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USFA ADVOCATES DEVELOPMENT OF INCIDENT MANAGEMENT TEAMS

The Federal Emergency Management Agency (FEMA) recently announced a training “roadmap” for US fire and emergency services that wish to develop local and regional Incident Management Teams (IMTs). This recommendation comes in part as a result of a Memorandum of Understanding (MOU) between the US Fire Administration (USFA), the International Association of Fire Chiefs, and the National Fire Protection Association (NFPA).

The MOU is designed to establish metropolitan area IMT regional overhead teams based on US Forest Service models; develop IMT capability; develop and train IMTs to support command; provide mutual aid staff, e.g., unified command training and development; and enhance use of the Integrated Emergency Management System (IEMS).

The IMT training roadmap also supports Homeland Security Presidential Directive 5 (HSPD-5), which states, “to prevent, prepare for, respond to, and recover from terrorist attacks, major disasters, and other emergencies, the United States Government shall establish a single, comprehensive approach to domestic incident management. The objective of the United States Government is to ensure that all levels of government across the nation have the capability to work efficiently and effectively together, using a national approach to domestic incident management.”

According to R. David Paulison, US Fire Administrator, “Today’s fire service leadership is faced with extremely complex response requirements. The IMT roadmap will ensure all departments will have the necessary incident management support they need, if they need it to further protect their residents and cities.”

The IMTs have been designed to assist local emergency services and support unusually large, complex, or long-term emergency incidents when requested. An all-hazards IMT consists of emergency service officers from appropriate disciplines (fire, rescue, emergency medical, hazardous materials, law enforcement) trained to perform the functions of the command and general staff of the Incident Command System (ICS). These functions include command, operations, planning, logistics, and administration/finance, as well as safety, information, and liaison. Members of the initial responding departments often fill these functions; however, the size, scope, or duration of an emergency incident may indicate the need for an IMT to support them. The local incident commander can request, through standard mutual aid procedures, an IMT to help support management of the incident.

“The operations of IMTs are highly dependent on the local community needs, available resources, and the level of training/experience,” said Charlie Dickinson, Deputy United States Fire Administrator and former Chief of the Pittsburgh Bureau of Fire. “Local jurisdictions may establish, train, and control IMTs at their respective levels. The USFA and US Forest Service will work together in delivering training to develop the IMTs.”

For further information regarding the IMT efforts, visit the USFA Web site at www.usfa.fema.gov.

(Source: US Fire Administration, January 15, 2004.)

CHANGES IN TRAFFIC CONTROL DEVICES TO HELP OLDER DRIVERS, PEDESTRIANS, BICYCLISTS, WORKERS

Fluorescent pink signs to alert drivers to traffic crashes, large print on road signs for older drivers, and “animated eyes” to caution pedestrians at intersections are among the improvements federal highway engineers are recommending states consider to make travel safer and easier. The recommendations are included in the Federal Highway Administration’s (FHWA) update of a publication used nationally by state and local transportation agencies in designing and placing traffic signs, signals, and pavement markings.
According to US Transportation Secretary Norman Y. Mineta, these new standards and guidance for traffic control devices, like highway signs and traffic signals, will increase safety and mobility for older drivers, pedestrians, bicyclists, and construction workers.

“Safety is the [our] top transportation priority, and our new guidance underscores that commitment by taking into account the diverse safety needs of many audiences,” said Mineta. “At the same time, these recommendations seek to make roads more user-friendly for all drivers and to benefit everyone.”

Enhancements to the revised 2003 Manual on Uniform Traffic Control Devices (MUTCD) include increased letter size on street signs and pavement markings at intersections meant to help older drivers. For pedestrians, the new manual includes guidelines for “animated eyes”—electronic signs that mimic back-and-forth eye movements to serve as a reminder to look both ways before crossing streets; “countdown signals” that tell pedestrians the time remaining to cross a street safely; and crosswalk markings and in-street pedestrian signs that focus the eyes of the driver on crosswalk activity.

The revised manual also includes new provisions for pedestrians with disabilities. For example, the use of barriers to assist in safe navigation of walkways and audible devices to communicate sign information will assist visually impaired individuals. To improve safety for bicyclists, the manual calls for new bicycle lane markings and symbols.

The new manual will help improve safety for highway construction workers by requiring high-visibility clothing and greater use of barricade devices. It allows fluorescent pink signs to alert drivers to traffic incidents, such as crash sites, closed exits, and detours. It also provides for location and direction of travel reference signs that will be posted at shorter intervals. These signs will help drivers and emergency responders in reporting and locating sites of breakdowns, crashes, and other highway incidents, particularly in complex urban areas.

The revised MUTCD assures consistency in traffic control devices so motorists know what to expect no matter where in the United States they travel. (Source: US Department of Transportation #FHWA 34-03, December 9, 2003.)

### INCREASED DEPENDENCE ON INTERNET INCREASES SUSCEPTIBILITY TO CYBERATTACKS

Dependence on voice communication and data transfer via the Web has opened the door for potential cyberwarfare, according to an analysis by IT research group Gartner, Inc. The company recommends that the US adopt measures to combat this potential threat.

“The world's not going to hell in a handbasket, so we can get that off the table,” said David Fraley, author of the report. “What's important for people to do is continuity planning—be aware of the different threats and vulnerabilities that could hit their organizations.”

Specifically, Gartner recommends that both private and public sector agencies have a strategy for maintaining operations if facilities experience a technological meltdown.

“The difference between cyberwarfare and hacking is the magnitude,” Fraley said. “Cyberwarfare is on a much grander scale.”

The exponential increase in the use of Internet-based technologies has led to vulnerabilities in access to critical infrastructure. The switch from circuit-to-packet-switched architecture for voice communications poses similar security challenges. For example, denial-of-service attacks (favored by hackers to take down Web sites) could be used to disrupt the flow of voice-carrying packets on an IP network, causing a major breakdown in communications.

Possible targets include operational network systems used by dams, railroads, airlines, and power generation facilities. Another potential target is the SS7, the “central nervous system” of the public switched telephone network (PSTN) and IP networks. Gartner predicts that SS7 will become a key communications target by 2006.

Dedicated monitoring and updating of Internet security measures may be enough to offset the potential threat, says Gartner. “Most security technology, when used in conjunction with ‘best practices,’ is appropriate to the proportional risk presented by the threat of cyberwarfare,” said Gartner in a statement. “The proportional-risk assumption does not mean that a cyberwarfare attack would be unsuccessful if undertaken by a determined foe, but that risk is low.” (Source: Tech Web News, January 15, 2004.)
The events of 9/11 created a watershed for the profession of emergency management. In the post-9/11 world, the preoccupation with the threat of terrorism has changed political and administrative priorities. Budget allocations for traditional emergency management programs have been subsumed in the larger allocations for Homeland Security, often with little assurance of the continuity of traditional programs.

The larger programs have subsumed emergency management functions as well. Although local emergency managers are pleading for “dual use” programs that will increase capacities for dealing with the more familiar natural and technological hazards and disasters and for funding of mitigation programs to reduce the growing dangers of natural disasters, the attention of national and state policymakers is elsewhere. Even within the Homeland Security apparatus, minimal attention is being paid to matters beyond prevention of terrorism-related disasters, as Secretary Ridge himself has stated. Only recently have inquiries been made about mitigation possibilities and recovery issues stemming from a WMD-related event.

For local emergency management personnel, the question is whether capacities to deal with the more common natural and technological disasters have been reduced . . . or even lost altogether. As resources are diverted to counter-terrorism programs and new Homeland Security offices fill up with personnel who are unfamiliar with the language of emergency management as well as the programs created to deal with natural and technological hazards, some loss of capacity to deal with those disasters is to be expected.

The front pages are full of stories about inadequate funding for helping local first responders prepare for and respond to a WMD-related event. Part of the problem may be the poor beginning of the Homeland Security effort, which divided dealing with WMD events into two components: crisis management and consequence management. These were usually conceptualized as phases, with consequence management referring merely to dealing with post-event issues. First responders were mainly seen as those dealing with the effects of terrorism; their roles in reducing the impact of the events (mitigation) and thus speeding recovery were largely ignored. Furthermore, their preparedness was viewed as less important than the preparedness of law enforcement, military, and (perhaps) fire service personnel, and organizations in preventive roles. Although the distinction in responsibilities for WMD events has been formally abandoned, the priority still seems to be on crisis management.

The national emergency management system is built around generic “all-hazards” programs that are adaptable to a spectrum of potential disasters. The model of mitigation, preparedness, response, and recovery has its problems, but it provides both a unifying approach to dealing with hazards and disasters and a common terminology for emergency managers and public officials. That is why the State of
California formally adopted the terminology to facilitate communication among its local, regional, and state agencies.

Still, the model is confusing to those who still see the four functions as sequential phases rather than overlapping functions. It is also confusing to those who do not understand that “all-hazards” does not mean a perfect plan for every conceivable type of disaster. All-hazards means adaptable plans that provide the basis for dealing with a variety of hazards and disasters, including terrorism. The plan is the starting point and having generic evacuation, shelter-in-place, debris management, and other programs ready to be adapted to circumstances is far more efficient and understandable than stand-alone programs for each type of disaster. Mitigation measures can be built into response and recovery and preparedness programs.

The all-hazards approach must be continued. The risks posed by earthquakes in California and by hurricanes along the Gulf Coast are potentially far greater than those posed by terrorists. The risks posed by influenza and other diseases (witness the SARS epidemic) are far greater than those posed by terrorists with anthrax, sarin, or other biological and chemical agents. Does a cocktail of “weaponized” biological agents produced by a “rogue state” or purchased (or stolen) from an old Soviet weapons lab pose a threat greater than the flu? How many angels can fit on the head of a pin? In a perverse way, many emergency managers may be hoping for a catastrophe wrought by seismic or meteorological phenomena that will remind policymakers that there are forces more powerful than al-Qaeda, and that the capabilities to deal with them need to be maintained.

William L. Waugh, Jr., PhD, editor-in-chief of the Journal of Emergency Management; Professor, Public Administration and Urban Studies, Andrew Young School of Policy Studies, Georgia State University, Atlanta, Georgia.
In a recent session on the Oklahoma City bombing, the incident commander said that one of the key lessons learned from that particular disaster was that even when a good plan is in place, some event always occurs that you have not accounted for.

Putting together an emergency response plan is similar to doing a jigsaw puzzle—misplace any one piece and you cannot complete the puzzle. The major difference is that in emergency planning, overlooking one piece can create a larger disaster than the one you are trying to manage.

When formulating an emergency response plan, whether for natural or man-made disasters, you need to address seven areas: communications, situation maps, command posts, the chain of command, casualty services and information, media relations, and support services. Each of these elements must be addressed individually and incorporated into the overall plan. Each element is critical to the completion of the puzzle.

Next to having sufficient manpower, reliable communications may be the element most critical to your plan. To determine the reliability of your communications system, you should conduct a thorough assessment of your present communications abilities. If you are already having difficulties communicating with field units under normal circumstances, imagine how hard this will be once the system is strained by a disaster. Smaller communities are especially at risk due to their limited expertise and lack of adequate funding to improve their current communications system.

Many of the current Homeland Security grants have been awarded to individual states to study the interoperability of their communications systems. While I applaud these efforts, the problem is that they deal with making recommendations for the future, rather than addressing the issues being confronted today.

Agency interoperability is a concern that all planners must address, inasmuch as agencies responding to assist the host agency will undoubtedly use communications systems which may not be compatible. Therefore, another means of communicating will have to be provided to these agencies.

Before committing to and implementing a communications system, the shortcomings of that system should be ferreted out. This will help planners avoid pitfalls that can be costly in terms of money, as well as time spent in R&D. For instance, while cellular telephones have many advantages, they are still subject to reliability issues, such as “no-service areas” or lines becoming overloaded in emergency situations when callers flood the cell zones.

The key to the success of any communications system will be thoroughly testing it under stressful situations. The height of a disaster is no time to find out that the communications system you put so much faith in does not function.

Incident commanders use situation maps to position their existing manpower in the most advantageous areas. Situation maps need to depict all utilities, as well as locations where these utilities can be
deactivated if necessary. These maps must be updated on a regular basis by the particular agency responsible; out-of-date maps can only cause problems. Here is an example. Traffic needs to be diverted from an incident scene. The incident commander settles upon a route for this traffic, only to learn that the bridge needed to cross the river has been closed for six months. Obviously, this type of situation is not acceptable.

The field command post does not refer to a structure or vehicle as much as it refers to a spirit of cooperation between competing agencies, now united by an event. The command post is the center of all operations, regardless of which department has the responsibility for overseeing the entire event. Whether placing the incident under the command of one individual or in a unified command structure, this decision must be made prior to the occurrence of any incident. During the preparation of this part of the emergency plan, attention needs to be paid to the assignment of tasks and responsibilities to positions within the governmental structure, rather than a specific individual. Doing this insures that the plan will be usable regardless of changes in governmental personnel.

Should the plan call for a mobile command post, departmental responsibility for requesting activation should be clearly defined. Consultations with the agency providing the mobile command center need to be part of the plan so that all the parties involved in the process are on the same page.

The chain of command is the piece of the puzzle that interlocks with the command post. It is vital that there be but one voice issuing orders during a crisis (although this one voice should have the benefit of counsel from each discipline involved in the operation). Having more than one voice can lead to conflicting orders, which can in turn create chaos and misdirection. The chain of command must be established during the planning phase, so that the egos of those involved can be expressed and then dealt with. All those involved in dealing with this disaster must be open to the spirit of cooperation, keeping in mind that the ultimate goal is resolving the situation in a manner that protects the citizens and their property.

Any major disaster will entail a certain number of casualties. Casualty services and information are the next pieces of the puzzle. Rescue and recovery operations have to be preplanned. Proper equipment, trained personnel, and sufficient resources are needed to support the operation. Personnel in charge of this phase of the operation need to remember that the relatives of victims will be anxious for any word of their loved ones. Still, they need to be vigilant in disseminating information concerning the situation or rescue efforts. Considerations that must be detailed in the plan include: medical treatment for the injured, transportation from the scene to medical facilities, and sufficient space for the operation of a morgue. Completing this portion of the plan will require the input of several agencies and institutions. It is essential that they participate in the process, as their participation will trigger the formulation of the plan for their respective agency.

