

## Time Waiting/Time Wasted Maximizing Use of 'The Golden Minutes'



**SAMU & EMS:  
The Principle Differences**  
By Joseph Cahill, EMS

**Mass-Casualties/Medical-Surge  
Capabilites: Closing the Gap**  
By Kay C. Goss, Emergency Management

**Understanding Public Health  
Mutual Aid**  
By Raphael Barishansky, Public Health

**NIMS & ICS: The Next Level**  
By Steven Grainer, Fire/HazMat

**Telemedicine: Funding Increases  
And Rapid-Paced Development**  
By Diana Hopkins, Standards

**Organophosphates:  
A Clearly Present Danger**  
By John Temperilli, Viewpoint

*The Unglamorous Side*  
**Parking Lots, Manhole Covers,  
And Homeland Security**  
By Neil C. Livingstone, Building Protection

**HLS & EM: Blueprinting the Future**  
By Dennis R. Schrader, Exercises

**Communicating with the Public  
During a Pandemic Influenza**  
By Amanda Rhyne & Sarah Weiss

**Alabama, California, Illinois,  
And Louisiana**  
By Adam McLaughlin  
State Homeland News

# IDENTIFY CONTRABAND. SINGLE-HANDEDLY.

Introducing Fido® Verdict™, an affordable palm-size instrument for rapid identification of explosives, liquid threats and narcotics.

Used for screening containers, bags, bottles, vials and powders, Verdict™ provides military personnel, security agents and law enforcement officials with real-time results in the fight against improvised explosives and illegal drugs. Verdict uses well-established Raman spectroscopy to identify unknown materials quickly and efficiently, minimizing exposure to potentially dangerous chemicals.

For more information, or to  
arrange a demo, please contact:  
T+ 1.866.458.ICXT(4298)  
Email [verdict@icxt.com](mailto:verdict@icxt.com)



[www.icxt.com](http://www.icxt.com)



## Business Office

517 Benfield Road, Suite 303  
Severna Park, MD 21146 USA  
www.DomesticPreparedness.com  
(410) 518-6900

### Staff

Martin Masiuk  
Publisher  
mmasiuk@domprep.com

James D. Hessman  
Editor in Chief  
JamesD@domprep.com

John Morton  
Strategic Advisor  
jmorton@domprep.com

Dan Brethauer  
Account Executive  
dbrethauer@domprep.com

Susan Collins  
Creative Director  
scollins@domprep.com

Carole Parker  
Database Manager  
cparker@domprep.com

### Advertisers in This Issue:

DuoDote (Meridian Medical Technologies)

ICx Technologies

Idaho Technology Inc.

MSA

PROENGIN Inc.

Remploy Frontline

© Copyright 2009, by IMR Group, Inc.; reproduction of any part of this publication without express written permission is strictly prohibited.

DomPrep Journal is electronically delivered by the IMR Group, Inc., 517 Benfield Road, Suite 303, Severna Park, MD 21146, USA; phone: 410-518-6900; fax: 410-518-6020; also available at www.DomPrep.com

Articles are written by professional practitioners in homeland security, domestic preparedness, and related fields. Manuscripts are original work, previously unpublished and not simultaneously submitted to another publisher. Text is the opinion of the author; publisher holds no liability for its use or interpretation.



## Editor's Notes

By James D. Hessman, Editor in Chief



Better – in many ways *much* better – than last year or, to use a more meaningful benchmark, eight years ago. But still not quite good enough.

That, in a nutshell, is the collective assessment of the many distinguished authors in this month's printable issue of *DPJ* who evaluate various aspects of the multifaceted and still relatively new professional fields of homeland security, emergency management, and domestic preparedness in general. One of the more experienced of those authors, Dennis R. Schrader, makes a strong case, in fact, that the new and growing "Community of Professionals" toiling away in such closely related fields as firefighting, law-enforcement, emergency medicine and emergency management, surveillance and communications, maritime security, and a host of other disciplines must work even more closely with one another in the future.

They should also develop and promote, he says, a new body of interdisciplinary policy papers and training programs to guide younger professionals seeking to follow a clearer and better articulated "career path" to future positions of responsibility.

Joseph Cahill seconds the motion, so to speak, in his comments on the many similarities, and a few essential differences, between the French SAMU and U.S. EMS (emergency medical services) systems, and suggests that both systems, and both countries, would benefit by analyzing, and learning from, the philosophical as well as operational differences between the two.

Kay Goss tackles an immense, and immensely important, topic: the need for significant improvement in the nation's mass-casualty and medical-surge capabilities. Her verdict: Much has been accomplished, but numerous problems remain. (She cites the National Capital Region as a prime "best practices" example for other jurisdictions to follow.)

Raphael Barishansky focuses on policy matters – as reflected in mutual-aid agreements and training programs geared to meet the operational requirements spelled out in the federal NIMS (National Incident Management System) and ICS (Incident Command System) guidelines. Steven Grainer takes a close look at those two hugely important policy documents and suggests that it is time that both be updated and, in certain ways, revised. Diana Hopkins, *DPJ*'s "Golden Standard" author in the often overlooked field of national standards, focuses her attention on the rapid growth of telemedicine systems and equipment and the new problems as well as opportunities created by that growth.

Also in this month's issue are two articles on notably "unglamorous" – but exceptionally important – topics. The first, by Neil Livingstone, looks at, and under, manholes – there are 22 million of them, in plain sight, throughout the United States – and labels them clear and present dangers to society at large; the second article, by John Temperilli, focuses on organophosphates, the key ingredient in the millions of tons of fertilizers and pesticides produced here annually, and comes up with the same verdict.

Rounding out the issue are: (1) A timely report, by Amanda Rhyne and Sarah Weiss, on the urgent need for more and better ways to communicate with the public – in many languages, and a variety of ways – in times of imminent danger, specifically including the current H1N1 pandemic; and illuminating updates, by Adam McLaughlin, on recent noteworthy events in the great states of Alabama, California, Illinois, and Louisiana.

*About the Cover: Today's state-of-the-art ambulance is equipped with the latest in emergency medical-care systems, monitoring devices, and medicines. All that is missing from the ambulance shown on this month's cover is the patient – a grim reminder that a high percentage of the patients/victims who survive from the traumatic injuries suffered in traffic accidents and/or other incidents owe their lives to the care they receive in the precious few "golden minutes" after first responders arrive at the scene. (Photo provided by iStockphoto.com)*

# OUR MISSION YOUR SAFETY

**MSA**  
The Safety Company



## SAFESITE® MULTI-THREAT DETECTION SYSTEM

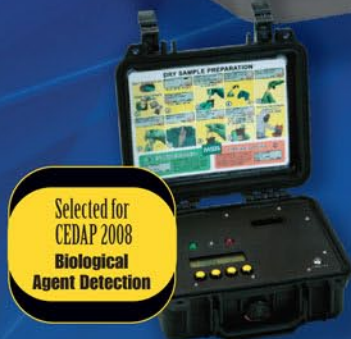
**Critical Infrastructure  
Emergency Response  
Public Events  
Perimeter Monitoring**

*Monitors and wirelessly communicates  
6 potential threat types simultaneously:*

- VOCs – volatile organic compounds
- TICs – 16 toxic industrial chemicals
- CWAs – nerve and blister agents
- Gamma radiation



**VISIT US ONLINE  
MSANET.COM**



Selected for  
CEDAP 2008  
Biological  
Agent Detection

**BIOLOGICAL  
AGENT DETECTION**



**CWA & TICs  
HANDHELD PORTABLE**



**FIXED-POINT CWA  
MULTI-THREAT DETECTION**

**1.866.MSA.1001 | [www.MSAPOLICELINE.com/domprep.html](http://www.MSAPOLICELINE.com/domprep.html)**

## Contributors

### First Responders

Glen Rudner  
Fire/HazMat

Steven Grainer  
Fire/HazMat

Rob Schnepf  
Fire/HazMat

Joseph Cahill  
EMS

Kay Goss  
Emergency Management

Joseph Watson  
Law Enforcement

Joseph Trindal  
Law Enforcement

Rodrigo (Roddy) Moscoso  
Law Enforcement

### Medical Support

Theodore (Ted) Tully  
Health Systems

Adam Montella  
Health Systems

Michael Allswede  
Public Health

Raphael Barishansky  
Public Health

### Updates

Adam McLaughlin  
State Homeland News

### Viewpoint

Neil Livingstone  
ExecutiveAction

Dennis Schrader  
DRS International LLC

### Funding & Regulations

Diana Hopkins  
Standards

### Borders & Ports

Corey Ranslem  
Coast Guard

# SAMU & EMS: The Principle Differences

By Joseph J. Cahill, EMS



In the French SAMU (*Service d'Aide Médicale Urgente*) system – as in the typical U.S. EMS (Emergency Medical Services) system – advance life support units, more formally called Hospital Mobile Intensive Care Units (H-MICUs), provide both lifesaving care and advanced care, administering medications and other therapy to improve the medical condition of various categories of patients. Other medical units possessing basic care capabilities provide lifesaving care.

The decision on which type of unit responds to a specific case depends both on the type of case involved and the availability of different units. Similarly, the hospital destination for the patient is not only a function of geography but also depends to a large extent on the medical condition of the patient.

The main difference between the French system and the American system is that, in the SAMU model, physicians are direct actors in the system; in other words, they staff the H-MICU units and the dispatch centers directly in making the lifesaving decisions needed. In the United States these roles are filled by paramedics and dispatchers; U.S. physicians are still integral to the system, but primarily play a planning and oversight role.

## Vive Les Differences!

Despite this difference, the six basic principles on which the SAMU system is founded are in most respects applicable to similar U.S. systems. Following are brief and loosely translated synopses of the SAMU principles and how they differ, in certain particulars, from their counterpart U.S. practices:

1. “Emergency Medical Assistance (EMA) is a healthcare activity.” The provision of emergency medical services (EMS) is and should be only one aspect (an extremely important one, of course) of the entire continuity of care – not the *transportation* to medical care, in other words, but the medical care itself.
2. “Interventions in the field must be speedy ... [and] efficient, and use suitable resources.” Even major EMS systems do not possess unlimited resources, so decisions must be made, in times of high-call volume, to prioritize the responses available so that the most good can be done for the most patients. An integral aspect of this process is the assignment of the correct type of unit to each type of case involved.

*Even major EMS systems do not possess unlimited resources, so decisions must be made, in times of high-call volume, to prioritize the responses available so that the most good can be done for the most patients*



3. "The approach to each individual case is simultaneously medical, operational, and human." To even the most casual observer the first two requirements are obvious – i.e., *medical* in that patients are provided medical care; *operational* in that a system must be in place to provide the means needed for transportation, supply, and dispatch. The final requirement, *human*, is not quite as easy to define; suffice to say, though, that the system must: (a) promote the confidence of patients; (b) respect their choices; and (c) maintain their confidentiality.

4. "The responsibilities and detailed arrangements for coordination between the persons involved must be regulated by a set of working rules." EMS can be considered a true "system" only if it has been created and is being carried out in accordance with clearly defined rules of operation. Adherence to those rules will not only allow all members of the system to anticipate the actions of others within the same system but also will ensure a consistent approach in the treatment of patients.

5. "Results depend in large measure upon the skills of those involved." In an emergency there is simply no substitute for experience and training.

6. "Preventive action must complement emergency action." Many U.S. systems have adopted a common-sense program of monitoring EMS activity as an early warning system for both natural epidemics and bio-terrorism attacks. Because of their contact with anyone who feels ill enough to require an ambulance, the U.S. repository of EMS data is invaluable for this purpose.

These principles provide an exceptionally firm footing for the well organized French SAMU system, and the leaders of any other system in any other country would be well advised to review their own operations in light of those principles.

