

further treatment. Meanwhile, the normal emergency care in the region was secured.

One-third of the victims died, one-third were hospitalized, and the rest were sent to emergency shelters. DVI and post-traumatic stress disorder played an important role in post-incident management.

On 25 August 1984, the Mont Louis, a French Roro Ship collided with the car ferry Olau Britannia prior to reaching the Belgian coast. The Mont Louis carried 30 cylinders with 15 tons of UF6. Belgian authorities did not have a full understanding of the content of the cargo and the nature of its risks (radioactivity) until three weeks after the crash.

On 14 December 2002, the Tricolor, a cargo ship with "shoebox" construction similar to the HOFE, transporting 3,000 cars sunk after a collision a few miles out of Zeebrugge. The crew was rescued. Despite all kinds of warning systems, 10 near-collisions and two real collisions occurred within two weeks of the accident.

The high density of maritime traffic in the Channel (20% of the world's maritime traffic) requires planning with cross-border help. The International Maritime Organization made many efforts to make sea traffic safer, but human failure still is possible. The rescue of victims with the combination of drowning, hypothermia, and trauma is very difficult. Catastrophic events at sea always are complex.

Keywords: collisions; drowning; English Channel; high seas; hypothermia; planning; rescue; ships; trauma; treatment

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Use of Simulation in a Computerized Environment in Disaster Planning

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Introduction: Disaster preparedness usually is based on assessment of the risk of major incidents. Plans are designed and tested according to this assessment. If a simulation based on realistic input could be done in a computerized environment, this could create a possibility to test disaster plans. The outcome of these simulations then could be used as an instrument when designing disaster plans.

Results: Med Model simulation was used. A bank of patient data was entered, as well as all ambulance dispatches and patient flow at the emergency wards in three hospitals during three months. Rules for prioritizing and treating patients were entered, as well as times for all dispatches and measures performed on-scene. Real-time calculations from the scene to hospitals and the intensive care unit (ICU) were used. Preventable deaths and preventable complications were used as performance indicators, as well as logistic results in forms of needs for ICU beds. The simulation was used as a test for different scenarios with different focuses that all have to be considered when designing or revising disaster plans.

Conclusion: Simulation of major incidents can be used in a computer environment as a tool to address different issues that need to be considered in disaster plans.

Keywords: computers; disaster plans; Med Model; performance indicators; simulation

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Friday 20th May 2005

Theme 15: Hot Topic—International Humanitarian Disaster Relief—Tensions and Challenges

Chair: Anthony Zwi

Post-Civil War Reconstruction in Sri Lanka—Where and What to Support for Healthcare?

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Introduction: Two decades after the Civil War, the government of Sri Lanka and the Liberation Tigers of Tamil Eelam (LTTE) entered into a mutual cease-fire agreement in February 2003, and the Tokyo Declaration on Reconstruction and Development of Sri Lanka was adopted in June 2003. Following the recent peace process, huge domestic and foreign support for healthcare has been provided mainly to the Northeast districts, although only a few local non-governmental organizations are working in the areas adjacent to the Northeast districts.

Objective: This study sought to describe the current health status in Sri Lanka and suggest an appropriate process of healthcare support for the country.

Methods: The Japanese Red Cross Society and the Sri Lanka Red Cross Society conducted a survey in five provinces in July and October–December 2003, and analyzed the health situation in those areas.

Results: Sri Lanka has a well-structured medical system. However, primary healthcare services, especially in conflict-affected and adjacent areas, have not been provided with sufficient attention compared to the curative services.

Conclusion: The reconciliation among ethnicities is the vital agenda, not only in the Northeast districts, but also in Sri Lanka as a whole. All health projects should aim to facilitate the reconciliation and organization of the grass root volunteers, which is needed to fulfill the mission.

Keywords: health care; Japanese Red Cross Society (JRCs); primary health care; Sri Lanka; Sri Lanka Red Cross Society (SLRCS); support

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Container Contamination as a Possible Source of a Diarrhea Outbreak in Abou Shouk Camp in Darfur Province, Sudan

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Introduction: Diarrhea is one of the five major causes of death in an emergency setting and one of the three main causes of death in children (Curtis & Cairncross, 2003). In June 2004, an outbreak of shigellosis was confirmed in the Abou Shouk camp in the Northern Darfur province of Sudan. Since the camp is currently home to about 7,000 households, an immediate response was necessary.

Methods: As water testing showed no contamination, it was assumed that post-collection contamination occurred.

A mass cleaning and chlorination of all water containers in order to break the contamination cycle was instituted. Eighty-eight percent of the estimated number of containers were cleaned and chlorinated.