Effective media relations in the new millennium will be based on a clear and concise policy that is adhered to by all personnel. To understand the impact the media has on our daily lives, just reflect on the broadcasts of the war in Iraq. Should a major event or incident occur, the white trucks with satellite dishes will be arriving at the scene shortly after you get there. The wish to be the first to broadcast live feeds from the scene can cause confrontations between newspeople and emergency workers if you do not have a plan in place. In addition, the broadcasting of false or misleading information gathered from unreliable sources can turn an already complicated situation into an out-of-control nightmare. Your policy needs to address media access, media control, and the dissemination of information in order to avoid problems when the situation descends into utter chaos.

As part of the policy, planners need to designate someone as the media representative. A good media representative will be personable in nature but will command respect. They will not only be able to control the nature and content of the information given out but will be able to enlist the aid of the media in alerting the public to potential dangers or areas of restricted access.

The final piece of the puzzle is support services. A major incident, whether it occurs in a large metropolitan
area or a rural farming community, will likely require a request for aid. The authority to make such a request, whether established by state law or governmental charter, should rest in one—and only one—position. However, the decision should be aided by the counsel of on-scene professionals. Examples of these support services are:

- state or federal aid;
- military enactment (i.e., the National Guard);
- declarations of martial law;
- security services for public facilities;
- vehicular traffic control; and
- specialized equipment or persons to operate same.

Once you have incorporated these elements into your plan, you have only begun the process. Any plan is only as good as the lessons you learn from it once it is put into practice. What may seem logical when sitting around a planning table may be a complete failure in the field. Only by actually activating the plan can you detect its shortcomings and make the necessary adjustments.

With more major incidents occurring, the danger of becoming complacent grows larger every day. Indeed, while the acts of terrorists may cause massive death and destruction, the greater harm may come from complacency, which lulls us into a false sense of security.

Charles C. Mayo, MA, formerly Chairman, Department of Accreditation, Massachusetts Chiefs of Police Association; retired Chief of Police, Weston, Massachusetts.

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The national interest now clearly requires cooperation among three public services that have operated more or less separately since they started: police, intelligence, and public health. However, despite the overriding public interest in a national emergency, coordination among the three is not a given.

The most recent and most visible case available by which to evaluate performance under pressure was the anthrax assault of 2001. The visible level of coordination left much to be desired. Unless there is a concerted effort to prepare, there is a good chance that the next bioterrorism threat or attempted use of weapons of mass destruction would be no more effectively addressed than this last one.

During the anthrax assault, the police took the lead (understandably). 1 The role of public health practitioners was initially marginalized, and none more so than those epidemiologists and public health specialists in the fields of occupational health and environmental health. The public health response was primarily reactive (providing prophylaxis and typing the anthrax strain), rather than anticipating what would happen next. The idea that postal workers were a group at obvious risk—for an agent delivered by mail—was not even considered at the outset, despite the fact that the second case (in Florida) involved a mail carrier.2

The next time around—and there will be a next time—we must expect true cooperation among the agencies investigating such assaults. Indeed, we must demand such cooperation.

Despite their superficial similarities, the three public services have very different objectives in practice:

- The police primarily want to solve the case, by identifying the perpetrator, demonstrating how the crime was committed, and gathering evidence to convict.

- Intelligence agencies want to understand what is going on, by observing, probing, and making connections with information, but only rarely with intent to intervene directly.

- Public health practitioners want to design an intervention to stop the outbreak of a disease, by identifying the pathogen, identifying the circumstances in which people get exposed, and interrupting the transmission of the disease.

The behavior of each of these three groups of professionals in their jobs is affected by their objectives. As a rule, police are not terribly interested in the weapon (as such), spies are not terribly interested in collaring a perpetrator, and public health practitioners are not terribly interested in gathering evidence for the courtroom.

Of course, these operational objectives are subordinate to one overriding goal shared by all: preventing the catastrophic event from occurring again. But the three professions view the means to the end very differently. Even the words “investigation” and “surveillance” have different meanings for different professions. It also makes a difference whom they are investigating.

To the police, an investigation is a search to identify the perpetrator and to make the case for prosecution; surveillance is watching the suspect or venue in
an effort to catch the perpetrator in action. Most police work has to do with individuals who commit crimes. The idea of employing statistical methods does not fit, except for expressing confidence in the evidence (such as a match in DNA samples).

To the spy, an investigation is an exploration of a set of relationships in an effort to understand what is going on behind the scenes; surveillance is monitoring the scene or watching an individual to determine what is happening and what they are doing. Statistical methods are useful in understanding the context of a society but not in identifying the movements, intentions, and capabilities of terrorists and enemies of the state.

To the public health practitioner and epidemiologist, an outbreak investigation is a systematic approach to assessing which pathogens and environmental factors are causing an unusual number of cases of disease for the purpose of stopping it; surveillance means tracking the cases and watching for patterns. Statistical methods underlie everything, because in figuring out what is going on, the individual case is rarely as important as the pattern.3

These differences reflect how the three professions view individual cases against their pattern and frequency. For the police, a perpetrator is one in a series of criminals whose modus operandi is rarely unique and whose crime can be categorized. (Such stereotyping may lead to over-reliance on profiling when there is little else to go on.) Each case is different in detail, but motives and methods recur.

For intelligence services, a perpetrator is the instrument of an organized group (whether state-sponsored or not), which is unique in that the historical, political, and opportunistic factors that shape one will always be different from another. However, intelligence services also recognize that methods of terrorism are common (until recently, it seems) and are freely shared among terrorists. However, the aims, methods, and objectives of any individual group need to be understood on a case-by-case basis.

Public health officials view outbreaks of disease (other than foodborne diseases, which are common and often associated with chicken salad or potato salad) as incidents that are always a little different from one event to another. Public health officials view disease outbreaks as easily (but not necessarily) repeatable if the same constellation of circumstances is in place, with an element of probability and uncertainty associated with them.

Because of these differences in the perspectives as well as the cultures of the three professions, there is a great deal of misunderstanding and even distrust among them. Traditionally, public health investigations are conducted in strict confidentiality but the data (once stripped of identifiers) are open and freely shared. Police investigations are usually not public but high-profile investigations can appear to be carried out in a fishbowl. The FBI, in particular, is notoriously secretive while conducting an investigation. . .and for good reason. Unless they are spreading disinformation, intelligence services are not usually forthcoming about information they receive but may trade information as a commodity to get what they want.

Such differences in the control of data make public health practitioners nervous, leading to resistance in some of them to cooperation. Not all public health personnel are convinced that collaboration with police and national security is a good idea; there is a minority movement in the public health profession that is opposed to such collaboration.4,5 Whether it is true or not, there is a widespread belief that during the anthrax investigation, public health practitioners were not made privy to information held by the FBI in a timely manner.

Public health practitioners are afraid that the perception that information is shared with police will impair their ability to work with high-risk populations such as prostitutes, drug addicts, and illegal immigrants. They also worry about misuse of health-related information. For example, think of the possibilities for blackmailing a wealthy or prominent person who is identified as a contact in tracing an outbreak of a sexually transmitted disease.

The task ahead is to figure out how to encourage these three public services to work together effectively. At a minimum, this will require:

- **Cross-training of selected specialists.**
  Police and intelligence services may well
benefit from the methods of epidemiology in certain types of cases. The FBI’s Criminal and Epidemiological Investigation Handbook is a first step in this direction.  

- **Training together.** An exercise in which representatives of each broad field work together on a representative case may bring a new appreciation for the methods and capabilities each brings to the investigation. The FBI handbook emphasizes evidentiary issues and access to information, not management of sensitive public health information.

- **New methods.** Forensic science may have a lot to teach epidemiologists, and may in turn benefit from biomarker studies and other methods in public health.

- **Guidelines on confidentiality and information sharing.** These must be agreed to in advance if they are to have any effect. They should also be realistic in accommodating a national emergency.

- **Coordinating investigations** through a common mechanism—an overriding civilian authority—that allocates duties and assigns the lead to whoever is most likely to produce the best result.

Tee L. Guidotti, MD, MPH, The George Washington University Medical Center, Washington, DC.

**REFERENCES**

The future of emergency management

Jane A. Bullock
George D. Haddow

ABSTRACT

The discipline of emergency management (EM) is at a critical crossroads. Emergency managers around the world are faced with new threats, new responsibilities, and new opportunities. This paper examines the organizational changes made by the US federal government in shaping the new Department of Homeland Security (DHS) and presents three key lessons learned during the past decade that could guide emergency planners as they design and manage EM organizations of the future.

INTRODUCTION

Justice Oliver Wendell Holmes said, “The great thing about this world is not so much where we stand as in what direction we are moving.” The discipline of emergency management (EM) is at a critical crossroads. Emergency managers are faced with new threats, new responsibilities, and new opportunities.

The potential for biochemical terrorist strikes, mass casualty events, and cyberspace attacks loom large. Providing protection to first responders and to the general public from a myriad of unknown and unpredictable technological hazards is a daunting responsibility. Accepting this responsibility and wisely applying the lessons learned from EM practices and policies of the past represents both the challenge and the opportunity for emergency managers.

This paper explores issues concerning the current political and organizational environment for EM and presents the authors’ opinions on what EM must do to survive and grow in this new environment.

ORGANIZATIONAL CHANGES

After the events of 9/11, the US government focused on reorganization and increased appropriations to respond to the threat of terrorism. A new Department of Homeland Security (DHS) was created, which consolidates various federal government agencies and programs with some responsibility for terrorism, including the US Border Patrol, the INS, FEMA, the Coast Guard, and a few other discrete programs.

The reorganization does not include any of the intelligence, diplomatic, or law enforcement programs that are at the center of government efforts at preventing terrorism. By including FEMA, the state and local emergency management structure of the US will be integrated into the new department.

The second organizational move the Bush administration has taken is to propose establishing a new Northern Command as the backbone for homeland defense. The mission of the Northern Command is still being developed, and the staffing of this Command (i.e., active military, active military reserves, and/or the National Guard) is still under discussion. What the mission becomes, and the potential conflicts among the roles of these organizations, have a major implication for EM.

Finally, the potential for significant new appropriations for terrorism and for state and local EM dominates the EM response to these reorganization initiatives. The US EM system, at all levels, has been underfunded for decades.

In the early debate over the Nunn-Lugar antiterrorism legislation, emergency managers and other first responders—particularly the fire community—were lobbying for additional resources to prepare for possible terrorist attacks. It is unfortunate that during these discussions the fire and EM communities...
did not form a partnership to present a collective argument for their needs because it might have worked. Instead, the traditional rivalry between these two groups, both of which believe they are the most critical first responders, prevailed.

The law enforcement community, on the other hand, presented a unified front. As a result, most of the Nunn-Lugar appropriated funds went to support the Department of Justice, FBI, and local law enforcement.

Later, the fire community was successful in establishing a new grant program to upgrade the deteriorating US fire response infrastructure. The fire unions were responsible for getting these funds, and the terrorism threat was only one small part of their rationale. In the post-9/11 environment, it was obvious that funding for terrorism-related activities was going to be a high-priority competition.

The National Emergency Management Association (NEMA) and the International Association of Emergency Managers (IAEM) endorsed the inclusion of FEMA in the new DHS. NEMA represents the state directors of EM; the IAEM represents local emergency managers. This endorsement comes although in most states, the governors have designated individuals other than the state directors for EM as their agent or “czar” for Homeland Security.

Other than the lure of money, it is hard to understand why the states would take this position. FEMA will lose stature and influence when it is no longer an independent agency, and the Director of FEMA is no longer part of the President’s Cabinet and so will the state EM organizations. There is no assurance that, when sent to the state governments, the proposed federal funding will be controlled by state emergency managers. In most of the states, governors have appointed homeland security czars who are part of their cabinets, and are not the existing state EM director.

There is another aspect of these changes that emergency managers need to consider. In many states, EM reports to the governor through the Adjunct General, who is the leader of the Army and Air National Guard. For years now, the National Guard has been looking for a new mission and new funding. As DOD budgets were reduced and state funding decreased, the Guard sought to expand its role in events not related to law enforcement, particularly disasters where funding for their disaster support would be reimbursed by FEMA.

The involvement of the Guard in disaster response was not universally supported. Preparedness for, and response to terrorist events, provides the Guard with the new mission they sought, and they are unlikely to relinquish it to the emergency managers.

For example, in 2002, California’s Office of Homeland Security which is separate from the state EM office, started working with the Adjunct General to implement a five-step state strategy on terrorism. One of the steps in this strategy is to re-examine state and federal legislation to see what needs to be changed to provide them with appropriate authority to operate in any emergency—technological or natural. This office believes it will have two missions: one in homeland security and one in homeland defense.

International actions related to the war on terrorism could add to the Guard’s importance.

What does this mean for EM?

It will probably take months, or—more realistically, years—to sort things out, but let’s look at some of the potential changes. The implications for federal EM efforts are numerous. In the new DHS, FEMA becomes a directorate headed by an under secretary that reports up through a deputy secretary to the department secretary.

The direct authorities currently vested in the Director of FEMA will probably be given to the new DHS Secretary, who will probably retain the responsibilities for recommending disaster declarations to the President and for coordination of the federal response to natural and technological disasters or emergencies. This could dramatically impact the timeliness, effectiveness, and operational abilities of the current FEMA operations and staff. There may be changes in response or preparedness responsibilities to take better advantage of other parts of the new department, such as the Coast Guard. In any case, the stature and authorities of the leader of federal EM activities will be diminished.
Another likely impact will be the competition for resources among the various organizations within the new department. It is unlikely that the EM contingent will be effective in arguing for resources when up against organizations three and four times their size, such as the INS. The increases in terrorism monies that are potentially flowing to EM can evaporate quickly in the absence of terrorist events or rescission of federal spending across the board. These impacts, if they are realized, will certainly extend to the states. They most assuredly will be felt at the local EM level, where we already see states using federal support designated for local efforts as offsets to state budget shortfalls.

Throughout the summer and fall of 2002, Congress debated various versions of the legislation that would create the DHS. It looked like the legislation might ultimately fail because of pressure from the Democrats in Congress to preserve the rights of federal employees being transferred into the new department. But the mid-term elections of 2002 changed the control of Congress with a Republican majority in both houses. Without further deliberation on the legislation, the House passed the bill (H.R. 299-121) on November 13, 2002, and the Senate passed the bill (S.90-9) on November 19, 2002.

On November 25, 2002, President Bush signed into law the Homeland Security Act of 2002 (P.L. 107-296) and announced that former Pennsylvania Governor Tom Ridge would be nominated to be Secretary of the new DHS established by the legislation. Ridge was quickly confirmed and promised that the new department would be in place by March 1, 2003. The legislation allowed the Administration extraordinary freedom to reorganize personnel and programs from the existing 22 agencies combined to create the new department. For months, a small group of individuals in the Office of Homeland Security were working on reorganization plans.

