Medical Preparedness

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Editor's Notes

By James D. Hessman, Editor in Chief

Except for occasional interruptions lasting a century or so, the history of mankind has been mostly a story of progress – in communications, in transportation, in education, in agriculture, and in a broad spectrum of scientific endeavors of all types. All of which has resulted both in greater longevity for most people in most of the civilized nations of the world.

There also have been many notable setbacks, of course – most of them caused by diseases and/or natural disasters, but many of them simply the result of man's inhumanity to man. But that is another story.

Some of mankind's greatest triumphs, particularly in the last century, have been in the field of medicine. Some diseases, a very few, have been totally eradicated. Others have been contained or restrained, to at least some degree. New medicines and pharmaceuticals, combined with higher sanitation standards and much improved training for doctors, nurses, and other medical staff have extended the lives of tens of millions of people all over the world, and there is every indication that this progress will continue for the foreseeable future.

This printable issue of DPJ records some of the medical advances already made – but also points out certain roadblocks (legal, political, and budgetary, for the most part) that still have to be overcome. In the 21st-century world, also known as the "Age of Terrorism," the inability to surmount these roadblocks is, quite literally, a matter of life-or-death importance.

Bruce Clements leads off with a report on the moral and political mandate to pay greater attention – immediately, and for many decades to come – to the difficulties facing the "special needs" populations of every society on earth: the blind and disabled, and those suffering from various other physical, medical, and/or mental disabilities of various types. There has been some modest progress in this area, but much more needs to be done. Diana Hopkins follows up with a detailed report on the mind-boggling financial cost faced by the private sector in bringing a new vaccine to market – with absolutely no guarantee that the front-end investment of hundreds of millions of dollars will ever earn a profit.

Not all is doom and gloom, fortunately. There has been a lot of forward motion as well, as pointed out, for example, by: (a) Joseph Trindal, who discusses the astonishing survival rate of U.S. military personnel wounded in action – and pointedly suggests that domestic law-enforcement personnel could benefit immensely from the same medical training (and equipment) provided to those serving in the nation's armed services; (b) Raphael Barishansky, who reports on the on-site successes achieved in New Haven, Houston, and other cities by dispatching teams of trained physicians to the scene of mass-casualty incidents; (c) Timothy Tinker and Marko Bourne – senior BAH (Booz Allen Hamilton) executives – who provide a forward-looking analysis of how use of the social media (Facebook and Twitter, for example) has encouraged greater public involvement in major crises, expedited the arrival of first responders, and on many occasions actually saved lives; and (d) Craig DeAtley, who comments on a new state-of-the-art "Connectivity" project that has vastly improved communications in, among, and between eight hospitals, and local health agencies, in the greater Washington, D.C., area.

Three Situation Reports also are included in the issue. The first, by Theodore Tully, discusses the need to recognize hospitals as essential components of the nation's critical infrastructure. The second, by Joseph Cahill, comments on several "resolvable" political and management issues that not only aggravate serious medical situations but also raise response and recovery costs. The third, by JL Smither, focuses on the need to provide better PPE (personal protective equipment) and more comprehensive medical training for first responders.

As usual, Adam McLaughlin rounds out the issue with another quartet of insider reports on recent domestic-preparedness events and happenings in, this month, the great states of Georgia, Nevada, New York, and North Carolina.

About the Cover: Another scintillating montage - deliberately chaotic to match the confusion and complications at most hospitals and other medical facilities dealing with mass-casualty situations - by DPJ's multi-talented Susan Collins. (Wheelchair photo provided by FEMA; the other photos, and medical symbol, are from iStockPhoto.)

Functional Needs Support Services
A New Paradigm
In Emergency Shelter Operations

By Bruce Clements, Health Systems

"Functional needs" is a collective term used to describe individuals who typically function independently or with a support system. During times of disaster, they face particular challenges when interruptions occur that affect their normal support structures. Populations with functional needs have also been referred to as vulnerable "special needs" persons, or medical special needs (MSN) populations. Today, the term functional needs is also used to describe a shift toward broader accommodation in times of emergency for those with a broad spectrum of diverse needs.

Rather than referencing vulnerability or medical special needs per se, the term functional needs is used to denote the establishment of a framework that better supports the autonomy of those with such needs. Although the definition is still evolving, it now includes but is not limited to such groups as senior citizens, newborns, and pregnant women in addition to those with autism, cognitive disabilities, mental health issues, deafness, visual impairment, or mobility impairments as well as those: (a) who require "service animals" such as seeing-eye dogs; and/or (b) those – dialysis patients, for example – suffering from medical conditions that require ongoing support. Each of these groups typically includes individual citizens representing a wide variation in their own degree or level of need. Moreover, many individuals in each group face multiple challenges that span across two or more of the needs categories mentioned – but usually if not always can still function reasonably well if the proper provisions for their care are made.

Providing functional support for the diverse needs within and across these groups is one of the most challenging aspects of managing an emergency situation of any type. There have been many success stories in recent response activities, in fact – but the overall U.S. track record for adequate provision of care for those with functional needs also includes numerous examples of errors and oversights.

Katrina: Natural Disasters Compounded by Human Errors

This problem was particularly evident in the aftermath of Hurricane Katrina. Shocking stories, particularly concerning the plight of those suffering from one or more medical and/or mental disabilities, were broadcast around the world as responders moved into the most heavily stricken areas attempting to identify and assist those in need.

One such story involved an elderly woman named Ethel. The retired 91-year-old was legally blind, bedridden (because of two broken hips), and had to be fed through a feeding tube. The family chose not to evacuate her because of her fragile condition. Her home survived the initial storm but, as the flood waters continued to rise, her son placed her in a passing boat and asked the crew to take her to the Superdome. As the crew members made their way in that direction,

though, a law-enforcement official instructed them to go instead to the New Orleans convention center. While waiting in the heat for the arrival of buses, Ethel died. A well publicized photo of her sitting deceased in her wheelchair became a sad testament to the many missteps made, by obviously well intended people, in caring for at-risk populations during that massive catastrophe.

Following the Hurricane Katrina response, a variety of lawsuits were filed on behalf of those with disabilities. The litigation extended beyond the response activities themselves to include shortfalls in the recovery phases of the disaster. For example, individuals with mobility impairments needed the FEMA (Federal Emergency Management Agency) trailer-park areas to be paved with smooth surfaces that could accommodate wheelchairs and other assistive devices. Instead, the parks were paved with gravel roadways and walkways. The trailers themselves also needed accessible kitchens and bathrooms, widened doorways, and usable entry ramps. Instead, those vitally important facilities not only were set several feet above the ground but also lacked the ramps needed by those with mobility challenges.

Recognizing the Problem, Then Solving It: The Oakland Example

Such "accessibility" problems have not been limited to FEMA trailers. There also have been issues identified with fixed facilities used as shelter sites that are not in compliance with the national ADA (Americans with Disabilities Act) requirements. A 2007 lawsuit was brought against the City of Oakland, California, for example, over a lack of consideration, in local emergency-shelter plans, for people with disabilities.

Responding to the charges included in that lawsuit, Oakland officials worked closely with disability advocates in developing recommendations that have become the city's "Functional Needs Annex for Mass Care and Shelter." In the end, the outcome was mutually beneficial. The City of Oakland worked

Although the definition is still evolving, the term functional needs usually includes such groups as senior citizens and pregnant women in addition to [persons] with cognitive disabilities, mental health issues, or mobility impairments as well as those: (a) who require "service animals" such as seeing-eye dogs; and/or (b) those – dialysis patients, for example – suffering from medical conditions that require ongoing support

through major planning challenges and made significant strides, by engaging those in the disabilities community, in providing for those with functional needs during disasters.

In many jurisdictions, most individuals with "special needs" arriving at general population shelters have for many years been quickly referred to shelters designed and staffed specifically to support them. The use of such "designated" shelters – rather than trying to accommodate a broad range of functional-needs citizens at *all* shelters – seems, or seemed to be, a rare triumph of common sense. The designated facilities are typically referred to as "special needs" or "medical special needs" (MSN) shelters. The concept not only is well intended but also recognizes the reality of the much higher costs inevitable by trying to provide for *everyone* requiring any type of special support at *all* general population shelters.

Common Sense & The Law: Bridging the Gap

Shifting those with functional needs from several general population shelters into a single MSN shelter not only provides better care for those with special needs but also reduces overall operational costs. Unfortunately, there is a major political and legal problem with this long-standing approach – namely, that it creates perceived and actual disparities across the groups of individuals with functional needs, an outcome that is in violation of the Americans with Disabilities Act, the Fair Housing Act, and other federal laws prohibiting emergency-program discrimination.

The evolution of Functional Needs Support Services (FNSS) has finally reached a point, however, where generally acceptable policy changes have been developed and are now in the process of being implemented. According to new FEMA FNSS guidelines, advance planning must be initiated that includes collaboration with relevant stakeholders representing a variety of functional needs. In addition,

steps to accommodate them must now be hard-wired into local planning and response activities. These guidelines will change staffing patterns in all shelters to include personal-care assistants, provide communications support for those who are hearing- or vision-impaired, and require translators for those with language and cultural differences.