Results: Diarrhea figures from the clinics showed a dramatic decrease in cases following the cleaning campaign. There were no other interventions or improvement of services at the time that could have been confounding factors of impact.

Conclusions: It is extremely difficult to obtain statistically rigorous data in an emergency setting, with the priority being for a rapid intervention to prevent further cases of diarrhea. However, the results do appear to prove an impact of the cleaning and chlorination program on bloody and watery diarrhea.

Keywords: contamination; Darfur; diarrhea; Sudan; water
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Nutritional Rehabilitation: Ambulatory vs. Center-Based Management

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1. Epicentre, France

2. Médecins sans Frontières, Niger

3. Medecins sans Frontières, France

4. France

Background: Since 1997, the region of Maradi, Niger has experienced serious food insecurity resulting from prolonged drought. Since 2000, an urban-based Medecins sans Frontières (MSF) Therapeutic Feeding Center (TFC) has been treating severely malnourished children inpatients. The low coverage and significant defaulting rates observed in this TFC program a need for alternative approaches. Since 2002, caretakers of malnourished children without serious co-morbidities have been offered a home-based treatment scheme relying on ready-to-use food distributed weekly from different sites.

Methods: The effectiveness of both the TFC and home-based approaches was measured prospectively by considering nutritional outcomes in three observational cohorts: children kept in the TFC during their entire treatment (Group A), children whose treatment was begun in the TFC and completed at home (Group B), and children who exclusively received home-based treatment with weekly medical visit (Group C). All children were severely malnourished at admission defined as -3 z-score or bilateral edema. Each group was described in terms of weight gain, length of program stay, and exit outcomes of the program (cured, dead, defaulter, transferred).

Results: From October 2002 to October 2003, 2,209 children were entered into one of the three cohorts. Mean weight gain was 20.2, 10.1 and 9.8 g/kg/day in Groups A, B, and C respectively. Mean program stay was 14.7, 35.3, and 29.0 days.

Discussion: The home-based approach for treating severely malnourished children meets international standards for cure ($>75\%$), case-fatality ($<10\%$), and defaulting rate ($<15\%$). Nutritional status at admission was different in the three groups, thus not allowing for comparisons of outcomes.

Conclusion: This observational, cohort study suggests that the home-based approach to treat uncomplicated severely malnourished children seems to be an acceptable complement to TFCs, giving a high cured rate and low default rate. Further analysis and research are needed to adjust outcomes for nutritional status at admission and identified the optimal admission criteria in home-based care.

| | Group A (n = 794) | Group B (n = 1,061) | Group C (n = 354) | Total Cohort (n = 2,209) |
|--------------------|----------------------|------------------------|----------------------|--------------------------------|
| Outcome | TFC only | TFC + home care | Home Care Only | |
| Cured | 443 (55.%) | 894 (84.3%) | 328 (92.7%) | 1,665 (75.4%) |
| Dead | 139 (17.5%) | 0 (0.0%) | 6 (1.7%) | 145 (6.5%) |
| Defaulter | 210 (26.5%) | 167 (15.7%) | 20 (5.6%) | 397 (18.0%) |
| Transferred | 2 (0.2%) | 0 (0.0%) | 0 (0.0%) | 2 (0.1%) |

Keywords: children; cure; default rehabilitation fatality; malnutrition; nutritional support; outcomes; therapeutic feeding centers
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Theme 16: Rural and Remote Emergency Health Care

Chairs: Mads Gilbert; James Ferguson

Disaster Planning for Remote, Rural, and Regional Hospitals

E. Williams

Medical Displan, Victoria, Australia

Objectives: The goals of this presentation are to: (1) outline the different circumstances that prevail in rural and regional areas for the treatment of casualties, and the legislation and planning required to ensure a high quality of care is available; (2) provide legislation for response and recovery actions and lay down role allocations for all agencies using an all-hazards, integrated approach to incidents; (3) ensure that medical command, control, and coordination systems are fully effective and compatible with ambulance services and related health and medical agencies participating at incident sites and centrally; (4) ensure that emergency management committees are formed in hospitals and at all levels within health regions, and that hospital external disaster plans are tested and revised regularly; (5) ensure that a communication network including all types of communication systems for field activities and hospitals in the pre-hospital phase of large incidents is integrated with other emergency services and health authorities; (6) plan for a network of agencies and hospitals supporting regional base hospitals with the ability to interface with large metropolitan cities for additional support if required; and (7) provide a system for alerting and mobilizing staff and resources including the use of local general practitioners for hospital support and to handle patients with minor wounds in treatment centers outside of the hospital emergency department.