In January, a small transition team headed by Secretary Ridge began to finalize the structure. The new structure moves significant numbers of FEMA personnel and most of the program funding for state and local EM infrastructure and first responders to a newly created Office of Domestic Preparedness. What remains of FEMA is reduced personnel for disaster response and recovery, the US Fire Administration, National Flood Insurance Program, other mitigation programs, nonterrorism training programs, and Citizens Corps. Added into FEMA is the National Disaster Medical System, the National Strategic Stockpile, and Nuclear Incident Response team. FEMA was renamed the Emergency Preparedness and Response Directorate.

On January 10, 2003, President Bush announced his intention to nominate Michael D. Brown to be the Under Secretary for Emergency Preparedness and Response. Mr. Brown had served as General Counsel and then Deputy Director to Joe Allbaugh, the former FEMA Director who had announced his resignation as Director of FEMA to be effective March 1, 2003. Mr. Brown has stated that he would like to retain the name or the identification of “FEMA” even though it is not part of the official title of the new organization, since it has such universal public recognition and respect. This will be very difficult since a part of the name denotes an independent agency.

Three events provide a level of insight into how the new DHS will operate and how it impacts EM and FEMA.

The organizations coming into the department were taxed with providing initial operating funds for the new department. FEMA was asked to provide approximately $35 million dollars, while the Coast Guard (with a much larger budget) was only required to contribute $3 million. FEMA came up with the funding by reallocating over half of the funding for the Flood Mitigation Assistance (FMA) program, funds from the predisaster mitigation grant program, and from other accounts including the Disaster Relief Fund (DRF).

The second event was the tragic explosion of the Space Shuttle Columbia, which, using FEMA’s authorities under the Stafford Act, as amended, was immediately declared a federal emergency. This type of declaration is a prerogative of the President when federal facilities or assets are impacted. The bombing of the Murrah Federal Building in Oklahoma City in 1995 was initially declared a federal emergency. The Columbia declaration took some by surprise as it was precedent and had not been applied in the earlier Challenger disaster.
Two speculations exist concerning this emergency. One is that the Bush Administration wanted to show the broad scope of the new DHS and that it could perform its responsibilities. Another more practical reason may be that by declaring it an emergency, the DRF could pay for the activities of the agencies involved in the clean-up and investigation. Emergency declarations are capped at $5 million unless Congress is notified. As of February 24, FEMA has expended over $90 million responding to the Columbia shuttle explosion.

The DRF has historically been considered only applicable for victims, be they people or communities. The leadership of the new DHS may be taking a much broader approach to use of this fund, and it may provide further rationale for why FEMA was included in the new department. While the DRF receives an annual appropriation, most of its funding comes from supplemental appropriations that are outside the normal federal budget caps, thereby providing almost “free money.” Congress has never failed to approve supplemental funds in the aftermath of a single or multiple disasters.

Passage of the 2003 Omnibus Appropriations bill indicates that spending on federal-level homeland security and terrorism programs is a high priority. However, heavy cuts were made in state and local homeland security programs, such as grants for EM, first responders, and public safety. Overall, resources to these state and local programs were cut more than 35 percent.

Do each of these examples represent a special situation, or are they representative of a significant change in philosophy? If the latter, then this has broad implications for the future of EM at all levels of government. By rushing to adopt the new hazard of terrorism as the primary objective, EM may find itself losing the funding battle to other forces in law enforcement and defense.

**Lesson one**

**Maintain an all-hazards approach to EM.**

Applying this approach takes advantage of the common capabilities necessary to treat any type of disaster or emergency but allows for incorporating the special needs of terrorism. To abandon the all-hazards approach would be repeating the mistake the EM community made in the 1980s. During the Cold War era, FEMA concentrated more than 75 percent of its financial and human resources on preparing for the next nuclear war. It mandated that states and localities receiving FEMA funding follow suit.

The result was that federal, state, and local capacities to respond to natural disasters were severely diminished. As Hurricanes Hugo, Iniki, and Andrew vividly demonstrated, state and local capacities were quickly overcome. The federal government response under FEMA was disorganized and late. In the case of Hurricane Andrew, the Director of FEMA was replaced as the in-charge official, and the military provided most of the initial support. This example of the folly of focusing on any one threat at the cost of more frequent and widespread threats provides strong evidence of the wisdom of the all-hazards approach to EM.

Since September 11, the nation’s psyche and its political leaders have been focused on terrorism and eliminating those who could perpetuate terrorist acts against the US. At the same time, the nation has experienced relatively few major natural disasters. Large Western wildfires, many caused by human error and drought conditions, dominated the disaster landscape. The El Niño effect reduced the likelihood of floods and hurricanes. These conditions will change.

Even when you consider the costs and human devastation of the 9/11 events, the statistics indicate that natural disasters will continue to be costly. The probabilities support the inevitability of a major natural disaster—flood, hurricane, or earthquake—affecting our communities. Continued development pressures will make flooding events in the US more prevalent and severe. As EM systems focus their efforts on preparing for and responding to terrorist events, these efforts should not diminish their capabilities or capacity for dealing with natural hazards.

**THE FUTURE OF EM**

We are optimistic that EM can survive and thrive in the future if it embraces the lessons learned from the past and moves forward with a progressive agenda that will be valued by the American people.
Lesson two

The federal response infrastructure, based on the Federal Response Plan, works. Since 9/11, many political leaders have called for building a new terrorism response structure, forgetting that an effective federal structure already exists. There is no need to build a new infrastructure. This approach was tested in hundreds of natural events and the Oklahoma City bombing—a terrorist event—and it worked. This proven structure is flexible; it needs modification and the addition of new partners to accommodate the unique aspects of terrorism, but the EM community should fight any attempts to build a separate structure.

At the state and local levels, state plans and the EM compacts that exist between states support this operational approach. Specific lessons learned from 9/11, particularly in communications and joint operations, can be readily incorporated into these existing structures.

Lesson three

Continue to practice the concepts that facilitated the US EM system becoming the best in the world. These five concepts are:

- focus on your customers, both internal and external;
- build partnerships among disciplines and across sectors, including the business sector and the media;
- support development and application of new technologies to give emergency managers the tools they need;
- emphasize communications to partners, the public, and the media; and
- make mitigation the cornerstone of EM.

These common-sense concepts were the key to the respect and success FEMA achieved under Director James Lee Witt and President Clinton. We believe they provide the framework for EM to continue to grow and expand its influence and importance to the institutions and people it serves. EM can ensure its place in the future if it focuses on policies, programs, and activities that improve the safety and social and economic security of individuals, institutions, and communities. To do this, EM must focus more effort in promoting and implementing prevention and mitigation.

PREVENTION AND MITIGATION

Prevention is the positive function that emergency managers can practice every day, in every community, and not be dependent on an event to prove their value. Prevention is practiced by all sectors of a community. To be effective, it requires developing partnerships within a community and often brings together disparate parties to solve common problems.

Mitigation brings the private sector into the EM system because economic sustainability of their businesses depends on risk reduction, so prevention promotes their support and leadership. Mitigation provides the entry point to involve the private sector in other phases of EM and to understand their unique needs in response and recovery.

In the late 1990s, business continuity and mitigation planning was the largest growth area for EM. Economic considerations or interest often drive public decisions. Mitigation allows emergency managers to have access and influence to the decision-making process. Mitigation works best at the local level and provides that grassroots constituency that can exert political pressure for continued EM support.

FEMA's national mitigation initiative, Project Impact, articulated this concept and made it a reality in more than 250 communities. The Bush Administration recognized this by including the words “building disaster-resistant communities” in the objectives for the new DHS.

There are many competitors for the role of homeland security czar. There are reasons and politics that may affect who or what agency gains prominence. While the struggle goes on, the EM community can demonstrate their value by focusing on mitigation. Their investment in this approach will ultimately pay off.

Should another terrorism event happen, the same questions raised after 9/11 will surface again because
no preparedness or response will be adequate; however, when the next natural hazard occurs, EM leadership in prevention and mitigation will be recognized and rewarded with public support. If there is any doubt, the events and comments made by public officials and citizens in the aftermath of the 2001 Seattle earthquake prove the point.

CONCLUSION

Whether the EM establishment will embrace this path in the future is debatable. Historic trends indicate otherwise; however, throughout the 1990s, a new breed of EM professionals began to emerge. These individuals were anxious to bring a fresh face to the profession and embraced new strategies for promoting sound EM practices, particularly mitigation. The future of EM may rest on their ability to balance the new demands of the terrorism threat with the real need to make a difference in the quality of people’s lives and their community’s sustainability through mitigation.

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Jane A. Bullock, Adjunct Faculty, Institute for Crisis, Disaster and Risk Management, The George Washington University; Principal, Bullock & Haddow LLC.

George D. Haddow, Adjunct Faculty, Institute for Crisis, Disaster and Risk Management, The George Washington University; Principal, Bullock & Haddow LLC.

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INTRODUCTION

In the aftermath of 9/11 and the creation of the Department of Homeland Security, it is tempting to suggest that emergency management (EM) has attained a new level of significance in the national consciousness. Indeed, the emergence of the profession and the creation of FEMA itself owe much to the national defense mania of the Cold War era. But, if the past is any indication, the national security concerns that periodically increase public awareness and political attentiveness to EM do not result in a broad commitment of new resources to the array of natural and manmade disasters that threaten communities. Aside from the increased attention on immediate security threats, often without new resources being made available to local governments, the commitment to comprehensive disaster planning is generally lacking. It could even be suggested that the current focus on national security holds as much potential to distract the EM profession as it does to increase its operational scope, but the current security crisis could also be an opportunity to recast EM as a more strategic component in the local communities it serves.

National security concerns aside, the EM profession is presently confronting the challenge to manage new realities. This requires expanding the role of the EM function beyond its traditional scope. The emergency manager requires new skills, and the profession must be identified with the emergency manager as a proactive public actor as much as it is with institutions and technical functions. This suggests that political and organizational analysis, strategic thinking, and leadership—concepts that have already been applied to all other public management functions—may be increasingly important concepts of study for emergency managers.1-3

What follows is a new conceptual framework for the EM profession as well as a basic organizational theme for its implementation. The limitations of the “old EM” must be overcome for the profession to advance to the “new EM,” which requires a broader, strategic, and more proactive orientation.

THE OLD EM

An examination of EM literature suggests that, until recently, the strategic motivation for the EM profession arose from the challenges of responding to immediate disasters rather than from the recognition of opportunities and the implementation of long-term planning. EM issues were of low salience in most states and communities.4,5 In fact, the literature often noted indifference or outright opposition to disaster preparedness.6 Public officials and public administrators in local communities did not fully comprehend the nature of the EM function. An assumption still prevalent is that EM is primarily a “response” function and a concern only for first responders. Other public officials remain uninvolved and assume that they need not learn much about the field.7

The development of the EM function at the local level grew out of federal legislation such as the Emergency Planning and Community Right to Know Act of 1986, but even with federal mandates assigning more disaster mitigation and preparedness functions to local governments, EM did not quickly become a priority at the local level. Unless a specific hazard was imminent, sustained governmental interest and public support at the local level was difficult to sustain.8 Tending to underestimate hazard potentials, policy makers and stakeholders have thus been reluctant to impose limitations on private property, unwilling to
bear the costs of hazard preparedness, and ambivalent toward hazard mitigation.7 EM remained a low priority, a resented unfunded federal mandate, and a responsibility often seen at odds with more important tasks such as economic development.

From its earliest days, the EM function suffered due to low political support and scarce resources. In many local jurisdictions, it became an add-on or part-time responsibility for an already overburdened local official such as a fire chief. Those appointed to local EM directorships often had little professional training or relevant experience. As a result, the focus of the EM professional tended to be disaster-specific, technical, and limited to very specific tasks.

This is beginning to change. The EM function is on its way to becoming a distinct profession, but a model is still lacking for transforming a once-limited function into a contemporary public management role connected to the whole of community life.

Recent literature suggests that EM is no longer confined to preparing for, responding to, or recovery from disasters but is increasingly an integral part of a community decision-making process connected to issues such as environmental stewardship, community planning, and sustainable development.9 More analysis is being devoted to EM as a component in broader community planning and development activities.10,11 Linking hazard mitigation to the broader task of developing sustainable communities potentially places EM at the very heart of community planning.12 This new strategic framework requires that EM organizations must see themselves as part of the political and social settings in which they work and see challenges, identify opportunities, and create long-term roles for themselves in the process of community planning and development.

Agreeing EM to any proactive principle runs contrary to the experience of most emergency managers. Even today, many emergency managers are most comfortable with a narrowly defined concept of planning for a particular set of planned responses to specific hazards or emergencies. EM organizations have never been inclined to expand their operational role or their strategic position. If EM is to be an integral part of broader issues and concerns affecting community life, it must redefine itself.

THE NEW EM

In linking EM to the broader task of sustainable community development, the challenge is to recast EM as a participant in the nexus of institutional and public actors who influence the process of community planning and development. Sustainable development is the key to this.

Sustainability to the emergency manager usually means that a locality can withstand and overcome any damage (property damage, lost economic opportunity, etc.) without significant outside assistance.11 Hazard mitigation is the specific EM function that ties it to the concept of sustainability. The fostering of local sustainability in the face of hazards—natural or manmade—is a prominent theme in current EM literature. In assessing the hazards that confront their communities, emergency managers have been increasingly trained to think in terms of mitigation. This rationale begins with the realization that disasters stem from predictable interactions between the physical environment and the demographic characteristics of the communities that experience them.

A preeminent objective of EM must be to mitigate hazards in a sustainable way to stop the trend of the increasing and catastrophic losses associated with them. With the passage of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, it has also become a matter of federal law. This law requires planning to mitigate the risks associated with recurring natural disasters.

The new EM has begun with a focus on hazard mitigation. Over the past decade, emergency managers have become more conversant with the concept of structural mitigation—increasing the resilience and damage-resistance of buildings and infrastructure through building codes, engineering designs, construction practices, etc. Emergency managers have also become increasingly, if more reluctantly, conversant with the notion of nonstructural mitigation. This includes directing new development away from high-risk locations through land use plans and regulations, relocating existing developments that have sustained damage to safer locations, and maintaining the protective features of the natural environment that may absorb and reduce hazard
impacts. The emphasis on hazard mitigation, structural and especially nonstructural, brings EM to the center of the vital task of planning and implementing sustainable community development.

