

of local sufferings were relieved. But, at the same time, there is a need for relief activities including rehabilitation.

**Keywords:** clinics; contamination; disaster; earthquake; India; infection; relief; wounds

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### Report of the Japanese Red Cross Society International Medical Relief ERU during the Earthquake in Western India

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**Objective:** The Japanese Red Cross Society (JRCS) together with the Clinic Emergency Response Unit (primary healthcare ERU), formed the International Medical Relief Team, that responded immediately to the earthquake in western India that occurred on 26 January, 2001.

**Methods:** The team camped in Bhuj, and on 01 February, set-up the clinic 7 km west of this position in Sukhpur. The clinic consisted of two tents: 1) the clinic; and 2) an operation theater. The JRCS ERU consists of 11 persons including a team leader, two doctors, four nurses, and four administrators.

**Results:** During this mission, 41 persons, including a doctor, a nurse, administrator, and a pharmacist, were delegated from JRCS. On average, 150 patients were treated per day, and a total of 5,000 patients were treated until the clinic was closed on 24 March.

**Conclusion:** Personnel training is a pressing need. The training primarily is provided by four base hospitals (Japanese Red Cross Medical Center Kumamoto Red Cross hospital, Wakayama medical center, and our hospital), and now the registration staff has increased.

**Keywords:** earthquake; emergency response unit; international medical relief

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### Lessons of Earthquakes in Russia and Abroad in XXI Century

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**Objective:** The unique experiences of ARCDM (Zaschita) are based on Russian and international experiences of rendering health assistance in earthquakes. At the same time, analysis of the acquired experience revealed the absence of a common international concept relating to succession and continuity of rendering different types of medical assistance.

**Methods:** Systemic analysis of three earthquakes (Russia, Turkey, Columbia) in response activities of which ARCDM "Zaschita" took part, using methods of mathematical modeling, has been implemented.

**Results:** Each earthquake was characterized by different methods of rendering health assistance. In particular, in Neftegorsk (Russia), primarily evacuation procedures took place; in Izmit (Turkey), it was delivery of emergency

medical care; and in Kalarka (Columbia), it included the mass delivery of outpatient care to the population.

**Conclusion:** Insufficient experience of rendering these types of assistance in other countries, including international standards, results in decreasing its efficiency. These lessons must be taken into consideration in the limits of forming common system of education in the field of modern problems of rendering health assistance in earthquakes. It is necessary to set up a unique international system of coordination and interaction in earthquakes based on the unique principles of healthcare delivery in such circumstances.

**Keywords:** earthquakes; experience; health assistance; international standards

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### Department of International Medical Relief at Nagoya Daini Red Cross Hospital

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**Objective:** The domestic and international demand for the Japan Red Cross Society (JRCS) has increased. To meet this expectation, the JRCS gave an order to four Red Cross Hospitals to establish the Department of International Medical Relief (IMR).

**Methods:** To recruit the members, each hospital gave notice to all the hospital workers to recruit and train those who were willing to join the IMR team. Nagoya Daini Red Cross Hospital (NDRCH) voluntarily established the Department on April 2001. This document reports the preparation and the progress of this Department.

**Results:** After earthquake in India during January 2001, the Clinical Emergency Response Unit (JRCS primary health care ERU) was introduced and obtained excellent results. The Department of IMR in NDRCH recruits and manages the members and prepares the vaccinations for them. Also, it cooperates with the JRCS Headquarters to present the training courses. The Department carries out the study of unfamiliar diseases, and shares this knowledge with its members. It also offers English lessons to improve communication skills. Currently, there are more than 30 members.

**Conclusion:** Currently, IMR activities require human resources from Japan. Therefore, it is essential to have members in this hospital who contribute to this activity.

