destruction against civilian populations. With an increasing number of mass casualty incidents caused by terrorists in recent years, the threat of biological terrorism never has been more credible.

Most experts believe that the organisms or toxins most likely to be utilized by terrorists include anthrax, plague, Q-fever, tularemia, smallpox, viral encephalatides, viral hemorrhagic fevers, botulinum toxin, staphylococcal enterotoxin B, and ricin toxin. BW agents share several characteristics that make them ideal tools in the hands of terrorists: 1) ease and low cost of production; 2) ease of dissemination as aerosols; 3) efficient exposure of great numbers of people through inhalation; 4) delayed effect; 5) high potency; 6) high subsequent mortality and morbidity; and 7) their ability to wreak psychological havoc. The unleashing of BW agents against a civilian population promises to be the ultimate medical disaster with the capability of completely overwhelming any health care system.

The challenge of BW agents only can be met if the emergency care system and individual emergency care providers are adequately prepared to respond to various bioterrrorist scenarios including threatened, suspected, and confirmed exposures to BW agents. Since bioterrorist attacks are likely to occur without warning, public health officials and Emergency Physicians must be able to detect bioterrorist attacks from epidemiological clues. Since most victims of an unannounced attack will delay seeking medical care, clinicians must be able to presumptively diagnose the diseases caused by common BW agents based on clinical criteria alone.

Saving lives will depend largely on the appropriate provision of pre-exposure immunoprophylaxis, post-exposure prophylaxis, and the treatment of actual disease by physicians. The emergency care system also must provide adequate decontamination of victims and protection of health care workers from exposure to BW agents. Since such an attack also is expected to inflict enormous psychological damage, the health care system also must provide psychological care for survivors as well as health care workers.

The current system of medical response to biological terrorism in the USA emphasizes the critical role of local emergency care systems in the initial period after an attack. Unfortunately, our current ability to respond to bioterrorism has many serious limitations, including a lack of sufficient biosensor technology and a lack of adequate immunoprotection of civilian populations. The adequacy and timely availability of most protective, supportive, and therapeutic modalities also are limited significantly, especially if mass casualties were to present simultaneously to the health care system. A number of [US]federal agencies (Federal Emergency Management Agency, Federal Bureau of Investigation, Department of Health and Human Services, and Department of Defence) are working to alleviate these shortcomings through further organization, education, and scientific research.

Keywords: agencies, federal; biosensors; bioterrorism; education; Emergency Medicine; immunoprotection; preparedness; prophylaxis; research; response; terrorism; warfare, biological

PN4-5
Non-Conventional Warfare: Health Policy at the National Level

Yechezkel Levi, MD; Asher Winder, MD; Boaz Tadmor, MD; Ronen Durst, MD; Arieh Eldad, MD
Israel Defense Forces, Medical Corps Headquarters, Israel

In Israel, the Medical Corps of the Israel Defense Forces (IDF) takes responsibility together with civilian authorities for preparing countermeasures for possible conventional or non-conventional civilian mass casualties. Unlike a conventional mass casualty incident, when preparing for a non-conventional event, one is faced with dilemmas and controversial issues that are not easily solved. How can one make a risk-benefit assessment, if the threat is not precisely defined? What is the right way to address the public on this issue? What are the justified financial costs of countermeasures, and what degree of readiness is needed for something that might never happen? In this presentation, we discuss our experience in processing the threat and our model of countermeasures.

Assessing and understanding the risk is the first step. It is based primarily on intelligence data. Then, we add the nature of the organisms and the disease they may cause. Environmental models that predict the possible distribution of the causative agent complete the first assessment.

The second step is having identification and detection systems. This is achieved by routinely educating the medical staff about the possible causative agents. Automated detectors are supplied to military units located in various locations across the State of Israel and to mobile units of the Ministry of Environmental Protection. A central laboratory is available, for definitive identification.

Biological agents, unlike chemical agents, can pose their effects after a few days. The Ministry of Health has created an active surveillance program that operates routinely, and detects changes in the day-to-day morbidity pattern. The Ministry of Health has stockpiles of drugs like antibiotics and vaccines, as well as other medical equipment.

The plan for appropriate prophylactic and therapeutic measures is not obvious. The solution must cover a diverse range of causative agents. In addition, it should be suited to treat every segment of the population including infants, the elderly, and pregnant women.