Planning for sustainable development—a concept originally associated with environmental policy—has been broadened to include all community planning, including planning for economic development. It links concerns for social, economic, and environmental well-being in a process aimed at meeting present needs, while preserving the ability of future generations to meet their needs. EM has been linked to this broader task of sustainable development, and hazard mitigation has been a primary vehicle for that linkage. The emphasis is on reducing the vulnerability of communities to natural and manmade disasters in the context of other community goals such as reducing poverty, providing jobs, and generally improving people’s living conditions.

From an EM perspective, sustainable development requires an evaluation by each locality of its environmental resources and hazard risk potential, resulting in a series of choices that will impact the economic, social, and physical well-being of the community. These choices include identifying losses that a community is willing to bear, but all public choices relating to these matters must adhere to the value of sustainability as defined in the context of the broader community planning and development process.

Emergency managers know that communities must address the interdependent causes of natural and manmade disasters and decide which potential risks and losses are acceptable and which actions are needed to maintain the social, economic, and political stability necessary for the community to flourish. They seldom perceive this in the context of a broader role for EM in community planning. However, consider the connection between the two. If a community seeks to promote sustainability in the face of serious earthquake risks, structural mitigation alone is insufficient. Much more is required than building codes. Sustainability also requires a linkage of policies on building codes to policies on housing density, urban transit, social equality, environmental quality, economic development, etc. All policies are linked by the concept of sustainability, which includes EM policy and makes the emergency manager a participant in community planning.

The logic of hazard mitigation suggests that a part of ensuring the economic, political, and social development of a community is a full awareness of hazard risks and a plan to mitigate them. Community planning and development must include anticipation of and solutions to risks associated with potential hazards. But to the extent that EM’s orientation remains disaster-driven, the relevance of the new EM will be restricted, even if there is a greater awareness of its connection to broader concerns. The wider context of EM requires a more broadly engaged EM professional.

THE NEW EM PROFESSIONAL

If EM is to become a critical part of the process of sustainable community development, emergency managers must see themselves as participating with all political and social institutions in a coordinated effort. Building sustainable communities must be the fundamental public value served by the EM function, but the question remains: In the performing of their specific tasks, how can emergency managers organize their work to serve this public value?

As a first step, emergency managers must perceive themselves as having a common agenda with other community institutions. All relevant public and private stakeholders in the context of sustainable development must be brought into the EM planning process. In turn, emergency managers must be brought in as stakeholders to the network of community policymakers involved in planning and development activities.

The second step is defining the technical components in each phase of the EM function—risk assessment, mitigation, preparedness, response, and recovery—as part of a holistic system of integrated policies related to disaster mitigation and sustainability in the community. Hazard or disaster mitigation must be the preeminent task that ties EM into the value of sustainability and defines its role in the context of community planning.

The final step is the linkage of all policies necessary to promote social, economic, and political stability, including EM policies, in the process of community planning. The end product of EM must be connected to
all facets of community life in a coordinated effort to promote sustainability.

To accomplish these three steps, EM needs to broaden its orientation beyond efficient disaster response and recovery operations. To be more proactive by emphasizing mitigation, emergency managers must become partners with all community leaders associated with the concept of sustainable development. To build networks of support groups and stakeholders, and to establish the linkages with other community leaders and institutions necessary to bring about this transformation, technical skill alone is insufficient. The training of emergency managers needs to be refocused on more strategic skills.

Advanced educational training is increasingly required for all emergency managers. The training associated with public administration—training in leadership, organizational behavior, strategic planning, analytical methods, and public policy—has never been more urgently needed. A more proactive EM professional is needed to articulate a broader role for EM, to link it to the building of sustainable communities, and to emphasize mitigation.

Finally, the training of all public management professionals should include a basic foundation in EM. Educational programs should provide training that reflects the link between hazard mitigation, community planning, and sustainable development. This does not mean that all public administrators should be cross-trained as emergency managers, but EM should be a component of their professional education. It should include a focus on the value of mitigating hazards in a sustainable way as a key component to community planning and development.

CONCLUSION

The old EM tended to be event- or disaster-driven, focused primarily on response and recovery with a narrow focus on technical capabilities. The new EM, driven by the development of a stronger emphasis on hazard mitigation and increasingly connected to the concept of sustainable development, requires that EM be seen as a part of a more strategic system that connects the emergency manager to the broader concerns of community planning. This requires the integration of all technical components with integrated policies and programs related to disaster mitigation as it is connected to the building of sustainable communities. Resident in this development are both the opportunity and the need to broaden the definition of the EM function, which in turn requires a more broadly trained, strategic, and proactive EM professional.

With a conceptual orientation centered on sustainable development and a practical emphasis on hazard mitigation, the outline for the future of the profession is visible. The challenge now is to prepare new EM professionals for the future suggested by that outline.

Robert O. Schneider, PhD, Chair, Department of Political Science and Public Administration, University of North Carolina at Pembroke, Pembroke, North Carolina.

REFERENCES
Developing a professional standards model for the fire service

Christopher P. Riley, MS
Linda D. Sarbo, PhD

ABSTRACT
While police agencies have well-established internal affairs processes, professional standards units (PSUs) are rare in fire service agencies with fewer than 1,000 employees. In response to increased public scrutiny and growing concerns about liability issues, fire service agencies are implementing PSUs.

This study was designed to develop and validate a prototype professional standards manual for fire service agencies. We reviewed professional standards divisions in fire service and police departments, and interviewed representatives of selected agencies to establish parameters for successful PSUs. Based on this review, a professional standards model was developed. For validation, the prototype was submitted to four fire service professionals for review and comment. Their comments were supplemented by phone interviews and incorporated into the model.

INTRODUCTION
To operate effectively, fire service and police departments rely heavily on public trust, but personnel employed by these public safety agencies are fallible. As Deeds observed, “Fire chiefs and firefighters are not unlike other governmental employees in that they are trusted by the public to use the public’s money in the most efficient, effective, and acceptable manner.” However, they occasionally make mistakes and, in some cases, commit criminal acts.

Most police departments have established professional standards divisions (usually referred to as internal affairs units) to handle complaints involving departmental personnel. In contrast, most fire departments operate without professional standards or internal affairs divisions. Depending on the fire agency, investigation of professional standards issues may be assigned to the supervising battalion chief or fire captain. These officers often do not have either training or a formal protocol to follow as they conduct investigations and formulate recommendations. In the absence of an independent professional standards division, inconsistencies in procedures and dispositions are likely.

Like other government agencies, the fire service is being subjected to more public scrutiny than ever before. Such scrutiny raises many liability issues, including a growing number of lawsuits resulting from internally generated complaints (e.g., internal theft, sexual harassment) and externally generated ones (e.g., a citizen complaining of being improperly treated by a firefighter).

In response to the pressing need for formalized processes for responding to professional standards issues, we designed this study to develop and validate a prototype model for professional standards divisions in the fire service. It is hoped that the availability of this model will expedite the implementation and facilitate the establishment of professional standards divisions throughout the discipline.

METHODS
There was one main challenge to constructing a model professional standards manual that fire service agencies could implement with only minor revisions to incorporate agency-specific content to meet local requirements. We had to anticipate issues and concerns unique to fire service operations, while constructing a model that was sufficiently generic to accommodate a variety of specific local requirements.

To ensure that the proposed model satisfied these criteria, the manual was constructed in five steps.
Step 1: Interview with professional standards expert. As a first step, we interviewed Chief Timm Browne, of the Palos Verdes, CA, police department, an expert in the field of professional standards/internal affairs. With input from Chief Brown, we were able to identify critical processes, highlight potential distinctions between police and fire service operations, and target requirements specific to the fire service.

Step 2: Review of existing professional standards/internal affairs procedures. To establish parameters for successful professional standards programs, we interviewed representatives of six fire service agencies and five police/public safety agencies by phone, using a 10-item questionnaire developed for this purpose. We obtained professional standards/internal affairs documents from several local agencies and reviewed them. The procedural document used by the Costa Mesa, CA Police Department (CMPD) offered the most relevant elements for constructing a professional standards model for fire service agencies.

Step 3: Revisions to conform to fire service operations. We revised the CMPD’s procedural document to conform to fire service operations and terminology. Provisions that applied to situations exclusive to police operations were replaced with provisions drafted to accommodate fire service operations and replaced inapplicable terminology with terms familiar to firefighters and fire service personnel.

Step 4: Revisions to eliminate agency-specific content. In a second revision, all agency-specific content was removed and replaced with nonspecific “place holder” language designed to preserve the integrity of the model and facilitate the insertion of appropriate agency-specific content by implementing agencies.

Step 5: Review by fire service and legal authorities. As a final step, the applicability of the model was tested. In what might be described as a simulated implementation, fire service, agency-specific content was inserted into the model to simulate implementation by the Costa Mesa, CA, fire department. The customized manual was reviewed by the Costa Mesa fire chief and the Costa Mesa city attorney, who approved the proposed model as acceptable for local implementation.

Validating the model
To ensure that the proposed professional standards manual could serve as a viable model for other departments, it was subjected to a validation process. This process consisted of a review by four fire service officers using a five-item questionnaire developed for this purpose. We conducted follow-up phone interviews...
with reviewers in November 2002 and summarized their comments for incorporation into the proposed professional standards model.

**RESULTS**

To develop parameters for the professional standards model, we interviewed representatives of six fire service agencies and five police/public safety agencies by phone using a 10-item questionnaire. The agencies contacted are listed in sidebar on page 30.

Quantitative data collected during these interviews is summarized in Tables 1 and 2. Of the 11 interviews, six contributed substantially to the model for professional standards developed for this study. The interviews with these three fire and three police agencies are summarized in the following sections:

- The Fairfax County (Virginia) Fire and Rescue (FCF&R) employs 1,167 suppression personnel in 35 fire stations. Rick Daniele, who commands the Professional Standards Unit (PSU), reported the PSU handles approximately 50 cases per year, of which two thirds are generated internally. The unit was established in 1984 and, according to Daniele, has a record of no overturned cases. Daniele concluded, “The PSU helps the department in the area of professional standards by ensuring that investigations are completed in a consistent and highly professional manner.”

- The Los Angeles City Fire Department (LAFD) has approximately 3,000 members. Internal Affairs for the LAFD is handled by the Administrative Justice Unit (AJU), which is led by Battalion Chief Donald Austin. According to Captain A. Abarca, “Chief Austin has two captains and an executive office specialist assigned to this unit. The two captains conduct formal investigations on cases that reach the AJU. The investigators are assisted by field advocates, which are assigned to cases on an as needed basis.” Abarca reported that the AJU handles an average of 70 to 80 cases per year.

- The Phoenix Fire Department (PFD) is staffed by 1,500 firefighters and operates a
Performance Auditors Section (PAS) that handles internal affairs. According to Nicole Munson, “This section is lead by Chief Paul Thornton, who oversees one full-time investigator [Munson] and one part-time investigator.” According to Munson, citizens’ complaints that do not involve allegations of serious violations are investigated by the on-duty battalion chief assigned to the geographical area of the complaint. If the complaint is significant, or if it involves a criminal charge, it is referred to the PAS investigator for investigation and processing. PAS handles an average of 25 cases per year.

The CMPD employs approximately 150 sworn police officers and 25 staff personnel. The department has had a PSU in place for over 10 years. The PSU is staffed by one full-time lieutenant and a sergeant who assists on a part-time basis. Lieutenant Dale Birney, who currently commands the PSU, reported that, “The PSU handles approximately 60 cases per year. Cases which originated internally mainly stem from rules and regulation violation allegations. Externally generated cases are usually citizen complaint allegations (e.g. excessive force, rudeness, etc.).” According to Birney, the PSU has enhanced the department’s professional standards by ensuring consistency in the investigation process, raising professional standards within the department, and giving the public and members a high level of trust.

The Huntington Beach Police Department (HBPD) employs 100 sworn officers and 20 staff personnel. The PSU has been in existence for over 10 years and is staffed by two full-time sergeants, led by Sergeant Cory Bright. According to Bright, “This unit handles approximately 40 incidents per year, while internal affair incidents that are lesser in severity average approximately 90 per year and are handled at a supervisory level. The origination of internal incidents is largely due to rules and regulation issues, while incidents that originate externally are mainly citizen complaint-related (e.g., rudeness, excessive force, etc.).”

### Table 2. Program features of selected police/public safety departments

<table>
<thead>
<tr>
<th>Field personnel</th>
<th>CMPD</th>
<th>FBI</th>
<th>HBPD</th>
<th>NBPD</th>
<th>PVPD</th>
<th>Average</th>
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<td>100</td>
<td>150</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>100%</td>
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<tr>
<td>Years in place</td>
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<td>35</td>
<td>10</td>
<td>17</td>
<td>15</td>
<td>17.4</td>
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<td>2</td>
<td>2</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>Incidents/year</td>
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<td>90</td>
<td>40</td>
<td>N/A</td>
<td>63.3</td>
</tr>
<tr>
<td>Incidents/field personnel</td>
<td>.40</td>
<td>.90</td>
<td>.27</td>
<td>.433</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Huntington Beach Police Department (HBPD) employs 100 sworn officers and 20 staff personnel. The PSU has been in existence for over 10 years and is staffed by two full-time sergeants, led by Sergeant Cory Bright. According to Bright, “This unit handles approximately 40 incidents per year, while internal affair incidents that are lesser in severity average approximately 90 per year and are handled at a supervisory level. The origination of internal incidents is largely due to rules and regulation issues, while incidents that originate externally are mainly citizen complaint-related (e.g., rudeness, excessive force, etc.).”

According
to Bright, the PSU has helped the department by assuring that professional standards incidents are reviewed in a consistent and professional manner.

The Newport Beach Police Department (NBPD) employs 150 sworn personnel, including approximately 75 civilians. NBPD has had a PSU for over 17 years. Two full-time positions are assigned to the unit, which is currently headed by Lieutenant Mike Hyams. Hyams said, “The unit handles approximately 40 incidents per year. The cases that originate externally are mainly violations of rules and regulations. External cases are usually citizen complaints that can range from rudeness, to unlawful arrest, to excessive force.”

Hyams believes the unit has helped the department by raising the bar of excellence in professional standards and concludes it is also “a safeguard against misconduct and gives the public confidence that operations are conducted in a professional and ethical manner.”

Phone interviews with reviewers

Once the model was constructed, it was submitted to four reviewers who responded to a five-item questionnaire and were interviewed by phone for the validation portion of this study: Fire Chief Cameron Phillips, Garden Grove Fire Department; Fire Chief Alfred Nero, Brea Fire Department; Fire Chief Donald Heiser, Encinitas Fire Department; and Division Fire Chief Randy Scheer, Newport Beach Fire and Marine. These reviewers, all of whom are respected by their peers, provide leadership for typical mid-sized departments in southern California with an average staff size of 90. Their comments are excerpted below.

