

## S2-4

**Significance and the Future of Disaster Education in Hospitals**

*Yoshikura Haraguchi; Yozo Tomoyasu; Hosei; Takashi Arai*  
National Hospital Tokyo Disaster Medical Center,  
Hikawa Tokyo Japan

**Aim of Study:** This study examined the problems encountered during the provision disaster training courses and drills performed in hospitals with the objective of establishing a better system for the future.

**Introduction:** For the last three and a half years, in the authors' Hospital Disaster Medical courses and disaster drills were provided at regular intervals. These works were listed and examined again from the viewpoint of the organizer.

**Materials and Methods:** A long-term (nearly one week) disaster education course for medical staff was conducted in the author's hospital eight times. Large-scale disaster drills also were conducted eight times. The drills were classified based on scale, purpose, specificity, and complexity.

**Results and Discussion:** Although full-scale drills are useful for participants, they are difficult to perform often. Therefore, a table-top exercise also was conducted. It is essential to be come aware of the characteristics of each drill and to conduct combined programs is essential. Judging from the results of a questionnaire regarding these disaster courses, the level of Disaster Medicine attained by the participants has progressed, and their passion for Disaster Medicine has increased.

**Conclusions:** Meaningful content should be provided to medical personnel rallied to participate in disaster courses. These exercises and education courses attracted wide attention to Disaster Medicine. It was the conclusion that these courses have played important roles and should be continued.

**Keywords:** Disaster Medicine; disaster drills; disaster exercises; drills; education; exercises; table-top exercises; training courses

7. Nagahama Red Cross Hospital
8. JMTDR Registered Coordinator
9. Japan International Cooperation Agency

On 17 July, 1998, huge tidal waves struck the remote, northwestern part of Papua, New Guinea (PNG). A Japan Disaster Relief Team (JDR) was dispatched to PNG, and treated casualties of the tidal waves. The first JDR medical team arrived at the scene on 22 July, six days after the event. A JDR medical team started treatment at Wewak General Hospital in Wewak, which was approximately 150 kilometers from the worst-hit area. Wewak hospital was the main hospital to receive casualties. Serious patients had been airlifted to the hospital from the worst-hit area. The team treated the casualties along with the local medical staff for nine days.

All of the 89 casualties except for one, were trauma cases. We first imagined that there were many patients who needed critical care medicine. However, the general status of almost all of the injured was very stable, many only having fractures. There were no cases of severe head injury, chest injury, or abdominal injury. Almost three-quarters of the patients had fractures, especially femoral fractures, tibial fractures, and fibular fractures. The team members performed 26 operations, and assisted in 38 other operations.

Infections began to be a problem when the disaster entered late Phase I. Wound infections were common. In addition, there were eight cases complicated by aspiration pneumonia caused by swallowing seawater.

However, since the hospital was far from the affected area, there were no cases in the hospital with respiratory or intestinal infections due to poor hygiene.

**Keywords:** air-medical; aspiration; Japan Disaster relief Team; fractures; infections; injuries; New Guinea; pneumonia; tidal waves; tsunami

## G-92

**Medical Relief for Remote Rural Communities: The Republic of Singapore Navy Experience**

*Major(Dr.) Gregory Chan, MBBS (Singapore), MMed (Occupational Med), DGM; Major(NS) Francis Lee, MBBS (Singapore), FRCS (A&E); Lieutenant Colonel (Dr.) Edwin Low, MBBS (Singapore), FRCS (Anesthesia); Lieutenant Colonel Soh Guan Huat*

Fleet Medical Branch, Republic of Singapore Navy, Tuas Medical Centre, Tuas Naval Base, Singapore

**Background:** The Republic of Singapore Navy (RSN) has participated with the Indonesian Armed Forces in providing medical and social-civic aid to the villages in remote east and west islands of Indonesia. Three such missions have been organised this year, each about two weeks in duration. This presentation describes the planning model adopted by the RSN for these missions.

**Mission:** To provide community services comprised of medical and social-civic activities to the assigned islands.

**Principal considerations:** These included knowledge of existing public health deficiencies, endemic disease

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## G-91

**Experience in Treating Victims Following the Tidal Wave in Papua, New Guinea**

*Yuichi Koido;<sup>1</sup> Yasushi Asari;<sup>2</sup> Ken Nakamura;<sup>3</sup> Motoshi Yamamoto;<sup>4</sup> Takao Konno;<sup>5</sup> Megumi Otsuka;<sup>6</sup> Yutaka Kanazawa;<sup>7</sup> Takayuki Arai;<sup>8</sup> Mitsuharu Nishimura;<sup>8</sup> Toshiaki Furuta;<sup>9</sup> Junichi Akiyama<sup>9</sup>*

1. Nippon Medical School
2. Kitazato University
3. Ministry of Foreign Affairs
4. Kugayama Hospital
5. Abiko Seijinkai Hospital
6. St. Marianna University

profile, socio-demographics, the extent of support requested by the host nation, language difficulties, limited resources, and time.

