

from major and minor disasters in the last century, predict 21st century multi-agency and international scenarios, and account for the players' (managers and field teams) perspective and experience.

Results: On-Site Instant Report and Information System (OSIRIS C3) is a C4I platform that provides real-time command, control, and communications through instant, horizontal and vertical data flows, greatly reducing voice communications, and by doing so, preventing information decay. OSIRIS C3 provides goal-oriented strategic and tactical planning, and multi-agency command and control in almost any available communication channel including TETRA. By using state-of-the-art technologies inspired in video games, and friendly and interactive touch screen user interfaces, OSIRIS C3 requires a short learning curve.

Conclusions: The OSIRIS C3 is an all-in-one solution for disaster management and emergency response that is able to provide support for all levels of the command chain.

Keywords: command; communications; control; information system; On-Site Instant Report and Information System

Prehosp Disaster Med

International Survey of Information and Communication Systems for Early Detection of Public Health Threats

Rachelle Kaye, PhD

Director, Maccabi Institute for Health Services Research, Israel

Background: There is a growing need for global information and communication (ICT) systems that continuously monitor and analyze data and generate alerts for public health threats. Barriers to building a reliable and efficient global surveillance and early detection system include the use of significantly different systems in different countries or even in the same country, data are collected in different languages, and with the availability of data as well as the ability to use and analyze the data. A critical problem is the lack of quick access to the relevant information. Despite recent technological developments, implementation has been fragmented and consequently, there still is a gap between the existing functional systems and desired global systems that integrate all relevant data regarding the early detection of threats to public health.

Objective: The objective of the study was to map the current state-of-the-art in the area of surveillance and early warning ICT systems for threats to public health and to identify major gaps, problems, and challenges. The study focused on three major types of surveillance and early warning systems:

1. Disease surveillance through healthcare systems;
2. Monitoring environmental factors with a potential impact on health; and
3. Monitoring events through the electronic media.

Systems included in the study were those operating in Spain, France, Italy, and Israel, as well as at the European level and in the US.

Methods: This study was financed by the European Commission as a part of the Seventh European Research Framework Program (FP7). Organizations from Spain, France, Italy, Denmark, and Israel were project partners. Each partner performed a detailed survey of the systems

currently operating or under development in their own country. Additional research was done to identify systems at the European level and in the US. All of these systems were surveyed and analyzed according to a predetermined set of criteria that focused predominantly on the information and communication technology aspect of the systems.

Results: Fifty systems were identified and analyzed. There is a great disparity among existing systems in terms of definitions, standards, methodology, and levels of technological sophistication, particularly in the area of information and communication technology. Disease surveillance systems through the healthcare system are the most numerous, while at the same time, they are the least sophisticated in terms of ICT technology. There is a lack of knowledge and coordination among different types of monitoring systems, even at the local and national levels, and a lack of integration among all relevant systems at all levels—local, national, and international. Most systems are “expert-team” dependent and do not have the capacity for generating automated inferences based on rules or algorithms.

Discussion: Much of the information and communication technology required to build and operate global surveillance and early detection systems exists and is being used in some places. The issues of semantic interoperability and standardized technical and professional protocols must be addressed. What is required are political decisions at the national and international levels that acknowledge the need for global systems in this area and for collaboration and allocation of resources to construct them as well as enabling legislation for data sharing.

Keywords: communication; detection; information technology; public health; survey; threat

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ESi® Builds a Global Information Network in Response to the H1N1 Virus

William Glisson, MPA

Director of Health Services ESi Acquisition, Inc., USA

On 26 April 2009, reports of a new and deadly influenza strain (H1N1) hit the international wire services, and the news spread quickly around the world. Reuters reported: “A deadly swine flu never seen before has broken out in Mexico, killing at least 16 people and raising fears of a possible pandemic.”

In May 2009, as cases of H1N1 began to spread, ESi, the creators of WebEOC®, the world's first Web-enabled crisis information management software, considered how to best support the WebEOC user community. Hundreds of emergency operations centers (EOCs) around the world use WebEOC, and ESi decided to apply its technology to allow EOCs to share information and work together as a unit.

ESi created a Global Fusion Network based on ESiWebFUSION™, which allows WebEOC server-to-server communication by acting as the central communications hub to route messages across the network. The system was proven during the 2009 inauguration of US President Barack Obama and the 2008 hurricane season in the US.