Will you use the professional standard manual for your department? All four reviewers indicated they could use the manual in their fire department. Chief Heiser said, “This is an excellent tool that could be used for any city department, not just the fire department.” Chief Phillips said, “We could use parts of the manual, for instance, in the area detailing traffic collision incidents.”

Would you make any significant changes to the manual? None of the reviewers said they would make any significant changes. Chief Heiser said, “The only changes I would make would be those that would reflect my city’s policies, procedures, and culture.” Chief Scheer said, “The only possible change to consider would be to build in a procedure that would encompass a situation where a chief officer was charged with an offense. Currently, the manual states only chief officers sit on the Board.”

What did you like about the manual? All the reviewers made positive comments. Chief Phillips said, “I like the way the manual outlines a path for each situation.” Chief Heiser said, “I really like the standardization. It gives you a process to investigate any incident. In addition, as you go through implementing it through city legal and personnel, it further validates it as it is being reviewed by many different departments. More then anything else, it becomes a validated document.”

Reviewers’ responses varied when they were asked what they disliked about the manual.

Chief Phillips said, “What I like, I also dislike. I like the way things are detailed, but parts of the manual are overly detailed and busy.” Chief Heiser said, “Nothing to dislike about the manual. The only frustration is that professional standards in the fire service are not standardized.”

Do you anticipate any significant problems? All reviewers identified a need to meet and discuss the manual with labor groups before implementation. Chief Phillips said, “I would start with meeting with the labor group. I would jointly work with labor, legal, and personnel.” Chief Nero said, “I would begin with a meet-and-confer process with the union to get their buy-in.”

DISCUSSION

Typically, only large metropolitan fire departments (i.e., greater than 1,000 personnel) currently have PSUs in place. On the other hand, internal affairs/PSUs are common in police/public safety agencies, regardless of department size. Data reported in
Tables 1 and 2 indicate that the numbers of internal affairs incidents per year and per field personnel are substantially higher for police departments than for fire departments. This difference is likely attributable to the more confrontational nature of police officers’ duties.

Agencies with internal affairs/PSUs reported similar frequency rates for internal and external incidents. The most common type of externally generated incident was citizen complaints, while almost all internally generated incidents were the result of rules and regulations violations (i.e., tardiness).

Without exception, agency representatives reported that their departments’ PSUs had improved operating effectiveness. Their comments suggested that the process of developing and implementing a PSU might have a positive impact on the organization. Developing and implementing a PSU appears to focus attention on ethical issues and reinforce quality standards for professional conduct. Once implemented, a PSU assists employees in making appropriate ethical decisions, thus reducing the incidence of punitive disciplinary actions that result from poor decision-making.

When implementing the proposed professional standards model, it is advantageous to identify and incorporate the dominant values shared by the entire organization. In the case of fire service agencies, it is critical that fire administration and employee labor groups work together to develop professional standards that encompass the shared values of a diverse workforce.

Christopher P. Riley, MS, Battalion Chief, Fire Department, Costa Mesa, California.
Linda D. Sarbo, PhD, Lecturer, California State University, Long Beach, California.

REFERENCES
Abstract
The level of emergency preparedness considered adequate for hospitals prior to the events of 9/11 is no longer sufficient. To analyze and improve emergency preparedness in Navy healthcare facilities, the US Navy Medical Department has established the Disaster Preparedness, Vulnerability Analysis, Training and Exercise (DVATEX, pronounced ‘dee-va-tex’) program. The four-stage program includes a hospital or clinic self-assessment, a site visit to each Navy hospital and clinic (during which a team of emergency preparedness experts trains staff, performs a vulnerability analysis, and conducts an exercise of the facility’s emergency management plan), development of an after-action report, and ongoing support to improve preparedness (Figure 1). In its first year, the DVATEX program has been successful in identifying hospital vulnerabilities, applying remedies, and developing long-term plans to improve preparedness.

Introduction
Hospitals require a higher level of emergency preparedness than ever before. On September 11, 2001, the Pentagon was hit by a hijacked plane and burned just a few miles south of the Navy Bureau of Medicine and Surgery—Navy Medicine’s headquarters in Washington, DC. The US Navy Medical Department operates three medical centers, 22 hospitals, and more than 130 clinics around the world to serve the combat medical needs of the active Navy fleet, Marine forces, their families, and retired veterans. Recognizing the existence of new and unconventional threats, the leaders of Navy Medicine began to scrutinize the adequacy of emergency preparedness in all of their healthcare facilities.

To tackle this complex task, a new headquarters organization—the Navy Medicine Office of Homeland Security—was established in November 2001 to ensure the highest levels of emergency preparedness in US Navy hospitals and clinics. An interdisciplinary team of physicians, nurses, healthcare administrators, and emergency management experts was created to provide visionary leadership, to influence change throughout Navy Medicine, and to improve coordination with other federal agencies.

The mission of the Navy Medicine Office of Homeland Security is to ensure that the Navy’s healthcare facilities can promote, protect, and restore the health of sailors and Marines, their families, retired veterans, and all others entrusted to the Navy’s care, anytime, anywhere, regardless of the emergency or disaster. To achieve this mission, the team:

- prepares Navy hospitals and clinics to operate in times of crisis, disaster, and emergency;
- identifies and remediates vulnerabilities that put people and facilities at risk;
ensures that Navy Medicine staff protect themselves so they can care for others;

- trains emergency responders and exercises emergency response activities to ensure competence;

- promotes effective military and civilian collaboration in emergency response; and

- leads change to prevent and deter health-related consequences of natural disasters and intentional attacks.

The foundation of the work of the Navy Medicine Office of Homeland Security consists of planning assumptions. These include:

- Hospitals and healthcare workers are on the front lines of the global war on terrorism and are therefore at risk of attack or of being called to respond to the consequences of an attack or a natural disaster.

- Health professionals must protect themselves, must be highly trained, and must be prepared for all hazards.

- Hospital emergency response plans must be exercised regularly to ensure effective response.

The Navy Medicine Office of Homeland Security’s immediate challenge was to assess the real level of emergency preparedness in an organization that has healthcare facilities—from major medical centers to small community clinics—throughout the world. While the state of preparedness for these facilities was being assessed, it was critical to begin the process of applying solutions to identified vulnerabilities.

The purpose of emergency management planning in hospitals and clinics is to ensure that the organization establishes, maintains, and revises a plan to respond to any emergency situation or disaster, including natural, manmade, industrial, or transportation disasters, terrorism, and acts of war. Optimal emergency planning in hospitals and clinics improves the quality and efficiency of healthcare services provided to the largest number of emergency patients in the shortest period of time.

Strengthening emergency preparedness in a resource-constrained environment presents a challenge for healthcare leaders. To tackle this challenge, the Navy Medicine Office of Homeland Security developed the Disaster Preparedness, Vulnerability Analysis, Training and Exercise (DVATEX) program, which advocates a systems approach to hospital emergency planning and operations. This approach integrates disparate hospital functions into a single system to achieve a common goal.¹

Planning is an organized effort to anticipate what may occur and to develop cost-effective countermeasures.² DVATEX is an example of deliberate planning—planning conducted without the mental duress that accompanies a crisis. Deliberate planning permits thoughtful analysis of threats and avoids crisis action planning—the planning that occurs during an event when little time is available for analysis or careful thought.³
In March 2000, the American Hospital Association, with the support of the Office of Emergency Preparedness, convened a forum to address the subject of hospital preparedness for mass casualties. The forum reached three conclusions:

- Hospital preparedness for disasters has historically focused on a narrow range of potential incidents.
- Limited data exist on hospital emergency capabilities and more data is needed.
- Traditional planning has not included internal disasters—situations when the hospital is itself the victim of disaster. Such a situation demands planners to consider evacuation, quarantine, and diversion of incoming patients.\(^4\)

These considerations, as well as others, were integrated into the design of DVATEX.

A team of military experts was assembled to execute DVATEX, but additional expertise was required, and a civilian partner was contracted to join the DVATEX team. EAI Corp., headquartered in Abingdon, MD, provides chemical, biological, radiological, nuclear and explosive (CBRNE) defense assessments, planning, training, equipment, and exercises. EAI has been involved in national preparedness efforts since 1995 and in the CBRNE arena since 1980. Its focus is an “all-hazards” approach to preparedness, response, mitigation, and recovery. EAI has trained more than 96,000 emergency response personnel, conducted assessments and planning activities for more than 100 jurisdictions, and acquired emergency response equipment for more than 300 cities, counties, states, agencies, and military installations. The firm has provided anti- and counter-terrorism services to many federal and state organizations.

The DVATEX program was designed to ensure that Navy hospitals and clinics can operate even when stressed by an emergency. DVATEX is a four-stage process that includes a site visit by an interdisciplinary team of emergency preparedness experts to each Navy hospital or larger ambulatory care clinic. The visit itself takes place over three to five days, but planning for the DVATEX site visit begins months in advance. One critical aspect of advance work is a self-analysis of preparedness conducted by the hospital or clinic.

The DVATEX visit combines three elements designed to strengthen the level of emergency preparedness in a hospital or clinic: vulnerability analysis, training, and exercise of emergency management plans. The desired end is a hospital or clinic whose staff, systems, and facility are better prepared to respond to and recover from any emergency.

Vulnerability analysis

The site visit includes a vulnerability analysis to assess the hospital’s or clinic’s level of preparedness. Every aspect of emergency operations and response is scrutinized to determine if it is likely to work effectively in an actual disaster or mass casualty event. To gather data for analysis, the DVATEX team interviews key personnel, reviews hospital records, and performs a physical survey of the facility. During this analysis, DVATEX analysts develop a realistic assessment of the capabilities of the facility.

When the DVATEX program was initiated, extensive literature searches did not yield the existence of

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### Professional background of the DVATEX team

- Emergency medicine
- Disaster medicine
- Emergency nursing
- Healthcare executives
- Emergency medical services
- Antiterrorism/law enforcement/fire response
- Facilities engineering
- Critical incident stress management
any analysis tools that could meet the needs of the program. The team believed a tool was required that did not just employ minimum standards but used benchmarked goals that would lead to highly refined emergency preparedness. The DVATEX team created two tools to provide the framework for a reproducible vulnerability analysis: the Hospital Emergency Analysis Tool (HEAT©) and its companion tool for facilities without inpatients, the Analysis Tool for Ambulatory Care (ATAC©).

The HEAT and ATAC tools evaluate the presence or absence of critical preparedness factors on a 100-point scale, with a higher score indicating better emergency preparedness. The scoring system allows facilities to compare themselves to like facilities (in size and trauma designation) or to evaluate improvement in their emergency preparedness over time. The factors selected for evaluation in HEAT were identified based on research, the DVATEX analysts’ experience, and current health care standards, including emergency management standards developed by the Joint Commission on the Accreditation of Healthcare Organizations.5

The vulnerability analysis using HEAT or ATAC includes assessment of leadership and governance; emergency management planning; clinical operations; safety, fire and security; logistics and facilities; communications warning notification; public information; media relations; training, drills, and exercises; and performance improvement and quality.

A key aspect of the vulnerability analysis is inspection of the physical facility. While no building can be fully protected from an individual intent on causing harm, actions can be taken to make hospitals less attractive targets. The DVATEX vulnerability analysis includes evaluation of the entire building, HVAC systems, fire protection, life-safety systems, and the most up-to-date drawings of the facility as recommended by the Centers for Disease Control and the National Institute for Occupational Safety and Health.6

Training
Trained hospital and clinic staff are the foundation of effective emergency response. The DVATEX process includes training seminars for clinical and nonclinical staff, since all must be able to perform effectively under stress. Programs include training healthcare executives in emergency preparedness, training clinicians and nonclinicians in response to CBRNE events, the Hospital Emergency Incident Command System (HEICS), and risk communications for public health emergencies. The training schedule is developed well in advance of the visit so programs can be marketed to hospital staff.

Emergency management plan exercise
The capstone event of the DVATEX site visit is a four-hour tabletop exercise of the facility’s emergency management plan. The exercise includes members of the hospital or clinic staff as well as representatives of the local community response agencies. The scenario is a hypothetical (but plausible) scenario based on a natural catastrophe, a dirty bomb, release of a hazardous material, or the outbreak of a disease (intentional or natural). The catastrophe begins a chain of events that allows participants to exercise

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**Hospital and clinic documents reviewed during DVATEX vulnerability analysis**

- Organization strategic plan
- Policies and procedures manuals
- Organizational diagram
- Emergency management plan
- Memoranda of understanding/agreements with community emergency response, fire and law enforcement agencies, vendors, and other entities involved in emergency response
- After Action Reports (AARs) from prior emergency management exercises, drills, and analyses
- Hazard vulnerability analysis reports
- Emergency management committee mission, purpose, and meeting minutes
the decision-making that would be required in an actual emergency. Because this is a tabletop exercise and does not involve actually moving patients, the facilitator may stop progress at any time to discuss key issues, make recommendations, or educate the participants.

Healthcare organizations have often operated in isolation. Integrated, community-wide preparedness must be in place to ensure effective response and to serve as a deterrent to possible attack. The tabletop exercise enables integration of the facility’s emergency management plan with that of the community. Conflicts between participating agencies may surface during the exercise that can be worked out in a training environment instead of during an actual crisis. Key players from the medical facility and local response community can establish or strengthen their relationships through the exercise. If possible, a full-scale exercise of the hospital emergency management plan is evaluated during the DVATEX visit. This permits an even more in-depth analysis of the hospital’s level of preparedness and is valuable in identifying gaps in planning.

Communication between the DVATEX team and the hospital or clinic executives is critical during all phases of the program. At the conclusion of the site visit, the DVATEX team delivers an executive summary of the vulnerability analysis to the facility’s leadership. Following the visit, the facility receives a comprehensive after-action report (AAR) that provides details about the vulnerabilities identified, an explanation of why the vulnerability is significant, and suggestions for actions that can be taken to address the issues.

Follow-up program

While the DVATEX visit itself produces significant improvements in emergency preparedness, it is only the beginning. A follow-up process is necessary to ensure that the program produces long-term emergency management improvements. The follow-up program uses the recommendations provided in the AAR as a basis for the development of an action plan for each facility. The hospital’s executive leadership can use the AAR to craft their emergency preparedness strategy. DVATEX assists them in:

- identifying resource needs and prioritizing action;
- identifying emergency management training opportunities; and
- fine-tuning command and control of emergency response.

The follow-up program ensures that a hospital or clinic has all the information it needs to make strategic decisions about emergency preparedness and is able to reduce risk to the facility’s staff, patients, equipment, and structures.