---

*Joseph Cahill, a medicolegal investigator for the Massachusetts Office of the Chief Medical Examiner, previously served as exercise and training coordinator for the Massachusetts Department of Public Health, and prior to that was an emergency planner in the Westchester County (N.Y.) Office of Emergency Management. He also served for five years as the citywide advanced life support (ALS) coordinator for the FDNY - Bureau of EMS, and prior to that was the department's Division 6 ALS coordinator, covering the South Bronx and Harlem. Much in demand as a speaker, he has addressed venues as diverse as the national EMS Today conferences and local volunteer EMS agencies.*

# EXPOSE CHEMICAL HAZARDS



## AP4C

### HANDHELD CHEMICAL ALARM DETECTOR

- Single-handed Operation
- No On-Shelf Cost
- Fast Start & Recovery
- Fast 2 Minute Response
- Simultaneous Detection
- Easy Operation
- Portable Compact Design
- Rugged Construction



### ADVANCED SPECTRO-PHOTOMETRY DETECTS

Nerve, Blister & Blood Agents, TICs & TIMs, Vomiting Agents, Homemade Agents, Hydrocarbons, Precursors

# PROENGIN

www.proengin.com

(954) 760-9990

e-mail: contact@proengin.com

# Mass-Casualty/Medical-Surge Capabilities: Closing the Gap

By Kay C. Goss, *Emergency Management*



In mass-casualty situations, U.S. emergency managers almost always look to HHS (the Department of Health and Human Services) and its Atlanta-based Centers for Disease Control and Prevention (CDC) to provide leadership, management, and guidance in planning for and building up the medical-surge capabilities needed to cope with particularly hazardous events and incidents. Meeting that difficult challenge, though, requires strong interdisciplinary partnerships involving a long list of public- and private-sector agencies and organizations – including but not limited to emergency medical services as well as fire-service, emergency-management, law-enforcement, public-health, and emergency-medicine agencies. Also, depending on the nature and scope of the incident, blood banks and a broad spectrum of medical units specializing in trauma surgery, burn surgery and care, pediatrics, otolaryngology, intensive-care medicine, hospital medicine, radiology, pharmacology, nursing, hospital administration, and laboratory medicine.

The CDC itself relies primarily on three agencies – the National Center for Injury Prevention and Control, the Coordinating Center for Environmental Health and Injury Prevention, and the Division for Injury Response – to lead the national effort to build up the nation's overall mass-casualty and medical-surge capabilities. Working in close cooperation with one another, and with outside specialists, those three agencies recently published a number of specific guidelines for building up surge capacity. Those guidelines – spelled out in the publication *"In a Moment's Notice: Surge Capacity for Terrorist Bombings"* – represent a major step forward, but also suggest the depth and scope of the capabilities/surge problems still to be resolved.

## A Deadly Toll, Plus Continuing Problems

Following the Madrid train bombings of 11 March 2004 (which killed 192 and injured an estimated 1,800 other victims) and the London subway attacks of 7 July 2005 (56 dead, 700 injured), as well as other terrorist attacks in recent years – in Iraq, Egypt, India, and Israel, to mention only a few – new ideas in enhanced planning and intensive training courses were developed and delivered. Meanwhile, the broad devastation from the detonation of explosive devices in areas of high-density population became ever more clear – and immensely challenging.

In 2005, according to the most recently available worldwide statistical report, more than 8,000 persons were injured by explosive devices of various types, which also caused 3,049

deaths. The consequence-management situations involved in the terrorist incidents and events covered by such grim statistics are extraordinarily complex – and the injuries suffered were, and are, not only technically and medically challenging but also different in certain important particulars from those related to deaths and injuries caused by natural disasters.

One of the most significant differences between injuries caused by terrorist attacks and those resulting from natural disasters is that, after a terrorist attack: (a) most victims leave the scene as soon as possible, and by any means available; and (b) their pre-hospital care is considerably different from that provided after a natural disaster – and very difficult, sometimes impossible, to coordinate.

Another major problem is that hospitals relatively close to the scene of an attack receive scores of potential patients seeking care, often within just a few minutes after the attack has taken place. For example, a hospital relatively close to the Madrid train station at the time of the 2004 bombings received 272 patients in the first couple of hours after the explosions. There was a second wave of victims later, though, because many of those involved in the response and/or who had stayed at the scene to help other victims also needed serious medical attention.

## Encouraging Progress, But Numerous Difficulties Remain

EMS (emergency medical services) units confront many difficult issues in mass-casualty and medical-surge situations to which emergency managers need to be sensitive. Following are brief summaries of some, but by no means all, of the more difficult problems that have yet to be resolved.

- The need for personal protection of the responders themselves, the need to establish scene safety, and the potential use of secondary explosive devices – all of which matters were faced in varying degrees in the 1993 bombing of the World Trade Center in New York City – are still being studied but full and final solutions have not yet been found.
- Decontamination of the incident scene may be necessary – but policies and protocols have not yet been standardized from one jurisdiction to another and/or between one agency and another.
- Incident-command and interoperability guidelines are more difficult to follow in these situations, partly because the

technical problems related to radio interoperability, as well as the overall interdisciplinary aspects of stakeholder communications, have not yet been fully integrated into overall U.S. healthcare and EMS practices.

- The guidelines for and carrying out of field triage is different from place to place, and no standard “best practices” methodology has yet been determined.
- “Destination” decisions remain uncertain, particularly if there has been no (or insufficient) advance planning – or if the initial evaluation of the incident scene has not been carried out correctly (or, in some situations – due to fast-breaking events, perhaps – is no longer valid).
- Hospital evacuations by EMS personnel – usually to free up acute-care beds for the more critically injured victims – is a major hardship for patients, administrators, medical staff, and those moved in as well as those moved out.
- The sustainability of operations while also maintaining facilities, operations, equipment, supplies, and other crucial

resources becomes increasingly difficult as the length of the operational phase of a mass-casualty event extends into the night and the next day, and in many cases much longer.

The most important point to remember from the preceding is not that so many problems remain, but that those problems are now being addressed both more directly and more fully. It also is now abundantly clear that: (1) all disciplines must continue to work together even more closely; (2) considerable progress *has* in fact been made in recent years, particularly since the 9/11 terrorist attacks against the United States itself; and (3) there is still a very long way to go before, if ever, any nation, or any community, can consider itself to be “fully prepared.”

---

*Kay C. Goss, CEM, possesses more than 30 years of experience – as a federal and state administrator and in the private sector – in the fields of emergency management, homeland security, and both public finance and intergovernmental operations. A former associate FEMA director in charge of national preparedness training and exercises, she is a noted lecturer as well as the author of several books and numerous articles and reports in the fields of homeland defense and emergency management.*

## National Capital Region Points the Way Forward

The National Capital Region (NCR – i.e., Washington, D.C., and its closer Maryland and Virginia suburbs) has been a “Best Practices” leader among the major metropolitan areas that have significantly upgraded their preparedness capabilities and – thanks in large part to additional federal funding – equipment inventories since the 9/11 terrorist attacks.

More specifically, over the past eight years the NCR has:

- Increased its inventory of mass-casualty/medical-surge supplies and equipment, and provided more intensive training for its first-responder communities;
- Improved its EOC (emergency operations center) interoperability and communications capabilities;
- Focused additional attention on such potentially major problem areas as traffic security, monitoring, and evacuation procedures;
- Expanded and refined its CBRNE/IED (chemical, biological, radiological, nuclear, explosives/improvised explosive device) detection, preparedness, and response capabilities;
- Focused greater attention on the need for intense regional planning to cope with mass-casualty events & incidents;
- Funded and modernized a state-of-the-art 800 MHz radio system;
- Organized and trained a number of Metropolitan Medical Response Teams;
- Built up several much needed radio caches as well as its stockpiles of mass-casualty supplies (along with the training needed to manage them);
- Upgraded its syndromic-surveillance, NCR data-exchange, and INet equipment, training, and capabilities;
- Mandated numerous improvements in information sharing between and among the region’s many federal, state, and local law-enforcement agencies and organizations; and, last but not least,
- Established an alternate WMATA (Washington Metropolitan Area Transit Authority) operations center and stocked it with the tunnels communications and rescue equipment needed to carry out its responsibilities.



# Understanding Public Health Mutual Aid

By Raphael M. Barishansky, Public Health



Wikipedia defines mutual aid as “an agreement among emergency responders to lend assistance across jurisdictional boundaries.” It then amplifies that definition with the following particulars:

*“This may occur due to an emergency response that exceeds local resources, such as a disaster or a multiple-alarm fire. Mutual aid may be ad hoc, requested only when such an emergency occurs. It may also be a formal standing agreement for cooperative emergency management on a continuing basis, such as ensuring that resources are dispatched from the nearest fire station, regardless of which side of the jurisdictional boundary the incident is on.”*

Another definition of mutual aid is offered by the Massachusetts Department of Public Health, which briefly describes mutual aid as “an inter-municipal agreement that allows communities to support each other, if their resources are stretched beyond normal capacity.”

Traditionally, when one thinks of mutual aid, the first mental images are usually of law-enforcement agencies assisting one another during large-scale incidents or events, fire departments working in tandem during major urban or rural conflagrations, or EMS (emergency medical services) teams assisting each other at horrendous traffic accidents or other major incidents likely to generate a large number of patients.

In real life, of course, health departments across the United States effectively protect communities from infectious diseases, environmental hazards, and other grim realities of modern life each and every day through a variety of preventive, preparedness, and even response measures. However, an event that threatens public health could quickly overwhelm the

public health resources of a particular municipality, county, state, or region, even if that event does not constitute a declared emergency. For example, an infectious-disease outbreak in any political jurisdiction may require immediate action to prevent the development of a major epidemic threatening many neighboring jurisdictions. Additional public-health expertise and personnel – drawn from several jurisdictions – can be critical to addressing and controlling such an event.

***An infectious-disease outbreak may require immediate action to prevent the development of a major epidemic threatening many neighboring jurisdictions; additional public-health expertise and personnel – drawn from several jurisdictions – can be critical to addressing and controlling such an event***

## **A Richly Detailed Document – In Writing**

Mutual aid in the field of public health can consist of aid to another public-health agency in the form of personnel, equipment, facilities, services, supplies, and/or other resources and probably would include, but not be limited to, inspections, the establishment of vaccination clinics and/or emergency dispensing sites, or even administrative assistance.

One of the operational as well as legal cornerstones of effective cooperation is the establishment of a mutual-aid agreement between various local, county, state, or regional health departments. A binding and effective public-health mutual-aid agreement should therefore, as a minimum: (a) consider the possible scope of work; (b) address such important and related issues as employment and liability; and (c) provide a formal structure both for requesting assistance from other communities and

for providing assistance to those same communities. The agreement should optimally be modeled on already existing mutual-aid arrangements – particularly in the fields of public safety and firefighting services – that have been used successfully for many years. In that context, the public-health mutual-aid agreement will and should be a logical extension of public-health planning and preparedness programs and activities.

A template approach to this integral agreement could be developed incorporating the following:

- Section 1: *Scope* of the agreement;
- Section 2: *Authority* – i.e., spelling out the legal authority under which the Health Department functions;
- Section 3: *Definitions* – This section will define the relevant terms usually set forth in the mutual-aid agreement and would include, as a minimum, the terms mutual aid, public health agency/health department, sending agency, and receiving agency;
- Section 4: *Requests for Assistance* – This section sets forth, in specific detail, the processes used both for receiving and for providing mutual aid;
- Section 5: *Limitations* – This section makes clear that the provision of mutual aid is and must always be voluntary; and
- Section 6: *Liability* – This section ensures that each party shall be liable for the acts and/or omissions of its own employees.

The various agencies involved in a mutual-aid agreement may want to include other sections to cover such related matters as *reimbursement, overall implementation realities, workers' compensation claims*, and the possible future *severability of the agreement*.

Of course, the role that health departments play in planning, preparedness, and response to emergencies is always evolving. As a logical next step in this progression, non-traditional first responders need to understand the importance of formalized mutual-aid agreements. Understanding the capabilities of contiguous jurisdictions and hammering out the details of the formal agreements binding neighboring jurisdictions are, of course, best done *prior* to an actual incident or event – in which the specific details in the agreement will certainly be put to the test.

---

*Raphael M. Barishansky, MPH, is currently the Program Chief for Public Health Emergency Preparedness for the Prince George's County (Md.) Department of Health. Prior to establishing himself in this position, he served as Executive Director of the Hudson Valley Regional EMS (Emergency Medical Services) Council, based in Newburgh, N.Y. A regular contributor to various journals, he can be reached at rbarishansky@gmail.com.*

## **Ramifications & Complications**

### **NIMS & ICS: The Next Level**

*By Steven Grainer, Fire/HazMat*



The Department of Homeland Security (DHS) resumed the “next” series of its NIMS (National Incident Management System) Incident Command System (ICS) training in August with the delivery of eight ICS position-specific Train-the-Trainer (T-t-T) programs in College Station, Texas, where the Texas Forest Service (TFS) is headquartered – on the Texas A&M campus. Over a three-week period all eight command and general staff T-t-T courses were delivered.