All of which requires more medical staffing support and additional assistance with durable medical equipment as well as the specialized transportation resources that are often needed. In addition, the dietary needs and pharmaceutical support of all with functional needs must be accommodated. In short, the new FNSS guidelines will change the way shelters are established and operated as much as the then-new ADA requirements changed building design in the 1990s.

The new shelter-program changes will be both costly and challenging. Undoubtedly, mistakes will continue to be made, just as they did during the implementation phase of the ADA requirements. But the process will continue to improve. Shelter plans across the nation will be adjusted to provide significantly upgraded functional needs support, and a number of other promising improvements will emerge and become common practice. Finally, it seems, the difficult issues associated with coordinating the details of FNSS and paying for the additional services will be resolved.

In fact, the transition from special needs to functional support has already begun, and was perhaps best summarized by Richard Devylder – formerly of the California Emergency Management Agency, and now serving as the U.S. Department of Transportation's Senior Advisor for Accessible Transportation – when he said: "It is no longer special – it's part of what we do."

Bruce Clements is the Public Health Preparedness Director for the Texas Department of State Health Services in Austin, Texas, and in that post is responsible for health and medical preparedness and response programs ranging from pandemic influenza to the health impact of hurricanes. A well known speaker and writer, Clements also serves as adjunct faculty at the Saint Louis University Institute for BioSecurity. His most recent book, Disasters and Public Health: Planning and Response, was released in 2009.

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U.S. Vaccine Development: Expediting the Process

By Diana Hopkins, Standards

Developing a single vaccine can take a sponsor 10 years and cost at least $800 million – with no guarantee that the vaccine will finally secure Food and Drug Administration (FDA) approval for marketing and distribution. In this costly and time-consuming process, the vaccine sponsor must first submit an Investigational New Drug (IND) application – to FDA's Center for Biologics Evaluation & Research (CBER) – that describes the vaccine's results in animal testing, manufacturing details, quality control information, and plans for human testing (clinical trials).

If and when the IND is accepted, the vaccine must pass three phases of clinical trials. In Phase I, safety and immunogenicity studies are performed on a small number of human subjects. If Phase I results are acceptable, Phase 2 studies, using hundreds of human subjects, are carried out to determine appropriate and safe vaccine dosages. If results of the Phase 2 study are found acceptable, Phase 3 studies begin, using thousands of human subjects to provide acceptable documentation of the vaccine's effectiveness and safety.

The sponsor then submits a Biologics License Application (BLA) for review by an FDA team of medical experts; meanwhile, the sponsor's proposed manufacturing facility is closely inspected as it manufactures the vaccine. Today, it is not surprising – with over 80 percent of the vaccines submitted failing to attain FDA approval, despite huge sponsor investments – that the financial incentives are limited. In addition, unfortunately, there are no processes in place to fund private developers of vaccines.

CBER, OCET & FDA-Expedited Processes

A more expeditious program has been developed, though, whereby FDA staff are able to participate, in several of the agency's centers, in the development of vaccines against bioterror agents. In this expedited program – designed to enable the federal government to quickly produce and/or stockpile vaccines on a large scale to protect Americans from the risk of a bioterror attack – FDA's CBER oversees the safety, effectiveness, quality, and availability of the vaccines being produced. The CBER staff participate both in facilitating the development of a quality product and in the manufacturing process. In addition, FDA's Office of Counterterrorism and Emerging Threats (OCET)

coordinates FDA's counterterrorism policy initiatives and develops the agency's vaccination strategies. OCET also facilitates communications with private-sector collaborators and coordinates vaccine Emergency Use Authorization (EUA) activities.

A separate FDA center – the Office of Crisis Management (OCM) – coordinates emergency response activities involving FDA-regulated vaccines and works closely with the other FDA centers as well as with the U.S. Department of Health and Human Services (HHS) Office of the Assistant Secretary for Preparedness and Response to develop policies for emergency response.

In the expedited process, FDA staff and outside experts quickly move vaccine candidates for agents on the DHS (Department of Homeland Security) "threat list" through all of the steps necessary for FDA approval – i.e., the regulatory and manufacturing processes, pre-clinical as well as clinical testing, and the licensing and approval processes. However, it is important to note that agents used by bioterrorists may be genetically engineered to evade vaccine-induced immunity, a problem that adds time to the process and delays the production of critical vaccines.

Preparedness efforts are also delayed by the large number of potential biothreat agents now available. Among the pathogens identified by DHS as potential biological warfare agents are those that cause smallpox, anthrax, plague, botulism, tularemia, and hemorrhagic fevers. And in the end, even the expedited, counterterrorism, FDA vaccine-approval process cannot keep pace with the needs of the Department of Homeland Security during times when biowarfare is threatening.

The BARDA Alternative And Several New Advances

Understanding this dangerous gap in the nation's biodefense capabilities, Congress created a new agency four years ago within the previously mentioned HHS Office of the Assistant Secretary for Preparedness and Response. The goal of that agency – the Biomedical Advanced Research and Development Authority, or BARDA – is to provide a better integrated and more systematic approach to the development and purchase of vaccines and other tools for public health medical emergencies.

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BARDA also manages Project BioShield, which means that, in the field of vaccines, BARDA provides a comprehensive integrated portfolio approach to advanced research and development, stockpile acquisition, innovation, and manufacturing of the vaccines needed to cope with public health medical emergencies – including but not necessarily limited to biological threats, pandemic influenza, and other emerging infectious diseases.

In August 2010, HHS Secretary Kathleen Sebelius approved the release of a *Public Health Emergency Medical Counter-measure Enterprise Review* article that revealed the need for new technologies and approaches to overcome seriously limiting factors encountered in vaccine development against natural and manmade biothreats. Despite the urgency of developing and stockpiling such vaccines, BARDA has been receiving only $200 million per year rather than the $3 billion the agency believes is required annually to give teeth to BARDA's mission. At this time, $476 million is budgeted for 2011, but appropriation of those funds is far from certain as Washington's interests turn to other needs in a flagging economy.

New Contracts Awarded, But Budget Shortfalls Anticipated

Last month (on 21 September), BARDA awarded a relatively large number of contracts geared in part toward accelerating the technology needed, and used, to: (a) evaluate candidate vaccines and therapeutics; (b) improve vaccine delivery technology; and (c) improve bioprocess development and manufacturing. The total cost of those contracts is projected to reach $55 million for the initial contract phase and up to $100 million over three years.

One contract, awarded to VaxDesign, funds the development of an accelerated vaccine evaluation alternative to animal testing. Another contract, awarded to PATH (an international medical research organization), funds the development of different methodologies that increase vaccine shelf life. In addition: (1) The Infectious Disease Research Institute (IDRI) was awarded a contract to develop vaccine formulations that have enhanced immunogenicity against the virus at hand and against its next generation of viral mutations. (2) Pfenex was awarded

In Phase I, safety and immunogenicity studies are performed on a small number of human subjects; Phase 2 studies, using hundreds of subjects, are [then] carried out to determine safe vaccine dosages – if results are acceptable, Phase 3 studies begin, using thousands of subjects, to provide acceptable documentation of the vaccine's effectiveness and safety

a contract to optimize the bioprocesses used for producing anthrax vaccine. (3) Novartis Vaccines and Diagnostics was awarded a contract to investigate the optimized development and distribution of influenza seed virus for those times when a rapid response may be required for newly identified strains. (4) Rapid Micro Biosystems was awarded a contract to develop accelerated vaccine sterility-testing methodology.

On a separate front, the U.S. Army's Medical Research Institute of Infectious Diseases has developed several vaccines against biothreat agents. (In the field of vaccines, the Department of Defense (DOD) focuses on protecting the nation's armed forces; HHS focuses primarily on biothreats to the civilian population. Each department uses its own vaccine development and production processes – but there are, of course, several areas of commonality.)

In light of current and projected budget shortfalls, and to more effectively address these common areas, BARDA, working in a close partnership with other HHS and DOD stakeholders, plays a leading role in an Integrated National Biodefense Medical Countermeasure Portfolio to leverage resources and programs related to vaccines and other medical countermeasures involving a large number of federal agencies.

For more information:
http://www.upmc-biosecurity.org/website/resources/commentary/2009-03-09-white_house_barda_fy10.html

http://washington.bizjournals.com/washington/stories/2010/09/27/story9.html

http://www.hhs.gov/news/press/2010pres/09/20100921d.html

Diana Hopkins' consulting firm, "Solutions for Standards" (www.solutionsforstandards.com), focuses on helping businesses navigate the complex standards development process. 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 both technical administration and governance as well as process development and improvement.

Field-Proven Medical Skills for Law-Enforcement Units

By Joseph Trindal, Law Enforcement

The military medical skills displayed by U.S. soldiers and Marines in both Afghanistan and Iraq contributed significantly to the highest survivability rate in U.S. history. Nonetheless, and despite that encouraging example, domestic law-enforcement officers are generally provided nothing beyond basic first aid training. There are some disturbing trends today, in fact, that – despite improved tactics and better protective equipment – make the law-enforcement profession, anywhere in the world, less safe than ever before. Just on the other side of the U.S. border with Mexico, for example, law-enforcement units are being assaulted, with devastating results, by well armed and tactically skilled criminal teams.

