

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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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

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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.

Conclusions: Improved mass-casualty management response is achieved where agencies act in an integrated manner using an all-hazards approach. This is evident particularly with agencies that work well together on a daily basis.

Keywords: all-hazards approach; command; control; coordination; emergency planning; hospitals; integrated incident response; legislation; mass casualties; remote; resources; rural

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Using Tele-Nursing Services for Pre- and Post-event Advice and Syndromic Surveillance

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Telephone health, triage, and advice services, supported by sophisticated decision-support systems, are operating in many developed countries. In New Zealand, the entire country is covered by one 24-hours-a-day, tele-nursing, triage, and advice service. Such services are useful tools for monitoring and responding to bioterrorism and natural disasters. Healthline, New Zealand's tele-nursing triage and advice service, was used by the Ministry of Health to provide advice and decision-support systems to the community during the 2003 SARS alert period and as a means of access to health advice for populations isolated during the large scale floods in 2004. Assuming telephone services are operating, this service could be extended to the South Pacific nations during their frequent natural disasters.

Tele-nursing services create an opportunity for faster public health symptom surveillance. Syndromic surveillance is used for identifying an increase in frequency of a disease above the background pattern. In the past, outbreaks have been recognized from accumulated reports of notifiable diseases through voluntary reporting by sentinel practices and laboratories, or by alert clinicians bringing clusters of diseases to attention.

Currently, telephone triage services and the increasing availability of electronic health data combine to allow new surveillance systems to detect outbreaks earlier. An analysis of telephone triage data collected for public health, early warning systems found that data from telephone triage calls were one to five weeks ahead of surveillance data collected by the Center for Disease Control using traditional reporting methods. In England and Wales, call data (site, symptom, age-group, call outcome) on 10 key symptoms are transferred every weekday from 23 call centers to the Health Protection Agency at West Midlands for this purpose.

A recent bioterrorist study in the United States found that 87% of the respondents said they would want to talk directly with someone who can give them information or advice, or help them decide what to do so that they can make the best decisions for themselves and their families. People wanted their doctor or other health professional to be trained in advance to be able to provide the decision-making support they needed. A tele-nursing triage and advice service located outside of the danger area and staffed by nurses is placed ideally to provide advice to the community during a bioterrorist event. Briefing updates, consistent care protocols, and modifications to decision-support systems can be updated and controlled centrally, and

records of call types and caller location can be quickly collated for the controlling authorities.

Keywords: advice; call; Healthline; New Zealand; response; service; tele-nursing

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"Hotch Potch or High Performance"—Aeromedical Services in Queensland, Australia

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Queensland is Australia's second largest State, covering an area of >1.7 million km². With a coastline of more than 13,000 kilometers (8,078 miles) and a highly decentralized population approaching 4 million people, aeromedical services play a major role in the provision of emergency medical and disaster response services to this community.

Aeromedical services in Queensland include both fixed and rotary-winged operations, which are provided by an eclectic mix of State owned and operated services, community-based, non-profit organizations, contracted services, and the Royal Flying Doctor Service. With a fleet of 10 fixed-wing and 11 rotary-wing aircraft, almost 20,000 flying hours are undertaken each year in support of aeromedical operations.

Delivering these services in a coordinated and integrated way has proved quite complex. However, following a spate of incidents including two helicopter crashes that claimed a total of eight lives, aeromedical operations in the State faced a crisis of confidence. In response to these concerns, Queensland has now developed an integrated, efficient, and safe model for the provision of aeromedical services across the entire State.

This presentation examines the experiences and lessons learned in Queensland in developing a coordinated, safe, and effective aeromedical and air rescue network. It describes how these services have been effectively integrated under the Queensland Emergency Medical System (QEMS), a collaboration between the Queensland Ambulance Service (QAS) and the Queensland Department of Health. It examines the key characteristics required for safe and efficient aeromedical operations and the role of the QEMS Coordination Center in ensuring that aeromedical operations are delivered in a manner that achieves good patient outcomes while simultaneously respecting the risks inherent in aeromedical service delivery.

Keywords: aeromedical; Australia; emergency medical services; fixed-wing; helicopters; operations; Queensland; rotary-wing

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Medical Assistance for Train Explosion Disaster in North Korea

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Introduction: A massive explosion occurred at noon on Thursday, 22 April 2004 at Yongcheon railway station in