

distributed to NGOs to explore the type and availability of current data and information regarding adult malnutrition.

The appropriate adult anthropometric and contextual data, which were available, were collated for the relevant NGOs and were entered into a centralized database. A targeted, literature search and a focus group with an NGO were conducted to explore appropriate contextual factors. A data collection tool was developed to standardize and improve the recording of details in the context of a feeding program during a complex emergency.

#### Results

**Literature search**— Limited evidence was identified outside of complex emergencies regarding the usefulness of hair pluckability using a “trichotillometer” to assess nutritional status in adults. A study was carried out in Aberdeen to test the reliability of this method and to investigate whether this method shows ethnic variance.

**Adult data**—Data were collated from feeding programs treating adults from countries in Africa and the Middle East from 1997–2003 included in a centralized database. Data from children’s malnutrition programs were found to have been the priority for NGO data collection. Taking into account the lack of individual adult nutritional data and the few variables common across NGOs, a population-based approach was adopted for data analysis. There were very few context factors from the NGO reports that could be compared across different feeding programs. Therefore, the development of a context data collection tool was advanced.

**Conclusion:** The partnership approach enabled this project to contribute to the recent increasing focus on adult malnutrition during complex emergencies, by advancing the methods for assessing adult malnutrition in complex emergencies. The process of creating a cross-NGO, centralized database for this project can be used to explore other issues in this field. Using this tool to explore different contexts also will enhance the ability to assess nutritional status in relation to contexts of children’s food programs.

**Keywords:** adults; assessments; children; complex emergencies; malnutrition; non-governmental organizations

*Prehosp Disast Med 2005;20(2):s74–s75*

### Medical Relief in Shelters after October 2004 Earthquakes in Chuetu Region of Niigata Prefecture, Japan

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**Introduction:** In the sub-acute phase of major earthquakes in the Chuetu region in Niigata Prefecture, Japan, on 23 October 2004 (maximum seismic scale of 7), the Hyogo College of Medicine dispatched medical relief teams to one of the affected cities, Nagaoka, which has a population of >190,000 people. The purpose of this study is to summarize the medical relief activities.

**Methods:** Before receiving a systematic press report or official request from the local government of the disaster area, Hyogo College sent a medical scout team to Nagaoka city from 26–28 October, followed by three successive medical relief

teams. Each team consisted of one or two physicians, one pharmacist, one clerk, and one driver. Volunteer local nurses also were recruited to assist each team. The college ambulance was used as a transporter and as a consultation room when necessary. Each team was replaced every three days. Following requests from the Nagaoka city health authority, the teams circulated public shelters in the most heavily affected rural part of the city, which provided medical service to the evacuees. Patients’ medical records retrospectively were reviewed and analyzed by a particular team member (KK).

**Results:** In the twelve days of activities, a total of 46 shelters were visited and 334 patients (226 males and 108 females) were examined. The mean value of their ages was  $56.6 \pm 24.2$  (mean  $\pm$  standard deviation), with a range of 0–98 years. The most common symptoms/diseases were upper airway infection (37.0%), circulatory diseases including hypertension (23.0%), gastrointestinal disorder (7.2%), and sleep disturbance (6.3%), whereas trauma and burn were very rare. One hundred, twenty-two patients were treated or prescribed and three were referred to local clinics or a general hospital. The number of the evacuees in shelters fluctuated because: (1) the shelter residents went out for work or home cleaning in daytime and came back in the evening; (2) frequent aftershocks drove them from home to the shelters; (3) new evacuation advices were announced repeatedly; and (4) the risk of unexpected pulmonary thromboembolism by staying in family cars was reported. However, the number of patients per shelter for each team declined from 17 to 9.5, 6.9, and 6.0. As medical needs were considered becoming fulfilled, activities were discontinued on 06 November.

**Conclusion:** Even several days after a major disaster, the estimation of medical requirements from outside is not easy. Medical relief teams should be dispatched early without waiting for confirmed information and should have close relationships with local counterparts.

**Keywords:** earthquakes; evacuees; Japan; medical; relief; shelters  
*Prehosp Disast Med 2005;20(2):s75*

### Sheltering the Medically Fragile—Lessons Learned in Florida (USA) during the 2004 Hurricane Season

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The 2004 hurricane season in the United States resulted in four hurricanes directly making landfall in the state of Florida. As a result, medically fragile individuals in communities across the state were displaced into mass-care shelters. At one point, nearly 7,000 medically fragile clients were being sheltered in non-healthcare facilities. This presentation will: (1) identify the best practices related to deployment and the provision of services at the state and local level; (2) identify the lessons learned related to management and operation of shelters at the state and local level; (3) discuss the systems issues related to the level of care provided in the sheltering of medically fragile clients; and (4) discuss the implications for future events.