The T-t-T classes were conducted in close collaboration with the Texas Forest Service. Paul Hannemann, TFS Department Head for Incident Response, and his staff provided excellent practical examples showing how effective planning, logistics, operations, and finance and administration all contribute to effective “command” for a complex course such as the extended T-t-T series. DHS currently plans to conduct two additional position-specific T-t-T series – one starting next month, the other in the spring of 2010 – at the National Emergency Training Center (NETC) in Emmitsburg, Md.

There were several notable elements in the College Station series of T-t-T programs. First, the individuals accepted for the classes represented the most qualified applicants from the federal regions represented. Rather than following “general admissions” and “first-come” criteria, strict admissions criteria were applied. Guidance issued in the programs’ announcement stipulated that the applicants should: (a) be accomplished instructors (in their various disciplines); (b) have significant service and experience in the ICS; and (c) be well versed in the processes and procedures used in formal ICS operations.

### **Greater Diversity And Value-Added Benefits**

By assigning administrative responsibilities to the Emergency Management Institute (EMI, a training branch of the NETC also headquartered in Emmitsburg), the instructor recruitment sought a broad cross-section of emergency-response disciplines. The participants were not just from fire or wildfire disciplines – the two sources that have historically dominated ICS training initiatives.

First, many of the new instructor candidates were from law-enforcement or EMS (emergency medical services) agencies; others were specialists in public health, public works, and/or other disciplines; the “value-added” benefit provided by this varied mix of students greatly enhanced the participants’ exposure to diverse perspectives that are necessary to develop an “All-Hazards” incident-management capability at all levels of government.

Second, the classes were focused on training the prospective instructors in the nuances of the programs’ delivery rather than simply presenting the course content. A common criticism of many previous FEMA T-t-T programs has been that such programs focused primarily if not exclusively on the course content – which culminates in a “blessing” as an instructor. Often, though, the future instructor did not have an opportunity to learn from more experienced instructors about the pitfalls that can be encountered in delivering a course. A significant percentage of the position-specific T-t-T programs was directed toward addressing both common and uncommon challenges that the instructor may face in making his or her classes both more effective and more meaningful.

Third, the instructors presenting the T-t-T were, in fact, some of the most experienced individuals available and brought their wealth of knowledge and experience to benefit the prospective future instructors. Significant time in each of the T-t-T programs was spent on discussion of the instructional expectations as well as the pitfalls that might be encountered with delivery of various components such as exercises and group projects within the classes with successful resolutions for many of those challenges.

Additionally – and unlike many other “federal to state to local” programs – the T-t-Ts in Texas were conducted on the thesis that the instructor candidates would contribute as much to the program outcome as the actual instructors do. The net

outcome was that there was, instead of a one-way flow of instruction, a wealth of information and experience exchanged between the instructors and the participants.

Fourth, the T-t-T programs were built on the premise that the end-user students would be given a sound grounding in the all-hazards approach needed to establish a viable incident management team (IMT) through the fundamental position training needed to begin developing competent command and general staff in the ICS. As such, the future instructors

gained a broader appreciation and ability to teach upcoming command and general staff for events and incidents beyond traditional “big fires” – including but not limited to such situations as natural disasters, terrorist acts of violence, and even pandemic flu outbreaks (a major concern now confronting the whole nation). Indeed, many localities already have the capabilities and resources needed to manage historically common incidents. The “next-level” T-t-T training is intended to transcend those needs.

### **A Consistent Template To Guide Future Progress**

The ICS position-specific courses will offer the next step in developing a national capability to manage all-hazard incidents and events consistent with the intent of the NIMS principles. This step also will be consistent with the Preface to the NIMS policy statement, which unequivocally declares that, “This system provides a consistent nationwide

template to enable federal, state, tribal, and local governments, nongovernmental organizations (NGOs), and the private sector to work together to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity.” The ICS position-specific courses, if used as intended, will provide practitioners the ability to take the next step forward toward achieving that ambitious goal. In that context, though, it should be emphasized that this “next level” is only one more step in a lengthy process.

*Many of the new instructor candidates were from law-enforcement or EMS agencies; others were specialists in public health, public works, and/or other disciplines; the “value-added” benefit provided by this varied mix greatly enhanced the participants’ exposure to diverse perspectives*



Nonetheless, as the next level of training begins, it is critically important that the training should be targeted to the development and refinement of identified incident management teams and their members – more specifically, to “All Hazard” or Type 3 IMTs. The classes are not, and should not be, “nice to have” or elective training. The prescribed training must, rather, represent a commitment by the state, the sponsoring locality, and individual team members to develop the capabilities needed to perform at the next level as a credentialed Incident Management Team.

Of course, many localities and states already possess the basic elements and capabilities needed to be effective under predictable emergency conditions. Position-specific training, however, is by design a different, and higher, challenge – i.e., intended to go above and beyond that which is customary for a routine event or incident.

There will inevitably be temptation in various quarters to allow, or perhaps even encourage, the registration of individuals who have not met all of the prerequisites – specifically including completion of: (a) intermediate and (preferably) advanced ICS courses; and (b) additional team-oriented training. The prerequisites for participation in position-specific training should also, therefore, include other advanced training. For example, in the opening text of the position-specific Instructor Guides it is clearly stated that the training materials “*were designed under the assumption that students have completed the following courses: ICS-300; ICS-400, and one of the following three courses: All-Hazard Incident-Management Team Course (offered by the U.S. Fire Administration), or Command and General Staff for Local IMT (offered through the National Fire Academy – another NETC unit headquartered in Emmitsburg), or ICS-420 (programmed by NWCG (National Wildfire Coordinating Group) member agencies).*”

### **“Costly, Time-Consuming, And Personally Demanding”**

Clearly, the intent of the position-specific training is to build upon training experiences that extend beyond the core (ICS 300 and 400) classes while focusing on the detailed position competencies needed to form an effective All-Hazards IMT. However, the training, by itself, is only a part of the process. Another critically important step is the process of “shadowing”

or applying the training during actual conditions under the supervision of experienced (credentialed) personnel who “know the ropes.” Only after individuals have successfully completed rigorous evaluation and have their *Position Task Books* validated by qualified mentors can they be considered fully qualified to fill one of the command or general staff positions in an All-Hazards IMT. (A *Position Task Book* (PTB) is required to be completed for each position within the ICS.) And only when the IMT has been fully staffed with credentialed personnel capable of sustaining their operational functions 24/7 for an extended period (herein defined as lasting from three to as much as 10 days, or even longer) will the Next Level be attained. (In reality, this process may require several years, significant effort, and quite possibly substantial cost.)

Failure to understand and enforce the training prerequisites; failure to train the “right” personnel (and enough of them); and failure to follow up on the training with “shadowing” will result in serious deficiencies at the IMT level as well as in the NIMS itself. Finally, and of perhaps the greatest importance, if the IMT, once established, does not consistently train and practice as a team, it will be unable to *maintain* the level of competence and capability commensurate with its responsibilities.

In simple terms, establishing an IMT is not simply an administrative matter that can or should be undertaken lightly. It is costly, time-consuming, personally demanding of the personnel involved, and – perhaps most important of all – definitely *not* a “once-and done” proposition. In order to fully establish and to ensure an ongoing capability to manage incidents at the next level, IMT members, leaders, and sponsors – at the state, local, and federal levels – must make individual and collective commitments that have not previously been expected. No one said it would be easy – or quick – but the next level can be reached with perseverance, commitment, and sustainment.

---

*Steven Grainer is the chief of IMS programs for the Virginia Department of Fire Programs. He has served Virginia fire and emergency services and emergency management coordination since 1972 in assignments ranging from firefighter to chief officer. As a curriculum developer, content evaluator, and instructor, he currently is developing and managing VDFP programs to enable emergency responders and others to achieve NIMS compliance requirements for incident management.*



# Most Biohazard Detection Systems Come with a 20% Error Rate



## Shouldn't You Be More than 80% Prepared for an Attack?

Instruments using antibody-based detection are less reliable because of their high false negative rate. Their results need to be verified at a separate lab using PCR. Idaho Technology's portable biohazard detection system, the RAZOR® EX utilizes the same PCR technology that health labs use without a need for in-depth knowledge of the science behind it. The RAZOR EX was made for HazMat and first responder teams that require more from a detection system.

The RAZOR EX is a complete product solution that is easy to setup, run, and read. Capable of testing ten bioterrorism agents in one run, the RAZOR EX provides more accurate results than other products in less than 30 minutes.

Visit our web site or call today and let us help you get the most trusted and accurate field portable detection system into the hands of your team.

### Turn Your False Negatives Into Cash



Idaho Technology has many ways to help you get the best products for your team. For example, take advantage of our trade-in program by giving us your inferior antibody based detection system for cash towards the purchase of our more reliable PCR based detection system.



The RAZOR® EX with rugged carrying case



*Innovative solutions for pathogen identification and DNA research*

390 Wakara Way, Salt Lake City, Utah 84108, USA | 1-800-735-6544 | [www.idahotech.com](http://www.idahotech.com)



# Telemedicine: Funding Increases & Rapid-Paced Development

By Diana Hopkins, Standards



Although telemedicine is not really a new science, it is now receiving much more attention than ever before in U.S. history. Much of this added attention is a by-product of the prolonged national debate on healthcare reform, which brings promise of greater funding and momentum to the entire field of healthcare, including telemedicine – which, basically, is a system used to treat patients by communicating medical information from one site to another through the use of electronic communications and IT (information technology) systems and equipment. In recent years telemedicine has also been considered an important component of other healthcare communications efforts that are variously referred to as HIT (health IT), tele-health, and ehealth.

In the overall field of medicine it is easy to understand why rapid developments in medical science are and almost must be complemented by the equivalent (or perhaps greater) development of new standards and technology that allow the precise transmission of medical information through different media and between different communications systems and devices. More than 40 years ago, emergency management and emergency response were the initial drivers of telemedicine, but the field has come far since its beginnings as primarily an audio-communication – i.e., voice-grade technology – system linking emergency responders and physicians.

Today, telemedicine also includes, but is not limited to: (a) the remote monitoring of vital signs; (b) the transmission of distant “reads” from body sensors; (c) the transmission of medical instruction documents to health workers in the field; (d) videoconferencing/video-consulting meetings and communications; and (e) the transmission of a broad spectrum of “images” of various types.

Most telecommunications messages are high-data-rate digital electronic bursts transmitted over wireless mesh networks (broadband) and public internet connections (Wi-Fi), moving data ranging in volume from hundreds of kilobits to an astounding number of megabits per second. Moreover, emergency management is no longer the sole or principal driver

of telemedicine, but has been joined by such other intangible drivers as public health, quality care, efficiency, and access.

## Challenges & Solutions; Recommendations & Initiatives

Despite and in some ways because of previous progress, there are today a few particularly challenging aspects of telemedicine that require thoughtful consideration not only from the rapidly growing community of telemedicine professionals but also from senior decision makers at all levels of government. From the perspective of emergency responders themselves, for example, the governance and management of privacy and security have become major issues, primarily because confidential patient and/or event information can be

exposed both in broadband transmissions and over the net.

Another challenge is technology interoperability – or, more precisely, the lack of interoperability – which was a problem encountered by emergency responders during the sometimes uncoordinated local, state, and federal responses to the 9/11 terrorist attacks in New York City. Eight years later, interoperability continues to be a problem, especially in rural communities, for those involved in almost any aspect of telemedicine. (One reason for the seemingly interminable delay in solving that particular problem, it is hereby suggested, is that vendors of information systems often do not incorporate national standards into their systems.)

Yet another challenging problem is that emergency responders must quickly embrace, learn from, and train others in a professional milieu of rapidly changing telemedicine technology in such areas as interoperability modifications, information compression systems, and continuous advances in the more accurate transmittal of images (particularly with regard to color fidelity and the resolution of detail).

