



# Preparedness Tools

## Building Blocks for Success

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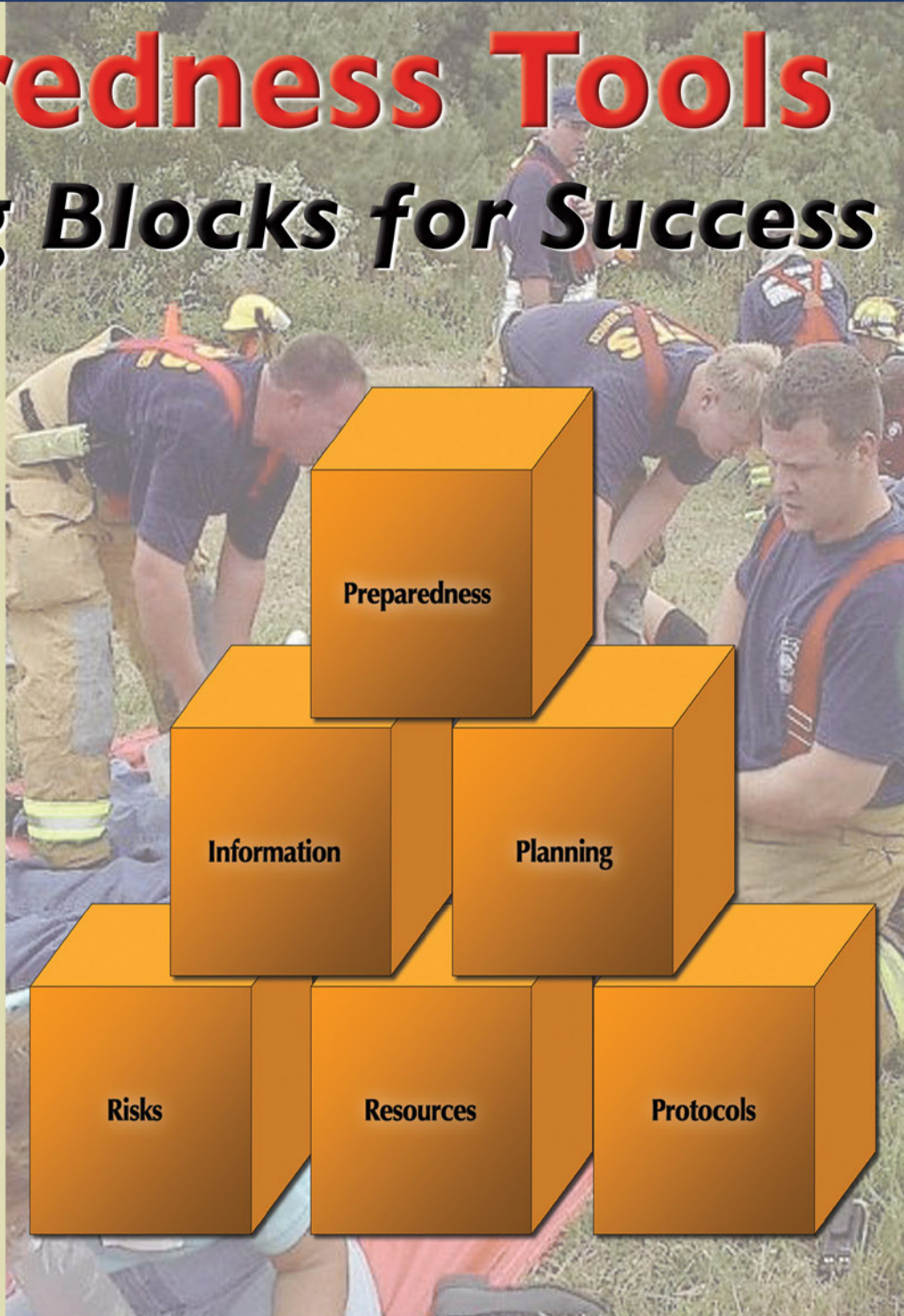
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# Editor's Notes

By James D. Hessman, Editor in Chief



The cover of the July *DPJ* issue is filled with six one-word boxes. A number of additional boxes – i.e., “building blocks” – are included in several of the articles in this monthly printable issue. The editorial reason for their inclusion is much the same, in each instance – namely, that in the numerous overlapping disciplines in the field of domestic preparedness there is rarely if ever a way to move from total ignorance to total preparedness in one quick and easy step.

In other words, in training programs, in the setting of standards, in the handling of mass-casualty situations, and in the development of multi-jurisdiction all-hazards response plans, it is impossible to get from here (total ignorance) to there (total preparedness) without going through several difficult milestones along the way. In fact, as Stephen Grainer points out in his comprehensive report on the new DHS (Department of Homeland Security) Five-Year Training Plan, truly “total” preparedness is, unavoidably, an impossible dream. It is, nonetheless, a goal and an achievement eminently worth pursuing. In that respect it is similar in many ways to the goals that Olympic athletes and college as well as professional athletes set for themselves – higher, faster, stronger, and other measurable milestones – despite the fact that total perfection is totally out of reach.

Kelly R. McKinney and Joseph Picciano team up in this issue's lead article to discuss the common-sense building blocks used by New York City and neighboring jurisdictions to develop a detailed Gap Analysis Tool that can be used to respond to various disasters that might reasonably be expected to occur in the greater NYC area at almost any time in the foreseeable future. The first and most important block is called “Information” – which simply means “get the facts” about those possible hazards. *Then* find out, also in considerable detail, about what is needed to cope with each and every one of those hazards. *Then* find out what resources (personnel; medical equipment; food, water, electricity, and other consumables, etc.) are immediately available. *Then* determine what additional resources are needed. *Then* find out how and where to obtain those resources.

Two other authors look at diametrically opposite views of building blocks as seen from a global perspective and by an on-the-scene emergency responder. Diana Hopkins tells the not-so-simple story of how standards (e.g., on equipment; on products, processes, and procedures; and on testing and validation) are set at both the national and international levels. Joseph Cahill looks at the grim but absolutely necessary “triage” process – basically: (a) “Can this victim be saved?”; (b) “If not, move on to the next person” – as so uncomfortably seen by a CERT (Community Emergency Response Team) volunteer.

Not all of the “news” is quite that grim, though – just the opposite, in fact. Ruth Marrero reports on the promising new CEFO (Career Epidemiology Field Officer) program initiated by the U.S. Centers for Disease Control and Prevention (CDC) to help state and local jurisdictions cope with unforeseen (and unforeseeable) outbreaks of infectious diseases. Steve Fortado provides a “Case Study” of how the U.K.'s Dorset County Police used advanced technology (provided by Thermo Fisher Scientific) to thwart possible terrorist incidents at last year's Labour Party Conference in Bournemouth. Gary Simpson tells how a rapidly growing number of U.S. malls and shopping centers are protecting their critical infrastructures through the hiring of private-sector security agencies and the use of state-of-the-art video-surveillance systems. And, as always, clean-up hitter Adam McLaughlin completes the issue with timely reports on the “higher, faster, stronger” preparedness achievements logged in last month by, among other states and cities, Nevada, Washington D.C., Maryland, and Kentucky.

*About the Cover: The “building blocks” of preparedness (discussed above). The Chesapeake Fire Department photo in the background shows first responders during the triage stage of a 2001 training exercise sponsored by the Federal Emergency Management Agency to give local response agencies a better understanding of the risks involved in the handling of hazardous materials. (Photo compliments of the Hampton Roads Metropolitan Medical Response System - <http://www.hrmmrs.org>)*

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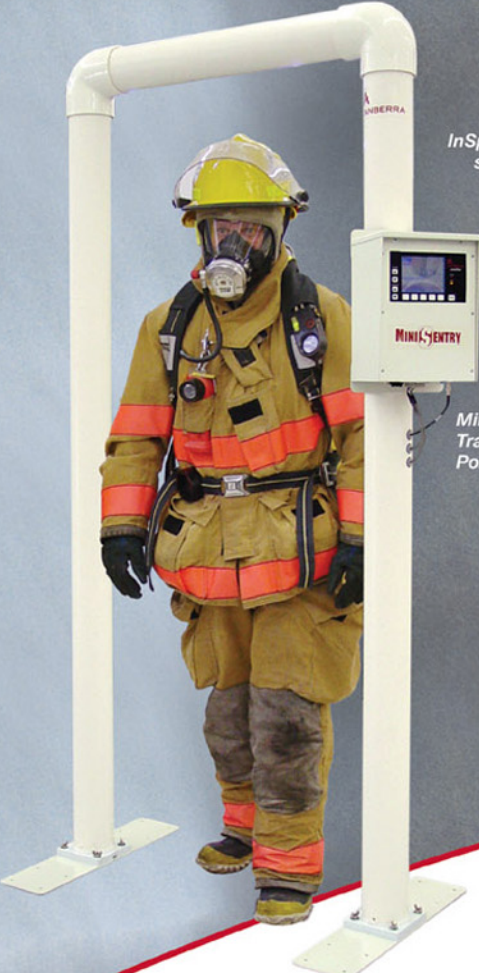
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# The Gap Analysis Tool: Building Blocks for Preparedness

By Kelly R. McKinney & Joseph Picciano, Public Health

In early 2007, the Federal Emergency Management Agency (FEMA), working with state and local emergency managers, developed what is called the Gap Analysis Tool. That Tool provides, among other things, a simple method to determine the “resource gap” – i.e., the resources required for a disaster response that are beyond the existing ability of state and local governments to provide. Although not universally popular with state and local governments, over the past year the Gap Analysis Tool has, if nothing else, promoted awareness of the resource gap throughout all levels of government.

