increase over the entire first 15-day period after the earthquake. The mortality rates were 13.4% (50/372), 5.5% (128/2,346), and 10.3% (349/3,389) associated with crush syndrome, other injuries, and illness, respectively. The overall mortality rate was 8.6% (527/6,107 patients). The mortality rate for patients with trauma and crush syndrome was significantly higher in the affected hospitals. Morbidity as well as mortality rates increased with age for both patients with injuries and patients suffering from illnesses. Out of the 6,107 patients, a total of 2,290 (38%) were transferred to back-up hospitals during the first 15 days following the earthquake, consisting of 187 (50%) with crush syndrome, 702 (26%) of patients with other injuries, and 1,401 (41%) with illness. Of those 2,290 patients, 1,741