Keywords: biological agents; costs; countermeasures; detection; health policy; intelligence; mass casualties; military; models; multi-casualty incident; stockpiles; surveillance; warfare

PN4-6
Prevention and Management of Chemical and Biological Casualties

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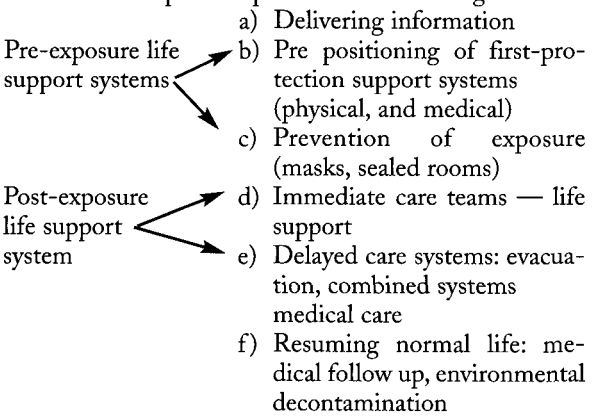
Israel Defense Forces, Medical Corps Headquarters, Israel

A non-conventional attack on an unprepared, civilian population could become a major catastrophe. It has the potential to defeat all civilian order, health, and managing systems bringing chaos and demoralization to the community. A country (especially in war times) cannot allow itself to be unprepared for such an event and its subsequent consequences.

It seems, therefore, and it is common and acceptable knowledge today, that there is a need to construct multidisciplinary collaborative teams that are aware of how to deal with such an event, should it occur. The teams need to be agile, flexible, and capable of determining the suitable reaction and solution when dealing with such an event.

There are two levels of population protection and event management: 1) On a Military level, it is called deterrence and prevention; and 2) On the Civilian levels, it has several aspects of prevention and management:



It seems that we can conclude by saying that the concept that needs to be followed is: "ABC-LSS" Advanced Biological Chemical Life-Support Systems. Here, "Life" has the meaning of quantity and quality for the individual as well as for the Community and Country. Thus, the benefits of the treatment should be weighed against the potential side effects.

The logistics to convey the planned medical preventive care to the public is planned to be carried out by Army Forces, since there is a need for quick response because time is crucial for the success of the medical measures. A special permit is issued by the Director General of the Ministry of Health approving distribution of drugs without a physician prescription and by non-medical staff.

The last step is preparing the hospitals for such events. Since mass casualties are expected, it is important to prepare the ambulatory health system. All of the hospitals routinely are being instructed and exercised for a non-conventional mass event.

The control of the behavior of the population is an essential part in carrying out the Home Front Command plans. Therefore, television broadcasts that deal with explanation of all kinds of events have been prepared. The broadcasts deal with general information, as well as specific data on how to prepare an antibiotic suspension for a three-year old child. The Army Spokesperson has prepared specific announcements to be released to the public via the media.

The Home Front Command (HFC) is responsible for the entire infrastructure. Assistance is given by other military units like the Medical Corps and by Civilian Authorities like the Ministry of Health, the Ministry of Agriculture, the Ministry of Defense, and the Ministry of Environmental Protection. The Medical Corps has a pivotal role in defining the appropriate medical guidelines. Therefore, the Medical Corps has formed a permanent, nationwide, multidisciplinary, expert team — The Epidemiological Management Team (EMT) that advises the Surgeon General and the Director General of the Ministry of Health.

The infrastructure of preparing countermeasures for a non-conventional mass casualties is very complicated. There is a crucial need to combine military and civilian agencies. Let us hope that there will not be a need to use them.

Keywords: biologicals; care, civilian; medical; chemicals; contamination; decontamination; education; epidemiology; evacuation; exposure; hospitals; life; life-support; management; media, use of; military; prevention; teams; warfare, non-conventional

Panel Discussion VI

Detection and Identification of Unknown Poisonous Substances Patient Materials

Wednesday, 12 May, 10:00–12:00 hours

Chair: *Per Kulling, Takashi Ukai*

PN6-1

Mass Foodborne Poisoning Incidents: Clinical and Screening Laboratory Data May Differentiate Cyanide from Arsenic Poisoning

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On 25 July 1998, 100 persons ate curry and rice at a festival in Wakayama, Japan. Four persons died and about 75 persons became ill. Cyanide poisoning originally was the suspected cause, but the final diagnosis was deliberate arsenic contamination. Acute arsenic and cyanide poisoning have similar non-specific, clinical effects, including mouth and throat irritation or burning, nausea, vomiting, central nervous system (CNS) depression, muscle spasms, and seizures. Diarrhea is common with arsenic, but rare with cyanide. Cyanide poisoning causes anxiety, agitation, hyperpnea, hyperventilation, giddiness, headache, and mild hypertension, which are rare with arsenic poisoning. Screening laboratory tests aid in suspicion of acute cyanide poisoning: serum electrolytes