CONCLUSION

Hospitals in the US have been challenged to upgrade emergency preparedness because the risk of responding to an attack or mass casualty event is more real today than ever. The DVATEX program has proven to be a cost-effective method for simultaneously addressing multiple emergency preparedness issues. The program has received praise from training participants for demystifying response to CBRNE events, and healthcare executives have remarked favorably on the benefits of the program. The commander of the National Naval Medical Center, Rear Admiral Donald C. Arthur, remarked, “DVATEX is our single-most important tool for guiding plans for effective homeland security.” Captain Joe Moore, Commanding Officer of the Naval Medical Clinic at Pearl Harbor, HI, stated, “The DVATEX program provided me with the feedback and guidance that allows me to better focus the efforts of my staff. We are smarter in our training and purchasing of equipment and more vigilant in our delivery of healthcare.”

Navy Medicine is committed to ensuring that Navy hospitals can continue to provide care for patients even under the most difficult conditions. DVATEX focuses attention on emergency preparedness at all organizational levels. The program has identified significant strengths that contribute to effective response. DVATEX also permits Navy Medicine to identify the issues that are
Putting people and facilities at risk and guides the immediate and long-term responses needed to address them.

Commander Mary W. Chaffee, ScD(h), MS, RN, CNAA, FAAN, Nurse Corps, US Navy; Director of the Navy Medicine Office of Homeland Security, Bureau of Medicine and Surgery, Washington, DC. She also serves on the Executive Board of the International Nursing Council on Mass Casualty Education.


Robert M. Padula, MHA, BS, CHE, PC, has extensive experience as a civilian healthcare administrator and over 22 years on active duty in the US Navy Medical Department. Most recently he served as head of hospital emergency preparedness programs in the Navy Medicine Office of Homeland Security, Bureau of Medicine and Surgery, Washington, DC.

Lieutenant Mark R. Lauda, MS, BS, Medical Service Corps, US Navy; Assistant Head of the DVATEX Program, Navy Medicine Office of Homeland Security, Washington, DC.

John E. Skelly, BS, EMT-P, Chief Hospital Corpsman, Head of Anti-terrorism and Assistant Head of Hospital Emergency Preparedness, Navy Medicine Office, Department of Homeland Security, Washington, DC.

Neill S. Oster, MD, Assistant Professor of Emergency Medicine, Methodist Hospital, New York, New York; Medical Advisor, US State Department Anti-Terrorism Assistance Program; Codeveloper, HEAT and ADAC.

Randall A. Bright, BS, Vice President, EAI, Inc., Abingdon, Maryland.

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DISCLAIMER

The views expressed in this article are those of the author and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, or the US Government.

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A model of organizational recovery

Rick Allen, PhD
Francine Toder, PhD

ABSTRACT
Organizational recovery refers to the process of recuperating from the disruption caused by a traumatic event. It is a flexible process based on planning that aids in recovering from disasters while minimizing lost revenues, addressing the welfare of employees, and providing a model of recovery for the business community. This article reviews community models, and focuses on selected primary pre-incident and event variables that affect recovery, as well as a model of organizational recovery that can improve the survivability of organizations.

INTRODUCTION
While serving as Director of FEMA, James L. Witt noted that when organizations are faced with workplace disruption, “more than 30 percent of small businesses do not reopen.” Larger organizations may not survive either. Those that remain viable owe their survival to either the inherent strengths of the organization or to the process of organizational recovery that was already in place.

Rudy Giuliani, former Mayor of New York City, said that the events of 9/11 “gave us a chance to see the world as it really is. We are safer now because we faced reality. . .We are not risk-free and will be attacked again.” He suggested relentless anticipation and preparation to keep organizations going following an event.

Organizational recovery is a process of recuperating from disruption caused by a traumatic event. It is a flexible process based on planning, which aids in recovering from disasters, while minimizing lost revenues, addressing the welfare of employees, and providing a model of recovery for the business community.

The disruptive event might be large or small, caused by nature or initiated by human beings. Whether an earthquake, terrorist attack, industrial accident, or workplace violence incident, recovery depends on three main factors—the pre-incident status of the organization and the community it resides in, incident characteristics, and recovery efforts within the organization and its affected community.

Review of community models
In the literature on community response to disaster, J.T. Mitchell and others have discussed the phases that occur surrounding an event. The first phase focuses on awareness of the potential for different disasters that can occur. This is followed by basic disaster planning to reduce the damage that may be caused by one of these disasters. The next phase addresses what happens when a disaster is about to occur (i.e., becoming aware that a hurricane is about to strike the area.) This is followed by initial actions to limit loss of life and damage to property. This is then followed by what Mitchell calls the impact phase, which occurs when the disaster happens. There is then a phase of shock and action, as people are galvanized into action to protect lives and property.

Pre-incident variables
The state of the organization prior to the incident is a good predictor of the organization’s ability to recover. Pre-incident variables that can affect an organization’s ability to cope with workplace trauma include:

- organizational climate;
- economic stability of the organization;
- perceptions of the organization by the surrounding community;
Pre-incident variables can be viewed as stressors and organizational challenges, as well as strengths and resources. Organizations that are stressed and barely able to keep afloat prior to an event may have a difficult time surviving even a modest disruption. If the organizational climate is one characterized by conflict, hostility, and a lack of cooperation, management may have difficulty pulling the workforce together to work on the recovery process. However, like individuals, organizations can become stronger and even function better as a result of a traumatic incident.

Financially stressed organizations may have a difficult time surviving the economic setbacks that can accompany a traumatic event, especially if revenue streams are compromised. As with individuals, prior organizational trauma may increase susceptibility to new incidents. Also, like individuals, organizations may become more adaptable because of learning that took place during previous experiences. Pre-incident management continuity planning provides the structure and tools to facilitate organizational recovery.

Incident variables

Incident variables can impact an organization’s recovery in much the same manner that traumatic experience has an impact on an individual’s adjustment, especially when terror and horror are part of the experience. When significant traumatic stressors are present, individuals will have a more difficult time resolving the trauma. This can affect their ability to help in the larger recovery effort.

A feeling of helplessness accompanying terror and horror can exacerbate post-traumatic stress reactions. This can lead to a longer and more difficult recovery and impede an individual’s ability to participate in the organization’s post-incident recovery efforts.

A human-initiated incident is a significant prognostic indicator. Human-initiated trauma often produces more anger and guilt (in those affected) than trauma resulting from natural disaster. Mistrust or anger towards management occurs when employees feel that management should have taken steps to prevent the occurrence. Loss of life is an extremely challenging variable. Trauma and grief issues need to be addressed but in a specific order, with trauma preceding grief. Community and organizational perceptions of a traumatic incident are another variable. If the organization is viewed as unsafe—which is what happened after the 1993 shooting at the Pettit & Martin law firm in San Francisco—current and potential clients, not to mention employees, don’t want to be there.

Other perceptions by the public and customers can disrupt businesses. Employees have security issues that need to be addressed to avoid significant turnover, increased utilization of medical resources, absenteeism, or “presenteeism” (the phenomenon of employees showing up to work when they are too distracted, tired, or ill to be productive). Perceived safety at work is positively correlated to recovery from traumatic experience and ultimately affects organizational recovery.

In the event of toxic exposure, employees and customers may experience another type of post-traumatic stress reaction, undermining trust in the organization and authorities. This scenario needs to be specifically addressed. Health concerns afflict not just those exposed but also the “worried well.”

This partial list of incident variables should be viewed in context with the pre-incident variables. Once an incident has occurred, the organization must resolve a number of challenges to fully recover. The stages of organizational recovery follow (the specific stages and process of recovery will vary, depending on pre-incident and incident variables).

STAGES OF ORGANIZATIONAL RECOVERY

Pre-disaster phase

Pre-disaster planning involves ways to reduce the damage caused by a disaster, then creating a strategy for the immediate aftermath. In previous models, planning did not focus on ways in which an organization will get back online following an event or on ways
to deal with the injury, death, or incapacitation of key personnel. The model presented here addresses these aspects of disaster planning.

Post-incident phase

Crisis. Timeline: first 24 to 48 hours. Challenges include rescue of personnel, first aid, welfare of staff, and preserving information, technology, and other resources essential to the organization. Reassuring key vendors, customers, and financial partners is also critical to this phase.

This first phase of recovery following a disaster is the crisis phase. It often begins during the event and involves activities to mitigate damage and to preserve life and property. Such rescue operations are the focus of most organizations during planning and may include ways to evacuate buildings, as well as track who has escaped, who is injured and needs aid, and who is missing or dead. Contact information, including family of staff, is vital for recovery in this phase. Having seamless plans and drills for the safety of employees is crucial.

Crisis phase planning must include immediate aid for those onsite, as well as backup methods for communication in case the phone system is out. In addition to first aid, training should focus on supportive and direct communication skills. Without being unrealistic, it is critical to let key personnel know as soon as possible that the situation is being managed and that the business will be back on its feet. It is also critical to communicate the importance of the ability to meet business obligations, thereby reducing losses.

An emergency response team should be available during the crisis phase. Bringing in outside response teams has several advantages. It gives employees a sense of being taken care of, which is critical after a traumatic event. It also helps them feel that they can be open about their experience, because they are talking confidentially to people from outside the company. And because these teams are from the outside, they will not have been traumatized to the same degree as those onsite, and will therefore be more effective. This is important because even trained professionals who are used to dealing with trauma can be affected by a serious incident. Emergency response teams will provide psychological assistance as well as crisis management consultation that will enable management to stay focused on the essential tasks of the business.

Psychological issues include shock, dissociative reactions (feeling as though the situation is unreal or being unaware of what is going on), anxiety reactions and panic. Normal reactions include stress, hypervigilance, and startle reactions. Management strategies for addressing those having such reactions include firm supportive direction, moving individuals to a safe location if they are in shock or unaware, and arranging for professional psychological assistance.

Assessment. Timeline: 24 hours to one week post-incident. Challenges include identifying what was damaged, what is functional, which personnel are unaccounted for or injured, which deadlines will be missed, and what is being communicated. How bad is the situation? Assessment can continue for up to a month (as information becomes available) and may continue throughout the recovery process.

Although initiated to some extent during the first 24 hours, the post-incident assessment phase cannot realistically begin until the safety of employees has been taken care of and until the event has ended. Only when management is no longer operating in the survival mode that characterizes the crisis phase can they begin a detailed assessment.

It is useful to have a plan for assessing the status of the business, its employees, deadlines that are coming up, customer and vendor contractual agreements, inventory, and production capabilities. This assessment can take up to several months, depending upon the type of business and the extent of damage to the business as well as to the infrastructure of the community in which the business operates.

During the assessment phase, the executive team should be asking critical questions such as: What are our core functions? What core functions can we fulfill? Which ones should be our priority? Defining discrete core functions is part of the planning process that will enable a business to be more nimble. For a business involved in the production of goods, an extended plant shutdown might require a focus on rebuilding. The goal would be to improve production technology so as to minimize the potential for damage from future disasters. This business may also focus on preserving its
customer base by shipping inventory that is on hand, identifying inventory from competitors or others in the same market, and working with customers to address issues they are facing due to a shortage of products.

A key part of the assessment phase is determining what management and staff resources are lacking. In every organization there are key personnel who have specific knowledge of engineering design, production, customer relations, planning, finance, and HR. Without these individuals, the organization will face significant challenges in recovering and in restoring profitability. Business continuity planning will aid in this assessment and will minimize the disruption to the organization that the loss of key individuals would entail. Pre-incident planning will enable a business to assess which assets might be unavailable and to minimize the impact of that loss by identifying and utilizing alternative resources within the company.

Assessment must also address which additional resources within and outside the organization are available, i.e., government assistance, insurance, or money owed to the company from customers. Assessment is not a static process; it will change over time.

Psychological issues in this phase can include stress, tension, difficulty sleeping, fatigue, difficulty in concentrating and making decisions, anxiety, anger, and guilt. Conflict between individuals and departments may arise. Management strategies for working with staff having these reactions include suggesting that they get additional rest, drink and eat appropriately, and engage in coping. Psychological interventions from qualified professionals are a necessity.

Planning. Timeline: 48 hours to one month post-incident. Challenges include identifying what we can do, what we should do, and which business functions to preserve going forward. Plans should be developed along timelines: one-, two-, three-, seven-, 14-, and 30-day time frames. Plans should alleviate future disasters and address problems or technology that can be upgraded or enhanced during rebuilding.

This planning phase is usually initiated during the assessment phase and focuses on an ultimate goal of recovery along with intermediate goals. This is a flexible process that should be based on estimates of what can be accomplished during specific time frames. Ways to mitigate against future disasters and problems should be a primary consideration. Planning will be ongoing during the recovery and will be updated as conditions change or as resources become available. Keep in mind that a full recovery may take an extended period of time. The business may be operational and profitable before it has achieved full recovery. A successful recovery process will be flexible; rigidity may reduce effectiveness. Unexpected complications frequently accompany a disaster.

Psychological issues during this phase include additional signs of fatigue, sleep disturbance, increase in drinking, anger, and stress symptoms. Management strategies include making certain that staff members are getting rest, that they are taking care of their own personal losses, and that there is assistance for them, physically as well as psychologically. Increased communication from the executive team and throughout the organization will help reassure everyone. Organizations should provide outlets for worry or fear as well as organizational activities to maintain morale and effectiveness.

Public information will coincide with all of these phases. Communication and information are key components in the recovery process. The organization needs effective internal communications to maintain morale and to effectuate recovery. Effective external communications will help the organization preserve public confidence, gain support, and maintain market share. This area has three major issues.

Internal communication is clearly the first responsibility. This is best done through pre-event planning and communication arrangements after a disaster. It is essential to maintain communication among the executive team, key managers, and staff at every level. This will allow for a more effective recovery process and reduce the spread of rumor or inference.

The next responsibility is to mount an effective public information program that stresses that the company is in recovery and will be back in business. Such a program needs to address the rumors and misinformation that run rampant after a disaster, and also needs to be proactive in dispensing accurate information with open channels to the community.

Technology can play a vital role during and after a
Video cameras and cell phones with video capability are capable of displaying damaging video material and information. It will be damning if a company denies that something occurred only to have videos of the denied event start airing on news stations. Inviting people to share information and videos that will be used in rescue and recovery is the optimal approach in this area. It also allows individuals to feel involved—less helpless in light of the incident and valuable because of their contribution. Rather than issuing denials, ask for assistance in investigating the event. These issues are especially salient in industrial accident cases where executives tend to deny culpability.