## A Golden Opportunity for an Optimum Mix

One potential but at least partial solution to these challenges (and others in the field of telemedicine) could be that those involved in the often slow standards-development processes of

*Rapid developments in medical science are and almost must be complemented by the equivalent development of new standards that allow the precise transmission of medical information through different media and between different communications systems*



the National Institute of Standards and Technology (NIST) – and/or the leaders of the nation’s standards development organizations (SDOs) – must themselves become better drivers. Not only generically, but specifically as drivers who are knowledgeable of the national standards development processes spelled out in the National Technology Transfer and Advancement Act – and detailed in Circular A-119 (which governs “Federal Participation in the Development and Use of Voluntary Consensus Standards in Conformity Assessment Activities”).

Those leaders and other senior officials today have a unique opportunity to motivate many interested volunteer stakeholders to give more time and pay greater attention to standards-development efforts. By doing so, they would arguably be able to move decision-making, validation, and the finalization of standards at a faster pace. Improved efforts such as this would be entirely in keeping with the National Standards Strategy (which encourages faster standards processing), while these highly knowledgeable drivers also maintain the integrity and transparency of the process.

Involving more, and a greater mix of, telemedicine stakeholders would be helpful in other ways, if only because it would ensure that those involved in emergency management would be able to include themselves in telemedicine standards development efforts to ensure that the systems developed are interoperable, remain relevant to the subject, and can be used effectively by emergency responders in the field.

Those who want to know more about telemedicine standards development, and/or who desire to participate in the upgrading efforts, should understand that NIST has already been working for many years with the American Telemedicine Association (ATA) and other SDOs – as well as other public- and private-sector stakeholders – to develop and improve standards in the field of telemedicine. Under the American Recovery and Reinvestment Act (ARRA), NIST already has received \$220 million – and another \$20 million from the Department of Health and Human Services (HHS) – for its telemedicine standards-development efforts.

Numerous private-sector standards groups and coalitions also are involved in various telemedicine initiatives. At the end of this article is a list of some (but not all) of the agencies, sub-agencies, and other entities that have been recipients of ARRA stimulus funding for telemedicine – and are therefore in an excellent position to provide grant funding and/or other resources to other organizations in need of outside funding for their telemedicine training, equipment, standards-development, and technological-development efforts.

---

*Following is a list of some telemedicine standards-development stakeholders, many of which have received stimulus funding for the development of telemedicine technology and usage. For additional information about:*

The American Telemedicine Association (ATA) – a primary SDO that has for years been a leader in telemedicine standards development – click on [www.ata.org](http://www.ata.org);

The Department of Commerce/NIST, which received \$220 million for research, standards development, competitive grants, fellowships, and supplies, plus \$20 million from the Department of Health and Human Services (aka DHHS or HHS), click on [www.nist.gov/recovery](http://www.nist.gov/recovery);

The Department of Commerce/NTIA/Wireless and Broadband Deployment Grant Program, which has received \$4.7 billion, click on [www.ntia.doc.gov](http://www.ntia.doc.gov) and/or on [www.commerce.gov/recovery](http://www.commerce.gov/recovery);

The Department of Health and Human Services (DHHS or HHS), which has received \$2 billion of stimulus funding for various telemedicine-related programs, click on <http://healthit.hhs.gov/>;

The Department of Agriculture (USDA), which has received \$2.5 billion in stimulus funding for telemedicine, click on [www.usda.gov/rus/telecom/dlt/dlt.htm](http://www.usda.gov/rus/telecom/dlt/dlt.htm) and/or on [www.usda.gov/wps/portal/?navid=USDA\\_ARRA](http://www.usda.gov/wps/portal/?navid=USDA_ARRA);

The Economic Development Agency (EDA) and/or the Department of Commerce, which received \$150 million, click on [www.eda.gov](http://www.eda.gov) and/or on [www.commerce.gov/recovery](http://www.commerce.gov/recovery);

The DHHS/Social Security Administration (SSA), which received \$500 million in stimulus funding for telemedicine, click on [www.ssa.gov/recovery](http://www.ssa.gov/recovery);

DHHS/The Agency for Healthcare Research and Quality (AHRQ), which received \$1.1 billion, click on [www.ahrq.gov](http://www.ahrq.gov); DHHS/Health Resources and Services Administration (HRSA), which received \$2.5 billion in stimulus funding for telemedicine, click on [www.hrsa.gov](http://www.hrsa.gov); and

The National Institutes of Health (NIH), which received \$8.2 billion, click on [www.nih.gov/recovery](http://www.nih.gov/recovery).

---

*Diana Hopkins is the creator of the consulting firm “Solutions for Standards” ([www.solutionsforstandards.com](http://www.solutionsforstandards.com)). She is a 12-year veteran of AOAC INTERNATIONAL and former senior director of AOAC Standards Development. Most of her work since the 2001 terrorist attacks has focused on standards development in the fields of homeland security and emergency management. In addition to being an advocate of ethics and quality in standards development, Hopkins is also a certified first responder and a recognized expert in technical administration, governance, and process development and improvement.*

# Organophosphates: A Clearly Present Danger

By John Temperilli, Viewpoint



Approximately four months prior to the 9/11 terrorist attacks, a devastating fire broke out in an agricultural storage warehouse in a rural agrarian community in the Southwestern United States.

In fighting the fire, which eventually consumed the facility, many thousands of gallons of water were used by volunteer fire departments in their efforts to bring the fire under control, prevent its spread, and ultimately put it out. Stored within the facility were many commercial-grade agriculturally used and regulated pesticides, including nearly 150 gallons of particularly toxic organophosphate- (OP) and pyrethroid-based chemicals.

The chemicals became entrained in the firewater runoff. In spite of properly executed response and mitigation strategies to prevent water runoff from the site, there was an unseen opportunity for some of the thousands of gallons of water with entrained pesticides to find their way into a nearby river. The results were slow to be detected – but when they were, the effect was both noteworthy and alarming. Reports of affected fish and wildlife began to filter into the fire site a couple of days after the event. As the river water, mixed with the site effluent, moved further downstream, the impact upon river fish and other species continued.

The initial result of the alarm immediately triggered was that first responders from the company performing the cleanup quickly called for a consultation with subject-matter and other experts from the product manufacturers, the county emergency-management director, the county judge, the county sheriff, and various state stakeholders. Lengthy conversations with subject-matter specialists, and with the product experts provided by the manufacturers, revealed two important facts for immediate consideration: (1) The significance

of the chemicals entering the river system should not be underestimated, because the water column could act as a magnifier and could increase lethality by as much as tenfold; and (2) the water itself could lengthen the half-life of the chemicals entrained.

## The Proper Protocols For a Worst-Case Scenario

Conservatively assuming a worst-case scenario, local officials and the quickly assembled consultants agreed on the issuance of a river warning advisory – closing the river until further notice – to all fishermen, swimmers, water craft, livestock operations, water intake systems, and anyone other than those with official business. Television and radio stations, and both local and regional print publications, were notified and monitored closely to enhance efforts to put the message into the public domain and keep it there. In addition, sheriff's deputies circulated throughout the community, especially in the areas closest to the river, to ensure timely dissemination of the advisory. With a major holiday weekend

approaching half measures were obviously not worth the effort.

Fortunately, state agency personnel, private-sector first responders, and firefighters knew the toxic chemical potential with which they were dealing, because EPA- and state-mandated documents listing the chemicals stored in the destroyed portion of the facility had been made available to them at the initiation of the response operations. Special care was taken to ensure that proper personal protective equipment (PPE) had been issued, and was being worn, and that all decontamination protocols were followed. The combination of shared communications and coordination, along with the establishment of a common operational picture within a





*To hell and back home again.*

*"My job involves risks. But no risk is worth taking if I don't get back home to my family. That's why I carry DuoDote."<sup>1</sup>*



DuoDote has replaced the Mark I™ Kit using advanced dual-delivery technology<sup>1</sup>

- Optimizes response to chemical nerve agents<sup>2,3</sup> by delivering both atropine and pralidoxime chloride in a single auto-injector
- Counteracts the life-threatening effects of a wide range of organophosphorus nerve agents and organophosphorus insecticides<sup>1</sup>
- Offers the same advanced technology used by the U.S. military and allied nations worldwide<sup>4</sup>

Please visit [www.DuoDote.com](http://www.DuoDote.com) or call 1-800-638-8093 for more information.

 **DuoDote**™ AUTO-INJECTOR  
(atropine and pralidoxime chloride injection)

*Preparing for the unexpected.*



**MERIDIAN**  
MEDICAL TECHNOLOGIES

The DuoDote™ Auto-Injector (atropine 2.1 mg/0.7 mL and pralidoxime chloride 600 mg/2 mL) is indicated for the treatment of poisoning by organophosphorus nerve agents as well as organophosphorus insecticides.

#### **Important Safety Information**

The DuoDote Auto-Injector is intended as an initial treatment of the symptoms of organophosphorus insecticide or nerve agent poisonings; definitive medical care should be sought immediately. The DuoDote Auto-Injector should be administered by Emergency Medical Services personnel who have had adequate training in the recognition and treatment of nerve agent or insecticide intoxication.

Individuals should not rely solely upon agents such as atropine and pralidoxime to provide complete protection from chemical nerve agents and insecticide poisoning. Primary protection against exposure to chemical nerve agents and insecticide poisoning is the wearing of protective garments including masks designed specifically for this use. Evacuation and decontamination procedures should be undertaken as soon as possible. Medical personnel assisting evacuated victims of nerve agent poisoning should avoid contaminating themselves by exposure to the victim's clothing.

In the presence of life-threatening poisoning by organophosphorus nerve agents or insecticides, there are no absolute contraindications to the use of the DuoDote Auto-Injector. When symptoms of poisoning are not severe, DuoDote Auto-Injector should be used with extreme caution in people with heart disease, arrhythmias, recent myocardial infarction, severe narrow angle glaucoma, pyloric stenosis, prostatic hypertrophy, significant renal insufficiency, chronic pulmonary disease, or hypersensitivity to any component of the product.

Please see brief summary of full Prescribing Information on adjacent page.

© 2007 Meridian Medical Technologies™, Inc., a subsidiary of King Pharmaceuticals®, Inc. DuoDote™ Auto-Injector, Mark I™ KIT and the DuoDote Logo are trademarks of Meridian Medical Technologies™, Inc. MMT 5173 11/07

References: 1. DuoDote™ (atropine and pralidoxime chloride injection) Auto-Injector (package insert). Columbia, MD: Meridian Medical Technologies™, Inc.; 2007. 2. Agency for Toxic Substances and Disease Registry. Medical Management Guidelines (MMGL) for nerve agents: tabun (GA), sarin (GB), soman (GB), and VX. Available at: <http://www.atsdr.cdc.gov/MMGL/mmgl166.html>. Accessed February 21, 2007. 3. Holstoga CP, Dobmeier GG. Nerve agent toxicity and treatment. *Curr Treat Options Neurol*. 2005;7:91-98. 4. Data on file. Columbia, MD: Meridian Medical Technologies™, Inc.





Rx Only  
Atropine 2.1 mg/0.7 mL  
Pralidoxime Chloride 600 mg/2 mL

Sterile solutions for intramuscular use only

FOR USE IN NERVE AGENT AND INSECTICIDE POISONING ONLY

**THE DUODOTE™ AUTO-INJECTOR SHOULD BE ADMINISTERED BY EMERGENCY MEDICAL SERVICES PERSONNEL WHO HAVE HAD ADEQUATE TRAINING IN THE RECOGNITION AND TREATMENT OF NERVE AGENT OR INSECTICIDE INTOXICATION.**

#### INDICATIONS AND USAGE

DuoDote™ Auto-Injector is indicated for the treatment of poisoning by organophosphorus nerve agents as well as organophosphorus insecticides.

DuoDote™ Auto-Injector should be administered by emergency medical services personnel who have had adequate training in the recognition and treatment of nerve agent or insecticide intoxication.

DuoDote™ Auto-Injector is intended as an initial treatment of the symptoms of organophosphorus insecticide or nerve agent poisonings; definitive medical care should be sought immediately.

DuoDote™ Auto-Injector should be administered as soon as symptoms of organophosphorus poisoning appear (eg, usually tearing, excessive oral secretions, sneezing, muscle fasciculations).

