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Editorial**The Forward Edge of Valor**

By James D. Hessman, Editor-in-Chief



The well-deserved success of the Paul Greengrass movie *United 93* is a timely reminder of one of this nation's greatest and most enduring virtues: In times of maximum peril, Americans young and old have come to the fore to serve, and save, their country, often at the expense of their own lives. That truth is as relevant today as it was at Valley Forge and at Yorktown, in the Battle of New Orleans and at Gettysburg, and throughout both World War I and World War II.

Within the U.S. military this spirit of country above self is probably best exemplified by the U.S. Marine Corps, which was given an explicit mandate by Congress to always be "the most ready when the nation is least ready." The Corps has more than lived up to that mandate, and is today not only the finest fighting force in the world, but possibly the greatest fighting force in all world history.

Marching not behind but in lockstep with the Marine Corps is another of the nation's armed services, the U.S. Coast Guard – often neglected, always underfunded and overcommitted, and frequently overlooked in the hearts and minds of the American people. Nonetheless, the brave young men and women of this gallant service live up to their *Semper Paratus* (Always Ready) tradition every hour of every day, and today are universally recognized as the world's foremost lifesaving organization of any type.

In what is still only the dawn of today's Age of Terrorism, Americans have gradually come to realize that the nation's streets, stadiums, and seaports have become the new front lines of national defense and that civilian first responders – particularly the members of the U.S. fire/HazMat communities – have an equally important role to play in protecting the Land of the Free.

This issue of *DomPrep Journal* is proudly dedicated to these still unsung heroes living in our midst. Like Marines, they have been trained to rush to the scene of action, rather than away from it. Boldly, not foolhardily – but knowing that their own lives might well be at risk. And many of them have, in fact, been killed in action.

Like Coastguardsmen, they also know the importance of being prepared, at all times, to cope with *any* danger or disaster, natural or manmade, that awaits them in the next half hour, or just around the next corner. Like the men and women of *all* of the nation's armed services, they have dedicated their lives to the protection of their fellow citizens. In that respect, they personify what Francis Scott Key undoubtedly had in mind when he described his country – *our* country – as the Home of the Brave.

Even before 9/11 – but particularly on that grim day and ever since – they knew what it means to serve a higher cause – and, by doing so, they have extended the forward edge of valor to a new and much brighter horizon. ▼

About the Cover: Federal firefighters carry a "patient" through a decontamination shower at the Naval Health Clinic, Makalapa, during a mass-casualty/decontamination training exercise last year at the U.S. Naval Station in Pearl Harbor, Hawaii. (Photo by Petty Officer Third Class Ryan C. McGinley, USN.)

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A Fire/HazMat Point of View**The NCR's Homeland Security Plan
For the D.C. Area***By Brian Geraci, Fire/HazMat*

Over the last several years a number of dramatic changes have occurred in Montgomery County, Md. – where I live and work – and in other local and state emergency-management agencies that conduct emergency and/or disaster planning. These changes are a result of disastrous incidents both within the United States and in other countries around the world – tragedies that have changed the way local and state jurisdictions plan and respond to an all-hazards approach in the management of major disasters.

Other changes have resulted from programs and directives mandated by the federal government and by state and local jurisdictions; many of the latter changes are tied to the allocation of federal grants; decision makers in cities and towns throughout the country know that if they want to apply for federal grants they will have to comply with the federal guidelines established to obtain that funding.

This is particularly true in implementation of programs related to the National Incident Management System (NIMS), the specifics of which are spelled out in Homeland Security Presidential Directive (HSPD) #5. All states and jurisdictions must have personnel in all departments – even though those personnel may not be first responders in the true sense – who have been trained in accordance with the NIMS guidelines and who would or may respond to assist at an incident. Many private-sector safety organizations also are trying to adhere to the NIMS guidelines and to have trained personnel in place by the deadlines set by the federal government.

Some Much-Needed Revisions

There are, in fact, 12 HSPDs, covering a broad range of topics and programs, and a number of other federal documents that have and will continue to have a significant effect on how states, cities, and other local

jurisdictions plan for and respond to both natural and manmade disasters.

HSPD 3, for example, which establishes the Homeland Security Advisory System, has had a major impact at the local level. At the start, the advisory system (Red and Orange Alerts, etc.) was confusing not only to the media and the public, but also to local jurisdictions seeking to comply with the directive. Public-safety agencies had to institute additional departmental procedures, for example, including plans for increased staffing, as well as operational plans that detail how those agencies would respond if and when the national-threat level is raised.

Since then, the advisory system has been revised and modified to give it a somewhat narrower but also more useful focus – e.g., the identification of certain areas of the country and/or infrastructures that may have been threatened to the point that the threat level should be raised in those areas. Montgomery County, for example, has instituted a plan for Codes Orange and Red that is tested periodically. The plan includes procedures for the callback of personnel and the upgrading of communications systems and the county's other preparedness systems and equipment.