In many other areas of the world, law-enforcement facilities and units are high on terrorist target lists. According to a recently released FBI report – *Law Enforcement Officers Killed and Assaulted (LEOKA) 2009* – nearly 33 percent of police officers who made the ultimate sacrifice had been ambushed. Numerous incidents show that the planned premeditated ambush is more likely than not to result in severe injury to the officers targeted.

Motor vehicle accidents are another "leading indicator" of fatalities among the law-enforcement community. In both types of situations – ambushes or vehicle accidents – the officer is likely to have to rely on his or her own skills for self preservation.

A Common Sense Approach Beyond Basic First Aid

The well publicized Pittsburgh (Pa.) ambush in April 2009 is but one example among many in which police officers, injured in an assault, were unable to escape from the danger zone – which itself had become too dangerous for medical personnel to come to their assistance. In the Pittsburgh ambush, the assailant prepared for the deadly confrontation as officers were responding to a disturbance call. The two officers – Stephen Mayhle and Paul Sciullo III – who initially responded were killed outright. Officer Eric Kelly, the third responding officer to arrive on the scene, was fatally wounded by the assailant's AK-47. Officer Timothy McManaway, who arrived later, was shot in the hand and therefore unable to assist Officer Kelly – who was still alive when McManaway arrived.

Deputy Chief Paul Donaldson arrived in time to see McManaway kneeling over Kelly and calling for assistance.

As more police arrived on the scene, a police van was improvised to provide the officer driving with some degree of ballistic protection (but probably not enough to preclude penetration of the 7.62x39mm bullet the assailant was using). The van was used as a rescue and extrication vehicle, but Kelly succumbed to his injuries after losing too much blood. (In the infamous 1997 North Hollywood bank robbery shooting rampage the same type of improvised rescue method had been used to extricate a critically wounded officer suffering from significant blood loss.)

In the United States, approximately 80 percent of civilian trauma deaths in such incidents are attributed to the uncontrolled loss of blood. But there is a lack of reliable empirical data on law enforcement injury typologies – except for the initial cause: a gunshot wound. Largely for that reason, Dr. Matthew D. Sztajnkrycer, medical director of the Rochester (Minn.) Police Department, has called for deeper and more extensive epidemiological studies into life-threatening law-enforcement incidents and, not incidentally, also has recommended better and more comprehensive training in medical decision-making skills for police.

DOD Medical Training For Civilian L-E Agencies?

There is considerable evidence to suggest that current Basic First Aid and First Responder certifications fail to provide law enforcement officers the depth of knowledge necessary to save themselves and one another. Moreover, the failure to train all officers on key fundamental medical skills from a self-treatment and active threat environment standpoint poses a potentially fatal risk to other officers who are compelled to bravely attempt hasty and improvised extrications while under fire from an unknown and frequently non-visible assailant.

The success of the U.S. Department of Defense (DOD) Tactical Combat Casualty Care (TCCC) program provides several teachable lessons for the nation's domestic law-enforcement community. The initiative for broader application of essential medical skills throughout the nation's armed services was heavily influenced by the 1993 Battle of Mogadishu firefight in which a number of the U.S. casualties could have been prevented by prior training in essential "buddy-care" skills and, not incidentally, the acquisition and use of more and improved lifesaving tools and equipment.

The core principle of the TCCC program is to rapidly provide events-based medical care to battlefield casualties – while at the same time continuing to eliminate or at least mitigate the threat sources. TCCC focuses on core combat medical decision-making and treatment skills for controlled bleeding, tension pneumothorax, and airway management. A complicating factor in the law-enforcement field, though, is that – unlike military personnel, who seldom operate alone – police officers frequently do carry out their duties either alone or as part of a two-man team.

Inevitable Escalation & Other Ramifications

The application of TCCC event-based principles and practices might easily be – and probably should be – adapted for use in the domestic environment to deal with the types of injuries most likely to be encountered by police. Fortunately, the environment in which U.S. police services usually are carried out is seldom as austere as the combat environment faced by the nation's armed forces. Also, the domestic police officer is not as likely to experience the type of extreme injuries as those caused by improvised explosive devices (IEDs) used against armed forces personnel in Afghanistan and Iraq.

The nation's law-enforcement agencies would be well advised both to adapt TCCC training for local police units and to provide them as well with such essential basic military medical equipment as combat application tourniquets (CATs) and improved modular dressings. Unfortunately – and despite the efforts of the National Tactical Officers Association (NTOA), supported by the National Association of Emergency Medical Technicians (NAEMT), in developing general guidelines for adapting TCCC – there is still no uniform standard for training and equipping the officer on the street for exigent self or "buddy" stabilization and extrication.

Nonetheless, as violent trends continue to escalate both domestically and overseas, the urgency – particularly along the nation's southern border – for enhanced combat medical skills throughout the law enforcement profession will undoubtedly become increasingly important. Addressing this increased need with the battlefield-tested techniques demonstrated in the TCCC program – carefully and effectively adapted to the police profession – will and should be recognized as a mandatory officer-safety priority.

Joseph Trindal is a career federal law enforcement investigative, recently retired as chief of the Inspections & Enforcement Branch of DHS's Infrastructure Security Compliance Division. That branch is responsible for administering and enforcing the Chemical Facility Anti-Terrorism Standards.

"My Loved One Was in That Accident – Can You Help Me?"

By Craig DeAtley, Public Health

Emergency incidents resulting in injuries – e.g., plane or subway crashes and hazardous materials spills – cause an influx of urgent demands flowing into healthcare "communities" of all sizes. In addition to caring for the injured, those communities – including local hospitals, free-standing emergency departments, and even local health departments – are quickly inundated on short or no notice with phone calls and visits from family members and friends who are searching for information about their lost and/or injured loved ones.

In the District of Columbia – i.e., Washington, D.C. – a new web-based communications system designed specifically to improve communications during and immediately after disaster situations has been implemented to disseminate patient information to healthcare facilities throughout the city. More specifically: The District's Emergency Health Care Coalition (DCEHC) instituted what is called the DC ED-IT Connectivity Family Project – which enables emergency departments to post the names and other demographic data of registered disaster victims so that such information can be quickly shared with all eight of the city's acute-care facilities. The initial result is that the DCEHC is now able to assist with family reunifications not only more quickly but also more efficiently.

In the past, not only in Washington but in many other cities as well, a number of approaches have been used to track the location of "missing" patients. In some communities, emergency medical services agencies use coded bracelets or triage tags, embedded with bar codes, that can be scanned by handheld devices that transmit selected real-time patient data to designated reception sites such as hospitals and alternative care centers. However, there are some deterrents to the widespread use of coded bracelets or triage tags: First, many are in the early stages of development; Second, the cost of these systems may exceed the budgets of at least some communities; Third, because web access may not always be readily available, transmission reliability may sometimes be problematic as well.

Routine Registration & The "Connectivity" Project

Another option for tracking patients is through routine hospital registration records. Almost all hospitals collect patient registration information, on admission, that can then be posted for viewing by specifically designated personnel. Many facilities also record the information to include it in the individual patient's electronic medical record. Certain carefully selected information can then be extracted from the records on file and viewed by staff personnel assigned to the hospital's alternative care centers. These persons can then respond later to inquiries from callers or visitors seeking the location of their missing friends or relatives.

Regardless of what patient tracking option is used, the key to rapidly reuniting loved ones is connectivity. Unless *all* of the healthcare facilities in a given geographic area are connected to a central information system, family members and friends anxious to receive information about their loved ones will still be forced to call one facility after another until their requests for information are answered.

In 2009, the DCEHC implemented a system to collect and post nonclinical patient data so that it can be available to and seen by designated personnel in all eight of the District's acute-care facilities as well as the Emergency Command Center of the D.C. Department of Health (DOH). The system was designed by the IT/IS (Information Technology/Information Security) directors from the eight facilities and the DOH, working in cooperation with the District of Columbia Primary Care Association (DCPCA) – which serves as the system administrator.

Microsoft was contracted to provide the company's Amalga software, which processes nonclinical patient demographic data for all registered emergency department patients from each facility's IT/IS system. After being collected, that data is forwarded to a regional node where – until the complete system capability is "turned on" – it can be viewed only by the sending facility's personnel.

A More Comprehensive Policy – Plus Improved Access

To help manage the system, the work group wrote a comprehensive policy manual – which includes, among other helpful information, the criteria required for activating the full capability of the system. The contributing facilities and DOH now have the ability, among other things, to view all patient records throughout the system. Each individual facility – and/or the

DOH – can turn the system on, therefore. After the system is activated, authorized viewers are allowed: (a) to see which patients are being treated during the emergency at each facility; and (b) to search the records by using any of several common-sense approaches – e.g., the alphabetized listing of all patients and/or the gender, age, and/or date of birth of the individual patient. Starting- and ending-date filters also can be adjusted for used in "extended" incidents occurring over a relatively long operational time frame.

The end result is that the healthcare staff fielding calls at any of the participating facilities can quickly scan the system listings to find the location of a specific patient. A major fallout "bonus" is that the data picture created by the Connectivity Family Project can also be a useful tool for emergency managers – who, by monitoring the data picture, are now able to determine an incident's overall impact on the D.C. healthcare system.

Daily operations and system performance are carefully monitored by DCPCA personnel. To review the system performance data, the work group meets regularly to discuss ongoing management issues. To monitor and/or improve the operational capability of the system, the work group also performs quarterly tests in addition to using the system during real-time emergency responses – a recent bus accident, to cite but example, that resulted in the system being turned on.