#### CONTRAINDICATIONS

In the presence of life-threatening poisoning by organophosphorus nerve agents or insecticides, there are no absolute contraindications to the use of DuoDote™ Auto-Injector.

#### WARNINGS

**CAUTION! INDIVIDUALS SHOULD NOT RELY SOLELY UPON ATROPINE AND PRALIDOXIME TO PROVIDE COMPLETE PROTECTION FROM CHEMICAL NERVE AGENTS AND INSECTICIDE POISONING.**

**PRIMARY PROTECTION AGAINST EXPOSURE TO CHEMICAL NERVE AGENTS AND INSECTICIDE POISONING IS THE WEARING OF PROTECTIVE GARMENTS INCLUDING MASKS DESIGNED SPECIFICALLY FOR THIS USE.**

**EVAUATION AND DECONTAMINATION PROCEDURES SHOULD BE UNDERTAKEN AS SOON AS POSSIBLE. MEDICAL PERSONNEL ASSISTING EVACUATED VICTIMS OF NERVE AGENT POISONING SHOULD AVOID CONTAMINATING THEMSELVES BY EXPOSURE TO THE VICTIM'S CLOTHING.**

When symptoms of poisoning are not severe, DuoDote™ Auto-Injector should be used with extreme caution in people with heart disease, arrhythmias, recent myocardial infarction, severe narrow angle glaucoma, pyloric stenosis, prostatic hypertrophy, significant renal insufficiency, chronic pulmonary disease, or hypersensitivity to any component of the product. Organophosphorus nerve agent poisoning often causes bradycardia but can be associated with a heart rate in the low, high, or normal range. Atropine increases heart rate and alleviates the bradycardia. In patients with a recent myocardial infarction and/or severe coronary artery disease, there is a possibility that atropine-induced tachycardia may cause ischemia, extend or initiate myocardial infarcts, and stimulate ventricular ectopy and fibrillation. In patients without cardiac disease, atropine administration is associated with the rare occurrence of ventricular ectopy or ventricular tachycardia. Conventional systemic doses may precipitate acute glaucoma in susceptible individuals, convert partial pyloric stenosis into complete pyloric obstruction, precipitate urinary retention in individuals with prostatic hypertrophy, or cause inspiration of bronchial secretions and formation of dangerous viscid plugs in individuals with chronic lung disease.

More than 1 dose of DuoDote™ Auto-Injector, to a maximum of 3 doses, may be necessary initially when symptoms are severe. **No more than 3 doses should be administered unless definitive medical care (eg, hospitalization, respiratory support) is available.**

Severe difficulty in breathing after organophosphorus poisoning requires artificial respiration in addition to the use of DuoDote™ Auto-Injector.

A potential hazardous effect of atropine is inhibition of sweating, which in a warm environment or with exercise, can lead to hyperthermia and heat injury.

The elderly and children may be more susceptible to the effects of atropine.

#### PRECAUTIONS

**General:** The desperate condition of the organophosphorus-poisoned individual will generally mask such minor signs and symptoms of atropine and pralidoxime treatment as have been noted in normal subjects.

Because pralidoxime is excreted in the urine, a decrease in renal function will result in increased blood levels of the drug.

DuoDote™ Auto-Injector temporarily increases blood pressure, a known effect of pralidoxime. In a study of 24 healthy young adults administered a single dose of atropine and pralidoxime auto-injector intramuscularly (approximately 9 mg/kg pralidoxime chloride), diastolic blood pressure increased from baseline by  $11 \pm 14$  mmHg (mean  $\pm$  SD), and systolic

blood pressure increased by  $16 \pm 19$  mmHg, at 15 minutes post-dose. Blood pressures remained elevated at these approximate levels through 1 hour post-dose, began to decrease at 2 hours post-dose and were near pre-dose baseline at 4 hours post-dose. Intravenous pralidoxime doses of 30-45 mg/kg can produce moderate to marked increases in diastolic and systolic blood pressure.

**Laboratory Tests:** If organophosphorus poisoning is known or suspected, treatment should be instituted without waiting for confirmation of the diagnosis by laboratory tests. Red blood cell and plasma cholinesterase, and urinary parathionophenol measurements (in the case of parathion exposure) may be helpful in confirming the diagnosis and following the course of the illness. However, miosis, rhinorrhea, and/or airway symptoms due to nerve agent vapor exposure may occur with normal cholinesterase levels. Also, normal red blood cell and plasma cholinesterase values vary widely by ethnic group, age, and whether the person is pregnant. A reduction in red blood cell cholinesterase concentration to below 50% of normal is strongly suggestive of organophosphorus ester poisoning.

**Drug Interactions:** When atropine and pralidoxime are used together, pralidoxime may potentiate the effect of atropine. When used in combination, signs of atropinization (flushing, mydriasis, tachycardia, dryness of the mouth and nose) may occur earlier than might be expected when atropine is used alone.

The following precautions should be kept in mind in the treatment of anticholinesterase poisoning, although they do not bear directly on the use of atropine and pralidoxime.

- Barbiturates are potentiated by the anticholinesterases; therefore, barbiturates should be used cautiously in the treatment of convulsions.
- Morphine, theophylline, aminophylline, succinylcholine, reserpine, and phenothiazine-type tranquilizers should be avoided in treating personnel with organophosphorus poisoning.
- Succinylcholine and mivacurium are metabolized by cholinesterases. Since pralidoxime reactivates cholinesterases, use of pralidoxime in organophosphorus poisoning may accelerate reversal of the neuromuscular blocking effects of succinylcholine and mivacurium.

Drug-drug interaction potential involving cytochrome P450 isozymes has not been studied.

**Carcinogenesis, Mutagenesis, Impairment of Fertility:** DuoDote™ Auto-Injector is indicated for short-term emergency use only, and no adequate studies regarding the potential of atropine or pralidoxime chloride for carcinogenesis or mutagenesis have been conducted.

**Impairment of Fertility:** In studies in which male rats were orally administered atropine (62.5 to 125 mg/kg) for one week prior to mating and throughout a 5-day mating period with untreated females, a dose-related decrease in fertility was observed. A no-effect dose for male reproductive toxicity was not established. The low-effect dose was 290 times (on a mg/m<sup>2</sup> basis) the dose of atropine in a single application of DuoDote™ Auto-Injector (2.1 mg).

Fertility studies of atropine in females or of pralidoxime in males or females have not been conducted.

#### Pregnancy:

**Pregnancy Category C:** Adequate animal reproduction studies have not been conducted with atropine, pralidoxime, or the combination. It is not known whether pralidoxime or atropine can cause fetal harm when administered to a pregnant woman or if they can affect reproductive capacity. Atropine readily crosses the placental barrier and enters the fetal circulation.

DuoDote™ Auto-Injector should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers:** Atropine has been reported to be excreted in human milk. It is not known whether pralidoxime is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when DuoDote™ Auto-Injector is administered to a nursing woman.

**Pediatric Use:** Safety and effectiveness of DuoDote™ Auto-Injector in pediatric patients have not been established.

#### ADVERSE REACTIONS

Muscle tightness and sometimes pain may occur at the injection site.

#### Atropine

The most common side effects of atropine can be attributed to its antimuscarinic action. These include dryness of the mouth, blurred vision, dry eyes, photophobia, confusion, headache, dizziness, tachycardia, palpitations, flushing, urinary hesitancy or retention, constipation, abdominal pain, abdominal distention, nausea and vomiting, loss of libido, and impotence. Anhidrosis may produce heat intolerance and impairment of temperature regulation in a hot environment. Dysphagia, paralytic ileus, and acute angle closure glaucoma, maculopapular rash, petechial rash, and scarletiform rash have also been reported.

Larger or toxic doses may produce such central effects as restlessness, tremor, fatigue, locomotor difficulties, delirium followed by hallucinations, depression, and, ultimately medullary paralysis and death. Large doses can also lead to circulatory collapse. In such cases, blood pressure declines and death due to respiratory failure may ensue following paralysis and coma.

Cardiovascular adverse events reported in the literature for atropine include, but are not limited to, sinus tachycardia, palpitations, premature ventricular contractions, atrial flutter, atrial fibrillation, ventricular flutter, ventricular fibrillation, cardiac syncope, astyole, and myocardial infarction. (See **PRECAUTIONS**.)

Hypersensitivity reactions will occasionally occur, are usually seen as skin rashes, and may progress to exfoliation. Anaphylactic reaction and laryngospasm are rare.

#### Pralidoxime Chloride

Pralidoxime can cause blurred vision, diplopia and impaired accommodation, dizziness, headache, drowsiness, nausea, tachycardia, increased systolic and diastolic blood pressure, muscular weakness, dry mouth, emesis, rash, dry skin, hyperventilation, decreased renal function, and decreased sweating when given parenterally to normal volunteers who have not been exposed to anticholinesterase poisons.

In several cases of organophosphorus poisoning, excitement and manic behavior have occurred immediately following recovery of consciousness, in either the presence or absence of pralidoxime administration. However, similar behavior has not been reported in subjects given pralidoxime in the absence of organophosphorus poisoning.

Elevations in SGOT and/or SGPT enzyme levels were observed in 1 of 6 normal volunteers given 1200 mg of pralidoxime intramuscularly, and in 4 of 6 volunteers given 1800 mg intramuscularly. Levels returned to normal in about 2 weeks. Transient elevations in creatine kinase were observed in all normal volunteers given the drug.

#### Atropine and Pralidoxime Chloride

When atropine and pralidoxime are used together, the signs of atropinization may occur earlier than might be expected when atropine is used alone.

#### OVERDOSAGE

##### Symptoms:

##### Atropine

Manifestations of atropine overdose are dose-related and include flushing, dry skin and mucous membranes, tachycardia, widely dilated pupils that are poorly responsive to light, blurred vision, and fever (which can sometimes be dangerously elevated). Locomotor difficulties, disorientation, hallucinations, delirium, confusion, agitation, coma, and central depression can occur and may last 48 hours or longer. In instances of severe atropine intoxication, respiratory depression, coma, circulatory collapse, and death may occur.

The fatal dose of atropine is unknown. In the treatment of organophosphorus poisoning, doses as high as 1000 mg have been given. The few deaths in adults reported in the literature were generally seen using typical clinical doses of atropine often in the setting of bradycardia associated with an acute myocardial infarction, or with larger doses, due to overheating in a setting of vigorous physical activity in a hot environment.

##### Pralidoxime

It may be difficult to differentiate some of the side effects due to pralidoxime from those due to organophosphorus poisoning. Symptoms of pralidoxime overdose may include: dizziness, blurred vision, headache, impaired accommodation, nausea, and slight tachycardia. Transient hypertension due to pralidoxime may last several hours.

**Treatment:** For atropine overdose, supportive treatment should be administered. If respiration is depressed, artificial respiration with oxygen is necessary. Ice bags, a hypothermia blanket, or other methods of cooling may be required to reduce atropine-induced fever, especially in children. Catheterization may be necessary if urinary retention occurs. Since atropine elimination takes place through the kidney, urinary output must be maintained and increased if possible; intravenous fluids may be indicated. Because of atropine-induced photophobia, the room should be darkened.

A short-acting barbiturate or diazepam may be needed to control marked excitement and convulsions. However, large doses for sedation should be avoided because central depressant action may coincide with the depression occurring late in severe atropine poisoning. Central stimulants are not recommended.

Physostigmine, given as an atropine antidote by slow intravenous injection of 1 to 4 mg (0.5 to 1.0 mg in children) rapidly abolishes delirium and coma caused by large doses of atropine. Since physostigmine has a short duration of action, the patient may again lapse into coma after 1 or 2 hours, and require repeated doses. Neostigmine, pilocarpine, and methacholine are of little benefit, since they do not penetrate the blood-brain barrier.

Pralidoxime-induced hypertension has been treated by administering phentolamine 5 mg intravenously, repeated if necessary due to phentolamine's short duration of action. In the absence of substantial clinical data regarding use of phentolamine to treat pralidoxime-induced hypertension, consider slow infusion to avoid precipitous corrections in blood pressure.