Re-building phase

Implementation. Timeline: immediately to one month post-incident, but possibly years, depending on the amount of damage and the availability of resources. Organizational continuity can include outsourcing specific operations, rebuilding facilities, and realignment of operations. The implementation aspect of rebuilding requires taking action on those plans that have been developed. It should also reflect the assessment as well as new information as it becomes available, i.e., a company damaged by flooding discovers new information about flood plains, which leads to rebuilding on higher land.

Psychological issues occurring one to three months after a major incident tend to be more challenging and are also frequently overlooked. Exasperation, anger, and impatience with a slow recovery can emerge. Child and spousal abuse may increase; depression may increase significantly. Suicide rates following major incidents such as earthquakes and hurricanes can double. Management strategies can include focusing on highly stressed people who may begin to believe that being stressed is a way of life, which actually reduces coping efforts. Staff members may find themselves becoming fatigued, ill, and short-tempered. These signs point to the need for a post-trauma program for all employees.

Ongoing recovery phase

Planning for a full recovery means going beyond the evacuation of a building and preserving data. It may take communities years to rebuild and recover from a major disaster. Organizations need to incorporate this long-term process into their planning and come up with supportive processes that keep managers and employees engaged and future-oriented, such as marking accomplishments with celebrations or acknowledging the ongoing hard work of recovery. Preserving momentum in a recovery process is critical. Attention should be particularly paid to staff who have lost family members or homes—these are risk factors for developing post-traumatic reactions and those affected need extra support.

Reorganization can be a byproduct of organizational recovery. This may be a good time for the executive team to contemplate a new business model. Involving employees at every level helps avoid the experience of re-injury. If a reorganization is experienced as another disaster, it could be very traumatic and engender negativity. Long-term morale issues are best addressed by bringing in outside facilitators to work with the remaining organizational issues.

Rick Allen, PhD, Management Continuity Planning Associates, Santa Cruz, California; www.managementcontinuity.com.
Francine Toder, PhD, faculty emeritus, California State University, Sacramento, California; Management Continuity Planning Associates, Palo Alto, California.

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ABSTRACT
Disaster researchers and disaster managers have relied upon various depictions of disaster phases for their professional activities, but there has been little empirical examination of these phases. This paper looks at when response activities started and ended and when recovery efforts began following a tornado. The data indicate that the transition from response to recovery is not a discrete event; rather, soon after response activities were initiated within the community, recovery efforts were also started. Although disaster phases provide an effective way to organize data and actual events, they need much further empirical and theoretical examination if they are to be an important component of disaster research and disaster management.

INTRODUCTION
This study describes the transition from disaster response to disaster recovery activities after a tornado. For years, disaster researchers and disaster managers relied upon various but similar categories to describe the phases of disasters. Beginning with Carr,1 many researchers have used disaster phases to organize their data.2–8 Other studies have suggested that communities,9 families,10 and the housing process11,12 go through specific phases during recovery. Professionals have also relied upon disaster phases. In 1979, the National Governor’s Association13 standardized the four phases of disaster activity: mitigation, preparedness, response, and recovery. These phases provide the foundation for disaster management in the US today.

In analyzing disaster phases, Neal14 showed that they provide an effective means to codify data and manage disasters. However, he cautioned that some professionals might take these phases literally and assume that the four phases were mutually exclusive events. Based on his and other research, he suggested that the disaster phases overlap. Yet, no study has specifically analyzed the overlap of disaster phases. This study will document if—or to what degree—the transition from response to recovery may overlap.

METHODOLOGY
On April 25, 1994, at 9:38 PM, a tornado cut a six-mile path through Lancaster, Texas. The tornado totally destroyed more than a square mile of the area, heavily damaging both the historic town square and an adjacent working class neighborhood. The winds stripped trees of bark and leaves, broke large limbs, reduced homes to splinters, and turned buildings into scattered rubble. The tornado killed three people, injured at least nine others, destroyed 258 homes, damaged another 130 residences, and damaged or destroyed 58 businesses.

As storms developed around the Dallas-Fort Worth area in the early evening of April 25, I started monitoring local television reports. When it became apparent that tornadoes had struck the area, I began taking notes from the television accounts. Within 36 hours after the tornado, I activated my “quick response” grant, assembled a five-member field team, and entered the field. One other team member and I had extensive experience with disaster fieldwork; the other three were graduate students who had taken courses on research methodology, qualitative methodology, and/or disasters.

All five team members participated in the first two trips to the field on April 27 and April 30. Three other visits on May 2, May 5, and July 6 had smaller teams. In the field, we gathered data (visual records,
documents, and interviews) related to disaster response and recovery activities. In addition to the observations recorded in our field notes, we took photographs to document activities such as debris clearing and the opening of a disaster facility. We obtained or copied documents from various sources (e.g., city government, volunteer organizations, information flyers) that related to disaster response and recovery. We bought copies of the daily *Dallas Morning News* and the weekly *Lancaster Today* to assist in our documentation. We interviewed more than 20 individuals about disaster activities. These officials came from various organizations: city government, other local entities, state and federal (e.g., FEMA) government, and volunteer organizations involved with the disaster response and recovery. We used semi-structured open-ended questions during our interviews, because this approach provided descriptions of activities undertaken by the organization when dealing with the disaster, allowed respondents to tell us when specific organizational activities began and finished, and prevented any bias by avoiding such terms as “response” or “recovery.”

From the data, I compiled summaries of key organizations and their tasks. In some cases, it was important to document when the disaster disrupted electrical power or tasks such as garbage pick-up and when they became available again. In other cases, we focused on new tasks that were established due to the disaster and when these tasks ceased (e.g., use of a command post, clearing debris). We focused on local, state, and federal government activities, i.e., search and rescue, garbage pick-up, closing schools, establishing curfews, creating roadblocks, removing debris, re-establishing utility services, and the command post and FEMA Disaster Assistance Center (DAC). We also looked at volunteers and volunteer organizations (search and rescue activities for people and pets, shelter and food for victims, free phone service for victims in the downtown square, volunteer organization service centers), and the media (television and local newspapers). These tasks were not chosen arbitrarily; after analyzing all the data, these were the ones perceived as the key activities by the media, victims, and representatives from the volunteer organizations.

**DESCRIPTION OF EVENTS**

This analysis is based upon a catalog of activities that occurred from April 25 through May 13, 1994. I used these dates to obtain complete data on the start and finish of response activities and the initiation of recovery activities. Table 1 provides a summary of the initiation, duration, and cessation (unless the task continued beyond May 13) of each activity. If two or more tasks were initiated on the same day, the task with the fewest number of days was listed first.

**Days one and two**

Soon after the tornado struck, authorities and volunteers began many tasks, including establishing a command post; creating a Red Cross shelter for victims; removing debris from the roads; searching for victims and their pets; establishing roadblocks; and restoring electric, gas, and water services. All these activities were focused on emergency response issues.

During the first two days, activities focused on assisting the victims (e.g., search and rescue, food and shelter) and re-establishing the infrastructure (e.g., restoring electric, gas, and water services). The same activities initiated during the first evening of the tornado continued through the second day, but three new response-oriented indicators appeared on the second day. First, city officials suspended garbage pick-up so these resources could assist with initial debris removal. Second, school administrators closed schools. In some cases, the tornado damaged the school or disrupted its power. Officials used the high school, which was unaffected, as a shelter and initial focal point for emergency response officials, volunteers, and donations. Third, the tornado made the front page of the newspaper, and during these first two days, the media reported on injuries, deaths, destruction, and emergency response activities.

**Day three**

Most response activities continued—assisting victims, repairing the basic infrastructure, the impact of the tornado being the lead story for the media. However, several new activities emerged. Surprisingly, the command center was shut down. Next, city officials established a curfew. (During the
first two evenings, emergency response personnel and volunteers worked through the night to clear debris and look for victims, and a curfew would have inhibited these activities.) The American Red Cross set up its service center. The Red Cross was involved in feeding and sheltering victims at the high school, but the service center focused on long-term issues, such as temporary housing and other social or financial issues for the victims. Several phone companies started providing free phone service for victims. Although day three activities primarily had a response focus, the closings of the command post and the Red Cross service center marked the start of recovery efforts. On this day, we observed an activity in the downtown square that combined response and recovery efforts—volunteers and prisoners from a nearby jail clearing brick debris from a building. While this was clearly a response activity, the bricks were being neatly stacked nearby so that they could be used to rebuild—a recovery task.

Day four

We saw a slight but continuing shift from response to recovery. One response activity—search

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*SC = Service center; **DAC = Disaster Assistance Center.
and rescue for people—ended, but others, including search and rescue for pets, roadblocks, pleas for donations, work on repairing the infrastructure, school closings, and strong interest by the media continued. Other recovery activities developed. The Salvation Army opened its service center operation in a supermarket that had recently gone out of business. Yet, for the second day in a row, important response and recovery activities occurred simultaneously.

Day five

Response activities began to decline. Volunteers and authorities stopped the search and rescue for pets. Authorities re-opened roads to ease transportation into the disaster sites. With roadblock and most electrical power issues resolved and the Red Cross ending its shelter operations, officials opened all local schools. For the first time, nothing about the tornado appeared on the front page of the *Dallas Morning News*, although stories about the tornado appeared throughout the newspaper. We found no evidence of any new recovery activities.

Day six

We observed changes in activities. Donations of food, clothes, and other materials, such as cleaning supplies, had fully overwhelmed the two operating service centers. That, and the convergence upon the scene of too many volunteers and sightseers, had started hindering the response and recovery operations. Authorities were forced to re-establish roadblocks in the most severely damaged areas and ceased their requests for donations. The tornado continued to be the lead story on local television. A news story about the mental health of children in the wake of the disaster put the tornado on the front page of the *Dallas Morning News* again. Activities such as repairing the infrastructure and providing resources to victims through the service centers continued.

Day seven

For the first time, activities appeared more focused on recovery than response. FEMA opened its DAC. Located in a large corner of the same building as the Salvation Army service center, the DAC provided a range of assistance for federal aid. Thus, after applying for various types of aid, victims could obtain the free donated items the Salvation Army had collected. This building became a hub for recovery-related activities. The city started picking up large debris that had been pushed along roadways or piled in damaged locations. Media attention waned; the tornado was no longer the lead story on the three local television stations. This day also signaled the last time the tornado made the front page for two consecutive days in the *Dallas Morning News*. Repair work on the infrastructure continued, but by this time, most standing buildings and homes had electricity, water, telephone, and gas service. The Red Cross continued to place homeless victims in hotels, and within a few days, helped provide them with some form of temporary housing. Phone companies still provided free phone service for victims. Although some response activities continued, the overall focus on this day seemed oriented toward recovery.

Day eight

Response activities were almost complete, and recovery efforts predominated.

This was the last day of roadblocks to damaged areas. Electrical power had been restored to all homes that were not severely damaged or destroyed. Most homes and businesses not damaged or destroyed by the tornado now had phone and gas service restored. The curfew would last for only one more evening. The city continued to remove debris that victims, volunteers, and others had placed along curbsides. The DAC and two existing service centers continued to provide short- and long-term aid for victims.

Day nine

Response activities were generally complete, and efforts were now focused on recovery. Gas and phone service was fully restored. City officials lifted the curfew in damaged areas. The DAC and service centers continued to assist victims with a range of financial, material, and other needs. Meanwhile, new pleas were made for donations to help victims get back into their homes.

Data gathered over the next ten days showed that in addition to continuing recovery activities, a few local
churches initiated their own service centers. The Red Cross closed its service center after day 12, which was consistent with their policy at that time. The Salvation Army, on the other hand, traditionally assists with long-term needs of victims, and this approach is reflected with its activities in Lancaster.

**DISCUSSION AND CONCLUSION**

In the aftermath of the tornado, there was a smooth but subtle transition from response to recovery, as shown by the data in Table 1 and the discussion above. The response and recovery phases were not mutually exclusive; the overlap between response and recovery lasted for over a week. These data confirmed what Neal’s article on disaster phases had suggested: An overlap exists between response and recovery activities. For practitioners, these data strongly suggest that after such occasions, disaster managers must consider response and recovery issues simultaneously, i.e., as they attempt to coordinate initial response activities, they must also begin formulating a strategy to handle existing and developing recovery issues.

More broadly, I believe we should avoid measures of objective time (e.g., hours, days, weeks, months) when discussing disaster phases. We should not ask, “How long will response last?” “How long will the recovery take?” For example, in attempting to answer the question of how long in objective time, Kates and Pijawka found that, depending upon the length of measured time for the response, reconstruction time could vary from two to eight years. Objective time measures can create problems when one tries to understand activities driven by social time, i.e., issues that are most important to disaster workers and victims at that moment. With the concept of social time, normal schedules are no longer valid; rather, people do what needs to be done.

The better question is, “Which stages or activities must begin before another set of stages or activities can occur?” For example, drawing upon data from this study, we see that the roads had to be cleared before sources of power, such as electricity and gas service, were restored. It is also important to remember that these steps or activities can also overlap. Studies have already suggested that different subphases of recovery exist. To understand more clearly the transition from response to recovery, we may need to explore whether specific subphases of response also exist. Finally, to understand disaster and how the phases fit together, we should look more closely at ideas of social time rather than objective time.

**ACKNOWLEDGMENT**

This paper was supported in part by a University of Colorado “Quick Response” grant. I would like to thank Brenda Phillips for her help on data gathering and comments on this paper and also Judy Montoya, Gary Webb, and Jennifer Wilson for their assistance in gathering field data. However, any findings and conclusions are strictly those of the author.

David M. Neal, PhD, is professor and associate director for the Institute for Emergency Preparedness at Jacksonville State University, Jacksonville, Alabama.

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Hospitals, Hazmat teams, and fire departments have been trying to develop mass decontamination procedures and to specify equipment required to manage a major chemical, biological, or radioactive accident. However, considering that the US Army Soldier and Biological Chemical Command (SBC-COM) has developed guidelines for handling mass decontamination of victims, the question is whether these agencies (and others) are wasting valuable time, effort, and resources preparing for a mass decontamination.

Let’s take a look at three incidents of chemical leaks and the decontamination efforts that followed.

During the night of December 2, 1984, 40 tons of methyl isocyanide and hydrogen cyanide were released from the Union Carbide plant in Bhopal, India. The resulting deadly gas spread over an area of approximately 25 square miles and hung close to the ground for about four hours. It is estimated that more than 500,000 people were exposed to the gas. Approximately 6,000 died the first week after the release of the gas, with most dying in the first few hours. In the years since, more than 16,000 additional people have died from causes that have been directly attributed to the deadly gases. To this day, rumor still circulates that the release was a result of sabotage.