Federal, state, and local emergency managers share a collective responsibility for disaster preparedness, response, and recovery. Preparedness, a task that can never truly be completed, is the most important and perhaps the most difficult component of that responsibility. In the post-Katrina world, U.S. emergency managers have focused more on catastrophic preparedness than ever before in the nation’s history. After Katrina the New York City Office of Emergency Management (NYCOEM) took a hard look at its own catastrophic preparedness capabilities and tried to visualize the impact of a major hurricane on the 8.2 million residents of New York City. Today, the New Jersey Office of Homeland Security and Preparedness (NJOHSP) – along with the NYC Urban Area Working Group (UAWG), the Northern New Jersey UAWG, and various other state and local partners in New York, New Jersey, and Connecticut – are working together to build enough resilience to recover after a catastrophic event that could adversely affect the 22 million people who live in the greater metropolitan area in and around New York City.

The scope of the preparedness task is enormous. It includes, among other things, the development of a continuing real-time awareness of existing resources

and, perhaps more importantly, the shortfalls, or “gaps,” in those resources. It also includes the development of a comprehensive plan to determine how the resources would be received and deployed to support the response and recovery effort.

The focus at NYCOEM, therefore, is on *information and planning* – the principal building blocks of preparedness (see Table 1). Considered in that context, *information* means determining what resources will be needed, and *planning* means determining how those resources will be requested and used.

Following is a brief summary of the major components of the Information and Planning building blocks:

Information	Risks
	Impacts
	Resources required
	Resources available
	Resource gap
	Sources
Planning	Specifications
	Request process
	Deployment

**I – Information:** Information is the bedrock of effective planning. It defines the scope of an organization’s (or political jurisdiction’s) plans and provides the basis for the development of preparedness capabilities. Because it is impossible to predict the future, especially for disaster scenarios, reliable data can be scarce. NYCOEM uses the following step-by-step process to gather the information necessary to develop its preparedness plans:

**1. Risks:** *Determine the range of potential disasters likely to be faced.* The focus here is on the impacts described by the National Planning

**Table 2 Power Generator Specifications**

• Generator size
• Phase
• Connector type
• Cable type and length
• Licensing requirements
• Fuel type
• Material handling equipment
• Staging area
• Transportation routes

Scenarios that were spelled out in 2004 by the Homeland Security Council

**2. Impacts:** *Predict the effect of these disasters on population, critical infrastructure, and government operations.* Impact numbers include projected estimates on morbidity and mortality, damage to existing structures (e.g., housing, hospitals, police/fire stations), the effect on utilities (power, water/wastewater, telecoms), and the quantity and types of debris generated. Understanding the possible long-term effects, which impacts areas ranging from housing shortages to unemployment and other economic problems, is critical to ultimate recovery from a catastrophic event.

**3. Resources required:** *Determine the personnel, equipment, and expertise needed to respond and recover.* Included in that information are food, water, and ice consumption rates, for community distribution, flow rates through public distribution points, hospital surge capacities, specific details on various types of heavy equipment and on emergency power generators, and equally specific estimates on the staff expertise likely to be available. Also considered are the critical resources required for businesses to begin operations as soon as possible after a major event. Resource identification in this area ultimately speeds recovery by eliminating the reliance on government.

**4. Resources available:** *Know the personnel, equipment, and expertise assets that are already on hand and*

*probably can be deployed.* NYC keeps this information current in an accessible database called the Citywide Asset and Logistics Management System (CALMS). The New Jersey Office of Emergency Management (NJOEM) keeps a similar Resource Data Base (RDB) for critical assets.

**5. Resource gap:** *Determine the personnel, equipment, and expertise that are not available.* The State of New Jersey, to cite but one jurisdictional example, has significant personnel, equipment, and expertise that it can deploy for most responses, but a catastrophic event probably will require assets that are beyond its capacity. The list of those assets constitutes what is called the resource gap.

**6. Sources of supply:** *Know where those resources will come from.* The development of this information requires engaging with all levels of government over what might well be a rather large geographic area, and with the private sector, to

identify the sources of the additional resources that will be needed.

**7. Supply details:** *Know the information required to get the right supplies, materials, personnel, etc., to the right place at the right time.* The task here is to identify, in advance, detailed information on the full range of equipment and personnel resources that will probably be required. Supply planning with the private-sector organizations to support their external requirements is very important. Some typical examples: public road clearance for major food distributors; providing interim housing for key workers in important supporting sectors; and upgrading security in general – all will allow businesses to quickly provide the critical supplies needed in a major recovery after a catastrophic event.

A typical example of the “supply details” required is shown in Table 2, which lists the information necessary to effectively request and deploy an emergency power generator.

**Figure 1: Draft Evacuation Readiness Worksheet**

<<insert Local Jurisdiction name here>>

**EVACUATION**

**Mission Scope:** Affected and at-risk populations (and companion animals) are safely sheltered-in-place and/or evacuated to safe refuge areas, in order to obtain access to medical care, physical assistance and shelter

**Readiness Indicators**

Question	Response	Notes
Does the jurisdiction have an up-to-date written evacuation plan?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Does the plan include support to evacuees on evacuation routes?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Does the plan include a detailed evacuation timeline for decision-making?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Has the jurisdiction conducted an evacuation study?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Does the plan include a public information strategy to notify the public about an evacuation?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Does the evacuation plan address requirements for special needs, animal evacuation and custodial populations?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Has the jurisdiction coordinated its evacuation plan with surrounding jurisdictions?	Yes <input type="checkbox"/> No <input type="checkbox"/>	

**Asset Assessment**

Target	Capability	Gap
Number of people that need to be evacuated for the worst case scenario (unit: people)	Number of people who can be evacuated in the worst case scenario	People who will need to be evacuated in the worst case scenario
Number of people (minus homebound population) that need assistance to evacuate (unit: people)	Capacity of all vehicles available to evacuate population who don't have cars	Vehicle capacity to evacuate population who don't have cars
Number of homebound who need physical assistance to evacuate (unit: people)	Number of homebound the jurisdiction can evacuate per hour	Number of homebound the jurisdiction needs to evacuate per hour
Amount of water and food to support evacuation (units: bottles of water/ number of MREs)	Amount of water and food to support evacuation routes	Water and food needed to support evacuation routes
Amount of fuel to support evacuation (unit: gallons)	Amount of fuel on hand to support evacuation	Fuel needed to support evacuation
Security and traffic control personnel to support evacuation (unit: people)	Security and traffic control personnel available to support evacuation	Security and traffic control personnel needed to support evacuation
Maximum estimated time to evacuate for worst case scenario (unit: hours)	Minimum time to evacuate for worst case scenario (units: hours)	Additional time needed to evacuate for worst case scenario (units: hours)

**Capability Over Time**

Target	Capability at D+7	Gap	Capability at D+30	Gap

**II – Planning:** NYCOEM and NJOHSP NJOEM are using the information gathered to date to develop contingency plans (hazard-specific as well as all-hazards plans) that clearly define roles and responsibilities, the post-event decisions that will have to be made, the identification (by job title if not by name) of the officials who are authorized to make those decisions, and the estimated times when the decisions can and/or must be made.

