Implementation and Use of Biosurveillance System that Continuously Monitors for Potential Environmental or Bioterrorism Events

Jerry Overton
Executive Director, Richmond Ambulance Authority, Medical College of Virginia; Thomas Krafft, Professor, University of Bonn, Germany

Research indicates that U. S. epidemiological systems monitoring public health trend changes are slow because of their dependence on historical data, and that a potential bioterrorism event may not be identified until after the event begins, thus, increasing morbidity and mortality. This project was designed to establish a regional biosurveillance system to monitor consolidated data and detect trends in real time.

Specific software was developed to aggregate data from the local Emergency Medical Services (EMS) call center into patient symptom groups consistent with those that may be experienced during the intentional dispersal of a biological or chemical agent. The software calculates trigger thresholds based on a predetermined mean values for those groups, integrating the data with the operation of a sophisticated computer-aided dispatch system and a geographical information system. Should the predetermined mean value be exceeded by the real-time activity of the EMS call center, administrative personnel are alerted by page and electronic mail. Attachments to the electronic mail provide a listing by time, address, and type of activity, and activity location map.

Beta versions of the software were tested in two urban cities to assess functionality. Following testing, initial patient symptom groups were expanded in consultation with local epidemiologists. The now operational system demonstrates that the presence of biological or chemical release can be detected more quickly by using existing datasets with trending.

The project is limited by the lack of local hospital emergency department (ED) admitting data. The inclusion of all or most ED data will be implemented by mid-2003.

Keywords: biologicals; call center; chemicals; detection; emergency medical services (EMS); monitoring; notification; public health; surveillance; systems; thresholds
Prehosp Disast Med 2002;17(s2):s43.

Survival in the Age of Bioterrorism: Is the Healthcare System Prepared?

Christina L. Catlett, MD
Deputy Director, The Johns Hopkins Office of Critical Event Preparedness and Response, Department of Emergency Medicine, The Johns Hopkins University, Baltimore, Maryland USA

The concept of "hospital disaster planning" has evolved from preparation for natural disasters into "healthcare system disaster planning" for weapons of mass destruction. Preparation for critical events, which used to take place in a disjointed fashion, now requires maximal coordination of all available resources. Healthcare systems, a vital component of the nation's response effort, have a tremendous amount of resources including elements such as hospitals, community healthcare facilities (clinics), home healthcare services, schools of medicine, nursing, and public health, undergraduate campuses, and advanced science facilities. Through a series of Johns Hopkins Applied Physics Lab Warfare Analysis Laboratory seminars designed to analyze the issue of resource collaboration, The Johns Hopkins Office of Critical Event Preparedness and Response (CEPAR) evolved. The primary mission of this Office is to coordinate a comprehensive healthcare system disaster response, utilizing and unifying all components of the Hopkins Healthcare Enterprise. Furthermore, the Office has been charged with coordinating this healthcare system's response with federal, state, and local disaster response agencies, through collaboration and the establishment of memorandums of understanding. Other major issues that the Office of CEPAR is analyzing include critical event risk assessment, healthcare system surge capacity, communications infrastructure and redundancy, procurement and distribution of accurate and timely information, establishment of alert levels with preparation effort standards, and education and training. The culmination of these efforts will result in a regional WMD disaster response template that could be used as a national model.

Keywords: alert levels; communications; disaster; hospital; information; preparedness; surge capacity; weapons of mass destruction
Prehosp Disast Med 2002;17(s2):s43.
E-mail: ccatlett@jhmi.edu

Special Forum: Conflict and Public Health

No to Violence within Violence: Concerning Domestic Violence Aggravated by War

Marigold Vercoe
Psychosocial Co-ordinator, World Vision Jerusalem, West Bank, and Gaza

It is well-documented that the people of Palestine have long been living under very difficult circumstances. While the World looks at the occupation and current Intifada in political terms, the emotional, physical, and intellectual life of every Palestinian family is challenged. The deterioration of the mental health of men, women, and children is a sad legacy.

The present-day situation serves only to further wound and cut into Palestinian Society long known for it's strong family ethic and male headship. Men, who previously have been good leaders and providers for their households, are forced into intolerable situations. Curfews severely restrict their movements for months on end, causing them to be unemployed and disenabling them to bring home necessary food and provision. Accustomed to a hard working day, enjoying family for a few hours in the evening, they now not even are allowed to work in their garden or around the home, crowded by troubled wives and children the whole day through, leaving them frustrated, depressed, bored, and angry. Those who attempt to continue regular employment are harassed and intimidated daily at checkpoints. They face guns, shooting of people around them, tear gas attacks, long delays, and/or imprisonment under inhumane conditions. Some end-up housed in a Psychiatric Hospital. The

majority are left to manage for themselves troubled, stressed, imprisoned in their own emotions, and unwilling to seek help due to the cultural taboos. Consequently, even the most well-meaning husbands and fathers find themselves irritable and explosive; hence there has been reported, a sharp increase in family violence.

To holistically address the needs of the Palestinian people in the context of the strong patriarchal culture, we must to address the needs of the men.