**Keywords:** development; education; International Medical Relief Department; requirements; vaccinations

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### Aerotrtransportaion and Telemedicine of the Injured Patients from Remote Volcanic Islands

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**Objective:** Three large volcanic eruptions have occurred

during the past 15 years, on islands existing in the Pacific Ocean under jurisdiction of Tokyo from which the residents were forced to evacuate. Fortunately, there were <50 injuries related to these explosions. However, it still is important to construct an aero-transportation and a telemedical support system for the residents.

**Methods:** 1) 93 injured patients were aerotransported from the islands to our hospital between January 2000 to September 2001. The relationship of the injury severity, time of aerotransportation, and prognosis were analyzed; 2) 654 tele-communicated injured patients from these islands were analyzed.

**Results:** The AIS grading and the ISS were examined against the transportation times, and little difference was noticed, even though the heliport located on top of the hospital was used for the severely injured. The frequency of the use of telecommunication for injured patients increased after improvements in the infrastructure. Consultation based upon CT scans also increased in number.

**Conclusion:** The time lag to flight must be shortened for the severely injured cases. Infrastructure improvement is important to build a well-used telemedical network. Advocacy in the application of the telemedical control to the helicopter attending doctors and paramedics is required.

**Keywords:** air-medical transportation; consultation; telemedicine volcanic eruptions

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### Problems of Immediate Medical Care at Taipei Community Hospitals During Typhoon Nari, 2001

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**Objective:** Over the past several decades to Taipei, the Nari typhoon had been the most blustery. It brought a deluge of rain that flooded most parts of the city. The objective of this study was to assess the problems of immediate medical care for community hospitals within the affected area.

**Methods:** This was a retrospective analysis of the medical charts of all the victims and the hospital damage reported to the city government during the typhoon.

**Results:** One hundred and sixty-four patients were reported. Most of the deaths (84%) within the first 24 hours were associated with drowning. Most of the victims (71%) presented to emergency department (ED) within the first 24 hours. Male patients were at higher risk for injury. Trauma to the extremities was the leading diagnosis (58%). Fourteen hospitals sustained severe damage, and much of the damage could be attributed to the inappropriate design of the ED. Only very few patients were transported by previously established EMS.

**Conclusions:** Local hospitals not only should survey their ability to provide adequate immediate medical care during the first 24 hours of a typhoon, but also must evaluate whether its building structure can withstand the event.

Establishing an alternative EMS for the disaster situation should be considered.

**Keywords:** climate; damage; disaster; hospital management; structure; typhoon

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### Public Health Response to 1998 Flood in Bangladesh—Key Lessons Learned

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**Objective:** To assess the effectiveness of public health response to 1998 flood in Bangladesh, and to draw lessons for appropriate responses to future flood disaster.

**Methods:** Four research methods were employed for data collection and analysis: 1) Summarizing information from government documents including strategy, policy, and plans for public health responses to 1998 flood, situation reports, and the findings of the UN assessment mission; 2) Discussions with health-sector officials responsible for planning of contingency responses; 3) Focus Group Discussion with health workers involved in emergency response to the flood; and 4) Administration of a semi-structured questionnaire in selected health centres.

**Results and conclusions:** The government's public health response to the flood was effective. However, using available historical and surveillance data for epidemic-prone diseases, the government must develop epidemiological tools and indicators for trend analysis of the post-flood health situation in the country including setting up an early warning system for detecting an unusual incidence of exotic diseases. The government also must develop appropriate public health guidelines and protocols for standardizing emergency health operations in the country, as well as for promoting best public health practice in humanitarian crisis situations.

**Keywords:** Bangladesh flood; flood; public health; response; surveillance; warning

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### Relief Activities by the ICRC for the Complex Disaster in Sudan

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**Background:** The internal armed conflict in the Republic of Sudan that has lasted for 18 years has jeopardized its health infrastructure. In this underdeveloped country, people cannot exist without vigorous humanitarian aid from outside of the country. The International Committee of the Red Cross (ICRC) has operated its relief activities in Sudan since 1985. During 2000, approximately 100 expatriates and 1,000 local staff were employed for this operation in South