**Planning and preparation:** It often was not difficult to identify the needs of the target population, but it was difficult to fulfill most of them. Medical activities were tailored towards obtaining the greatest health benefits for the most people, and focused on primary health care (preventive and curative interventions). Preparation examined selection and availability of relevant medical specialists, logistics (requirement for surgical facilities, the need for portable power, water supply, and transport vehicles), training, and preventive medicine issues. Operationally, detailed information on the location, berthing facilities and general road conditions was required.

**Execution:** The RSN medical team comprised of an occupational/public health physician, a general practitioner, a few medical orderlies, and non-medical personnel (driver, technician and radio-operator). Medical activities consisted of outpatient screening and treatment (81%), dental treatment (9%), nutritional supplementation, and health education. Surgical procedures included circumcision for male children (religious reasons), norplant insertions, cataract surgery, cleft lip repair, and minor and intermediate (requiring general anesthesia) surgery (10%). Socio-civic activities included basic public health interventions, building basic infrastructure, and food aid. More than 2,000 patients were seen, with about 45% of patients being <15 years old. The commonest medical conditions were ranked as: 1) respiratory tract conditions; 2) diarrhea/malnutrition; 3) skin conditions; and 4) musculoskeletal problems. The patient profile, statistics, and significance will be discussed in detail.

**Problems encountered:** Remote islands, lack of berthing facilities, access to shore, and to the villages, transport of medical supplies and equipment, lack of electricity, and vulnerability to communicable disease.

**Advantages of a joint medical mission:** The benefits were synergistic in that the two agencies were able to complement each other's medical services, and overcome limited medicines and equipment.

**Conclusion:** The Navy has a unique role in medical relief in remote rural communities due to its ability to access these areas. The assistance by the RSN was limited in scope and duration, and planned to supplement or complement the efforts of the Indonesian team. In planning for short medical relief missions in rural areas, the priority is given to overcoming public health deficiencies and communicable diseases, while taking into consideration personal safety and resource limitations.

**Acknowledgements:** Our deepest appreciation to the Indonesian Navy for the unique opportunity for the RSN to assist in their efforts to provide community service to these islands.

**Keywords:** access; activities, social-civic; diarrhea; communicable diseases; food; Indonesia; infrastructure; navy; relief, malnutrition; medical; primary health care; public health; resources; respiratory conditions; rural; Singapore; skin diseases

## G-93

### The Action of the Japan Disaster Relief Team for Nicaragua in Hurricane Mitch

Hisayoshi Kondo,<sup>1</sup> Fumie Takagi,<sup>2</sup> Katubiko Sugimoto,<sup>3</sup> Yuishi Koido,<sup>1</sup> Norifumi Ninomiya,<sup>1</sup> Yasuhiro Yamamoto<sup>1</sup>

1. Department of Emergency and Critical Care Medicine, Nippon Medical School, Tokyo, Japan
2. University of Tokyo, Tokyo, Japan
3. Showa University, Tokyo, Japan

On 27 October 1998, a big hurricane named Mitch attacked Central America, and Nicaragua suffered big damage from it. According to the Pan-American Health Organization (PAHO), Nicaragua had 800,000 victims, 1,848 casualties, 1,287 missing, and 228 injured. The Japanese government accepted a request from the Nicaraguan government for the dispatch of the Japan Disaster Relief (JDR) medical team.

The JDR team stayed in Nicaragua from the 14 to 22 November. This team consisted of three doctors, six nurses, three medical coordinators, and three administrative coordinators. Doctor and nurses from Japan Overseas Cooperation Volunteers (JOCV) and the Japanese Embassy also assisted.

We stayed in Nueva Vida, Managua province, and Malacatoya and Tepalon, Granada province, and built clinics to see the victims. We saw 1,120 patients (Nueva Vida, 463; Malacatoya, 544; Tepalon, 133). The number of male patients was 413 (36.8%), and female, 707 (63.2%). 612 patients (54.6%) were children under 14 years old. We had a number of female or child patients who generally were vulnerable in disaster.

Infectious diseases were the main problem encountered, while the traumatically injured patients were very few. 34% of the total number patients had respiratory infectious diseases, 17% had gastrointestinal infectious diseases, and 16% had skin infectious diseases. We saw eight patients with cholera in Malacatoya, but did not see signs of an outbreak of infectious disease such as dengue, cholera, and malaria.

We also conducted research on the needs for the medical care and sanitation problems of drinking water. The research on medical care needs in Nueva Vida contributed to obtaining information about diseases and injuries of victims in the camp, evaluating our activities, and leaving the information about medical care needs for local staff. These studies of drinking water did not reveal any significant problems due to good management of sanitation.

The JDR medical team arrived in the disaster area during the subacute stage, two weeks after the hurricane attacked. Through our medical activities and research, we were able to understand the needs according to the disaster cycle. It seems that international disaster relief will continue to play an important role at the subacute stage. We need to discuss more on methods for activities and researches at this stage.

**Keywords:** cholera; dengue; disaster; Hurricane Mitch; infectious diseases; Japan Disaster Relief team; malaria; Nicaragua; vulnerability