To summarize: The District of Columbia's ED-IT Connectivity Family Project provides an invaluable new public service capability for the city's healthcare system. The "Project" has already successfully united the existing IT/IS systems used by the District's eight acute-care facilities. When the system is turned on, the informational picture provided offers greater visibility of the current emergency department status of the entire city. The fact that substantially more, and more detailed, information is now available at each participating facility significantly lessens the need for family members, friends, and/or healthcare personnel themselves having to make multiple calls asking for information about those who were "in that bad accident."

Craig DeAtley is the director of the Institute for Public Health Emergency Readiness at the Washington Hospital Center, the District of Columbia's largest hospital. Prior to his current position, he was an Associate Professor of Emergency Medicine at George Washington University, for 28 years, before leaving to start the Institute. He also works as a Physician Assistant at Fairfax Hospital, a Level Trauma Center in Northern Virginia, he has been a volunteer paramedic with the Fairfax County Fire and Rescue Department since 1972, and a member of their Urban Search and Rescue Team since 1991. He currently serves as the team's Medical Team Coordinator and also serves as the Assistant Medical Director for the Fairfax County Police Department.

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Hospital Emergency Planning

Hospitals Qualify as Critical Infrastructure

By Theodore Tully, Health Systems

Much of the current focus on emergency planning is on what planners perceive as "critical infrastructure." Although many infrastructure sites are obvious – nuclear power plants and major weapons plants, for example – many others are elevated to that status only after the occurrence of events that reveal how much their loss might affect the local community, or sometimes the entire nation. Following are a few random examples of such events: a hurricane that cripples a power station in a major city; a water leak in the core of a nuclear reactor that causes a release of radioactive steam; an explosive device that shuts down the subway system in a large urban area; and a well-planned attack on hotels, train stations, or sports arenas.

After any of these or similar incidents occurs, the principal components of a community's physical infrastructure almost automatically become the prime focus of an updated emergency plan. In addition, of course, after a particular site is elevated to the status of "critical infrastructure," local agencies pay much more attention to it in their future planning sessions. This tighter focus gives that component of the infrastructure not only greater prominence from a planning perspective but also, in many cases, the additional funding needed to protect it from future terrorist attacks and/or major weather catastrophes.

Since the 25 November 2008 attacks in Mumbai, India, hotels have become a major focus for anti-terrorist plans in many other nations throughout the world – particularly in the United States. The hotels in most large cities are public areas that have not been "hardened" against an attack. Moreover, until very recently, most of them had never been surveyed to determine specific areas of vulnerability, and police and fire departments usually had ignored them during various emergency drills and exercises.

What Attracts Tourists Also Attracts Terrorists

There is an additional complicating factor to consider – namely, that hotels, by virtue of being essential building blocks in a vital service industry, are built and operated to provide a welcoming atmosphere for the general public. Moreover, they attract large crowds at scores of annual con-ferences and conventions – and for that very reason become exceptionally attractive targets for terrorists as well.

The same characteristics that make hotels such an attractive target also apply to hospitals. Not quite three years ago – on 14 December 2007 – the Bon Secours Hospital in upstate New York was notified that a man carrying a hand grenade was approaching the hospital. During a confrontation with the police he was shot dead – and the "grenade" was identified as a fake. More recently (on 16 September 2010), the distraught son of a patient at the Johns Hopkins Medical Center in Baltimore, Maryland, shot and injured a physician who was caring for the man's mother. After police arrived and locked down the area, the man killed his mother, then took his own life. Less than two weeks after that incident – i.e., on 25 September 2010 – two police officers were wounded at the Creighton University Medical Center in Omaha, Nebraska, and a suspect who "possibly had connections to a terrorist threat" was critically injured.

As the preceding and scores of other incidents prove, hospitals and other healthcare facilities are obviously not immune to violence. In fact, with a simple computer search, numerous other instances of hospital shootings and other violence can be found that take place every year in cities and towns throughout the country. Ironically, in large part because of the very laws that help protect the public – the Emergency Medical Treatment and Active Labor Act of 1986, for example – hospitals are required to give priority access to those needing medical care and must quickly process these patients while remaining open 24 hours a day. The great deal of emotion that sick or injured patients – and/or members of their families – experience during hospital stays can make those places easy catalysts for sudden violence.

Indiscriminate Violence And Other Major Disruptions

There are two other complications that must be taken into account by emergency planners. The first is that the size and layouts of most if not all large medical centers make them similar in many ways to small cities. In New York City, for example, which is home to some of the nation's largest hospitals, an estimated 40,000 or so people go through the doors of those hospitals in any given day. The second complication is that

many of these same hospitals also serve as specialty centers that not only care for patients in a major metropolitan area of more than 10 million people but also are so well known internationally that they attract patients from other areas of the country and from overseas as well.
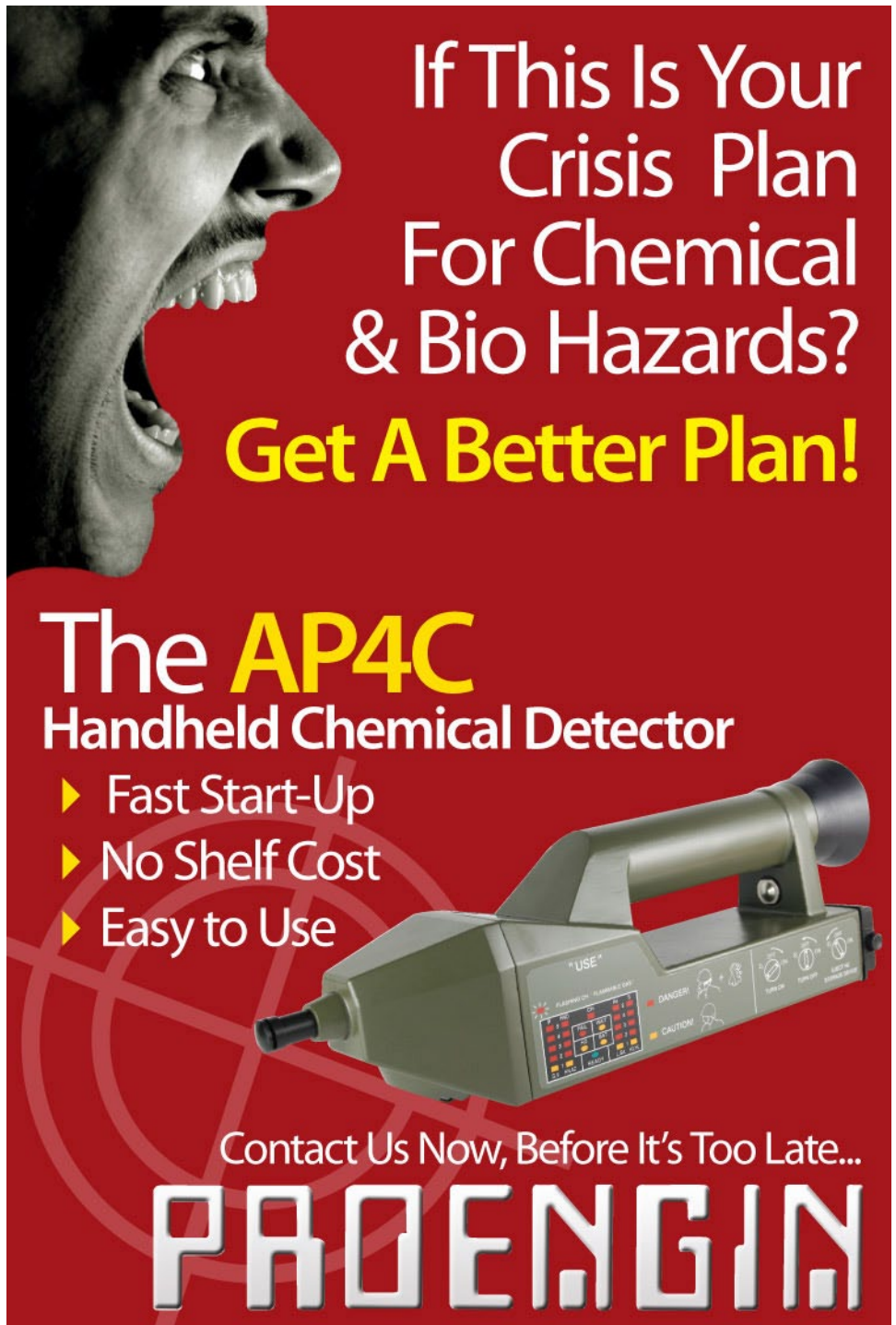
Given these characteristics, it is obvious that many or most, if not quite all, hospitals are an increasingly attractive target for indiscriminate violence in most communities throughout the nation. A hospital is an obvious place to find victims for potential random violence, shootings, or bombings. Hospitals and medical centers also are valuable physical assets that, if destroyed or significantly damaged in a terrorist attack (or by a random act of nature), would represent a substantial loss not only to their own community but to the entire nation. If the hospital had to close, for any reason, there would be many adverse long-term effects – the least of which would be causing people to travel longer distances to get to another hospital.

