during the last 30 years, the methods for coping with conventional MCSs have been developed.

The committee meets every two months and discusses problems encountered during real events or drills. If the problem is major, a change in the guidelines may be suggested.

In recent years, the committee also has been involved in drills. Members of the committee take an active role in planning these drills. Months before the drill, the committee visits the hospital, learns how the hospital intends to cope with the influx of injured victims, and provides its comments and opinions. Later, the committee develops the drill to test whether the hospital's concepts work.

The members of the committee also developed a tabletop simulation. This simulation is run in each hospital by the members of the committee, and is part of the preparedness program of hospitals for MCSs.

Keywords: drill; Israel; Israeli Committee on Conventional Mass-Casualty Situations; planning
Prehosp Disaster Med

Disaster Liquidation Actors Requirements Integration in Emergency Research Project Development for Interoperability Improvement

J.F. Urbánek; R. Urban; J. Prucha
University of Defence, Brno, Czech Republic

A lot of impermeable "smash" interfaces exist among rescue/emergency agencies in the European Union. Contemporary global threats occur in this era of political and economic changes of the global environments, which include discontinuous turbulent, and chaotic, struggles, battles, and crises. The interoperability achievement of smashed interfaces is an aim of many security collaboration research projects, mainly the EC FP7 ST-CAST project. A change in control/regulation behavior of rescue/emergency organizations, the approaches of corporations and agencies will change disaster medicine systems. The quantitative behavior of crisis participants and actors is not a priority for never-ending crisis/emergency management during disasters. The most effective behaviors aim to enhance cooperation, collaboration, integration, and technological ascendancy of all actors and security and research personnel. The priority is not the behavior aimed at quantitative production rate, predator effort, noxious emulation, rival force predominance, or unscrupulous irresponsibility. The purpose of controlling the behavior of the organizations and human corporations during crises is not the biggest plunder, the smallest deprivation. The indicators of successful security research project solutions are the quality, effectiveness, serviceability, elimination of threats, opportunities, and the relief of disaster-affected participants. They indicate decreased risks, improved value added, flexibility, operability, interoperability, and mobility of projected and developing entities. It all requires changes in approach and new remedy methodology, which the Dynamic Vector Logistics of Processes (DYVELOP) fully offers. It was first used in national security research project development and a solution in the Worldwide Interoperable Mobile Access (WiMAX) environment. It resulted in the creation of new, real system, and the technology of an autonomic outdoor computer aided Interoper-mobile WiMAX Workshop for First Responders of Czech Integrated Rescue System, which will be introduced via a live PowerPoint presentation.

Keywords: disaster; emergency; interoperability; research
Prehosp Disaster Med

Unusual Biological Events—Outbreaks, Pandemics

The 2001 Anthrax Attacks: Lingering Effects

Leonard A. Cole, PhD, DDS
Adjunct Professor Division of Global Affairs, Rutgers University, Newark, New Jersey USA

During the weeks after the terrorist attacks against the United States on 11 September, 2001, letters containing powdered anthrax spores were sent to the media and political figures via the US mail. As a result, 22 people contracted anthrax, five of whom died; and thousands were deemed to have been at risk of exposure. Moreover, dozens of offices and buildings were shut down after becoming contaminated with spores from the letters. The attacks, which caused massive anxiety and disruption, amounted to the largest bioterrorism assault ever launched in the US. Eight years later, important questions about the attacks remain unresolved including the definitive identity of the perpetrator, an explanation for continuing symptoms of some survivors, and the level of preparedness for other biological attacks. This presentation examines these issues along with lessons learned from the 2001 attacks.

Keywords: anthrax; anxiety; biological attack; terrorism; US
Prehosp Disaster Med

Vaccine Purchasing for an Influenza Pandemic: Comparative Cost-Benefit Model

Ran Balicer, MD, PhD, MPH;[1,2,3]
Itamar Grotto, MD, PhD, MPH[1,2]

1. Epidemiology Department and the Center for the Research of Preparedness and Response to Emergency and Disaster Situations, Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer-Sheva, Israel
2. Israel Ministry of Health, Jerusalem, Israel
3. Clalit Health Services, Israel

Introduction: The next influenza pandemic is expected to spread rapidly, causing worldwide morbidity, mortality, and economic disruption. Effective vaccines are pivotal to thwart the spread of a pandemic virus and to prevent illness and death. However, the global vaccine supply is several billion doses short of the necessary amount, as is currently evident during the H1N1 event. Without prior knowledge of the strain that will cause the next pandemic, one key strategy to afford a reasonable chance for obtaining vaccines during the next pandemic, through an advanced purchase agreement with the vaccine manufacturers. This strategy is costly, and influenced by many unknowns. A mathematical model for the assessment of the advanced purchase agreement strategy will be presented in economic terms.