### **Development of The FEMA Gap Analysis Tool**

After the difficulties encountered during the Hurricane Katrina response in 2005, FEMA embarked on an ambitious effort to find a way to review “core readiness capabilities” in hurricane-prone areas. In early 2007, the agency reached out to state and local emergency managers in the Northeast area of the country to help it build a better readiness capability tool. Among the agencies consulted were the NYCOEM, the New Jersey Office of Homeland Security and Preparedness NJOEM, and the State of New York Emergency Management Office.

In April 2007, a team of key government stakeholders – including officials from FEMA headquarters as well as five FEMA Regions (I, II, III, IV, and VI), the U.S. Army Corps of Engineers, the Department of Defense, and the Department of Health and Human Services (HHS) – convened at the Brooklyn headquarters of NYCOEM. For three long days the representatives of those agencies brainstormed, discussed, argued, and collaborated to produce the first Gap Analysis Tool. That tool includes a set of scenario-based “readiness worksheets” postulating the resources needed for seven critical functional areas: evacuation, sheltering, commodity distribution, debris removal, housing, medical needs, and communications/fuel.

Figure 1 shows a “screen shot” of the first readiness worksheet, which is broken down into three main areas, as follows:

<b>Year</b>	<b>2007</b>	<b>2008</b>
<b>Scenario</b>	Cat 3 Hurricane	All-hazards
<b>Scope</b>	Hurricane-prone states	All states
<b>Readiness Worksheets</b>	Evacuation, sheltering, commodity distribution, debris removal, housing, medical needs, communications, and fuel	Commodity distribution, debris removal, transportation and evacuation, sheltering/mass care (general population, special needs, household pets), search and rescue, communications, fuel, emergency power, and medical (with HHS)

**Readiness Indicators:** Yes or no questions about preparedness status

**Asset Assessments:** Estimates of the probable resource gap in specific functional areas

**Capability Over Time:** Estimates of how the resource gap is likely to change in the days after the event

Thanks primarily to the Gap Analysis Initiative,, FEMA was able to work quickly to build a workable Gap Analysis Tool. Over the next several weeks the officials from the FEMA regions and hurricane-prone states and local communities participating in the Brooklyn meeting met again to complete the analysis, which basically consists of “structured discussions” with local jurisdictions to better understand potential disaster-response “asset gaps” in the critical areas. After that data was collected it was reviewed and validated by individual states and adjusted, if and when needed, to ensure the accuracy of the information listed.

This year the Gap Analysis concept, although originally developed to deal with hurricanes, has been expanded to apply to all-hazards disasters of any type. That step was taken as part of an ongoing FEMA effort to build upon the lessons previously learned and to apply the Gap Analysis Tool to all locations for all hazards on an ongoing basis.

Table 3 shows how use of the Gap Analysis Tool has evolved.

Depending, understandably, on who is asked, the Gap Analysis process is described as either a major step forward in planning or an unnecessary additional

paperwork burden. FEMA officials say that the agency is being proactive, and that it does not have the luxury of waiting until disaster strikes to identify potential future needs and shortfalls. Some state and local emergency managers, however, complain about the time needed to complete the paperwork required – and say they have yet to see any benefit from it.

There probably is some justification for both points of view, but most senior decision makers seem to believe that the benefits provided by this new planning tool will become more apparent over time. If nothing else, the Gap Analysis Tool provides a consistent estimate of the readiness strengths and vulnerabilities of agencies at all levels of government. It also allows state and local emergency managers to assess their own overall readiness capabilities and to improve the emergency operations planning needed to deal with known hazards. Used wisely, the Tool should prove to be an important preparedness building block that can be used by state and local emergency managers throughout the country.

*Kelly R. McKinney is Deputy Commissioner for Planning and Preparedness at the New York City Office of Emergency Management. A professional engineer with twenty years experience in public and private-sector engineering and management, he previously was the Associate Commissioner for Environmental Health at the New York City Department of Health and Mental Hygiene.*

*Joseph Picciano joined the New Jersey Office of Homeland Security & Preparedness in 2007 following thirty years of service with the Federal Emergency Management Agency (FEMA) and is now leading that state’s multifaceted efforts to achieve the preparedness goals established in the wake of the 2001 terrorist attacks in Washington, D.C., and New York City.*

# Sorting It All Out: Triage, CERT, and EMS

By Joseph Cahill, EMS



The ideal groups to handle any mass-casualty incident (MCI) affecting any community are the existing emergency medical services (EMS) agencies and other medical/healthcare resources available in that community. Unfortunately, though, there are disasters every year that overrun these resources. The federal government has sponsored a number of programs to address that problem, among them the CERT (Community Emergency Response Team) program, which recruits and trains everyday citizens to assist the response community in times of crisis.

Triage, French for “the sorting,” is a process wherein multiple patients are quickly prioritized for healthcare treatment and, in that context, can be thought of as a filter. The first and usually only filter in a *non-disaster* triage situation is the question “Who gets treated first [to maximize the number of survivors]?” The triage sorting carried out at the scene of a *multi-casualty* disaster is different, though. The first filter in an MCI context is a more difficult but unavoidable question: “Are they [a group of patients suffering from what seem to be extremely severe injuries] likely to die without immediate and resource intensive care?”

If the answer is “Yes,” those patients usually will receive no care until other patients with a greater chance of survival have been treated. This emotionally difficult structure seeks to avoid using scarce medical resources to help one or two patients who have a low likelihood of survival rather than using those same resources to care for a larger number of patients with a better chance for survival.

## True Life-or-Death Questions

Once the decision is made to treat a patient, though, urgent life-saving care

is rendered immediately. The second screen in the disaster triage process, therefore, is yet another question: “Among those deemed savable, who gets treated first [again, to maximize the number of survivors]?” The answer to that question, of course, is used to determine the priority list.

*The second screen in the process is another question: “Among those deemed savable, who gets treated first [to maximize the number of survivors]?”*

Triage is obviously one of the most important components of the standard on-line training provided to CERT team members. Among the other key components of that training are instructions in life-saving processes such as airway management and bleeding control, both of which help prepare CERT members to render the type of care prescribed during the triage sorting.

CERT members also are trained in disaster operations, and in this training are introduced to the Incident Management System (ICS). This allows them to interface with emergency responders in a way that promotes a unity of action and command. Partly for that reason, CERT team members are probably the best option available to on-scene decision makers to use for triage operations during a mass-casualty event.

## The ABCs of Successful Triage

Probably the hardest part of training medical staff and first responders to perform triage is getting them past what they already know. First responders and

medical staff have not only thoroughly trained reflexes but also an innate desire to do *something* for the patient, no matter what that “something” is. Their motivation is simple: they want to help people get better, and they have confidence in their own skills and knowledge.

Disaster triage is actually fairly simple in its structure. It typically follows the “ABCs” of cardiopulmonary resuscitation, or CPR: Airway, Breathing, and Circulation. The first strictly *medical* questions asked in a triage situation are: “Is the individual victim’s airway clear, and is he or she breathing?” If the answer to either of those questions is “No,” the provider makes a quick attempt to remedy the problem – and, if successful, moves on to the “C” of the ABCs. If unsuccessful, that victim is determined to be unlikely to survive, and the provider moves on to the next patient.

The “C” of the ABCs is addressed primarily by checking to determine: (1) if the patient has a heartbeat; and (2) if he or she has any major bleeding. Major bleeding is then stanching – but, again, if the patient has no heartbeat, the provider moves on.

The combination of these three training foci prepares the CERT member to take on the responsibility of carrying out triage within the framework of a carefully developed and medically sound response process. It is important, though, also to have medical professionals such as EMS personnel in the mix as well – both to provide guidance and oversight, and to step in when more advanced definitive care is indicated.

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*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.* ▼



# NIMS Training Plans: An Effort Without End

By Stephen Grainer, Fire/HazMat



From George Washington's days to the present, U.S. leaders have adhered to the credo that "Eternal Vigilance" is "the price of freedom."

Today, those wise words of warning are applicable, with only a slight modification, to the efforts of federal, state, and local officials seeking to meet National Incident Management System (NIMS) training expectations.

In fact, in respect to NIMS training, the word "eternal" might well be an understatement. The "On-Going Maintenance and Management" component of the NIMS guidelines is intended to ensure that all aspects of NIMS will always be "works in progress," with the overall goal being the maintenance and continuing improvement of all aspects of the NIMS policy statement, operational and training programs, and all other components of the nation's incident-management mosaic. What makes this effort a never-ending task is the fact that, even as localities train to improve their response and incident-management capabilities – which are based on the core elements of the Incident Command System (ICS) – new and improved training programs are being developed to expand on the existing curriculum. Then, of course, when the after-action reviews of current incidents and exercises are completed, the lessons learned are used, appropriately, to guide the development of newer and even more advanced training.