In short, all evidence suggests that hospitals and other major healthcare facilities should automatically qualify as "critical infrastructures" for emergency-planning purposes, and therefore be included in the same type of security planning that hotels are now receiving – very belatedly. Security reviews by local police and federal agencies, along with a steady funding stream for training drills and exercises, might well help to either prevent or mitigate not only terrorist incidents, but also the random "everyday violence" that routinely occurs in almost all hospitals.

Footnote: Not incidentally, the Mumbai terrorists entered the Cama Hospital in that ancient city to carry out one of their most coldly calculated attacks against innocent victims they had never seen before. Seven people were killed inside the hospital, and nine others outside.

Many authorities believe the terrorists saw the hospital as both an easy and unprotected target.

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Another Look at EMS Staffing in Action

By Joseph Cahill, EMS

In South Africa, public employees have been striking recently, with the primary points of contention, according to credible news reports, being problems related to wages and housing allowances. Both sides acknowledge the need for increases not only to keep up with inflation but also to bring public employees' wages closer to the national average. However, management and labor still disagree about exactly how much employees should receive over their cost-of-living increases. One unfortunate result of the strike has been that it has not only hurt the health care system in South Africa but has also been blamed for a number of deaths.

Disagreements between management and organized labor are not uncommon in any modern nation. A number of laws in the United States (and several other countries) prohibit "essential" public employees from using a "job action" such as a strike or "sickout" to pressure government officials. The reason for these laws is primarily the types of work paid for by taxpayers and performed by public employees. Almost all first responders, to cite perhaps the most obvious example, are either public employees or contracted to public agencies.

A job action for EMS (Emergency Medical Services) workers is almost always a losing proposition for labor. Beyond the threat of legal action – e.g., two days of pay lost for each day of job action – it is very easy for management to spin the usually erroneous concept that EMS staff care more about their own pay than they care about the patients who are (or are considered to be) their primary concern. In fact, that argument is exactly what is being put forth in South Africa.

Actions, Explanations & Sometimes Successful Strategies

Nonetheless, a job action is also not beneficial to management itself because, regardless of how it ends, the loss of staff availability for even a short period of time will still have to be resolved – and explained to the public as well. One way of filling the resource gap during a strike or job action is to request additional staff from other agencies, in the same general geographic area, under mutual-aid agreements.   However, that strategy can be successful only when the community providing the assistance is not subject to the same loss of personnel resources. Many political jurisdictions contract out their EMS responsibilities – but there are often only a few major contractors within a region, particularly in nations with relatively low population densities.

The sharing of common employee sources can be beneficial, therefore – but it can also be injurious, depending on local circumstances. When neighboring towns use the same contractor, they have the benefit of their EMS units (and other first-responder agencies) sharing dispatch, command, communications, and other personnel and equipment resources. However, in a job-action situation, communities that use common contractors almost always are staffed by common labor pools as well.

Blizzards, Warm Bodies & Budget Shortages

In desperate times, as officials at all levels of government – and in the private sector – well know, desperate measures must sometimes be taken. When resources do not meet current needs, decision makers are often forced, particularly in the medical-care field, to meet those needs by using staff that are not typically trained for EMS work. For example, during severe blizzards in New York City, the New York National Guard has often been employed to assist EMS units in getting to the scene of a major incident both safely and rapidly. In similar fashion, many emergency management plans in communities throughout the United States call for the use of fire and/or police staff to augment the EMS ranks.

Here, a cautionary note is recommended: When planning to use non-EMS resources for EMS tasks, special care must be taken to ensure that the orders given are both effective and legal. Many states such as New York have statutes in place that specify the minimum staffing required for an ambulance. But with budgets shrinking almost everywhere, ambulances are often staffed at the minimum level allowable.

Substantively, this means that adding additional warm bodies does not necessarily add ambulances to the operational inventory at the same time. For example, in New York, a BLS (Basic Life Support) ambulance must by law have two emergency medical technicians (EMTs) assigned. During the blizzards earlier this year, when National Guard resources were added, they operated in addition to rather than as replacements for the two EMTs.

For legal as well as operational reasons, many emergency plans call for the use of fire-service personnel – largely because many fire departments require that their firefighters also be qualified as EMTs. However, even when that is the case, it is still possible that organized labor may be unwilling to cross the line during a job action.

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.

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The Reality of On-Scene Medical Control Physicians

By Raphael Barishansky, Public Health

The Emergency Medical Services (EMS) system in the United States functions primarily under the philosophy that EMS should – as efficiently as possible – assess, treat, and then quickly transport a patient to the appropriate hospital for definitive treatment by physicians. If needed, Medical Control (MC) is supplied off-line in protocols or online via various communication technologies. The paramedic-driven EMS system used in the United States was developed not because it was an inherently better design, but largely because of economic reasons – including a relative shortage of available physicians. It is undeniably less costly and time consuming to train paramedics rather than physicians, and paramedics are considerably less expensive to pay.

One of the more direct references to pre-hospital roles for physicians can be found in the NAEMSP (National Association of EMS Physicians) position statement on *Physician Clinical Responsibilities*. In that statement, NAEMSP recommends that EMS-system physicians "maintain a presence in the field to provide on-scene medical direction, assess compliance to protocols and policy, observe the quality of patient care, and be a resource and teacher." It is not specified whether the "presence" specified necessarily needs to be a physical presence at the scene.

In a related 2002 publication, *Prehospital Systems and Medical Oversight*, NAEMSP cites the following examples of situations in which dispatchers may alert EMS physicians that they may be needed for an on-scene response: multiple/mass casualty incidents; major vehicle collisions in which there is an "entrapment" possibility; specialized rescue situations (heavy rescue, trench, confined space, water/swift water, vertical); major airport alerts (airplane crash); hazmat (hazardous materials) incidents; WME (weapons of mass effects) incidents; and tactical situations in which hostages have been taken.

Also: significant structural fires and/or major fires involving human victims; structural collapse situations with entrapment possibilities; incidents in which difficult airways are anticipated; incidents where there might be a need for field amputations; complicated incidents involving a possible field termination of resuscitative efforts; mass-gathering events – particularly and specifically including major political or media events; and "unusual" medical situation (an anatomical oddity, for example, or the use of an unusual home medical device).

A Relevant Surprise & Conglomerate Inventory

A relevant question, based on the preceding, is this: Does the lack of commentary on the record by notable emergency medical associations mean that Medical Control away from the hospital does not exist in the United States? Surprisingly, perhaps, to at least some American paramedics and EMTs, the answer is that there already are some U.S. EMS systems that routinely put physician responders in the field. Those systems share a number of common elements including the specific circumstances in which physicians are dispatched to emergency scenes, what they are expected to do, and are capable of doing, on those scenes, and what type of vehicles and medical equipment they are likely to both need and use.

In the same 2002 *Prehospital Systems* publication mentioned earlier, NAEMSP suggests the following equipment and drug inventory for EMS physicians: a monitor/defibrillator; an airway management kit with endotracheal tubes/laryngoscope; oxygen delivery systems; a bag-valve-mask device; a medical kit with IV-access supplies; a scalpel, 4x4 gauze, and tape; a high-powered flashlight; rescue blankets; communications equipment (specifically including a radio, a pager, and a cell phone); proper identification (card or badge); a fire extinguisher; flares; and binoculars.

In addition: foul-weather clothing; reflective clothing/vests; bullet-proof vests; splints/immobilization devices; hazardous materials manuals; and, last but not least, a drug pack filled with such medicines as epinephrine, atropine, lidocaine, dextrose, nitroglycerine, furosemide, diazepam, the drugs needed for rapid-sequence intubation, 2-PAM, and a cyanide kit.

Several programs – such as those in Houston, Texas; New Haven, Conn.; and some areas of New Jersey – actually provide for a physician responder as a routine component of incident-scene EMS operations. In those programs, the physicians are used both for high-priority single-patient and for lower-priority multiple-patient calls. In Houston, a staff of four physicians, assigned on a four-day rotation, provides 24-hour coverage of online and/or on-scene medical direction for all patients considered to be critical. In addition to being automatically alerted, along with the EMS supervisor, when units are sent to critical medical cases or trauma responses – e.g., motor vehicle crashes with entrapment, gunshot wound in a child, multiple victims – these doctors may respond to scenes as

they see fit, allowing them to see and be seen in and as part of the overall Houston medical system.

The New Haven area has a dedicated physician-response team staffed by seven EMS physicians and two physician assistant/emergency medical technician–paramedics (PA/EMT-Ps). According to Dr. David Cone, MIC medical director of the New Haven Sponsor Hospital Program, the team is dispatched, following a request by an incident commander, an average of two to three times a month. About half of the calls are for "clearing" patients at school-bus crashes and similar events with several low-injury and no-injury patients. The remainder of the calls usually are related to prolonged extrications, industrial accidents, and similarly complex situations.

Response calls are also "jumped" for quality assurance (QA), educational, and research purposes. The team is certified and the vehicles both inspected and licensed by the state. All of the personnel staffing the team have had previous ICS (incident command system), hazardous materials operations, and emergency vehicle operations training. These units have system vehicle designations and are available through the main dispatch entity via a standardized call-out procedure.