Methods: Each strategy's cost, impact on reduction in morbidity and mortality compared with a non-intervention base-

case scenario were modeled. The benefits were adjusted to an annual probability of a pandemic as low as 1%, and the relevant cost-benefit ratio was calculated. The impact of vaccination on disease spread was assessed according to a systematic review of published dynamic models.
Results: The model showed that a advanced purchase agreement was cost-saving, with a cost:benefit ratio of 1.81:3.65 in the base-case scenario, depending, among other factors, on the assumed R0 in the underlying mathematical models. The ratio proved relatively robust in extensive sensitivity analyses.
Conclusions: The risk of a severe pandemic caused by a highly pathogenic influenza virus remains. An advance purchase agreement for future vaccine supply is a cost-saving strategy and should be pursued. The practical aspects of this strategy will be discussed.
Keywords: cost-benefit; H1N1; influenza; pandemic; vaccine
Prehosp Disaster Med

Development of Crisis Care Guidelines for Critical Care Management and the Allocation of Scarce Resources during the H1N1 Pandemic

Christian Sandrock, MD, MPH, FCCP
Assistant Professor of Medicine, Medical Director, Intensive Care Unit, Division of Infectious Diseases, Division of Pulmonary and Critical Care Medicine, UC Davis School of Medicine, Davis, California USA

Introduction: The H1N1 pandemic has raised concerns about potential limited resources during peak surges. These limited resources may include respiratory care equipment (e.g., ventilator), sub-specialist access, critical care/intensive care unit (ICU) bed capacity, and surgical access. Many emergency preparedness coordinators have developed plans to allocate scarce resources, including a triage system with inclusion and exclusion criteria. However, in order to provide equal and equitable care, this triage system must be applied evenly across the healthcare spectrum. In Northern California, a guideline to provide equal and ethical care across a diverse region during the H1N1 pandemic was developed. This guideline includes regional and healthcare triggers, the local facility trigger, suggested beside guidance, and the development of a facility and regional triage team. In this presentation, the development of this guideline will be discussed including examples, test cases, and drill data to show its success and limitations. Detailed portions of the guideline will be distributed and discussed.
Objectives:

1. Understand the broad development of crisis-care guidelines for H1N1 pandemic management, including the allocation of scarce resources;
2. Discuss and develop a triage model for the allocation of scarce resources; and
3. Discuss the ethical and policy issues regarding crisis care during a pandemic.

Keywords: critical care; H1N1; guidelines, preparedness; resources; triage
Prehosp Disaster Med

Do Standard Operating Procedures for Pandemic Influenza Impact on Emergency Preparedness?

Bruria Adini, PhD;[1,2] Avishay Goldberg, MA, MPH, PhD;[2] Daniel Laor, MD, MHA;[1,2] Robert Cohen, PhD;[3] Col. Yaron Bar-Dayan, MD[2,4]
1. Emergency and Disaster Management Division, Ministry of Health, Israel
2. PReparED Research Center, Ben Gurion University of the Negev, Beer-Sheva, Israel
3. Center for Medical Education, Hebrew University, Jerusalem, Israel
4. Meir Medical Center, Israel

Introduction: Standard operating procedures (SOPs) are the basis of preparedness for biological threats. This study investigated the relationship between the quality of the SOPs for the management of pandemic influenza to the level of performance in an H5N1 drill.
Methods: The SOPs for of all general hospitals in Israel for managing pandemic influenza were evaluated using a tool developed for this purpose. Results were compared to the levels of performance measured in an avian influenza drill.
Results: The reliability of the two scales was high (SOP evaluation = 0.741 and drill assessment = 0.739). The overall correlation between the SOP score and drill assessment was strong (r = 0.737; p <0.000). Performance in the avian flu drill correlated significantly with the SOP evaluation in: (1) protection of staff and patients (r = 0.591, p = 0.002); (2) manpower control (r = 0.8750; p = 0.000); (3) infrastructure and minimizing overload (r = 0.932; p = 0.000). Results of two stepwise regressions: (1) using the SOP scores to predict performance on the drill; and (2) using the drill scores to predict the SOPs ratings resulted in the emergence of two significant models.
Discussion: A correlation was found between the SOPs for pandemic flu and the performance on the Avian flu drill, mainly in relation to elements that were unfamiliar to the staff or in areas which were perceived by the staff as posing a risk to their well-being. High quality SOPs have a strong correlation with the performance of the hospital in an avian flu drill; therefore, it is recommended to invest effort in developing high quality SOPs in order to promote the preparedness for pandemic flu.
Keywords: avian flu; drills; pandemic influenza; performance; preparedness; standard operating procedures
Prehosp Disaster Med

Biosurveillance for Pandemic Influenza: US Experience with the H1N1 Outbreak, April–June, 2009

Daniel M. Sosin, MD, MPH;[1] Jennifer Ward, MS;[2] Curtis Weaver, MA[3]
1. Acting Director, Coordinating Office for Terrorism Preparedness and Emergency Response, Centers for Disease Control and Prevention, Atlanta, Georgia USA
2. Informatics Lead, Biosurveillance Coordination Unit, COTPER, Centers for Disease Control and Prevention, Atlanta, Georgia USA
3. Senior Advisor to the Director, Biosurveillance Coordination Unit, COTPER, Centers for Disease Control and Prevention, Atlanta, Georgia USA

Introduction: Making good decisions under crisis conditions is dependent on understanding the types of decisions