During the past three years, numerous political jurisdictions and emergency-response organizations have committed significant personnel and other resources to accomplish or complete various NIMS-related training programs, often with the understandable but not quite accurate expectation that

they would be "done" when they reached the next level or step in the training framework. More specifically: Since 2007, the nation's emergency-response organizations have focused on training managers and supervisors in what is described as "Intermediate ICS for Expanding Incidents" (also called

ICS-300). This effort was driven by the former NIMS Training "Tier" system in which ICS-300 was identified as a "Tier 1" compliance goal that was expected to be met by 30 September 2008.

Earlier this year, DHS issued its initial "Five-Year Training Plan." For those



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not familiar with this recent addition to the NIMS guidance specifics, that plan more clearly describes the training expectations over the coming five-year period to achieve and maintain *minimum* NIMS performance capabilities. In that context, it is important to note that the Five-Year Training Plan itself will not be a static document but will, rather, be periodically updated. Emergency-response organizations should not assume, therefore, that the training completed this year (or previously) will suffice for the indefinite future. It also should be pointed out that, as time passes, personnel who are not now expected or required to complete certain training programs may in the future – because of promotions or other attrition – assume positions that necessitate additional training, more advanced or specialized in nature, to maintain their NIMS-compliance status.

### ***One Step Follows Another On a Long and Winding Road***

According to the Five-Year Training Plan, the next significant training step should be completed no later than the end of fiscal year 2009 (i.e., by 30 September 2009). To reach that step will require, among other things, training senior administrators – e.g., agency directors and department heads – in the course “Advanced ICS for Command and General Staff for Complex Incidents and Multi-Agency Coordination” (ICS-400).

The ICS-400 course, structured for delivery in about two days, provides participating students with further background as well as practice in the nuances of establishing policy and direction for managing complex incidents – including coordination of the efforts of numerous agencies, jurisdictions, and levels of government; optimally, that coordination is achieved by using several tried and proven systems spelled out elsewhere in the ICS literature.

Among the more important concepts presented in ICS-400 are the establishment of an Area Command (to manage multiple incident sites within a complex or widespread incident) and the creation of a Multi-Agency Coordination (MAC) Group to ensure the effective coordination of all functioning elements in incident operations. ICS-400 training is currently available through designated state training agencies – e.g., state fire training and/or emergency-management training agencies.

***Personnel who are  
now not expected  
to complete certain  
training programs may  
in the future assume  
positions that  
necessitate additional  
training, more advanced  
or specialized in nature,  
to maintain their  
NIMS-compliance status***

Until recently, “compliance-oriented” training strategies often coupled the ICS-300 and ICS-400 courses into a course continuum that presents both courses back to back. Several drawbacks to that approach have become evident, though. One is that the typical student in ICS-300 and/or ICS-400 classes does not necessarily possess the experience or background in ICS needed at the intermediate or advanced level to absorb the volume of information provided in the two training programs, particularly in a compressed classroom setting. A second problem is that the difference between site-specific incident command training and that needed for the coordination and oversight of large-

scale, multi-faceted, complex situations cannot be easily reconciled in a classroom environment. Both courses require practical application, either through actual situations or through simulations and other exercises, but the most important consideration is that the student should develop a sound foundation in ICS-300 *before* progressing into ICS-400.

### ***Train, Qualify, Exercise, And Move Forward***

Although the experienced incident commander and command and general staff leaders usually are capable of managing the specific resources under their command, they often either are not experienced enough and/or lack the authority to make policy decisions outside of their own operational spheres. This is the major distinction between ICS-300 and ICS-400. Consequently, a common-sense training strategy should reflect the recognition that personnel expected to advance to training in ICS-400 should first have the opportunity to hone their knowledge, skills, and abilities at the Intermediate ICS level prior to undertaking the complexities of ICS at the advanced (ICS-400) level.

In fact, the Five-Year Training Plan “strongly recommends” that there should be an interim period (suggested to be at least six months) between completion of ICS-300 and the beginning of ICS-400 training. During this interim period, those personnel might reasonably be expected to accrue the experience needed to effectively understand and execute ICS functions at the intermediate level. That experience, of course, would provide a stronger foundation for – and the ability to successfully advance into – the ICS-400 training. Following completion of ICS-300, therefore, personnel would be well advised to take full advantage of drills, exercises, and other training opportunities to apply the intermediate ICS principles and practices needed to lay the foundation for the more advanced training required in ICS-400.

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One of the more attractive features of the NIMS Five Year Training Plan is the concise overview it provides of the training programs currently available or under development. Table 3 of the Plan displays the current “menu” of courses as well as helpful information about their present status (computer-based, classroom, under development, or in pilot testing). There are currently 22 courses listed in the table. Although the primary focus to date has been on basic courses focused on the NIMS and ICS fundamentals, there is an obvious need for the more sophisticated training required to achieve and maintain the “core competencies” that have been identified to meet “NIMS compliance” standards.

Worthy of special attention in the current list of courses are several computer-based classes that are intended to enhance the student’s understanding of some of the more sophisticated NIMS components. These courses focus on such topics as: Multi-Agency Coordination Systems (IS-701); Public Information Systems (IS-702); Resource Management (IS-703); and Intrastate Mutual Aid (IS-706). Other courses, now under development, will address such important concepts as Communications and Information Management (IS-704); NIMS Preparedness (IS-705); and Resource Typing (IS-707). These classes not only can help participants prepare for the training provided in other NIMS or ICS training programs but also can be used to augment and supplement those programs. According to the Five-Year Plan, most of the courses now under development should be completed by 2012.

Also included in the previously mentioned Table 3 is a list of courses related to the nine Command and General Staff (C&GS) positions identified in the ICS, including the recently introduced All-Hazards Information & Intelligence (now Intelligence and Investigations) Function. These programs, which are based on a training system that has been

used for many years by the National Wildfire Coordinating Group (NWCG), are intended to establish baseline training that, when coupled with practice and experience, will enable those participating to meet the core competencies mandated for the C&GS positions. For that reason, these courses are particularly recommended for those individuals who would most likely be tasked to fill the C&GS positions during major incidents or events.

However, as pointed out in a footnote to another table (Table 4) in the Five-Year Training Plan, these courses will not be mandatory for NIMS compliance. What is basically position-specific training will be required under the national credentialing system for individuals (single resources) or IMTs that are likely to be deployed – under Emergency Management Assistance Compacts (EMACs) – for interstate assistance during major emergencies or disasters. However, completion of any position-specific class will not, by itself, satisfy the credentialing criteria postulated for the various positions.

### ***Credentials, Criteria, And Documented Experience***

In addition to completing the training programs specified, the criteria for being credentialed in ICS command and general staff functions will include documented experience in performing the tasks assigned to the specific positions. That documentation will usually be provided through completion of Position Task Books (PTBs), much like the system employed by the NWCG. When the position-specific classes are released for delivery (sometime later this year, it is expected), the details for use of the PTBs also are expected to be provided.

Table 4 also provides a yearly benchmark schedule that can be used to chart progress toward maintaining NIMS compliance, and therefore also can be used to guide planning and budgeting for agencies that may be struggling to determine where to focus their efforts.

Table 4 is not intended to provide a strict schedule for training, it should be emphasized. It does, however, provide a *framework* that any locality or agency should be able to use to plan, budget, and track progress toward the achievement of NIMS compliance.

To summarize: The NIMS Five Year Training Plan provides comprehensive guidance that could and should be used: (a) to identify the training needed; (b) to plan and budget for whatever is needed to acquire that training; and (c) to track the progress made toward NIMS compliance. The Plan also provides better continuity to NIMS compliance training efforts in the state, local, tribal, and private sectors and, finally, serves as a helpful template that numerous agencies and jurisdictions can use to develop a training strategy, and set benchmarks, for achieving the goals previously identified to effectively implement the National Incident Management System.

In short, NIMS compliance is the goal, and the Five-Year Training Plan provides the training steps needed to achieve that goal. Finally, although the goal of NIMS compliance may always be yet one additional step forward, the pursuit of NIMS compliance will in itself continue to improve the nation’s ability to prepare for, respond to, and recover from the threats now facing the American people.