This presentation also will contain information related to the planning steps critical to the development of shelter

programs, including the necessary components for shelter activation, operation (including provision of care), and demobilization of shelter sites.

Sheltering of medically fragile clients also may be necessary in areas of the world that are not subject to hurricanes, but may face other hazards (floods, tornados, civil unrest, hazardous materials incidents, etc.).

**Keywords:** Florida; hurricane; issues; lessons; medically fragile; shelter; systems

*Prehosp Disast Med* 2005;20(2):s75–s76

### After Sphere: An Evaluation to Determine Post-Emergency Phase Refugee Health Indicators

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**Objectives:** In 1997, a collaboration of non-governmental organizations (NGOs) and the International Society of the Red Cross and Red Crescent launched the Sphere Project, which provided mostly qualitative health standards to aid agencies for humanitarian assistance in emergency refugee settings. Yet, despite such efforts, more than half of the world's refugees live in protracted living conditions for which there are no long-term, refugee health indicators.

**Methods:** Through triangulating data from 35 key informant interviews and two focus group discussions, health indicators, appropriate for a post-emergency, refugee setting, were ascertained from the Kakuma Refugee Camp in Kakuma, Kenya. Participants included: (1) representatives from all nine ethnic refugee groups and vulnerable groups, including women, youth, and the disabled; (2) health sector administrators and providers, including community outreach, inpatient and outpatient personnel; and (3) administrative and operational personnel from other camp sectors directly impacting health services, including referral services, food, water and sanitation, and shelter.

**Conclusions:** Evaluation of the data determined that continuous quality improvement (CQI) at all levels of refugee health programming should be integrated in the post-emergency phase. This includes the supervision of refugee healthcare providers, community health workers, and health educators. Continuous quality improvement should include measuring the effectiveness of health programs within the healthcare facilities and community. This improvement must include a focus on human resource development—periodic continuing medical education, ensuring equitable benefits for local and refugee staff, and quality feedback—that would improve care and strengthen morale. Refugees should be involved in the decision-making process and gradually take on greater roles in healthcare delivery.

Surveillance and curative services for chronic diseases, such as hypertension and diabetes, mental health issues, nutritional deficiencies, palliative care for human immunodeficiency virus (HIV) patients, and those with a terminal illness, should evolve in the post-emergency phase after infectious disease surveillance is established, and referral processes, especially for emergencies, should be streamlined.

Mechanisms to ensure horizontal coordination among agencies of various sectors should be in place. Linked data systems—e.g., household-based, post-food distribution monitoring linked with nutritional status of youngest children, sanitation and water data, shared with diarrhea incidence data—are points for coordination. Ensuring equal access to livelihoods and all levels of health care will minimize resentment between the local population and refugees.

Educational programs should become more focused as health problems emerge. Examples include nutritional counseling for HIV-positive mothers who don't breastfeed, family planning, and occupational and societal integration of the disabled. As this study illustrates, the post-emergency phase of the refugee environment has consensus-driven qualitative indicators that can be validated, standardized, and implemented to improve health care.

**Keywords:** effectiveness; evaluation; healthcare; indicators; post-emergency; public health; refugees

*Prehosp Disast Med* 2005;20(2):s76

### Efficiency Analysis of the System of Health Support in the Refugee Camps in Northern Caucasus during Anti-terrorist Operations

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From 1999 to 2003, the All-Russian Centre for Disaster Medicine (ARCDM), "Zaschita" of the Russian Ministry of Health provided health support of temporarily displaced persons, in accordance with the tasks assigned by the government. The main tasks for health provision were: (1) rendering emergency medical assistance for patients with acute diseases and traumatic injuries; (2) prevention and early detection of infectious diseases, including tuberculosis (TB); (3) medical examination and detection of people who needed in-patient treatment and specialized medical care; (4) vaccinations for children; (5) providing outpatient and polyclinical assistance; and (6) medical check-ups for patients with chronic diseases.

To achieve these tasks during the given period, multi-purpose, field hospitals were deployed (therapeutic, TB, pediatric), in which various skilled and main types of specialized care were provided. Patients with chronic diseases and long treatment terms were sent to the medical institutions of the Republics of Ingushetia, Dagestan, and Kabardino-Balkaria. For highly technological types of medical assistance, the injured were sent to central, specialized, medical institutions (Moscow, St. Petersburg), as well as to regional specialized institutes (Vladikavkaz, Nalchik, etc.).

For early detection of somatic, psychological, and infectious diseases, a check-up team of physicians from the multi-purpose field hospital went to the camps each day. The team included a physician-therapist, an infectionist, and a doctor specialized in functional diagnostics to review electrocardiograms (ECGs) and ultrasound studies. A special team detected patients and carried out prevention work with TB contact persons using house-to-house visits and fluorography. In some camps, outpatient, polyclinical assistance was provided with the help of doctors from humanitarian orga-