

patients who could be saved, regardless of whether the core medical institutes are located within or outside the destroyed area. It is very crucial to pick up such red-tagged patients properly and to transport them to the other core medical institutes in intact areas beyond the boundary of local governments.

The medical operations in a disaster are a part of the total disaster plan developed by each Prefectural government. After the Great Hanshin-Awaji earthquake, about 500 hospitals were chosen as core medical institutes for disaster. Each core medical institute must satisfy several requirements: 1) capable to provide advanced medical services for the multiple severely injured patients; 2) capable to function as the headquarters equipped with a medical information system in disaster and emergency situations; 3) facilities to transport patients beyond the border of the local governments, such as dispatched doctors, emergency automobiles, heliport, etc.; and 4) enough personnel to dispatch self-contained medical service teams.

In order to utilize all medical institutions in the damaged area and make them fully functional in a disaster situation, several mutual-aid arrangements for health and medical assistance within a Prefecture or between neighboring Prefectures, or on a nation-wide scale have been established following the Great Hanshin-Awaji earthquake. Every effort has been made to make such mutual-aid arrangements work properly through the use of drills and simulations. Every core hospital and other hospitals have come to prepare their own disaster manual.

In this panel discussion, we will demonstrate the policies and the measures prepared in Osaka Prefecture. **Keywords:** core hospitals; disaster; hospitals; mutual-aid; plans; policies; preparedness; transport; triage

#### PN2-4

##### **Overview of Bio-Psycho-Social Problems after the Hanshin-Awaji Earthquake: Report from Kobe University School of Medicine**

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Kobe University School of Medicine is situated at the center of the disaster area where more than 5,500 people died in January 1995. Therefore, the affiliated University Hospital played a vital role for medical services for the victims from the beginning of the disaster. Also, the hospital received patients with a variety of stress-related health problems after the Earthquake. At the same time, the Medical School organized systematic research on the various medical and health problems among victims.

Research works carried out at the Kobe University School of Medicine on the Earthquake victims has ranged widely from forensic analysis of the dead, crush syndromes, effects of stress on cardiovascular and digestive systems, psychological problems, care systems for the victims, etc. The research project involved more than 100

doctors and researchers. This paper reviews a wide range of bio-psycho-social impacts of the disaster to the victims, and analyses the longitudinal changes in health problems. Special attention should be directed to the psychological and psychiatric aspects. Also, some medical problems still are continuing even four years after the Earthquake.

**Keywords:** crush injury; earthquake; forensics; health status; research; residuals; stress

#### PN2-5

##### **The Hanshin-Awaji Earthquake and Dental Care**

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This paper will summarize the dental and oral conditions caused by the Hanshin-Awaji Earthquake, and will describe the damage suffered by dental care facilities and instruments.

Since the Earthquake occurred before dawn, 66.3% of the persons who died in Kobe were crushed by their houses. There were very few cases of maxillofacial trauma; only 28 patients with maxillofacial trauma were examined by personnel from the Departments of Dentistry and Maxillofacial Surgery at seven hospitals in Kobe City. Only four cases of fractures of the jaw were reported.

Dental care facilities in Kobe City also were severely damaged. As of 23 January, one week after the Earthquake, only 183 of the 797 dental care facilities in Kobe City had reopened. The major factors responsible for the delayed resumption of dental-care services were the unavailability of water and gas for one to three months and the high volumes of water required by most dental instruments.

A total of 560 shelters, which housed 210,000 persons who had lost their houses, were established in Kobe at the time of the Hanshin-Awaji Earthquake. Dental care was provided through the joint efforts of the Hyogo Dental Association, Kobe Dental Association, and Hyogo Society of Hospital Dentistry.

Temporary clinics were established at 10 sites in Kobe City, starting on 20 January. A total of 2,344 patients underwent dental examinations. A dental examination bus was used for the temporary clinics. In addition, 18 dental care groups, consisting of volunteers and of health-care staff from schools of dentistry of local universities, visited and treated a total of 1,925 patients at 181 sites.

There were 1,043 cases of pulpitis and dental infections. There were 1,834 cases of caries and periodontitis, and the number of patients examined peaked about 2 weeks after the earthquake. There were 1,108 cases of denture loss or breakage and displacement of prostheses of fillings.