For more information about the NIMS Five-Year Training Plan see <http://www.fema.gov/library/viewRecord.do?id=3192>

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

# ***The All-Seeing Eye of Video Surveillance***

By Gary S. Simpson, Law Enforcement



Since the terrorist attacks of 11 September 2001, the federal government has invested deeply in improving the security of the nation's critical infrastructure. The term critical infrastructure sounds like an abstraction encompassing and/or limited to major government buildings, bridges, tunnels, etc., but it is not. In fact, *The State Official's Guide to Critical Infrastructure Protection*, published in 2003 by the Council of State Governments, indicates that about 80 – 85 percent of the critical infrastructure in the United States is privately owned. Its principal elements include buildings and facilities of all types built and/or used for a broad spectrum of economic and business-oriented interests: food and agriculture, energy, public health, banking and finance, postal and shipping, aviation, rail, pipeline, chemical, and nuclear. Because these elements are business-oriented and, for that reason, usually protected by private security forces, it makes government control over security difficult to mandate. Nonetheless, the federal government is and has been diligently working with the private sector to secure all of the nation's critical infrastructure.

The federal government has employed a remarkable effort to not only secure the critical infrastructure in the United States but also to prepare the rest of the country for the possibility of additional terrorist attacks. In early November 2007, ABC News reported that the FBI had issued a warning of possible attacks on the nation's shopping malls and centers. This was an indication that al Qaeda may have had a shift in its own thinking. Many attacks on shopping centers in the Middle East already had been carried out. In that context, the FBI warning was a strong suggestion that similar attacks may soon

be carried out on the U.S. mainland. All current FBI bulletins continue to indicate, moreover, that anti-American fundamentalist regimes will attempt to attack the U.S. mainland in the foreseeable future, and that they may be shifting gears to address soft targets such as malls and shopping centers.

There are thousands of malls and shopping centers in the United States. They range in size from small neighborhood establishments to malls large enough to be assigned their own postal zip codes. U.S. malls and shopping centers are soft targets of opportunity for terrorists. The November 2007 FBI intelligence alert specifically identified potential attacks in Chicago and Los Angeles, but the entire country was put on alert. Those attacks never happened, but there was an intelligence community belief that they might. Because the specific locations of the most likely attacks are privately owned, they are protected by private security services.

However, the real threat is that al Qaeda does not have to actually attack a large mall or shopping center to be effective. If the terrorists' mission is to cause economic havoc, attacks on small shopping centers could achieve that intended result, not only by overwhelming local resources but also by frightening people into not visiting any mall or shopping center. Here it is worth pointing out that, immediately after the 9/11 terrorist attacks, airline passenger reservations dropped off for a while.

## ***Security Operations At Local Shopping Centers***

Local shopping centers and malls usually are protected by private security guard forces – sometimes

augmented by local police working in an overtime capacity. However, key responsibility rests with the private security company.

The unfortunate circumstance, though, is that many of the nation's private-sector security guard services are neither equipped nor trained to deal with terrorist attacks. For that reason alone, it is essential that property owners install the systems and other "tools" that will help roving security patrols to monitor the numerous activities going on in the typical shopping center or mall at any given time. This is where technology comes in.

Today, security experts both private and public are moving to an "all-hazards" approach to security planning. This means that when security plans are written they cover almost any hazard that could endanger a facility. Historically, local property owners have been more concerned – with good reason – about crime on or against their facilities than about a possible terrorist attack. Hard economic times will, in fact, likely increase the amount of petty crime occurring in shopping centers and other private-sector facilities. As crime escalates in a shopping center, customer loyalty begins to fade. Patrons begin to take their business to what they perceive to be safer locations, causing shop owners to lose money – which, thanks to what is called "the domino effect" – cuts into the mall owners' bottom line, and the suppliers' bottom line.

## ***A Change in Thinking, And an Alternative Solution***

Owners of smaller malls and shopping centers need to become much more aware not only of the petty crimes that are occurring, but also of the



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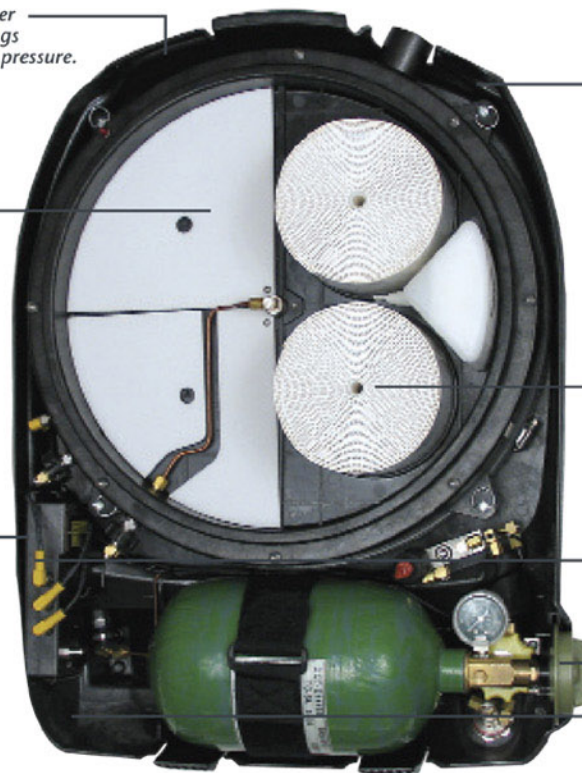
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potential of a terrorist attack. Property owners should understand that, while addressing the issues of crime on their property, they can also address the potential terrorist attack. When a shopping center, mall, and/or strip mall security force conducts a security assessment it typically focuses on crimes that can be quantified – shoplifting, for example, and auto theft, theft from an auto, assault, robbery, abduction, even homicide. For that reason, the possibility of a terrorist attack may be an afterthought.

The question arises, therefore: What can owners do to help protect themselves? There are several answers (or partial answers): The first and most obvious answer is to augment their private security personnel with an effective state-of-the-art surveillance system. In other words, give them better tools to work with.

Surveillance equipment, perhaps the most important tool currently available to private-sector security forces, has been used in numerous locations throughout the world for many years. Current high-quality video-surveillance systems not only pay a good return on the dollar but also can be of great assistance to private-security teams in a number of ways. Although a number of facilities have used video-surveillance equipment for some time, many owners have not upgraded their systems to some of the new advanced-technology systems. The older systems provide little value in a technology market that is moving forward at a very high rate of speed. One problem is that the older systems often provide little evidence that can be used in court.

Tom Murray, president of WayPoint Network in Annapolis, Maryland, said in an interview that his company is installing new-generation video systems that also can act as alarm systems, as access-control systems,

and as intercom/loudspeaker systems – all wrapped up in a single package. A multipurpose system like that, obviously, can greatly enhance the effectiveness of the uniformed security officers on post, whether private or police. As Murray pointed out, the newer advanced-technology systems can provide in a single system the benefits that used to require at least two different systems. There is an obvious overall cost savings, in dollars as well as staff time, that can be achieved with the newer systems.

### ***The Worldwide Trend Toward Advanced Technology***

Since the 9/11 attacks, police and other public-safety forces around the world have pushed steadily toward installing video-surveillance cameras not only in and around critical-infrastructure facilities but also in many other locations where large numbers of people are likely to congregate. According to a 4 April 2007 article on the BBC Home website, Great Britain was at that time using about 4.2 million surveillance cameras – an amazing total that undoubtedly has increased considerably over the last 15 months. The same article pointed out that the cameras have helped reduce all types of crime. An earlier article – a *New York Times* report on 23 August 2005 – discussed the fact that the New York Transit Authority would be spending \$212 million on 1,000 cameras to protect the city's transit system.

The trend is clear: The use of video-surveillance technology is now widely accepted as an effective – and cost-effective – way to help public and private security forces provide better protection to citizens. When property owners are looking for ways to increase the effectiveness of their current private security force, therefore, or want to do anything else to improve security on their property, the business case for small enterprises becomes less complicated. The investment in more, and better, video-


surveillance equipment is well worth the money.

In purchasing systems, the initial outlay for a video-surveillance system can be slightly more than the cost of present-day alarm systems, but the sustainment cost of those systems can be and usually is much less. The fact that the newer systems have such a broad array of functions and sensor capabilities brings the cost/benefit ratio into clearer focus. The fact that property owners can view their property any time, almost anywhere, also helps the cost/benefit ratio. The small property owner now has an effective tool not only to support the live security patrol force he employs, but also to ensure that the patrols themselves are doing their jobs properly.