A Degree of Unusual Expertise & Advanced Capabilities

Here it should be emphasized that it takes more than a medical degree and advanced emergency life support courses – e.g., Advanced Cardiovascular Life Support, or ACLS; Advanced Trauma Life Support, or ATLS – to effectively operate as an on-scene MC physician. Training in basic and advanced ICS subjects, hazardous materials and/or CBRNE (chemical, biological, radiological, nuclear, explosive) situations, and emergency vehicle operations, as well as being in-serviced into local EMS system operations and prehospital scene safety, are all both important and necessary. In systems where response works to enhance the provision of prehospital care, physicians should have experience in emergency medicine, a thorough knowledge of EMS policies and protocols, and an understanding of the various levels of providers' skills and scopes of practice as well as an overall familiarity with local emergency-response resources.

One important question remains, though: Do these examples mean that EMS providers in other areas of the United States should expect to see their medical directors or MC physicians assigned to a call sometime in the near future? The answer is "Not necessarily." Most paramedics and EMTs probably would prefer not to have a doctor looking over their shoulder on a call.

In New Haven as well as New Jersey, for example, despite a well planned protocol and dedicated units, the number of formal requests from field personnel for the physician team to respond to a call are still fairly low. Also, given the overwhelming patient volume already being experienced in the nation's emergency rooms, the likelihood of an attending MC physician running out the door at the sound of an ambulance pager is a bit unrealistic.

However, with carefully considered response policies and protocols – combined with ready, willing, and able medical directors and/or MC physicians who have both the training and the equipment needed – in-the-field physician responses are a possibility that both sides of this idea should carefully consider. For EMS providers, the potential benefits of having physicians as part of an emergency response – e.g., large-scale triage assistance, specialty care above the scope of practice or training of a paramedic, immediate availability for medical consultation/command, first-hand quality improvement/quality assurance feedback for protocols, one-on-one teaching opportunities – should not be overlooked. As for medical directors and MC physicians who put their collective licenses on the line everyday, the value of having the ability to directly observe an EMS system functioning in real time is immeasurable.

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

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Below is the "General" information the New Haven area uses to describe its "Procedure for Dispatch of Sponsor Hospital Area Support Physician(s)."

The New Haven Sponsor Hospital Area Response Physician (SHARP) Team consists of EMS physicians and pre-hospital coordinators, all of whom have received incident command systems and hazardous materials operations training. Most also have firefighting and rescue training.

The SHARP Team will endeavor to have at least one designated EMS physician available at all times, with backup provided by the EMS coordinators.

SHARP physicians and physician medical advisors will have the CMED radio designation of 10 Romeo. The exception to this is Dr. Sandy Bogucki, who will continue to use the radio designation 10 Hotel.

EMS coordinators and non-physician medical advisors will have the CMED radio designation of 5 Romeo.

Reducing the H1N1 Risk: Public-Private Social Media Partnerships

By Tim Tinker, Senior Associate & Director, Booz Allen Hamilton's Center for Risk and Crisis Communication, and Marko Bourne, Principal, Booz Allen Hamilton, Case Study

The explosion of social media – everything from social networking websites to blogs and broadcast text messaging – has changed the way in which public- and private-sector organizations design their procedures for the H1N1 influenza virus and seasonal flu communications planning and response. Especially in times of emergency, public-private partnerships in social media are integral to understanding emergent behaviors, creating social networks, reaching special-needs populations, and much more. The information and best practices presented in this article are based on the two-part webinar series, *Social Media and Technology Breakthroughs: H1N1 and Seasonal Flu Communications*, which was organized and conducted by Booz Allen Hamilton Inc. and the American Public Health Association.

Increasingly, federal public health and emergency management agencies are collaborating with high-tech companies – e.g., Microsoft, Google – to find better ways to communicate quickly and cost-effectively with the public during public health emergencies such as an H1N1 outbreak. For example, after the emergence of H1N1 in 2009, the U.S. Centers for Disease Control and Prevention (CDC) was poised to use that agency's ever-expanding social media platform to increase public awareness and encourage healthy behaviors. Currently, approximately one-third of Americans under the age of 25 do not access any type of news source on a daily basis, hence CDC leverages text messaging in its social media outreach effort.

In February 2010, a Pew Internet survey reported that both teen and adult use of social networking sites has significantly increased. Of "wired" American teens, 73 percent now use social networking websites – compared to 65 percent in 2008 and 55 percent in 2006. Moreover, cell phone ownership is nearly ubiquitous: 75 percent of American teens and 93 percent of the nation's 18- to 29-year-old population now have cell phones. Moreover, in the past five years, cell phone ownership has become mainstream even among 12-year-olds – increasing from 18 percent in 2004 to 58 percent in 2010.

Widgets, Buttons, Tweets And Other Educational Efforts

Because young people have been disproportionately affected by H1N1, public health officials have targeted teens and young adults as among the principal age groups to be vaccinated. However, that can be a daunting challenge, primarily because young adults and teens are the least likely groups to seek medical care – or, for that matter, to feel vulnerable to a health threat.

Outreach via mobile phone can target the specific audiences that are most likely to face a particular health concern – e.g., lower immunization rates. Moreover, reaching out, by use of social media and online social networks, to populations that might not pay attention to more traditional media (e.g., print and broadcast) is possible even in the midst of a disease outbreak.

Increasingly, organizations, both public and private, are tapping into the network capacity of social media using tools – e.g., mobile phones, widgets, streaming video, tweets – to promulgate timely, accurate, and credible information not only about the influenza threat itself, but also about the actions that can be taken to prevent its spread and mitigate its impact. For schools, CDC developed – in addition to traditional news events – a number of widgets and buttons that could be used on individual school websites, further extending the reach of the CDC message.

A Paradigm Shift in Emergent Behavior

By moving away from the traditional command and control approach, the public can and is more likely to work with health authorities to be active participants in communicating risk and best practices information in the face of threats such as H1N1. During an outbreak, what public-health practitioners and social scientists have labeled "emergent behavior" can be invaluable. In the case of an influenza pandemic, emergent behavior – or group cooperation – would be particularly useful because the threat is unpredictable, fast-changing, indiscriminate – and often geographically ill-defined.

Nonetheless, for the first time in history – thanks in large part to social media and global communications networks – it is

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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.

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.

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 ± 14 mmHg (mean ± SD), and systolic blood pressure increased by 16 ± 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 paranitrophenol 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/m² 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 scarletiniform 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, asystole, 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, diplopia, 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.

possible to directly foster the type of emergent behavior needed to respond to such outbreaks.

A true paradigm shift is likely to occur when existing networks – of, say, Twitter users or Facebook friends – become directly involved in disaster response. The exciting potential of the social media can and probably will be realized when the public is truly empowered, and the public becomes an active partner in preparation and response. The public will then no longer be merely receivers but, more strategically, transmitters and co-producers of reliable and actionable information.

Creating Networks Based on Common Need

Federal agencies and private industry recognize that social media can create networks based on common need and purpose. Formal as well as informal networks can spontaneously spring up when the need to connect arises – e.g., H1N1 outbreak. Tapping into those networks allows government and industry to go beyond the mere dissemination of messages to engaging communities as partners in remotely checking on the health status and needs of both family and friends.

Another population in great need of H1N1 vaccination and seasonal flu protection is the nation's 8-12-year-old children. In a novel approach targeted to this younger audience, CDC created flu activities in a virtual world known as Whyville – an educational site geared primarily to preteens and younger children. The Whyville "menu" includes in-world vaccinations, a hand-washing activity for all who enter the Whyville site, and a vaccination "celebration" with a CDC flu expert.

To expand outreach to vulnerable populations such as those with no access to a mobile phone or landline, CDC partnered with a service called Community Voice Mail, a national network that connects more than 40,000 people annually to critical

After the emergence of H1N1 the Centers for Disease Control and Prevention were poised to use their ever-expanding social media platform to increase awareness and encourage healthy behavior; CDC's experience shows that approximately one-third of people under 25 do not access any type of news source on a daily basis … for that reason, CDC affirms that text messaging is important in any social media outreach program

resources. CDC used the service to send almost 15,000 voice mail messages during the early months of the H1N1 outbreak. The service is closely integrated with social services agencies, which means that individuals and organizations accessing the messages are well positioned to follow up on health advice, for example, by being linked to a vaccination clinic.

Hands-On Health, Viral Marketing, Repetition and Milling

Private-sector initiatives are gaining notoriety as well. The innovative thinking and strategies of companies such as Microsoft include harnessing the power and reach of both online and offline media via such outlets as MSNBC, the MSN website, and MSN Health and Fitness.

Additionally, the company created the H1N1 Response Center, where visitors can make an assessment that answers the question, "Could I have H1N1?" The goal of the project, launched in October 2009, was, and is: (a) to provide users with timely and relevant content; and (b) to enable consumers to gauge their own symptoms and receive guidance by using an H1N1 self-assessment service. At the end of the assessment, users could update their Facebook status to let others know whether they are ill and/or to encourage friends to make their own assessments. Integral to this constant flow of discourse and information is the notion of "milling," or the sharing and confirming with others what was learned from trusted sources.

To promote and sustain milling, the same or similar content is repeated through multiple channels, via multiple media.