**MERIDIAN**  
MEDICAL TECHNOLOGIES™

© 2007 Meridian Medical Technologies™, Inc., a subsidiary of King Pharmaceuticals®, Inc.  
Manufactured by: Meridian Medical Technologies™, Inc.  
Columbia, MD 21046  
DuoDote™ Auto-Injector and the DuoDote Logo are trademarks of Meridian Medical Technologies™, Inc.  
MMT 5173 11/07

Unified Command Structure, facilitated the fast and flexible response needed to deal with what had become a dynamic and frequently changing situation.

The “Southwestern” incident has since been cited as an excellent working example of how an accidental and unintended release of pesticides with considerable toxicity should be – and in this case was – handled, with emergency-response strategies and assets focused primarily on human health and safety, but with environmental protection and post-incident cleanup operations a very close second. Such would likely also be the case today if a similar event were to occur almost anywhere in the United States – but with a major new factor added to the planning and response strategies needed.

In fact, the consideration of such an event occurring today, in an intentional terroristic scenario designed to create a situation with simultaneous crises – involving but not limited to numerous fatalities, acute/chronic illness, fear, paranoia, chaos, disruption, and economic dislocation – is one of numerous new responsibilities assigned to post-9/11 emergency managers. The terrorist attacks of 2001 have also greatly increased the general public’s awareness of the nation’s vulnerabilities to such asymmetric attacks. Many previously tried and true policies have had to be reexamined in order to reduce the threat of such future attacks; there also have been some helpful increases in public-health funding and greater attention paid to the monitoring and oversight of chemical/biological (C/B) agents.

### **Theme Parks, Aum Shinrikyo, And a Timely CRS Report**

One of the most important questions that had to be dealt with after the 9/11 attacks was just how vulnerable the United States was, and is, to assault by C/B agents. That question was particularly troublesome in the immediate aftermath of the September 2001 attacks because of the subsequently exposed plot by U.S.-based terror cells to explore, and appropriate for use, so-called “crop duster” aircraft. The terrorist plan, apparently, was to use

agricultural chemicals in an asymmetrical attack on a concentrated population of the country (in a theme park or at a sporting event, for example).

Even before 9/11, though, agricultural chemicals had been used in some of the most damaging terrorist attacks around the world. Although fertilizers were particularly noteworthy in their use, (resulting in a recommendation by the U.S. Coast Guard-sponsored Chemical Transportation Advisory Committee for inclusion on the list of “Certain Dangerous Cargoes”), pesticides had also been used, although on a more limited basis. There also is evidence of pesticide use in attacks in the Middle East (Israel/Palestine); the use of pesticides was apparently part of the plan carried out by the conspirators in the first World Trade Center bombing attack (in 1993); and the OP-generated chemical agent Sarin was used by the Aum Shinrikyo Japanese terrorist organization in its attack on the Tokyo subway in 1995.

These attacks have given the general public, agricultural producers, and government authorities a new point of view. There has been a galvanizing realization that, in the wrong hands, agricultural chemicals – specifically including fertilizers and pesticides – could be used to do great damage. However, there may still be a gap in the analysis of how these chemicals, including OP pesticides, could be used as weapons.

Some analysis was provided in a May 2004 CRS (Congressional Research Service) report to Congress in which Dana Shea and Frank Gottron stated that, “The classification of Chemical/Biological (C/B) weaponry into the catch-all category of ‘weapons of mass destruction’ (WMD) has led to consideration of C/B use primarily on a mass-casualty scale. This treatment may misstate the potential civilian vulnerability to a *small-scale* [emphasis added] terrorist C/B attack. Treatment of terrorist attacks on a mass-casualty scale has produced many worst-case scenarios, but ... [there have been] few assessments of the wide spectrum of potential C/B agents.”

*The significance of the chemicals entering the river system should not be underestimated, because the water column could act as a magnifier and increase lethality as much as tenfold – and the water itself could lengthen the half-life of the chemicals entrained*



In addition, according to the same CRS report – echoing a major point from the Gilmore Commission report – “preparation against a large-scale chemical or biological attack would not necessarily simultaneously protect against the smaller-scale attacks. This analysis suggests that agents that are effective for small-scale attacks are not necessarily the agents of choice for massive-scale attacks.” (The Gilmore Commission was headed by, and named for, former Virginia Governor James Gilmore, who had been appointed by then-President Bill Clinton to chair the Congressional Advisory Panel to Assess Domestic Capabilities for Terrorism Involving Weapons of Mass Destruction.)

Supporting the CRS report, a later Department of Defense-sponsored *Assessment of the Impact of Chemical and Biological Weapons on Joint Operations in 2010* stated that “The focus of chemical and biological defense has been, and continues to be, largely on massive battlefield use of chemical and biological weapons. Our military judgment is that this is no longer the most likely threat. ... While U.S. forces must still be prepared to fight on a CB battlefield, they must also be able to counter, and cope with, limited, localized CB attacks – including attacks by asymmetrical means – on key units, facilities, and equipment at both U.S. and foreign sites.”

## **Pre-WWII Discoveries; Post-Cold War Horrors**

A cursory examination of organophosphate development and chemical behavior may yield some understanding of the concerns now held by homeland-security, law-enforcement, firefighting, and medical-response personnel – and by the public at large – about the potentially intentional use of OPs as terrorist weapons.

Basically, organophosphates are nerve poisons that target and kill insects by disrupting their brains and nervous systems, after which the OPs are broken down relatively quickly in the environment. OPs inhibit cholinesterase, a key enzyme in the nervous system, from working, and thus are generally among the most acutely toxic pesticides to vertebrates (including man). Poisoning from OPs can occur through inhalation, absorption, and/or ingestion.

Organophosphates, which are derived from phosphoric acid, were developed in Germany in World War II as a by-product of nerve-gas development. The effects – a choking sensation and dimming of vision after exposure – of organophosphates on the human nervous system were first described in 1932 by German chemist Willy Lange and his graduate student Gerde von Krueger. Later in the 1930s, another German chemist, Gerhard Schrader, was inspired by the Lange/von Krueger discoveries to experiment, at his company IG Farben, with OP compounds as insecticides.

The Nazi government put Schrader in charge of developing organophosphate-derived nerve gases when their potential use as CW (chemical warfare) agents became apparent. Schrader’s laboratory discovered, among other things, the so-called “G series” of weapons, which include Sarin, Tabun, and Soman. Although those compounds were not used in World War II, the Nazis had produced large quantities of each. After World War II, American companies gained access to the information from Schrader’s laboratory, and began synthesizing organophosphate pesticides in large quantities. Parathion, among the first marketed, was quickly followed by malathion and azinphosmethyl.

Today, the public-health and environmental concerns related to OPs are both well known and well documented. Organophosphate use, even as a localized or limited-scale weapon, is a profound and gripping consideration for which emergency-management and emergency-response personnel, including those in small and rural communities, must plan and prepare.

---

*John Temperilli is Disaster Response Program Manager for James Lee Witt Associates, a part of GlobalOptions Group, an internationally known crisis-management and emergency-preparedness consulting firm. His principal duties at JLWA are to develop “the response side” of the company’s disaster-planning and response operations. He also is charged with the development of JLWA logistics and resources, as well as EOC surge support. A graduate of Texas A&M University (B.A. and M.P.A. degrees), he is a member of the U.S. Coast Guard’s Federal Advisory Committee – also known as CTAC (Chemical Transportation Advisory Committee) – and has more than 30 years’ experience in dealing with hazmat and related incidents throughout the United States and overseas.*

*Sponsored by:*





## The Unglamorous Side

# Parking Lots, Manhole Covers, and Homeland Security

By Neil C. Livingstone, Building Protection



*(The 20 October 2008 issue of DPJ included an article by Dr. Livingstone on the unglamorous topic of “Parking Security” – which he described as “one of the most important, though often overlooked, areas of physical security protection.”*

*The following article expands on his explication of that topic and includes some helpful information on a closely related, equally important, and even more overlooked subject: manhole covers.)*

A lawsuit filed in Stamford, Connecticut, that was settled earlier this year not only underscores the importance of good (meaning safe) parking security but also serves as a casebook example of some of the worst lawyering on record in the United States. As the famous trial lawyer F. Lee Bailey once observed: “The public regards lawyers with great distrust. They think lawyers are smarter than the average guy but use their intelligence deviously. Well, they’re wrong. Usually they [the lawyers] are *not* smarter.” Nothing proves that homely wisdom better than the news articles about the “geniuses” who represented Marriott in that recent court case in Connecticut.

In 2006, a woman was raped at gunpoint inside her minivan – and in front of her two children – in the parking garage at the Stamford Marriott Hotel and Spa. The rapist was later captured and sentenced to twenty years in prison after pleading guilty to sexual assault, kidnapping, robbery, and risk of injury to a minor. The woman then sued the hotel for damages, maintaining that the rapist had loitered around the hotel for days without raising any concerns by its security personnel. Her attorneys also contended that, despite a number of other sexual assaults in the area, the hotel had failed to provide adequate security in the parking garage – and, moreover, that its employees were poorly trained and supervised.

Rather than moving quickly both to upgrade its security systems and training – and settle the lawsuit with the woman – the hotel’s attorneys adopted a “blame-the-victim” defense, saying that she had “failed to exercise due care for her own

safety and the safety of her children and proper use of her senses and facilities.” In other words, they were suggesting that the woman was at least partly responsible for what had happened to her simply by parking in the hotel garage (but they refused and/or were unable to provide specifics of just *how* she had been negligent). To many outside observers it seemed that the only way the lawyers could have justified their argument was to suggest that the very act of patronizing a Marriott Hotel is, in and of itself, a reckless and irresponsible act on the part of the victim.

After a public outcry and widespread criticism, Marriott announced that it was withdrawing its defense (and would, presumably, settle with the woman). Marriott’s parent company also wisely moved to dissociate itself from the attorneys and management of its franchise hotel in Stamford.

## **Dangerous When Open – Also While Closed**

To emergency managers, political decision makers, and others directly involved in the protection of the nation’s critical infrastructure, the safety of parking garages is an important but somewhat ancillary aspect of homeland security – as is, not incidentally, an even more obscure, albeit totally visible, feature of the urban landscape: manholes, both open and closed. There have been, in fact, a number of lawsuits instituted by people who were injured by falling into open manholes; one of the most recent resulted in an \$85 million judgment won by a medical student who fell into an open manhole in Philadelphia.

In addition to lawsuit damages per se, it costs most American cities thousands of dollars every year to replace stolen manhole covers – which, in some countries, are stolen simply because of the value of their metal and sold to unscrupulous scrap dealers.

But even more important are the national-security considerations related to and/or evolving from inadequate manhole management and maintenance. Much of America’s critical national infrastructure lies just below the ground – and

is therefore accessible through manholes. Included in this rich underground harvest are telecommunications systems (fiber optic lines and telephone cables); water and sewer systems; natural-gas and steam-heat delivery pipes; and systems that manage storm-water removal.

Moreover, as Nikolai Bobylev pointed out in a paper on the so-called “Urban Underground Infrastructure” presented at this year’s Fifth Urban Research Symposium, storm-water sewers “can be connected or adjacent to motor/rail transport tunnels. This physical interdependence increases the vulnerability of both infrastructures.” In addition, of course, underground tunnels carrying pipes and utility lines often provide unimpeded access to department stores and other businesses, hotels and government buildings, and other critical infrastructure.

### **Inexpensive Fixes – Or Costly Litigation**

Government studies have long shown that a well-planned and -coordinated attack by terrorists on the underground infrastructure of New York City (and/or other major cities) could have catastrophic consequences, knocking out power, interrupting utility flows, disrupting traffic lights and signs, flooding subway lines, and generally bringing commerce to a halt. Access to certain water and other systems could also be used to disseminate biological warfare agents. The U.S. Conference of Mayors expressed its concern over such underground vulnerabilities in a resolution passed at its 2007 annual meeting.

From the emergency manager’s – and/or terrorist’s – point of view, the facts are easy to summarize, and impossible to ignore. There are over 22 million manholes in the United States, many of them near to – and/or actually located in – critically important structures and facilities such as airports, nuclear power plants, major financial centers, and government buildings and installations. Nearly all of these manholes are

unsecured and today represent one of the nation’s greatest physical-security vulnerabilities – despite the fact that there are a number of relatively inexpensive ways to address the problem. The Department of Homeland Security (DHS) has in fact already recommended that all manholes ten inches or more in diameter be secured to prevent unauthorized access, and various DHS documents solemnly address the topic of “manhole access points.” But very little has actually been done so far to make those access points even slightly more secure.