State-of-the-art video-surveillance technology should *not* be viewed as a replacement for a live security patrol, it is worth pointing out, but should be seen, rather, as an augmentation. The surveillance equipment will sound an alert when something is wrong, but only the live security patrol can actually handle an incident and/or detain a suspect. So, if a property owner has no security at all on his property, it may be logical, depending on the makeup of the location, to start the building of an effective security system with the purchase and installation of a high-quality video-surveillance system.

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*Gary Simpson is a 32-year veteran of the Annapolis Police Department who, after he retired (in the rank of captain), was hired back to serve as the emergency management director for the City of Annapolis. Two years later, he shifted back to the police department as director of domestic preparedness and in that post was responsible for the department's anti-terrorism planning, technology management, and intelligence operations. He also has served in CID, the Arson & Explosives Unit, Public Affairs, Patrol Operations, Special Operations, SWAT, the White Collar/Fraud Crimes Unit, and Communications. He left the department earlier this year to start Simpson Security Strategies LLC, a security consulting company.*





## Standards Organizations:

# A Helpful Road Map for Emergency Responders

By Diana Hopkins, Standards



There are three standards organizations in the world's sometimes overlapping standards networks that are particularly relevant to the U.S. emergency-response community, and that are working to simplify the processes involved in getting questions answered about, among other things: (a) standards that are approved or still in development; (b) whether a specific emergency-response equipment item has met a required standard; and (c) how an organization, agency, or private-sector business can and should be included as a stakeholder in a particular standard development effort.

The largest and probably best known standards group in the world is the International Organization of Standardization (ISO). ISO members are the developers of the ISO 9000 and 14000 series of standards familiar to the emergency-response community with regard to quality and environmental standards and the conformity assessment rules related to those standards. The American National Standards Institute (ANSI), a smaller but equally respected group, was delegated by the National Institute of Standards and Technology (NIST) to be the U.S. representative on the ISO. What is particularly relevant to the U.S. emergency-management community is that ANSI disseminates information on international and national standards that can ensure the safety and health of consumers and the protection of the environment. ANSI also creates a neutral context for stakeholders who are seeking to reach agreement on the development of standards.

Also of considerable importance to U.S. stakeholder groups is the ANSI Homeland Security Stakeholder Panel (ANSI HSSP), an organization that ANSI

founded and chartered – at the request of the U.S. Department of Homeland Security – to determine what existing standards are of particular interest to the nation's homeland-security community, and to work toward the development of standards that are still needed. The ANSI-HSSP (see box) can provide emergency responders not only with the most current information about specific standards, but also a link to a list of panel members as well as leadership contact information. It is important to note that the Stakeholder Panel includes in its membership not only equipment manufacturers and government agencies but also other standards-development

organizations such as the National Fire Protection Association (NFPA) and the American Society for Testing and Materials (ASTM).

*Diana Hopkins is creator of the consulting firm "Solutions for Standards," a 12-year veteran of AOAC INTERNATIONAL and, until recently, senior director of AOAC Standards Development. Most of her work since the 9/11 terrorist attacks has focused on standards development in the fields of homeland security and national defense. In addition to being an advocate of ethics and quality in standards development, Hopkins is also executive director of the start-up National Association of Drug Testing Standards, an expert in technical administration, governance, and process development, and a certified first responder.* ▼

### International Organization for Standardization (ISO)

**Background:** ISO is a non-government organization, headquartered in Geneva, Switzerland, with a membership of private and public representatives from 157 national standards institutes located worldwide. The ISO membership develops/approves/publishes voluntary consensus standards that are internationally relevant in such areas as management systems, products, services, and materials. ISO also houses an extensive technological standards database, publishes standards information, and maintains an international infrastructure of standards governance, development, and communication.

**Most important to emergency responders:** The ISO 9000 and 14000 series that global emergency response communities use for assessing conformity.

**Contact information:** ANSI is the U.S. representative to ISO (contact information below). To contact ISO directly, go to [www.standardsinfo.net](http://www.standardsinfo.net) or call +41 22 749 02 22

### American National Standards Institute (ANSI)

**Background:** One of the 157 ISO members, representing the international and domestic national standards interests of the United States (under the MOU with the National Institute of Standards and Technology (NIST) of the U.S. Department of Commerce).

**Most important to the U.S. emergency response community** is that ANSI does not develop standards, but provides public and private stakeholders with a neutral forum to come together and work toward common agreements.

**Contact information:** 1.202.293.8020, email: [info@ansi.org](mailto:info@ansi.org), website: [www.ansi.org](http://www.ansi.org)

### ANSI Homeland Security Standards Panel (ANSI-HSSP)

**Background:** This panel was chartered in 2003 to catalog, promote, accelerate, and coordinate the timely development of consensus status within the international and national standards systems to meet homeland and security needs and keep private and public homeland security stakeholders informed. This panel promotes a positive, cooperative partnership between the public and private sectors to meet the needs of the nation in this critical area.

**Contact information & Most important information for emergency responders:** Participation is open to representatives of industry, government, professional societies, trade associations, standards developers, and consortia groups of the homeland security community, promoting a positive, cooperative partnership between the public and private sectors in their homeland security efforts. To become a panel participant, contact the ANSI-HSSP Secretary, Matt Deane of ANSI, at [mdeane@ansi.org](mailto:mdeane@ansi.org) or 212.642.4992. A co-chair of the panel, Christian Dubay ([cdubay@nfp.org](mailto:cdubay@nfp.org)), well known to the emergency response community, is Vice President and Chief Engineer at NFPA, responsible for the overall administration of the association's codes and standards. Gordon Gillerman ([gordon.gillerman@nist.gov](mailto:gordon.gillerman@nist.gov)), the other ANSI-HSSP co-chair, is the Conformity Assessment Advisor-Homeland Security at the National Institute of Standards and Technology (NIST). His responsibilities include assisting in standards and conformity assessment policy development and conformity assessment program design. Current panel participants are listed on the following link: <http://publicaa.ansi.org/sites/apdl/Documents/Standards%20Activities/Homeland%20Security%20Standards%20Panel/Administrative%20Items/Participants.htm>

# CDC's Career Epidemiology Field Officer Program

By Ruth Marrero, Public Health



Detection, investigation, and monitoring are all crucial elements of a successful public-health response to the natural outbreak of a disease

or an intentional act of bioterrorism. Lessons learned in the aftermath of the post-9/11 anthrax attacks provided the genesis for a federal program in this field that was developed by the Centers for Disease Control and Prevention (CDC) – which works with state health departments to help them bolster their own epidemiological capabilities in the areas of public health emergency planning and response.

A milestone in that effort was reached in July 2002 when CDC launched the Career Epidemiology Field Officer (CEFO) program as one way to provide experienced epidemiologists to state, local, and territorial health departments. The individual CEFOs participating in the program are CDC employees who assist state, local, tribal, and territorial health departments in building and sustaining epidemiologic capacity by serving in a variety of functions tailored to the needs of the individual state.

The CEFOs also serve as liaisons between CDC (and other federal agencies) and the host-state health departments. The CEFOs' knowledge of epidemiology, and of federal preparedness and response requirements, helps strengthen the states' own preparedness programs and enhance their ability to prepare for and/or respond to potential or real acts of terrorism, natural disasters, pandemics, and other public-health emergencies.

To participate in the program, states may request the assignment of field officers for at least two years – but there is the potential for renewal at the discretion of the state. A state or local health department may request the assignment of a CEFO by e-mailing [CEFO@cdc.gov](mailto:CEFO@cdc.gov)

or by calling 770-488-8881. As of early July, there were 27 CEFOs working in 21 states, with an additional four positions awaiting assignment of a CEFO.

***A milestone was reached in July 2002 when CDC launched the Career Epidemiology Field Officer (CEFO) program as one way to provide experienced epidemiologists to state, local, and territorial health departments***

## ***Highly Credentialed And Well Trained***

A majority of the currently assigned CEFOs have gone through CDC's Epidemic Intelligence Service (EIS) training, but that training is not required for CEFO assignment. Many of the CEFOs also have years of public-health epidemiology experience, both in the field and in various positions at CDC's headquarters in Atlanta, Georgia. The CEFO workforce represents a broad spectrum of professions, including clinical medicine (e.g., physicians, veterinarians, health scientists, and nurses). Many CEFOs are scientists who hold doctorates or masters degrees in epidemiology.

CEFO epidemiologic and preparedness duties vary from state to state, but typically include a wide variety of activities such as the following:

- Collaborating in the development of response plans for all-hazards scenarios, including those involving agents of bioterrorism, chemical,

nuclear, and/or radiological events, and all types of natural disasters.