Although no magic bullet exists for managing these relationships and outcomes without actually being in control, staying actively engaged is critically important while the message is spreading. Content must be updated, sources verified, and network participants must have easy access to

resources that carry credible advice and illustrate ways that people can help the response. One example: Microsoft's Vine program is designed to help individuals and groups manage their social networks and enable structured conversations between individuals and organizations. For example, when H1N1 emerged in April 2009, the Mexican Ministry of Health portal was overwhelmed. With few social media tools available, the site could not handle the Mexican public's demand for information. Within 10 days of the H1N1 outbreak, though, Microsoft helped produce a site that was able to handle one million hits a day.

Early Detection and Early Prevention – Google Flu Trends

Google Flu Trends (GFT) – a complementary tool available to public health officials for estimating current flu activity in near real time – is a further example of harnessing the power of an engaged public to help authorities do their jobs more effectively. In the case of H1N1 and seasonal flu, GFT identified and tracked the relationship between the number of people searching for flu-related topics and the number who actually had flu symptoms.

Intuitively, the public, with its many sub-audiences, are rich resources for health data, particularly considering the fact that an estimated 90 million American adults search online for health information. Those searches provide a rich and, in many cases, untapped resource for health communicators to direct prevention and health-related messages to key targets.

The search-based query estimates are not designed, though, to replace the traditional surveillance that provides most demographic data and detects specific pathogens. However, a sudden increase in online search queries from a particular region does have the potential to spur public health officials to investigate whether a threat actually exists in that region – and, if so, to quickly respond.

How Best to Leverage Both Power and Opportunity

To briefly summarize: As of December 2009, over 80 percent of the U.S. population – i.e., an estimated 300 million people or more – were mobile phone subscribers. Moreover, according to the Pew Research Center's 2010 Mobile Access Survey, approximately 38 percent of users access the Internet on their mobile device. However, the two mobile activities in which most people are engaged are: (1) taking pictures on their phones (76 percent); and (2) sending or receiving text messages (72 percent). In fact, text messaging in the United States now registers an astonishing 4.3 billion SMS every day.

These and other recent statistics make it clear that it is no longer a matter of *whether* to use, but rather *how* to use mobile phone technologies, and social media, to leverage the power and opportunity to communicate to diverse audiences before, during, and after an H1N1 outbreak, if one were to occur. To keep up with the accelerated pace of information exchange, social media must be an integral part of broader communication strategies, and increased flexibility, as well as repetition, to ensure that key messages are consistently delivered, reinforced, and updated. Hence, ongoing collaboration, keeping abreast of emerging tools, and constantly testing and applying best in-field practices will ensure social media are integral to broader public-private partnerships.

Timothy Tinker (pictured), a nationally recognized expert in risk and crisis communications, is a senior associate and director of Booz Allen Hamilton's Center for Risk and Crisis Communication, which provides a broad knowledge base of best practices and effective tactics to help clients plan for, respond to, and recover from emergencies and disasters. Before joining BAH, Dr. Tinker was senior vice president (2001-07) at Widmeyer Communication, where he formed a national and global network of risk and crisis communication experts to assist such agencies as the U.S. Department of Defense, the U.S. Department of Agriculture, the U.S. Environmental Protection Agency, and the Centers for Disease Control and Prevention. Before entering the private sector, Dr. Tinker had a long and distinguished government career - serving for nine years, for example, as chief of communications and research at the Agency for Toxic Substances and Disease Registry.

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For additional information: click on "http://www.business-wire.com/ portal/site/google/?ndmViewId=news_view&newsId=20091007006200&newsLang=en"

Technology and Equipment: Training Needed on Both

By JL Smither, Exercises

Emergency medical services (EMS) responders, as well as all other responders, must have the personal protective equipment and the proper technological tools they need to help the victims of a disaster without harming themselves in the process. That obvious requirement is especially important during response operations to an RDD (radiological dispersal device) event when victims might not only be injured by the explosion but also could be covered with radiological material that, without the appropriate equipment, might be impossible to detect. In short, medical responders rushing to help RDD victims must have access to and training on technological systems to keep themselves and the incident victims safe.

In 2002, the City of Baltimore purchased personal "alarming" dosimeters for its fire, police, and EMS responders and vehicles. Dosimeters detect the ambient exposure rate of responders. The city chose a dosimeter that was both slim and lightweight and fitted with an easy-to-read numerical display. However, after using the devices for a short period of time, responders found several problems that the city had not considered. For example, because of its thin design, the dosimeter required a specialized battery that could not be easily replaced on short notice. In addition, the battery case was difficult to open, and responders soon found that enabling the numeric display caused the battery to drain quickly. Because they could not keep the device's battery easily charged, many responders simply stopped using the devices entirely.

The obvious lesson learned from the Baltimore experience is that, when purchasing dosimeters – or any other technological device or equipment item – for responders, the governing jurisdiction must take many functional requirements into account. Fortunately, the Federal Emergency Management Agency's Responder Knowledge Base provides purchasers with product reviews and other information that could help them make important decisions on what types of equipment would probably be most useful.

> *When purchasing dosimeters or any other technological device or equipment item for responders the governing jurisdiction must take many functional requirements into account – fortunately, FEMA's Responder Knowledge Base provides purchasers with product reviews and other information that could help them make important decisions on what types of equipment would probably be most useful*

Twisted Rails, Clear Thinking & Proper Training

It is not enough, of course, to provide medical responders with the best and most useful equipment; the responders themselves must be trained on how to use the equipment. During the 2006 Southeast Transportation Corridor "Pilot Technology Demonstration" exercise – sponsored by the Department of Homeland Security's Domestic Nuclear Detection Office – participants used both fixed and portable radiation detection equipment to scan incoming cargo at various port-security and vehicle-weighing stations. The working hypothesis was that, if any radiological material could be stopped at these points of entry, the responders participating may well have prevented a radiological attack.

During the exercise, which involved participants from the federal level as well as several states, most radiological material was in fact successfully detected and removed as a potential threat. However, in some cases, participants did not detect (and then remove) potential hazards because they had not been properly trained on the detection equipment they were using. More specifically: Because responders did not understand how to interpret the detection results, some radiological material was in fact allowed to pass through. Here the lesson learned was that the jurisdictions responsible should provide sufficient equipment training to the personnel likely to be responsible for the detection of radiological materials.

If an RDD event were to occur today anywhere in the United States, responders would have to be especially concerned with unnecessarily spreading radiological material throughout *uncontaminated* areas. The best way to ensure the safety of the surrounding area is to decontaminate everything before it leaves the contaminated scene. During the 2005 "Twisted Rail" full-scale exercise – sponsored by the Westmoreland County (Pa.) Department of Public Safety – close to 300 participants from all levels of government worked together to decontaminate the victims of a simulated train explosion that had released dangerous (but also simulated) chemical agents.

The decontamination procedures postulated were correctly followed, but the hazmat (hazardous materials) team did not screen victims after their decontamination to ensure that *all* potentially hazardous materials had been removed. Many of the victims were immediately loaded into EMS vehicles, for example, and driven with responders to area medical facilities. If any of those victims had still been contaminated, the hazard posed by the chemical agents might have spread considerably, endangering all of the emergency medical responders who had come into contact with those agents. In incidents where there is a need for mass decontamination, responders should station a hazmat staff member – who has received the appropriate equipment training needed – at the exit of the decontamination area to carry out a "final scan" on the victims being evacuated.

The "Arrival Rule": Scan Before Admitting

If any of the participants in the Twisted Rail exercise had carried hazardous material into the emergency vehicle, the hospital where that person was taken should have been able to detect the threat and decontaminate him or her upon arrival – before admitting the patient to the hospital, it should be emphasized. In 2005, the State of Oregon tested its ability to respond to a radiological IED (improvised explosive device) as part of a functional exercise in Hood River County. During that exercise, some victims became contaminated and/or were injured in other ways by the initial blast; others became contaminated when they rushed into the incident scene to help the first victims.

Concerned that some victims, unaware of the contamination threat, had already transported themselves to area hospitals,

the incident commander instructed the hospitals to scan patients as they entered and were seeking admission. However, some hospital staff members did not have the proper equipment and/or the training needed to scan each and every person who arrived at the hospital seeking admission. The result was that some patients were in fact allowed to access the facility without being decontaminated.

If the radiological IED incident had been real rather than simulated, the admission of those contaminated victims would have caused many other people, equipment items, and working areas in the hospital to also become contaminated. Instead of purchasing additional personal radiological detection equipment – and training more staff members on how to use that equipment – hospitals might consider positioning relatively low-cost portable detection instruments at key "traffic points" in the hospital – entrances and lobbies, for example. Doing so could ensure that every person who enters the hospital is scanned for radiological contamination.

To briefly summarize: All responders must have access to and be properly trained on the use of safety equipment, such as radiological detection devices. This technology is especially important to emergency medical providers, who not only have direct contact with victims immediately after an incident but also, in most situations, are responsible for safely transporting them to a medical facility where they can receive additional assistance.

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For additional information:
On the FEMA Responder Knowledge Base, click on www.rkb.us.

On providing sufficient equipment and proper training to responders, visit Lessons Learned Information Sharing at www.llis.dhs.gov.

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Jennifer L. Smither is the outreach and partnerships manager for Lessons Learned Information Sharing (LLIS.gov), the Department of Homeland Security/Federal Emergency Management Agency's national online network of lessons learned, best practices, and innovative ideas for the U.S. homeland-security and emergency-response communities. Ms. Smither received her bachelor's degree in English from Florida State University.