*It costs most American cities thousands of dollars every year to replace stolen manhole covers but even more important are the national-security considerations related to and/or evolving from inadequate manhole management and maintenance*

In a few areas in some cities, some manhole covers – but not a large number of them – have been welded shut in high-risk areas (or, in rare cases, before a presidential convoy transits the street). The trouble with welding a manhole cover shut is that it is time-consuming, costly, and prevents easy access to the manhole in the event of an emergency. From a practical point of view, though, there are locking systems available that can secure manholes against unauthorized access; each such device usually costs between \$600 and \$700. A number of studies have examined manholes, classifying them from high-risk to low-risk, and recommending that all high-risk manholes be secured as soon as possible.

Although neither parking nor manhole security are very sexy or glamorous topics, both deserve appropriate attention from security specialists. One false step, one overlooked vulnerability, about either of these totally public but virtually invisible dangers could easily lead to a major disaster or, at the very least, to serious litigation.

---

*Dr. Neil C. Livingstone, chairman and CEO of ExecutiveAction LLC and an internationally respected expert in terrorism and counterterrorism, homeland defense, foreign policy, and national security, has written nine books and more than 200 articles in those fields. A gifted speaker as well as writer, he has made more than 1300 television appearances, delivered over 500 speeches both in the United States and overseas, and testified before Congress on numerous occasions. He holds three Masters Degrees as well as a Ph.D. from the Fletcher School of Law and Diplomacy. He was the founder and, prior to assuming his present post, CEO of GlobalOptions Inc., which went public in 2005 and currently has sales of more than \$80 million.*

# HLS & EM: Blueprinting the Future

By Dennis R. Schrader, Exercises



Over the past six to eight years, professionals, parents, and young people have been asking themselves how someone pursues a career in the field of homeland security. There seems to be a perception in the general public, probably because of the establishment of the U.S. Department of Homeland Security (DHS) in 2003, that homeland security is a stand-alone discipline. The reality, however, is that there are numerous foundational disciplines that make up the homeland-security and emergency-management (HLS-EM) fields.

A case can be made, in fact, that the umbrella term “National Homeland Security and Emergency Management” represents an emerging and rapidly growing community of highly skilled professionals who have been working together in close cooperation for many years to improve and advance their chosen field of public service. Today, most HLS-EM policy and executive assignments are multi-disciplinary positions that have evolved over, and are the product of, many years of experience and professional development. Those positions, of course, are usually, and not incidentally, viewed by HLS-EM professionals as fitting capstones to outstanding careers. (The graphs accompanying this article show a conceptual career planning map illustrating that concept.)

The Post-Katrina Emergency Reform Act of 2006 (PKEMRA) accelerated the professionalism process by requiring the creation and promulgation of a national plan for developing professionals in Homeland Security and Emergency Management. The same law assigned that important task to the newly created National Integration Center (NIC) – and, more specifically, to the DHS’s Chief Learning Officer (CLO).

## A Notional System and A Missing Piece

One of the still missing pieces – identified in a recent Heritage Foundation lecture – is a well documented, easy-to-use system to develop, publish, organize, and communicate doctrine, publications, and career-development opportunities. Ideally, such a system would be accompanied by and integrated with a comprehensive web-based public-access portal for professionals and students.

This notional system – which might be described as Homeland Security Knowledge Online (HSKO) – could serve as the educational/tutorial counterpart of such proven military systems as the Army and Navy Knowledge Online (AKO, NKO) programs, both of which provide substantive and well integrated professional-development content. The Project Management Institute (PMI, a non-profit international organization headquartered in Newtown Square, Pennsylvania), has developed a parallel model with its Project Management Body of Knowledge (PMBOK) and requirements for Project Management certification. The HSKO would create a similar guide to inform young people and budding professionals alike on how to build a professional career in the HLS-EM community.

Homeland Security-Emergency Management (HLS-EM) Community of Professionals Conceptual Career Planning Map	
<p><b>Foundation Disciplines</b></p> <ul style="list-style-type: none"> <li>Intelligence</li> <li>DHS-DOJ Components</li> <li>Public Safety-Law Enforcement</li> <li>State and Local Emergency Management (EMA)</li> <li>Fire and EMS</li> <li>Public Health</li> <li>Health Care</li> <li>Public Works</li> <li>Transportation</li> <li>Defense               <ul style="list-style-type: none"> <li>Military and Civilian</li> <li>National Guard</li> </ul> </li> <li>Legislative Staffs</li> <li>Elected Officials</li> <li>Attorneys/Legal</li> <li>Engineering</li> <li>Maritime Service</li> <li>Disaster Relief Non-Government Organizations (NGOs)</li> <li>Disaster Assistance Employees (DAE)</li> <li>Federal Lab &amp; Technical Services Including FFRDC-UARC</li> <li>Private Sector Contractors &amp; Infrastructure Providers</li> <li>Policy Institutes</li> </ul>	<p><b>Assumptions and Clarifications</b></p> <ul style="list-style-type: none"> <li>• List is intended to be illustrative not exhaustive</li> <li>• Each discipline has its own body of knowledge within the profession</li> <li>• Not all professionals in each discipline will be interested in pursuing national homeland security careers</li> <li>• The experiences within the year groupings are intended to be illustrative and not rigid guidelines</li> </ul>

Copyright DRS International, LLC



## Numerous Working Examples; An Abundance of Reading Matter

Of course, there are many excellent sources of professional development content and information currently available, for different purposes and in a variety of formats. However, use of those materials is not intuitive for those just starting out to correlate the subject matter needed to plot a long-range HLS-EM career.

Among the more obvious, and obviously successful, examples that might be followed, however, are the following: the Naval Postgraduate School-Homeland Security Digital Library (HSDL); the FEMA Emergency Management Institute (EMI) Higher Education program, which includes resident and online training courses; the IAEM (International Association of Emergency Managers) professional development and accreditation program; the Inter-Agency Board-sponsored Responder Knowledge Base (RKB); the National Domestic Preparedness Consortium's advanced first-responder CBRNE (chemical, biological, radiological, nuclear, and explosives) training program; the Memorial Institute for the Prevention of Terrorism (MIPT) training program; numerous university degree programs in Homeland Security and/or Emergency Management; various state-level training academies; the Homeland Security Exercise and Evaluation Program (HSEEP); the DHS/FEMA websites; and the National Security Professional Education Program.

In addition, there also are several thousand publications, courses, policy statements, and other documents that are not currently coded, cross-referenced, or organized for easy access for use by HLS-EM professionals and students. Without a workable system to follow, though, it is not and will never be totally clear what policies and materials are current. One example: The National Strategy for Homeland Security (issued in October 2007) outlined a management system that could serve as a baseline framework for organizing materials. However, it is not clear, even to many professionals, whether that document itself is still current national policy.

As the HLS-EM "Community of Professionals" (including students aspiring to be professionals) continues to mature, the experienced career professionals already in the field owe it to themselves, the students, and – of the greatest importance – the nation to develop and make available to others a coherent body of knowledge that is both well organized and easily accessible. There are already many good starting points for integration that could benefit immensely from the creation of an HSKO (by whatever name it is given) and facilitate the still evolving HLS-EM professionalism process that is required to make the nation safer as a whole.

For additional information about the Heritage Foundation lecture, click on <http://www.heritage.org/press/events/ev051409a.cfm>.

Homeland Security-Emergency Management (HLS-EM) Community of Professionals Conceptual Career Planning Map				
Year	Discipline Specific Assignments	Community Activities	Leadership Development	National Security Professional Development
0-10	Professional/Operational Supervisor Middle Manager Program Manager Technology Developer	<ul style="list-style-type: none"> <li>Associate Degree</li> <li>Bachelor Degree</li> <li>Advanced Degree</li> <li>Discipline Specific Professional Association</li> </ul>	Basic leadership in training and development	<ul style="list-style-type: none"> <li>Advanced Degree</li> <li>Internships</li> <li>Doctrine -NRF-NIMS</li> <li>National Policy Studies</li> <li>Language Training</li> <li>Advanced History &amp; Geography</li> <li>Professional Certifications</li> <li>Initial Security Clearance &amp; Information Security Training</li> <li>Reserve or Guard Participation</li> <li>Continuing Education Courses</li> </ul>
11-20	Public-Private Sector Senior Management	<ul style="list-style-type: none"> <li>Professional Association Leadership</li> <li>Interdisciplinary Policy Panels &amp; Boards</li> </ul>	Advanced leadership development	<ul style="list-style-type: none"> <li>War College</li> <li>Naval Postgraduate School</li> <li>Professional Certifications</li> <li>Top Secret Clearance</li> <li>Continuing Education Courses</li> </ul>
21-30	Executive Leadership Senior Subject Matter Expert Appointed Positions - Federal, State, and Local	<ul style="list-style-type: none"> <li>National Professional Association Leadership</li> </ul>	Executive leadership development	<ul style="list-style-type: none"> <li>National Board Service</li> <li>Continuing Education Courses</li> </ul>
30 plus	Senior Executive and Policy Roles and Cabinet Level Appointments	<ul style="list-style-type: none"> <li>Interdisciplinary Consensus Panels</li> </ul>	Complex policy advisors	

*Captain Dennis R. Schrader, USNR (Ret.), is president of DRS International, LLC, and former deputy administrator of the Federal Emergency Management Agencies National Preparedness Directorate. Prior to assuming his NPD post he served as the State of Maryland's first director of homeland security, and before that served for 16 years in various leadership posts at the University of Maryland Medical System Corporation. A licensed professional engineer in the State of Minnesota, he holds a bachelor of arts degree, with a focus in engineering, from Kettering University, and a master's degree from the State University of New York at Buffalo. While on active duty as a Navy Civil Engineer Corps officer he served overseas tours in Guam, Diego Garcia, and Sicily. He also has served on numerous homeland-security committees, including the Anti-Terrorism Advisory Council of Maryland and the Homeland Security Senior Policy Group.*

Copyright DRS International, LLC



**FIRST RESPONDERS NEED TO BE  
PREPARED FOR ANYTHING...**



For expert and informed discussion on  
how to face your CBRN threat contact:

USA Tel: +1 866 803 5956 (Toll Free)

Email: [frontline@remploy.com](mailto:frontline@remploy.com)

UK Tel: +44 (0)845 241 2990

Email: [frontline@remploy.co.uk](mailto:frontline@remploy.co.uk)

[www.rememployfrontline.com](http://www.rememployfrontline.com)

**SO DO OUR SUITS**

**Remploy** Frontline

SURVIVAL EVOLUTION



# Communicating with the Public During a Pandemic Influenza

By Amanda Rhyne & Sarah Weiss, Public Health

Effective community disease containment measures during a pandemic depend on, among other things, a successful public-information campaign. This enables public health officials to communicate key messages about such topics as proper hand hygiene, non-pharmaceutical interventions, and social-distancing techniques to help limit the spread of infection.

One of the most important challenges during a pandemic influenza outbreak is reaching all segments of the affected population, including members of groups who do not speak English – or for whom English is not the primary language – as well as rural populations. Many communities have pursued non-traditional methods of disseminating public information to include these populations.

Two of the more successful initiatives to reach ethnically diverse populations include: (a) the response to the 2003 outbreak of Severe Acute Respiratory Syndrome (SARS); and (b) the North Dakota Department of Health's (NDDH) translation of public-information fact sheets into multiple languages. In addition, during a 2007 risk-communications tabletop exercise, the Louisiana Office of Public Health (OPH) identified some innovative alternative means of communicating with rural residents during a public health emergency.

## Overcoming Language Barriers To Reach Ethnic Communities

During the 2003 SARS outbreak, public-health officials around the world faced the challenge of delivering SARS information to populations in ethnically diverse cities – Toronto and Singapore, to take but two prominent examples.