The critical information needed for an effective response to an event like H1N1 is varied. For governmental agencies,

it includes compiling factual data to communicate the situation to an anxious public. For public health organizations, it includes collecting communicable disease data from the field. For hospitals, it includes the sharing of vaccination rates to help them make resource management decisions.

Within a few weeks, >60 organizations worldwide joined the network, including state, federal, and international public health organizations. Other disciplines also joined the network including emergency management, law enforcement, energy regulation, transportation, finance, and legislative bodies, providing them with situational awareness and a way to communicate in real-time.

Keywords: global; H1N1; influenza; information; network

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SOGRO—A New Way of Providing Faster Information in Case of a Mass-Casualty Incident

Professor Dr. Med. L. Latasch

Emergency Medical Services Medical Director, City of Frankfurt am Main, German Red Cross-Frankfurt and Main, Germany

Introduction: Triage outdoors at the scene of a mass-casualty incident (MCI) still incurs a lot of problems. One of these is that patient information, especially the status of the patient, arrives too late at the dispatch center and/or hospital. Also, the amount of medical information can be either too much or not enough.

Thus, SOGRO, funded by the federal Ministry of Education and research, attempted to eliminate both of these problems by using modern technology (RFID and PDA) to transfer the first data immediately after the triaging of the patient has been completed.

Methods: Using a rugged PDA with a newly developed program, the result of the triage (status of triage, gender, adult or child, and a photo of the face) are transferred on to a coloured (red, yellow or green) wristband that holds an RFID-chip, so that these data stay with the patient. At the same time, these data also are sent to a server defined by the location (dispatch, hospital, etc.).

If medical treatment is necessary, infusions and/or medication and, if needed, physiological data can be stored on the patient's wristband. Once the patient is ready for transportation, the ID of the ambulance car also is stored, and the data are transferred to the authorities.

Conclusions: The benefits of such a system are:

1. The status of the patient is available immediately after the first contact;
2. Only necessary medical data are stored on the wristband. Ventilatory and pulse rates taken about a half hour ago are unnecessary for the treatment at the hospital; and
3. Patients can be tracked from the scene of the MCI until arrival at the hospital—no patients get lost.

In this project, unmanned aerial vehicles will be used to follow an aerial overview of the disaster area.

Keywords: communication; data sharing; mass-casualty incidents; technology; transport

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Designated Tools for Management and Control of Medical Information during Mass-Casualty Toxicological Incidents

Ophir Lavon, MD

CBRN Branch, Medical Corps, Israel Defense Forces, Israel

The unique challenge of mass-casualty toxicological incidents (MCTIs) is the fact that various poisons can be the source of injury. Identifying the specific toxic substance is of cardinal importance. Without this identification, there is a gap in the precise medical response, the protection and decontamination procedures, and the proper, on-scene, operational risk assessment. Most first responders and hospital personnel lack relevant experience and specific and sufficient education in clinical toxicology. Unlike trauma events, MCTIs are rare and can involve several clinical scenarios. For each toxidrome, different protocol and antidotes can be advised. In Israel, there is widespread use of various designated tools to overcome the disparity in medical knowledge during the immediate response to a MCTI. First responders on the scene carry cards and control schemes of detailed clinical algorithms. In hospitals, there are designated notebooks and dossiers. These tools efficiently and clearly present needed information regarding the clinical identification of the toxic exposure and the proper medical response during a suspected or definite MCTI. The tools are updated regularly and are optimized for each working environment. They are integrated into emergency drills, and enable the capability of delivering fast and relevant information to medical personnel, helping them to handle any MCTI. It is advised that such tools be adopted in any MCTI preparedness plan.

Keywords: control; information; management; mass-casualty incident; tool; toxicology

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ALARM: Telemedical Concepts and Innovative Information Technology Solutions to Support Emergency Workers and Services during Responses to Large-Scale Emergencies

Martin Schultz; Christine Carius-Duessel; Juliane Rau;

Anja Prescher; Torsten Schroeder

Germany

Large-scale emergencies involving large numbers of casualties often lack the timely and precise information needed for adequate emergency response. Medical and logistical processes receive insufficient support in terms of information technology (IT), which delays individual medical care and increases the potential for spreading panic.

The ALARM project is funded by the Federal Ministry of Education and Research and targets the development of an integrated service platform that ensures and accelerates communication and the flow of information and data. Within the project, a modular platform that enables seamless e-documentation, identification and dynamic resource management of rescue materials and equipment to direct telemedical care services as monitoring and instructions will be developed.

In the first step, an overview of prevailing processes, applied technologies and perceived limitations were pre-