This incident provided a rude awakening for emergency services on the importance of preparing for a major accident involving a chemical plant. In this case, few people received medical attention during the early hours and days of the accident. Those who did make it to one of the hospitals in the region were still contaminated by traces of the gas left on their clothing and skin. Furthermore, no one was evacuated even though warning signs were evident for more than an hour prior to the release of the gas.

Three years later, on September 13, 1987, workers dismantled a cancer clinic in Goiania, Brazil. Scavengers going through the clinic found a radiotherapy assembly that still had a source containing cesium-137. They took the assembly to the home of one of the men and ruptured the unit in such a manner that fragments of it were spread over the adjacent areas, including a plot of land shared by several families living in a housing development.

The next day, they sold the assembly to a junkman, who placed it in his backyard. When he noticed that the object emitted some form of luminescence, he brought it into his house to show to family, friends, and neighbors. Later the assembly was taken back to the dump, broken into pieces, and distributed among various individuals. The assembly was left at the junkyard until September 28, while the ruptured capsule was sent to a second junkyard, where other men tried to break it open with a power saw.

Since symptoms associated with radiation exposure are slow to develop—they usually don’t become evident until hours or days after the exposure—the victims of the radiation exposure were not immediately diagnosed, but once they reported their symptoms, and information about the radioactive material release became common knowledge, the area hospitals were overwhelmed, not only with people who were truly exposed but also with those who were not exposed but feared they had been contaminated (leading to the term, “the worried well”). So great was the overflow that a nearby soccer stadium was used to assemble everyone seeking medical attention. In all, 112,800 people were evaluated for radiation contamination or exposure. Of this number, only 120 had contamination on their clothing or shoes.

In this incident, which sounds like something
from a Robin Cook novel, more than 250 people were exposed to the cesium, 28 people showed signs of radiation sickness, and 104 more had internal contamination.

During the morning rush hour on March 20, 1995, members belonging to the Aum Shinrikyo cult hid a liquefied version of sarin, an organophosphate nerve gas, on five different trains in the Tokyo subway system. They hid the liquid in soft drink containers, thermoses, lunch pails, and plastic bags wrapped inside newspapers. Each bag was placed on the floor of the subway car and then punctured by the cult members with a sharpened umbrella tip, so that the material spilled onto the floor of the subway car. As the liquid spread out and evaporated, the vaporous agent spread through the crowded subway cars and the train stations. More than 5,500 commuters were injured in the attack either directly from the sarin or as a result of the ensuing panic. Of that number, nearly 1,000 required hospitalization, and 12 people died.

Tokyo hospitals were initially informed by the fire department that they were about to receive a number of victims from a gas explosion in the subway. More than 131 ambulances and 1,364 emergency medical personnel were eventually dispatched. At least 641 victims (some were decontaminated, others were not) were transported to hospitals by emergency medical and fire department authorities. More than 4,000 people found their own way to area hospitals. A lack of emergency decontamination facilities, poor to nonexistent decontamination protocols, and insufficient personal protective equipment all resulted in secondary exposure of 110 hospital staff and 135 EMTs and paramedics.

In all three of these horrific events, the number of victims was extremely high—higher in fact than what most hospitals and communities ever envision in their planning processes. Hospitals and communities must plan for decontaminating not just small numbers of victims but very large numbers as well. SBCCOM guidelines indicate that, during a terrorist event, a community should expect to decontaminate five noncontaminated victims for every one who truly requires decontamination.

Once victims arrive at the medical facility, there will be no easy way (unless radioactive materials are involved) to determine who has been contaminated, and who is just one of the worried well. The hospital must be able to decontaminate all the victims so as to provide for their peace of mind and limit the hospital’s liability.

Once a hospital accepts the responsibility of being able to decontaminate a large number of victims, the next issue is to determine the rate at which decontamination can be performed and the required resources to sustain that rate. If a hospital has four shower stations and is capable of decontaminating one victim every five minutes per shower station, the hospital’s rate of decontamination is 48 victims per hour. Even if St. Luke’s International Hospital in Tokyo could have sustained a rate of 48 victims per hour, it would have had to sustain that rate for 15 hours to decontaminate the 688 victims it received.

There are major drawbacks to decontaminating for 15 hours. Exposed victims cannot wait 15 hours to be decontaminated; they may succumb to exposure to the chemical. Furthermore, people waiting to be decontaminated will eventually become unruly. The unrest could escalate into mob violence, and the last thing needed at this juncture is a riot. Finally, the longer people remain contaminated, the greater the risk of exposing uncontaminated people. Hospital staff and emergency responders are not equipped—nor are there sufficient numbers of them—to sustain decontamination operations for 15 hours. More rapid decontamination is necessary.

Hospitals are moving in the direction of setting up portable decontamination facilities outside their emergency departments. Setting up these facilities requires additional human resources and time. Even if the hospital begins setting up as soon as an emergency occurs, the set-up will not be finished before the first victim shows up. If decontamination facilities are not available when the patient arrives at the hospital, that patient is going to find a way to get into the emergency department and get the care they think they need. Holding a number of patients outside the emergency department while staff members are setting up tents, laying hoses, and getting dressed in
level B protective suits will undoubtedly scare many patients. They may think, “If the hospital staff needs protection, what is this stuff doing to me?” This is another opportunity for mass hysteria or a riot.

The SBCCOM solution to mass decontamination is to park two fire trucks about 15 feet apart in opposite directions with the officer’s side facing the other unit, thus forming a corridor. Setting up this corridor requires only auxiliary units and minimal staff; utilization of front line apparatus and multiple crews is unnecessary. These trucks can be set up in less than ten minutes and already have the crews in place to provide assistance. The biggest problem associated with this set-up is the time needed for the units to respond from their station to the scene (or hospital). The benefit is that this does not take any special apparatus or crew—only the typical engine company found at your neighborhood firehouse.

The discharges are then uncapped and large volume nozzles placed on the discharges. Water pressure to the nozzles and elevated water distribution device should be kept at hydrant pressure (60 psi). If a nozzle, squirt, or deck gun is available on one of the trucks, it should be used with low pressure to spray water from its elevated position.

Once the victims have been directed towards the corridor, they will be instructed to disrobe near the front of the fire truck, put their clothes in garbage bags, and write their names on the bags. The unclothed victims will be directed to walk slowly through the corridor, being sprayed from every direction. They will be told to raise their arms and spread their legs, in order to have the entire surface of their bodies washed. Once they reach the middle of the corridor, they will be instructed to turn around to ensure that the water flow has had a chance to rinse off their entire body surface. At this point, gentle rubbing would be encouraged.

After the victims have moved through the corridor, they should be provided paper gowns or Tyvek paper suits for the purposes of modesty and some protection from the elements. They will then be evaluated to determine if additional medical treatment is necessary.

The SBCCOM method would remove the most contamination from the greatest number of victims in the shortest period of time, while using the least amount of resources. Although it will not completely decontaminate every victim (neither do “traditional” methods), it would make most victims clean enough for hospital staff to evaluate them more thoroughly. If a second decontamination is necessary, the more traditional decon methods can be employed.

The information and guidelines provided by SBCCOM are available because the federal government set aside Nunn-Lugar funds to enhance the capabilities of local responders to terrorist threats. SBCCOM was assigned the task of developing an Improved Response Program (IRP) for emergency responders. Under this program, SBCCOM studied emergency management guidelines and then recommended actions to be taken in response to a terrorist attack.

Cities such as Houston, Philadelphia, Virginia Beach, VA, and Washington, DC, have made these recommendations part of their WMD decontamination strategy. Other communities need to consider their strategy in light of the SBCCOM guidance. Wasting valuable resources on tent systems, portable showers, and personnel expenditures seems foolish when the SBCCOM system is an acceptable option.

The SBCCOM Homeland Defense Unit was redesignated in October 2003 and is now part of the RDECOM (Research, Development, and Engineering Command, www.rdecom.army.mil). The work described in this story was originally done by the US Army Edgewood Chemical Biological Center (www.ecbc.army.mil/index.html).

Dennis K. Sullivan, CEM, CHMM, Environmental and Emergency Manager, University of Louisville, Louisville, Kentucky.

ACKNOWLEDGMENT  
This article originally appeared in the Winter 2003 newsletter of the Kentuckian Chapter of Hazardous Materials Managers.
RFID SYSTEM AUTOMATES MANAGEMENT, SECURITY OF CARGO CONTAINER SHIPMENTS

The transport of goods via cargo containers accounts for more than 90 percent of world trade, with about 20 million containers used in world trade, including 6 million shipped into US ports each year. To address the security concerns and ongoing inefficiencies inherent in the transport of these containers, Savi Technology, in Sunnyvale, CA, has introduced a Radio Frequency Identification (RFID)-based system that clips onto ISO intermodal containers to simultaneously automate intrusion detection, interior environmental conditions, and integrity of the contents.

When linked with the company’s global tracking network, the Savi Sentinel system gives carriers and logistics service providers real-time visibility on the location, status, security, and integrity of their shipments, enabling them to avoid losses or delays by taking immediate corrective action.

The Sentinel system provides multiple functional capabilities on each side of a large metal clip that attaches to the container door. A door sensor and sensor hub on the side of the clip facing the interior of the box detects tampering of the door and collects data from other sensors inside the box, which detect interior environmental changes such as temperature, light, vibration, atmospheric pressure, and radiation. This data is relayed in real-time to a transponder and RFID antennas on the part of the clip that is on the outside of the door.

The transponder is an RFID device with programmable memory that uses dual radio frequencies for omni-directional short- and long-range transmissions to and from readers placed at supply chain checkpoints. The integrated system can alert the network about everything from the possibility of food spoilage to the presence of a WMD, in addition to reporting its location. Software linked with the system can produce real-time audit trails of each shipment, enabling users to analyze shipping patterns for better planning or for clarifying liability in the case of late, damaged, or lost products.

For more information, visit www.savi.com.

CLIP-ON MONITOR DETECTS TOXIC GASES

RAE Systems, Inc., a Sunnyvale, CA, developer of chemical detection monitors, has introduced a single-gas personal monitor that is small enough to be clipped onto a hardhat, shirt pocket, shoulder strap, or belt, while providing continuous readouts of toxic gas concentrations.

While disposable products are turned on once and remain on until their batteries die, users decide when and where to use the ToxiRAE II. Sensors and batteries can be replaced in the field. According to the manufacturer, since the cost of the ToxiRAE II is about the same as many disposable products, users have the choice of renewing it or disposing of it.

The one-button, simple-to-calibrate ToxiRAE II allows users to accept the default alarms or modify them. The monitor’s LCD screen provides a continuous digital display of a specific toxic gas concentration, STEL, TWA, and Peak values along with high, low, TWA, and STEL alarms. Users can select from many toxic gas sensors, including carbon monoxide, hydrogen sulfide, nitric oxide, chlorine, and others.

For more information, visit www.raesystems.com.

SYSTEM BYPASSES E-MAIL FOR URGENT MESSAGES

A messaging system from Codespear, LLC, can broadcast urgent messages to large groups of users without relying on an organization’s e-mail system. According to the Birmingham, MI, manufacturer, e-mail is no longer a practical medium for urgent communications because it can be easily overlooked in this era of chronic inbox overload. Users receive e-mail only when they are
at their computer, and e-mail can be rendered useless by virus attacks or other outages.

SmartMSG bypasses an enterprise’s e-mail infrastructure altogether and transmits messages that reach users in a way that is in their face—literally—wherever they are. The system enables critical announcements to be disseminated via pop-up message to PCs, PDAs, WAP/SMS mobile phones, text pagers, Blackberries, digital display boards, and two-way radios (text to speech), ensuring that the information will be read immediately. SmartMSG can force a simple acknowledgement or a custom response.

The system’s distributed architecture allows for an unlimited number of distributed messaging servers, which provides for automated fail-over and redundancy of the messaging infrastructure. The architecture consists of servers that hold the database and perform message routing functions, a tool that can be run locally or remotely by administrators from any machine that can access a SmartMSG Server, and SmartMSG clients that are installed on end users’ devices. The clients support any Microsoft Windows platform.

SmartMSG also offers secure two-way communication and group collaboration tools, including encrypted two-way IM chat, and an encrypted virtual conference room with whiteboard functions.

License fees begin at $50 per user for deployments less than 100 users. A one-time $2,500 enterprise server license fee permits deployment on an unlimited number of servers.

For more information, visit www.smartmsg.com.

**RESPIRATORY PROTECTION SYSTEM**

**LETS USERS DO HARD WORK**

With many conventional fan-powered respiratory protection system, it is often impossible to know whether the wearer is actually receiving the required protection. If the respirator or filters are not functioning properly, the user could inhale contaminated air without knowing it.

The SEA400 AT-2 system from Safety Equipment America, Inc., the US division of SEA Group, has a continuous self-checking system that immediately alerts the user if the batteries are low, if the filters need changing, or if there is a sudden drop in pressure. A warning light is always in the user’s field of vision, and the fan unit is fitted with a loud alarm.

The battery-operated respirator is independent of compressed air hoses and air cylinders. The portable unit can be carried on a backpack, waist harness, or standard belt.

Some conventional fan respirators suffer inward leakage each time the wearer breathes in suddenly or when they are doing moderate work, especially if they are talking. The SE400 respirator provides users with clean air at flow rates of over 400 liters/minute, which means that the wearer can even perform hard work without losing positive pressure. The breath-responsive unit features a microprocessor-controlled motor that matches the air flow to the user’s breathing.

For voice communication, the unit features a microphone in the face piece, which connects to a small clip-on loudspeaker that can be worn on the lapel or breast pocket.

For more information, visit www.sea.com.au.

**SURVEILLANCE SYSTEM TURNS PC INTO DIGITAL VIDEO RECORDER**

Superior Software Management Systems, Inc., Salisbury, NC, has introduced a video surveillance system designed to remotely view and record images (via an Internet connection) as well as operate electronic devices.

Consisting of software and a video capture card, the Surveillance Manager system can turn a personal computer into a digital video recorder and control center. The Salisbury, NC, firm designed the system for the self-storage industry but is looking to place the system in schools and law enforcement vehicles as well.

Images collected by Surveillance Manager are date- and time-coded and stored in database files whose file name is the date and time—meaning that sorting through surveillance video is simpler than from analog or digital video recordings.

Surveillance Manager also features a motion detection system that allows for a pop-up screen or alarm whenever there is motion in a video frame. Up to 10 locations can be monitored at the same time on one computer. Price is $1,995 for a basic package, which includes five remote viewer licenses.

For more information, visit www.supersoftsys.com.