

### Nutrition Program Research in Complex Emergencies: Opportunities and Constraints for Development of Evidence Base

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**Introduction:** There is a plethora of guidelines and standards for nutrition programs in emergencies from non-governmental organizations and United Nations (UN) agencies. The evidence based on these guidelines is uncertain. In 2003, an emergency nutrition network workshop identified a wide range of issues needing research for evidence-based practice in this field, from treatment of severe malnutrition to the prevention of outbreaks of nutrition deficiencies.

**Methods:** Commonly used guidelines, published literature, and workshops were reviewed for sources of evidence.

**Results:** The main sources of evidence identified for field interventions during complex emergencies are: (1) evidence from non-emergency settings, usually adapted to special conditions; (2) descriptive research from emergency settings (surveys and evaluations); (3) operational research through program innovation (seldom disseminated through publication); (4) basic and experimental research in the field (still rare); and (5) personal experience of practitioners (lacking formal testing).

The difficult working conditions in the field, prioritization of aid before research, the volatility of complex emergencies (displaced populations, limited access, rapid outbreaks, etc.), and the lack of adapted field research tools were identified as some of the constraints for the development of new evidence from emergency settings. Even when research is undertaken it is often not disseminated, due to lack of time or resources, and the lack of interest from journals, often not sensitive to practitioners' demands, specific problems, and needs of the emergency setting.

Despite constraints, the field of nutrition in emergencies produces an enormous amount of routine information through in-patient data, evaluations, surveys, and field reports. There is a current climate acknowledging that if appropriately explored, these would provide direct and indirect evidence to inform programs and orientate the development of further research.

**Conclusion:** Despite research in the nutrition sector, which has led to significant advances in emergency programming, and an increasing movement towards evidence-based practice, the evidence base of emergency interventions remains insufficient. There are major methodological issues that require further exploration, for example: (1) What ethical standards and procedures are to be applied when planning and undertaking research affecting human beings during an emergency?; (2) How should evidence from non-emergency settings be adapted?; and (3) What lessons can only be learned during the emergency phase of a crisis?. With prioritization of research by agencies and donors, appropriate exploitation of information from the field, together with

appropriate links between practitioners in the field, headquarters and researchers from universities such as Partners, emergency nutrition research may help create the environment and develop the tools and methodology to move forward.

**Keywords:** emergencies; evidence-based; interventions; nutrition; research; United Nations

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### Theme 7: CBRN/HazMat

*Chairs: Victor Koschyev; Per Kulling*

#### Implementing an Early Medical Response Based on High-Risk Syndrome Surveillance: Approach For Resource Limited Settings

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A key component in the implementation of adequate responses to emerging infectious diseases, including those caused by the deliberate release of pathogens, is early recognition of outbreaks. However, modern and sensitive, real-time, epidemiological surveillance systems may not be available in settings with a limited number of health workers and public health resources. Diagnostic processes are also time- and resource-demanding, and can contribute to further delay in the appropriate medical response.

A model for managing high-risk syndromes based on simple algorithms has been developed by the National Centre for Biological Defence in Statens Serum Institut, Denmark. The template is meant to be used in civilian, humanitarian, or military contexts, in which few surveillance resources are available. It proposes a common initial management of clinical cases until the diagnosis and mode of transmission is known. High-risk syndromes, and not diseases, are defined as clinical cases with epidemic potential. Bioterrorism threats, including all Centers for Disease Control and Prevention (CDC) Category-A diseases and a selection of Category-B and C diseases are included in the algorithms. The model emphasizes infection control procedures for four high-risk syndromes: (1) acute febrile respiratory disease; (2) acute gastroenteritis; (3) acute febrile exanthemas; and (4) acute progressive paralysis. Case reporting is simple and facilitates awareness of an unusual event, despite limited educational backgrounds among health workers. The algorithms include criteria for the deployment of a sampling and diagnostic team in case of unexplained disease outbreaks.

This model attempts to generate a rapid response in settings with limited resources, but it requires training of health workers, involvement of a centralized surveillance entity, and utilization of infection control measures for its implementation. In military contexts, such as international peace support operations, communicable disease surveillance must be established within a frame of civilian and military collaboration, while creating regular communication channels and defining the allocation of responsibilities

over civilian populations at risk. Qualitative and quantitative methods need to be developed for measuring quality and effectiveness in the educational and reporting processes proposed in this model.