- Supporting state efforts in planning for and responding to an outbreak of pandemic influenza.
- Building partnerships for emergency preparedness.
- Developing training and education programs in the fields of epidemiology, preparedness, and emergency response – and/or leading or participating in state and local emergency-response exercises.
- Providing subject-matter expertise and epidemiologic consultation services on state surveillance systems and the investigation and response of epidemiological outbreaks.

*Editor's Notes: (1) Additional articles on the CEFO program, including case studies from the field, are planned for future issues of DomPrep Journal. (2) Valerie Kokor, MBA, CEFO Director; Catherine Chow, MD/MPH, CEFO Supervisor; and Stephanie Ostrowski, DVM/MPVM/DACVPM, CEFO Supervisor assisted Ms. Marrero in the preparation of this article.*

*Ruth Marrero is an HACU (Hispanic Association of Colleges and Universities) fellow assigned with the Career Epidemiology Field Officer Program (CEFO) program at the U.S. Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia. She attained her BS in Business Management from Norwich University, Vermont, and is studying for a Master's in Public Health Education at California State University Northridge, California. Her focus of study has been in Epidemiology, and she is enrolled in an Emergency Management certificate program. She is a per-diem Health and Safety Services instructor and a volunteer Disaster Action Team (DAT) member with the American Red Cross of Ventura County, California. She also has completed CERT (Community Emergency Response Team) training and has been a CERT volunteer at many events.*

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

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

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References: 1. DuoDote™ (atropine and pralidoxime chloride injection) Auto-Injector [package insert]. Columbia, MD: Meridian Medical Technologies™, Inc.; 2007. 2. Agency for Toxic Substances and Disease Registry. Medical Management Guidelines (MMGs) for nerve agents: tabun (GA); sarin (GB); soman (GD); and VX. Available at: <http://www.atstsr.cdc.gov/MI/MI/mmg166.html>. Accessed February 21, 2007. 3. Holstoge CP, Dobmeier SG. Nerve agent toxicity and treatment. *Curr Treat Options Neurol.* 2005;7:91-98. 4. Data on file. Columbia, MD: Meridian Medical Technologies™, Inc.



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

Sterile solutions for intramuscular use only

FOR USE IN NERVE AGENT AND INSECTICIDE POISONING ONLY

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

#### INDICATIONS AND USAGE

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

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

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

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

#### CONTRAINDICATIONS

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

#### WARNINGS

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

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

**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  $11 \pm 14$  mmHg (mean  $\pm$  SD), and systolic

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

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

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

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

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

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

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

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

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

#### Pregnancy:

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

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

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

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

#### ADVERSE REACTIONS

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

#### Atropine

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

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

Cardiovascular adverse events reported in the literature for atropine include, but are not limited to, sinus tachycardia, palpitations, premature ventricular contractions, atrial flutter, atrial fibrillation, ventricular flutter, ventricular fibrillation, cardiac syncope, 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 kidneys, 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 phenolamine 5 mg intravenously, repeated if necessary due to phenolamine's short duration of action. In the absence of substantial clinical data regarding use of phenolamine to treat pralidoxime-induced hypertension, consider slow infusion to avoid precipitous corrections in blood pressure.

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MMT 5173 11/07

# Bournemouth Report: The Conference Where Nothing Happened

By Steve Fortado, Case Study



## **An Accurate, Real-Time, Centralized Radiation Detection System for Major Events and Sites**

At last year's annual Labour Party Conference in Bournemouth, Dorset (U.K.), the Dorset Police Department was faced with its largest security operation ever. The event, comparable to a U.S. Democratic or Republican presidential nominating convention, was attended by more than 12,000 delegates, media representatives, and exhibitors. Responsible for the meeting's overall security and employing more than 400 officers, the Dorset Police planned to focus particular attention on monitoring and managing potential radiation threats during the conference.

The Bournemouth event required a flexible but dependable radiation-monitoring system that would provide precise radiological detection in real time at various sites throughout the venue and surrounding areas. The main objective was to ensure that an early warning would be issued in the case of a change in the radiological signature of a secure area. Other prime objectives were that the system should not create any false positives and should not interfere in any way with either the throughput of delegates or the overall security operation itself. Equally important was that every sensor and detector be connected into a central information hub where the radiation warnings could be immediately assessed and exactly located.

### **The Thermo Scientific ViewPoint™ Enterprise System**

To accomplish these ambitious goals, the Dorset Police chose the Thermo Scientific ViewPoint Enterprise

radiation-detection system from the Radiation Measurement and Security Instruments business of Thermo Fisher Scientific. Because it had the capability to tie together all of the remote sensors via a robust, open, and scalable IT architecture, the Thermo ViewPoint Enterprise system acted as the command-and-control focal point for centrally processing and analyzing all instrument and detector information.

*All of the detectors featured the inherent capability to clearly distinguish between naturally occurring radiation and radioactivity that is artificial and could pose a serious threat*

For the U.K. event, the pre-installed ViewPoint data engine received information from the system inputs – a complete set of detection appliances that were installed at strategic locations within the conference site – and routed the input to the command center, which employed multiple workstation PCs for display, job coverage, and/or database logging walk-through portals.

### **RVSS Survey Vehicle: Mobile Radiation Monitoring**

The detection appliances also were used to equip a Thermo Scientific survey vehicle for a remote vehicle search site (RVSS) – both to screen vehicles entering the conference's confines and to provide wide-area radiological background trending. The

survey vehicle – outfitted with gamma and neutron probes, an ADR (Absorber-coupled Double-effect Regenerative) air concentrator detector, a GID (Grazing-Incidence Diffraction) spectroscopy personal radiation detector (SPRD), and a RadEye PRD (Personal Radiation Detector) – also drove predetermined routes twice a day monitoring radiation levels and comparing them with previous background radiation surveys.

In addition, the centralized communication network allowed the real-time transmission of data, recorded by the Thermo Scientific detection appliances, to be sent to both the Winfrith Headquarters of the Dorset Police and the Thermo Scientific RVSS via the ViewPoint system. The system, operated with Windows™ NT/2000/XP, not only produced real-time dose readings but also Global Positioning System (GPS) data that enabled police officers and Thermo Fisher Scientific personnel to determine the exact location of a radiological event.

During the conference, a Thermo Scientific TPM 903B transportable portal monitor was also utilized to ensure that nobody carrying potentially threatening radioactive materials would be able to enter the conference site. All of the detectors at the U.K. event featured the inherent capability to clearly distinguish between naturally occurring radiation and radioactivity that is artificial and could pose a serious threat.

“The ViewPoint system was easy to use and provided a high degree of confidence,” said Charlie Eggar, superintendent of the Dorset police force. “The Thermo Fisher Scientific team fitted in very well with the CBRN [chemical, biological, radiological, nuclear] operation and had the expertise needed to keep the systems

working reliably. They also had the reachback capability required to assist with the speedy identification of any alarm activations. This was demonstrated when alarms were set off by low-level sources used in press cameras that caused an alarm to activate when a large number of cameras were grouped together."

The Thermo Scientific ViewPoint Enterprise system also is available for wider security markets, within the United States and overseas, for a variety of tasks, including first responder, nuclear power, industrial, and medical facility protection.

*Steve Fortado is a communications specialist with a depth of experience in technical and marketing communications writing for the high-tech and bio-tech industries, focusing principally on analytical and scientific instruments, filtration, and liquid and gas chromatography. He has worked with several leading high-tech companies throughout his career including Millipore, Waters Corporation, ESA Biosciences, and Thermo Fisher Scientific.*

## Nevada, Washington D.C., Maryland, and Kentucky

By Adam McLaughlin, State Homeland News



### Nevada Triage Center Part Of Statewide Disaster Exercise

As part of a multi-agency drill, carried out in late June, aimed at preparing Northern Nevada for a large-scale disaster, emergency medical officials erected a triage center in the parking lot of the Carson Tahoe Regional Medical Center.

The two main structures of the so-called Nevada One – a 20-bed tent designed for rapid deployment, and a more permanent 50-bed enclosure similar to a military field hospital – could be used to care for people in the event of damage to an existing hospital or in a mass-casualty situation

that overwhelms local capabilities, said Fergus Laughridge, a program manager with the Nevada Department of Health and Human Services.

"The hospital building is seismically sound, but you could have a scenario where there is a disruption of heating or electricity," he said. "It took five ladies less than two hours to get the [smaller shelter] ... up and running. It is a great asset to Carson City."