North Carolina, New York, Georgia, and Nevada

By Adam McLaughlin, State Homeland News

North Carolina
County Experiments with Monitoring Social Media in Emergencies

Rather than constantly scouring the Web for news and updates during emergencies, North Carolina's Catawba County is trying to track that information – and other important data – on Twitter and Facebook. County programmer analyst Lee Yount experimented with the practice in early September when Hurricane Earl was approaching North Carolina's coast.

"People just started using the hash tag [the pound sign followed by a searchable phrase] '#Earl' when they would talk about the hurricane. We were able to follow what people were saying about it, whether it … [was] the American Red Cross, the Federal Emergency Management Agency, hurricane chasers – or people actually in the path of the storm," Yount said. "We were able to get a feel for what was going on in that area or what emergency personnel were saying about it."

Yount said he prefers monitoring Twitter – using a free Web download from Hootsuite Media, he added. "It [is] more or less a centralized place we could gather this information rather than having to go to several different websites." Facebook, Twitter, and other social media have the potential, Yount points out, to reduce the workload strain that emergency centers frequently endure from people reporting incidents during emergencies. His own area plans to designate an employee to monitor social networks during the next occurrence requiring use of the county's emergency operations center. Yount is set to fill that role himself, of course, but is training another employee to do the job as well.

There has been some "chatter" in Catawba County about the

> *"People just started using the hash tag '#Earl' when they would talk about the hurricane; we were able to follow what people were saying about it, whether it … [was] the American Red Cross, the Federal Emergency Management Agency, hurricane chasers – or people actually in the path of the storm – we were able to get a feel for what was going on or what emergency personnel were saying about it"*

possibility of the county collaborating on its social-media effort with other local governments in the North Carolina Local Government Information Systems Association. Yount said he is not sure exactly how – and how much – multiple jurisdictions would or could collaborate. "It is kind of in the brainstorming stage right now," he said. "We are not really sure where it is going to lead."

New York
Emergency Services Complete Sleepy Hollow Dam-Failure Exercise

In the event of a catastrophe beyond one's own control, it is critically important to follow an emergency plan, or at least a few people are bound to get seriously injured – or worse.

That was the premise behind the Sleepy Hollow dam-failure exercise held on a Saturday morning in late September in the village and town of Athens. The Athens Fire Department orchestrated the event, with numerous other agencies assisting in the mitigation drill.

Representatives of the New York State Emergency Management Office (SEMO) were on hand to oversee the operation – for which the agencies involved had been coordinating "tabletop" exercises for several years. A tabletop is essentially a brainstorming and strategy session with numerous agency leaders participating to develop an emergency action plan.

"Everything went very well," said Athens Fire Department Chief John Greco. "Everything went off according to the emergency action plan. We flowed right through and had a lot of cooperation from residents."

Greco said the 25 September training drill was the first mock dam-failure evacuation exercise in the history of Sleepy Hollow

Lake. The scenic neighborhood, built in the 1960s, numbers about 350 homes that use the lake for household water, via its own purification and filtration plant. If the dam were to fail – whether because of a sinkhole opening up and growing out of control, or perhaps the dam "rupturing" somehow – its waters would flood a large residential zone in the village on their way into the Hudson River.

SEMO, which works under the umbrella of the U.S. Department of Homeland Security, worked in close cooperation during the exercise with the Athens Fire Department, the state Office of Fire Prevention and Control, Greene County Emergency Services, the Sleepy Hollow Public Safety team, and a number of other agencies in the surrounding area.

Nelson Delameter, who was monitoring the operation from the Athens firehouse on Saturday, said that one important aspect of the exercise was that it gave the responding agencies "a chance to know each other before an emergency. The time of an emergency is not the time to be exchanging business cards."

Coordination and smooth implementation are the keys to public safety, and the exercise helped prove that. Nonetheless, Greco said that, although everything went smoothly during the Saturday drill, there is still work to do. "We are going to make some tweaks in the next couple of weeks and when we run it again in the next couple of years everything should be worked out," he said.

Tabletop exercises centered on the Sleepy Hollow dam are scheduled annually, and current plans call for a mock evacuation exercise to be carried out every two years. Everyone in the flood zone was asked this year to fill out an information sheet that includes his or her name, family size, phone number, and any special needs that might have to be addressed during an actual evacuation.

The new tool – Previstar's Comprehensive Emergency Management Planner – facilitates the development by using various standards drawn from the FEMA Comprehensive Preparedness Guide, the National Response Framework, the National Incident Management System, the Emergency Management Accreditation Program, and National Fire Protection Association guidelines

Among the other agencies that assisted in the exercise were the West Athens-Limestreet Fire Department, Coxsackie Hose Company No. 3, the Catskill Fire Department, Catskill Ambulance, and the American Red Cross.

Georgia
Counties Use Web-Based Solution
To Develop Emergency Plans

The Gwinnett County, Ga., Office of Emergency Management is now using a web-based "collaboration platform" to improve its emergency planning process and reduce the number of in-person meetings and workshops the county previously had to schedule.

In the past, stakeholders would come together to draft a plan that would then be e-mailed to numerous "stakeholders" to provide input and then compiled and compressed into a final document. The collaboration platform "provides an on-line environment where we can collaborate and suggest changes to one another – and … there are approval processes built in," said Greg Swanson, the county's emergency management director.

The new tool – i.e., Previstar's Comprehensive Emergency Management Planner (CEMPlanner) – facilitates the development of standards-based plans by using various standards drawn from the FEMA Comprehensive Preparedness Guide 101, the National Response Framework, the National Incident Management System, the Emergency Management Accreditation Program, and the National Fire Protection Association 1600 guidelines.

The new Gwinnett County system uses those standards to generate a table of contents that not only help guide officials through the planning process but also reference appropriate federal guidelines along the way. It also reduces the chance of misunderstandings that can occur during the

process, Swanson said. "They sign in, they look at it," he said. "They post their comments right there in [what is] more like a chat session, and then the lead planner for the group can go in and make the edits. … [After] everybody accepts it … it becomes the plan." Members of a planning team can also receive e-mail alerts when various sections of the plan change.

Georgia's Atlanta-Fulton County Emergency Management Agency is using the same system. Swanson said the two agencies had not discussed how being on the same system might affect the coordination process, but said that "We may explore some of that in the future."

The Atlanta-Fulton County Emergency Management Agency started using Previstar CEMPlanner to update some of its plans about a year ago, according to Operations Officer Donald Reece. He said that the program's ability to guide planners through the process saves a lot of time. "As you write that piece, you review … [it] with the whole team and when you're at the end you have a full-length document that has been approved by everybody that has taken part [in the review]."

The end result is that, by the time the "document" is finished, everyone involved in the planning process is or should be familiar with every aspect of the plan, Reece said, not just the part covering the individual participant's own functions and responsibilities. "The difference is when you do a plan on your own – if I do an emergency operations plan and I hand out [emergency support function] ESF-8 to health and medical and hand out ESF to public works and engineering – well, they may not know about the others' plans," he said. "So when I compile these parts together, I have to go back ... and teach everybody this plan, or give it to them in hopes that they read it."

Nevada
To Use Robots to
Guard National Security Site

The U.S. National Nuclear Security Administration (NNSA) announced earlier this month (on Monday, 4 October) that the Nevada National Security Site (NNSS) plans to deploy three robots to patrol the far reaches of the former nuclear weapons testing installation. The compact units, which will be controlled from the NNSS command facility, are programmed to

make their rounds "at random" – and are equipped with sensors and video cameras that stream live images to their handlers. Operators would issue commands only when the autonomous robots come across something that requires further examination.

The chief task of the Nevada National Security Site is to help the NNSA ensure that the United States continues to have a credible, safe, and secure strategic deterrent. The purpose of the 4 October "rebranding" was to more accurately reflect the full range of homeland security, nuclear, and energy operations that take place regularly at the NNSA site.

Today, the site is used by the U.S. Department of Homeland Security (DHS) to train emergency responders in responding to a nuclear incident and to evaluate the latest radiation sensors for use at border checkpoints and ports. For years, the Defense Department used the installation to improve its ability to discover and eliminate protected underground facilities and to carry out a variety of biological, chemical, and nuclear detection activities.

"The robots are a great addition to the NNSS protective force," said NNSA Associate Administrator Brad Peterson in remarks released to the press. "The robots allow us to improve security at remote … [areas] of the Nevada National Security Site at reduced costs. NNSA applauds NNSS … [for] seeking ways [to] improve the way it does business while maintaining the highest security standards."

The robotic units can travel as fast as 20 mph, and can operate for over 12 hours without refueling. They monitor obstacles, locks, and inventory through "radio frequency identification tags." The new units are expected to save $6 million initially by offsetting security infrastructure costs for motion sensors, cameras, lights, and other equipment, and another $1 million annually on security-force and technology-upkeep costs.

Adam McLaughlin currently serves as the Manager of Emergency Readiness, Office of Emergency Management, for the Port Authority of New York and New Jersey. His responsibilities include both the development and coordination of Port Authority interagency all-hazards plans and the design and development of emergency preparedness exercises. A Certified Emergency Manager (CEM), he is a former U.S. Army officer – and a veteran of the war in Afghanistan – and a member of the Faculty of Senior Fellows for the Long Island University's Homeland Security Management Institute.

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