Toronto Public Health (TPH) officials not only developed public awareness campaigns to meet the needs of the variety of ethnic communities in the Toronto area but also used several non-traditional methods for disseminating the information needed. TPH officials posted information on web sites and distributed printed materials in numerous languages, including English, French, Italian, Portuguese, Chinese, Japanese, Korean, Thai, and Vietnamese. The same information was distributed through major non-English newspapers, and the broadcast media, on Toronto's multicultural television and radio stations. The TPH officials also sent targeted messages to church groups, seniors' residences, and community health and recreation centers. In Singapore, the government pursued a similar approach, and

even established a 24-hour television channel dedicated to providing news and outbreak information in a broad spectrum of regional dialects.

A similar approach was taken in 2004 in North Dakota, where the NDDH conducted surveys to identify ethnic groups in the state that spoke limited or no English. NDDH used that data to translate its public-information fact sheets into Arabic, Bosnian, Kurdish, Russian, Somali, Spanish, and Vietnamese. The fact sheets provided critical information on such related topics as avian flu and pandemic influenza outbreaks.

## Assessing Rural Populations

In 2006 and 2007, Louisiana's OPH sponsored a series of tabletop exercises that focused on assessing risk communications consistency, message content, and methods for dissemination. In one of those exercises, the participants: (a) observed that OPH relies heavily on television and the Internet to communicate risk information to the public; (b) also noted that some community members may not have access to influenza information disseminated through these media types (usually because of financial limitations or the lack of telecommunications services in rural areas); (c) then suggested that OPH pursue alternative methods for communicating information to the public and identify other approaches that might be used – distributing flyers at banks and stores, for example – as well as asking faith-based organizations, home health agencies, and local volunteer groups to distribute essential information to local communities; and (d) also noted that schools are one of the most effective vehicles for disseminating risk information and providing guidance to rural populations.

---

Additional information about the efforts described above and/or other community-preparedness issues can be found at Lessons Learned Information Sharing ([www.LLIS.gov](http://www.LLIS.gov)). LLIS.gov also has available a wide variety of public health documents and other resources related to pandemic influenza preparedness and response. LLIS.gov's Pandemic Influenza page groups this information into a single location that allows LLIS.gov members to access the information both quickly and conveniently.

---

*Amanda Rhyne is the outreach coordinator of the outreach and partnerships team of the Federal Emergency Management Agency's Lessons Learned Information Network and has written a number of original research documents for LLIS.gov. She holds a bachelor of arts degree in Homeland Security and Emergency Preparedness & Political Science from the Virginia Commonwealth University.*

*Sarah Weiss, a research assistant for the LLIS.gov program for the past two years, is pursuing a master of arts degree in Security Studies at Georgetown University's School of Foreign Service.*



# Alabama, California, Illinois, and Louisiana

By Adam McLaughlin, State Homeland News



## Alabama Closes Trauma-Care Communications Gap

Alabama emergency officials are working to plug a deadly hole in the treatment of highway-accident victims and others suffering from potentially lethal trauma: getting injured patients to the correct hospital.

Approximately half of the state – including Huntsville, Mobile, and metro Birmingham-Hoover – is already covered by a state trauma-communications system that has saved a number of lives. This month, 10 counties in eastern Alabama will join the system, including six linked with major highways used by Birmingham-area residents on their trips to Atlanta, Auburn, and Chattanooga.

Without the planned expansion of the system, an estimated 60 percent of injured patients would end up in hospitals that could not properly treat them, and would have to be transferred to another hospital – possibly as much as several hours later, state health officials say. That extra time could mean missing the “golden hour” after trauma – i.e., those fleeting minutes when prompt medical treatment gives a patient his or her best chance of survival from serious injury.

One obvious example would be a car-wreck victim suffering from a “closed-head” injury who might be transported to a hospital that lacked a neurosurgeon. If there were bleeding inside his or her head, the patient would probably become much worse, or even die, before reaching a surgeon who could perform the operation needed.

According to the Alabama Department of Public Health, trauma death rates in metro Birmingham have dropped 12 percent since the Birmingham Regional Emergency Medical Service System started its pioneering trauma communications system 13 years ago. “This whole system is geared so that no one ever has to be transferred,” said Dr.

John Campbell, the department’s EMS and trauma medical director. “They [trauma victims] are always taken to the hospital that can give definitive care immediately, so hundreds of lives can be saved every year.”

Eight volunteer hospitals in the eastern part of the state already have been screened and approved by the state health department, said Choon Lang, a registered nurse – and the state’s trauma administrator. “We are now installing computers and software to give real-time information on their [the eight hospitals’] ability to accept a trauma patient,” she said.

With the communications system available, medics can evaluate patients at the accident scene and contact the Alabama Trauma Communications Center, which is based at the University of Alabama at Birmingham. A computer at the center lists all of the trauma hospitals ready to accept patients, and updates that information every 90 seconds.

“Paramedics [at UAB] will discuss the patient’s injuries and will route the patient to an appropriate hospital,” Lang said. The discussions may include input from hospital emergency department staff, trauma surgeons, and other healthcare providers.

## California Escondido’s New 911 System: Numerous High-Tech Benefits

By the time the new Escondido police and fire headquarters opens on North Centre City Parkway early next year, it will be equipped with a state-of-the-art 911 system that eventually will allow residents to report crime via either a text message or their cell-phone cameras.

In late September, the Escondido City Council approved the purchase of a \$353,000 system (which will be paid for from state funds collected from the fees that telephone customers pay with their phone bills). The new 911 system will replace the current less capable system, which was last

*That extra time could mean missing the “golden hour” after trauma – i.e., those fleeting minutes when prompt medical treatment gives a patient his or her best chance of survival from serious injury*

updated in 2004, Assistant Police Chief Cory Moles told the council.

The upgraded system will allow dispatchers to work outside the police and fire headquarters if an evacuation of the building becomes necessary. During a major disaster, for example, the dispatchers would shift to a police station in a city that uses the same system as Escondido, Moles said, and continue their work from there.

The new system also will increase, from seven to 11, the number of dispatch stations available.

There is another high-tech advantage, though, of possibly greater importance: In the future, when more advanced technology is available, the system will allow police to accept 911 calls through text messaging or Twitter. That capability, said John Houchin, the police department's special projects manager, will give private citizens a way to quietly report a crime without calling attention to themselves. "Right now," Houchin said, "we handle a lot of calls about hot prowlers in which residents are whispering." The new system, he pointed out, will allow the same people to contact the police without being overheard.

In that same future scenario, 911 callers also could use their cell-phone cameras to take pictures of a crime scene and/or suspects and send the images directly to police dispatchers. There are several other possibilities, Houchin said, of what the new system "can do for officer safety."

The purchase of the new system seems to have some important budgetary and political advantages as well. "This system will last the life of the [new] building," said Garry Wells, the department's public safety and communications manager. And City Councilman Sam Abed said he was particularly pleased that the state is paying for the new technology at a time when the state government is taking tax revenue from local jurisdictions to help close California's budget gap. "Grab it and go," Abed said. "Let's approve it before they [state legislators] change their mind."

## Illinois Emergency Officials Conduct Exercise at Clinton Power Station

There was no emergency at the Clinton Power Station on the morning of 7 October – but there might well have been, considering the number of state, county, and local emergency crews deployed in DeWitt County. And that is exactly what organizers wanted: a "real-life" practice session for those who would be required to respond in case of a real disaster. An estimated 700 people took part, both on-site and in emergency-response centers as far away as Warrenville and Springfield.

*Organizers wanted a "real-life" practice session for those who would be required to respond in case of a real disaster, an estimated 700 people took part, both on-site and in emergency-response centers*

Jerry DeYoung of the Exelon Corporation's emergency-preparedness team was in charge. "We very much appreciate the excellent response we had," he said. "The drill went very well, and it's because of the agencies' support that we were able to have the success today that we hoped for."

That "drill" was a practice run for 2011, when such drills will be graded by both the Federal Emergency Management Agency (FEMA) and the Illinois Nuclear Regulatory Agency. It was the last of six practice tests scheduled over the past three years. "The lessons learned from the pilot drills will help guide the structure of the real testing when it starts in 2011," said William Harris, the power station's communications manager.

The drill began at 8:45 a.m. with a mock plane crash near the power station. Crews from at least 15 agencies – ranging from major federal agencies such as the FBI to local fire volunteers – responded quickly. Most of their work was centered at a site that had available both a McLean County mobile command post and a state communications vehicle.

Among the numerous agencies participating, in addition to the FBI, FEMA, and the Nuclear Regulatory Commission, were the Illinois Emergency Management Agency, the Illinois Department of Natural Resources, the DeWitt County Sheriff's Office, the Decatur Police Department, several emergency-management agencies (from DeWitt, Macon, McLean, and Piatt Counties), Clinton Ambulance, and four local fire departments (from Clinton, Maroa, Kenney, and Farmer City). The exercise wound down just after 1:00 p.m. and was followed by a debriefing.

Note: All U.S. nuclear power stations are required to conduct yearly emergency tests, and they are graded every other year by both state and federal agencies. Clinton, for example, has a graded exercise scheduled for next month (on 18 November).

## **Louisiana Will Build New “Islands” For Hurricane Protection**

The skinny spit of land at the southern tip of Louisiana – one blacktop road leading in, another out – seems an unlikely place for cutting-edge scientific innovations.

But it is here that the leaders of Plaquemines Parish have developed a novel way to protect the area from storms: by usurping federal plans and fortifying the region with a manmade circumference of barrier islands, marshes, and cypress trees. If successful, the Plaquemines approach could change the traditional way that U.S. coastal experts and engineers strategize their hurricane-protection programs.

Coastal restoration and hurricane protection remain enormous challenges for Louisiana’s coastal communities. Local leaders hope that the so-called “Plaquemines Plan” – which promises to provide protection faster, at lower cost, and more effectively than the Army Corps of Engineers has been able to – gains high-level federal attention.

As P.J. Hahn, Plaquemines’ coastal management director, points out, Plaquemines Parish itself – known locally as the “speed bump” for major storms rolling in from the Gulf of Mexico and into Louisiana – has been repeatedly punished by hurricanes. In 2005, for example, a 20-foot storm surge from Hurricane Katrina ravaged the southern half of the parish, causing \$450 million in damages. And last year, Hurricane Ike, which made landfall 300 miles away in Galveston, Texas, again flooded the parish and drew millions in disaster dollars from the Federal Emergency Management Agency.

Last summer, though, parish leaders ran 38 projects planned for the parish through computer simulations at the U.S. Army’s

Engineer Research and Development Center in Vicksburg, Miss. The results were both stunning and disappointing: If and when completed, the projects would lower storm surge by less than six inches in most places, leaving the parish still extremely vulnerable to major storms.

Parish leaders then requested help from Joseph Suhayda, interim director of Louisiana State University’s Hurricane

Center, and drew up a new “multiple lines of defense” plan that calls for, among other things: (a) using sediment from the Mississippi River to rebuild brackish marshes; and (b) raising a cypress-tree-lined ridge in front of the approximately 100 miles of levees protecting the southern part of the parish. The plan also proposes to fortify barrier islands off the coast to slow a storm’s surge.

The new plan tested much better, bringing storm surge down by as much as six feet in some areas, according to Ty Wamsley of the research center. Moreover, by leasing a long-term dredger to draw sediment from the Mississippi, Parish President Billy Nungesser said, the parish could lower the cost of the overall project by \$500,000. Not only that, Plaquemines’ officials claimed, the parish itself could build the entire project in about 15 years – about one third of the time, it was estimated, that it would take the Corps of Engineers.

Corps of Engineers officials said that they welcome the proactive approach. “This is the kind of response we would like to see by other parishes, the state, and even other agencies,” said Troy Constance, who manages coastal-restoration programs in Louisiana for the Corps of Engineers. “The idea of taking the initiative to move forward on something like this is highly supported by us.”

---

*Adam McLaughlin is with the Port Authority of NY & NJ, and is the Preparedness Manager of Training and Exercises, Operations & Emergency Management, where he develops and implements agency-wide emergency response and recovery plans, business continuity plans, and training and exercise programs. He designs and facilitates emergency response drills/exercises for agency responders, state and federal partners, and senior Port Authority executives. Adam is a veteran and former U.S. Army Military Intelligence & Security Officer, having served with the 10th Mountain Division in Afghanistan during Operation Enduring Freedom and Operation Anaconda.*