The temporary shelter and all of the medical equipment needed to make it operational packs into a 26-foot trailer, which the city plans to store at its public works yard, according to Public Health Planner Stacey Belt. The facility then can be moved around town as needed, and



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might even be used for other purposes at major public events. "Because we can set it up in a few hours," she said, "we can use it for everything from a disaster [facility] to a cooling center at the Nevada Day parade."

The smaller shelter must be taken down after a few weeks, but the larger structure, which is a virtual clone of a number of hospitals used overseas by the Air Force, can be deployed for months or years at a time, Laughridge said. The state owns two of the structures. One is designated for use in Southern Nevada; the other will be used in the northern part of the state. The city can use the smaller tent at its discretion, but the larger hospitals will more likely be reserved for emergencies, Laughridge said.

The Carson City event coincided with drills in five other Nevada counties simulating the response to a 7.1-magnitude earthquake along the Mt. Rose Fault System. The hypothetical incident was assumed to have done billions of dollars' worth of damage and to have killed hundreds of people. Subsequent exercises, all of them part of the national Vigilant Guard project, organizers said, will test the ability of civilian emergency responders and regional National Guardsmen to work together. All states are required to run similar exercises throughout the year.

### ***Washington, D.C. Seeks to Integrate Terror Tips Received From Other Jurisdictions***

The federal government is ready to launch the first nationally coordinated effort to obtain terrorism tips from state and local officials as part of a plan to close what has been a critical intelligence gap. That effort will begin with a program to collect and link terrorism tips received from nine cities and three states and to disseminate the information received to officials at all levels of government. The states participating in the initial stage

of the program are Florida, New York, and Virginia; Los Angeles, Seattle, and Miami-Dade County, Fla., are among the local jurisdictions participating.

Local officials have been seeking various ways to improve coordination with federal authorities since the 2001 terrorist attacks. But, although program proponents say the new initiative incorporates strong privacy protections, civil-liberties advocates have charged that it will lead to the ethnic profiling of innocent people and the collection of personal data about them to which the government is not entitled.

The new program, dubbed the National Suspicious Activities Report Initiative, builds on a model developed by the Los Angeles Police Department (LAPD), and includes some helpful innovations introduced in cities such as Boston and Miami. The two-month-old Los Angeles program trains local police to identify and report more than 60 types of behavior patterns that could indicate preparations for a terrorist attack. It then vets that information to determine if there seems to be a potential connection to terrorism, and analyzes the data in various other ways.

Officer crime reports now include space for reporting behavior that might potentially be linked to terrorism. Reports of such behavior – e.g., threats and/or suspicious activities in the area around Los Angeles International Airport – are vetted by LAPD intelligence analysts and assigned codes to permit a more comprehensive analysis.

The Los Angeles program is too new to declare a success, said Michael Downing, LAPD's counterterrorism chief. But the early collection of data on suspicious packages and bomb threats at the airport already has helped to uncover an internal theft ring at the airport. The new federal initiative seeks, among other things, to establish nationwide standards about

what information should be collected and how officers should be trained to spot it.

It is hoped that the Suspicious Activities program also will help the nation's states and major cities: (a) develop and carry out similar programs of their own; and (b) help the cities participating connect with state intelligence "fusion centers" that will further vet the information and make relevant tips and trends available to the U.S. Department of Homeland Security and the Federal Bureau of Investigation as well as to other security agencies around the country.

### ***Maryland O'Malley Issues Executive Order On Interoperable Communications***

Policemen, firefighters, and public-safety officials throughout Maryland have spent considerable time and effort over the past two decades in keeping the state's legislative bodies and governing officials informed about what is perhaps their biggest and most important operating problem – namely, that the state's first-responder agencies often cannot communicate with one another when responding to emergencies. Many local jurisdictions, particularly in the Baltimore area, have solved the problem, at least partially, on their own, but the solutions usually have been stopgap in nature and limited, in most cases, to jurisdictional boundaries. Earlier this month, though, Governor Martin O'Malley faced the issue head-on, and said that the state is going to spend whatever is needed to have *all* of the state's first responders and their agencies on the same interoperable communications system.

As the first step in what will undoubtedly be a long process, the governor issued an executive order creating a project management office to oversee construction of a statewide 700-megahertz communications system that will include a computer-aided dispatch

capability for law enforcement and public safety as well as the connections needed for a network of closed-circuit television systems that can be used by emergency-response agencies throughout the state. In issuing his executive order, O'Malley pointed out that Maryland has lagged behind local jurisdictions in getting the equipment needed to communicate with other systems.

"We did not take the lead on this," said State Police Superintendent Terrence Sheridan. He noted, however, that the current state police system is a half-century old. He mentioned two notorious examples, though, of how the lack of interoperable communications has adversely affected responses to incidents. One was the escape of a prisoner from Laurel Regional Hospital in which corrections officers could not communicate with local police but had to go through dispatchers; the second was an incident on the Chesapeake Bay Bridge in which police and fire units had to communicate by messengers on foot.

"It is going to take several years to get the system operational," said John Contestabile, who heads the project as director of engineering and emergency services for the State Transportation Department. The state already has invested in communications towers, and in the fiber-optic cables needed to connect them, Contestabile pointed out, but the ultimate cost – which will be at least "tens of millions" of dollars – will depend on what vendors propose, which could involve a combination of radio, cell phone, and Internet technologies.

Besides the deficiencies reported by state agencies, the biggest hole in the current system is in Prince George's County, whose first responders cannot communicate with neighboring jurisdictions even by radio. That county is now in the second year of a \$65-million upgrading to build a new communications system that, according

to Public Safety Director Vernon Herron, should solve the problem.

### **Kentucky Air National Guard Group Participates in Major West Coast Exercise**

A devastating 8.0-magnitude earthquake hit the fictional nation of Califon in mid-July, and Air National Guard Contingency Response Groups (CRGs) from California and Kentucky coordinated an around-the-clock humanitarian relief operation from the Salinas Municipal Airport in California.

Setting up their mobile operations center at the airport at the invitation of the "Califonish" government, the CRGs began flying C-130 transport aircraft on missions to drop supplies into a remote section of the fictitious "country" that had been seriously damaged by the quake. The Response Groups planned to run an air medical evacuation out of the same area later in the week.

Although both the earthquake and Califon are fictional, and the operations were part of a planned exercise, there was nothing artificial about the training exercise for Col. Warren H. Hurst, commander of the Louisville-based 123rd CRG of the Kentucky National Guard. He and the other members of the 123rd have been through real disasters and know from first-hand experience how important it is to always be prepared. A veteran of combat and relief operations all over the world – on missions ranging from the war-torn nations of Bosnia and Rwanda to disasters closer to home such as Hurricanes Katrina and Rita – Hurst said that each incident and training exercise yields valuable lessons.

The July training drill, dubbed Exercise HYDRA '08, involved more than 1,000 airmen, soldiers, and Marines as well as 20 aircraft operating out of five airfields throughout Central California

– in Salinas and at Travis Air Force Base, Schoonover Field in San Luis Obispo, Paso Robles Municipal Airport, and Castle Field in Merced.

More than 100 military personnel from the 123rd CRG and the Travis-based 572nd CRG were assigned to Salinas, where they lived in a tent city at the airport and provided air and ground support for a cadre of C-130 and C-17 aircraft participating in the exercise. The men and women assigned to the groups were specialists in, among other important skills, communications, command and control, aircraft maintenance, civil engineering, meteorological information, force protection security, and ground cargo handling.

Some members of the 123rd CRG are now serving on active duty in Iraq and Afghanistan; others will be deployed to those combat zones at some time next year. Other members of the far-flung 123rd are patrolling the U.S.-Mexican border as part of what is called Operation Jump Start.

Hurst commented that there is nothing quite like the camaraderie and sense of duty that one feels while working with a National Guard CRG, which is made up largely of professionals (who in their civilian lives perhaps work as attorneys or, like Hurst, as airline pilots when they are not serving in the Guard). "There is a real sense of esprit de corps," Hurst said. "These people don't ask for anything. They just do their jobs. There's nothing else like it." Besides, he added, the job they do makes it even more worthwhile. "Humanitarian relief is always more rewarding than any other mission," he said.

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*Adam McLaughlin is with the Port Authority of NY & NJ, and is the Preparedness Manager of Training and Exercises, Operations & Emergency Management, where he develops and implements agency-wide emergency response and recovery plans, business continuity plans, and training and exercise programs.* ▼





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