**Keywords:** assessment; early medical response; education; health workers; model; resources; surveillance

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### Reevaluation of the Swedish Chemical/Biological/Radiological/Nuclear (CBRN) Program—Decontamination and Personal Protective Equipment (PPE)

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Sweden is known for its high standards of preparation for chemical incidents. Resources on chemical incidents were allocated from the preparedness during the Cold War.

Two main parts of the system are the personal protective equipment (PPE) and the mobile units for decontamination. One part includes the stationary decontamination units in hospitals. Studies have been performed on these parts of the program. The results are under evaluation and will be presented. The PPE has been tested in different ways, was found to resist chemicals for a limited time, and is recommended to be used in combination with the charcoal garment. The test procedure and the results will be presented.

The Swedish healthcare system and Swedish rescue services use both stationary and mobile decontamination units. The stationary units have been studied earlier with results pinpointing the need of strict regime while performing decontamination to obtain good results. In the case of mobile units, a corresponding study has been performed. The results indicate that those units have limitations: the time to assemble the unit, the flow of patients through the unit, the technical problems, and, most importantly, the results in terms of decontamination efficiency.

In light of the above results, a new strategy to handle casualties contaminated by chemicals is being located. Strict rules will be developed for when and how decontamination should be done. Smaller units to perform a fast decontamination will be created, as well as techniques to transport still-contaminated patients to a hospital, and a final decontamination will be performed before entering the hospital, which will be of no risk to ambulance personnel.

**Keywords:** assessment; casualties; decontamination; mobile units; personal protective equipment (PPE); Sweden

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### How to Confront Chemical Terrorism: Medical Management of Nerve Agent Casualties (Lessons Learned from the Iran-Iraq War and the First OPCW Exercise on Delivery of Assistance (ASSISTEX 1))

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Terrorists have used chemical warfare agents in the past and may use them again. These agents range from those

that cause death quickly, such as nerve agents and cyanide, to those with effects beginning hours after exposure, such as mustard gas and other pulmonary effecting agents. Although prevention of such an attack would be the best strategy, this may not be possible. Medical personnel must be prepared to diagnose, manage, and triage casualties. To do this, they must have equipment and knowledge.

Medical care to a large number of critical patients during a mass-casualty situation can also be a challenge in terms of patients, providers, and priorities. The large number of patients often exceeds the medical community's ability to provide timely treatment. Because of the specific nature of chemical warfare agents in terms of their lethal or disabling effects and the overwhelming number of casualties needing medical treatment in chemical attacks or after terrorist use of chemical warfare agents, an effective medical system for management of chemical casualties can save the lives of many patients.

Nerve agents, organophosphates, first were used by Iraqi forces against Iranian troops during the 1980–1988 war, and caused thousands of casualties among military personnel as well as civilians; these agents also were used by terrorists as the weapon of choice in the Tokyo subway Sarin attack.

This presentation describes several recommended methods for management of nerve agent casualties including: (1) triage system; (2) antidote therapy; and (3) mass-casualty management. These recommendations are based on the experiences of medical teams during the Iran–Iraq War as well as the first international exercise on the delivery of assistance in the case of a chemo-terrorist attack (ASSISTEX 1).

**Keywords:** agents; chemical; mass casualty; management; nerve; preparedness; recommendations; terrorist

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## Theme 8: Children in Disasters

*Chair: Leonid Roshal*

### Psychosocial Recovery and Functioning of Children Exposed to Violence: Implications for Prevention and Intervention

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Within the United States, increasing attention now is being paid to the psychosocial needs of children traumatized by terrorism, violence, and disasters. While terrorism is a newer phenomenon within United States borders, millions of North American children are exposed to family or community violence every year as victims or witnesses. While the sources, nature, and context of violent incidents vary greatly, evidence suggests that children's responses to these extreme forms of traumatic stress may be similar. Cross-sectional and limited longitudinal evidence points to associations between exposure to violence (as victim or witness) and both internal (distress, post-traumatic, depressive) and external (conduct and behavioral) symptoms in children. Despite this, there is very little knowledge regard-