Keywords: conditions; culture; frustration; men; mental health; Palestinians; violence, domestic
Prehosp Disast Med 2002;17(s2):s43-44.
E-mail: Marigold@primus.com.au

The Forgotten Disaster — Dadaab Somali Refugee Camp

Gerard O'Reilly

Background: Since 1992, Medecins sans Frontiéres - Belgium (MSF-B) has provided healthcare to the Somali refugees of Dadaab, North-Eastern Kenya. With more than 130,000 refugees from the ongoing civil wars in Somalia and Sudan, Dadaab is one of the largest and longest running refugee camps in the world. Hagadera is the largest of the three camps in Dadaab, with a population of greater than 50,000. This presentation gives a brief insight into the epidemiology and challenges of this chronic disaster setting.

Methods: This is a prospective observational study of the epidemiology in Hagadera Camp, Dadaab, Kenya for the month of August, 2002. As Camp Medical Coordinator, I was the sole doctor responsible for the health of the 50,000 refugees. With the assistance of the Hagadera Camp staff, I supervised and collated the monthly reports on mortality and morbidity. In addition, I was able to document a series of clinical presentations as they arose.

Results: The Crude Mortality Rate was 0.08/10,000/Day, and for children less than 5 years of age, it was 0.13/10,000/Day. The most common specific diagnosis presenting for treatment was malaria, followed by respiratory tract infections. There were 11 new cases of tuberculosis and two cases of measles. Three emergency Caesarean sections were performed; there were seven cases of pre-eclamptic toxaemia.

Conclusion: MSF has long been the sole provider of healthcare for 130,000 refugees in Dadaab, Kenya. The incidence of malaria and respiratory tract infection are significant with malaria being the major cause of mortality. The crude mortality rate is <1 in 10,000 per day.

Keywords: camp; crude mortality rate (CMR); epidemiology; malaria; Medicins sans Frontiéres; mortality; refugees; resiratory infections; tuberculosis
Prehosp Disast Med 2002;17(s2):s44.

Monitoring Access to Emergency Care in the West Bank and Gaza Strip Using Household Surveillance

Gregg Greenough, MD, MPH;[1] Ziad Abdeen, PhD, MPH;[2] Bdour Dandies, MSc, MPH[3]
1. Center for International Emergency, Disaster and Refugee Studies, Johns Hopkins Bloomberg School of Public Health, Baltimore, USA
2. Al Quds University, Jerusalem, Israel
3. American Near East Refugee Aid, Jerusalem, Israel

Introduction: Epidemiological surveillance techniques could assess access to emergency care and identify the causes for the inability to access emergency care during the current intifada in all districts of the West Bank and Gaza Strip.

Methods: Twenty households in each of 16 districts in the West Bank and Gaza Strip were sampled every two weeks. Households were asked if any of their members required emergency care in the previous two weeks, and whether they could access it, if necessary. If household members were unable to access emergency care, they were asked to identify the causes. Trends were followed in each district during the period from 31 May until December 2002.

Results: A total of 4,480 households were sampled.. Of the 1,555 households whose members needed emergency care, 447 (28.7%) were unable to access such care. Reasons cited included: (1) Imposed 24-hour curfews and/or checkpoint denials, 79.8%; (2) Inability to pay, 10.0%; (3) Lack of transportation, 5.4%; (4) Emergency room not operational, 2.7%; and (5) Great distances, 2.2%. Inability to access emergency care was significantly higher in the West Bank (28.2%) compared to the Gaza Strip (18.0%) due to greater restricted movement in the former. Trends showed that the ratio of households unable to access emergency care to those who required care was higher during the summer months of 2002 when strict curfews were enforced in the West Bank. This trend showed distinct improvement from October onward.

Conclusion: Surveillance can be used in complex human emergencies to monitor essential access to emergency care, a human right enshrined in the Fourth Geneva Convention.

Keywords: access; curfews; emergency care; Gaza Strip; Geneva Convention; households; surveillance; West Bank
Prehosp Disast Med 2002;17(s2):s44.

Rendering Medical Assistance in Refugee Settlements of the Chechen Republic during Anti-Terror Operation

V. Preobrajensky
All-Russian Centre for Disaster Medicine, Moscow, Russia

The All-Russian Service for Disaster Medicine (ARCDM) has rendered medical assistance in the territory of the Ingushetia and Chechen Republics (Northern Caucasus), where more than 60,000 people live in refugee settlements. This medical assistance included early detection of infectious and somatic patients; identifying sick and injured persons who needed specialized care and hospital treatment; pediatric care; vaccination and preventative measures against outbreaks of infectious diseases, including sanitary and hygienic measures; and delivering medical supplies.

Specialized medical teams performed medical examinations in the refugee settlements, while the field, multi-purpose hospital rendered all kinds of qualified and specialized medical assistance 24 hours per day. Medical assistance was provided to more than 40,000 patients, including 8,000 children. There were more than 700 surgeries, and more than 1,500 patients were hospitalized.

The system of rendering medical assistance to the tem-