**A Plethora of Plans –
And an Increase in Workload**

The National Response Plan (NRP), various National Planning Scenarios, and the Target Capability List are prominent among the other federal documents that have had to be reviewed at the state and local levels. HSPD 5 covers all basic programs within the emergency-management system that are needed to prevent, prepare, respond to, and recover from all types of hazards; it also identifies ways to improve coordination in response to events. The need to comply with that directive has had a huge impact at the local level not only for public-safety agencies but for *any* agency or organization that may be involved in any way with the emergency-

management measures mandated by the federal government.

HSPD 8 (National Preparedness), which discusses preparations for all hazards, including activities that should be carried out during the early phases of a terrorism incident, defines All Hazards Preparedness as "preparedness for domestic attacks, major disasters, and other emergencies." It also outlines, among other things: the federal preparedness assistance procedures available for all states; the specifications for and purchase of funding for equipment, training, and exercises; citizen-participation guidelines; public communications goals and guidelines; and periodic assessments and evaluations of the entire process and system.

The three HSPDs mentioned above have had the greatest impact on local-level agencies – but all twelve have had at least *some* impact on local jurisdictions. Many cities and states have had to make changes to their previously developed emergency operation plans (EOPs), for example, to include NIMS language affecting those plans. Other federal directives have

Many cities and states have had to make changes to their previously developed emergency operation plans

affected training and exercise planning and execution, the standard operating procedures previously developed, the equipment needed for response, the credentialing of personnel, the creation of citizen programs such as Community Emergency Response Teams (CERTs), and the purchase and use of surveillance and detection systems needed to counter biological attacks.

A Continuous Chain of Changes

All Montgomery County departments already have been affected in many ways by these and other federal directives, and continue to be affected. The county's emergency operations plan, for example,

now consists of the basic plan and more than 30 annexes. County officials have been working on changes to the original plan for almost a year, but a new problem has developed: Once we reach a certain point, additional changes frequently are needed because of the reactions to documents previously revised and/or the impact of other events.

In short, the work is not only very labor-intensive but also very difficult to complete. Another complicating factor is that the decision-making officials in the numerous departments and agencies involved have many other important responsibilities that cannot be neglected.

We also are going through a certification process, as are all of the other National Capital Region (NCR) jurisdictions, via what is called the Emergency Management Accreditation Program (EMAP). This process also has slowed our EOP update. We are in a continuous and constant learning curve from previous disaster events. Nonetheless, we make every effort possible to keep up with and implement

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the changes needed to improve our overall planning and response process.

We also realize that more revisions undoubtedly will be forthcoming because of all of the lessons learned from the problems that occurred in the Gulf States during and in the aftermath of the 2005 hurricane season and with the expected, or at least recommended, reorganization of the Federal Emergency Management Agency (FEMA).

Greater Cooperation, Improved Communications

It should be emphasized that most county departments have embraced the changes needed, and realize that the way we plan, respond to, mitigate, and recover from all-hazard events is a changing and – it is hoped – constantly improving process. In any event, we have no other choice but to keep moving forward. Nonetheless, it has been a daunting challenge to tackle and

implement all of the HSPDs issued and, at the same time, to continue our efforts to accomplish state and local objectives and mandates.

Clearly, though, we need more staff to keep up with all of the information that comes from so many different sources and to implement the new programs mandated. (Here I will not even touch on the many grant processes that agencies have to go through to obtain the funding for equipment and programs provided under HSPD 8.)

One of the more positive aspects of the process is that local jurisdictions are now working much more closely with one another than ever before. Grant funding and the purchase of equipment, for example, are being carried out at the regional level within the National Capital Region. In addition, numerous committees within the Washington Area Council of Governments (COG) are now better coordinated and communicating better, and more frequently, on topics and programs that affect the entire region.

One major document of continuing significance that has come out of COG is the National Capital Region’s Homeland Security Strategic Plan, which lays out the vision, mission, goals, and objectives set for the entire region. The COG plan established four “goal groups” – Planning and Decision Making; Community Engagement; Prevention/Mitigation; and Response/Recovery – to identify region-wide weaknesses including special needs, long-term recovery, and the readiness capabilities of the cities/jurisdictions within the region.

COG also determined a number of objectives that served as the foundation for the development of specific initiatives. Regional homeland security gaps were identified by the goal groups and matched to the target capability areas, as noted in the matrix accompanying this article. [see *National Capital Region Homeland Security Gap Matrix at left*]

The goal groups developed 40 initiatives, all of which deserve further attention,

NATIONAL CAPITAL REGION HOMELAND SECURITY GAP MATRIX					
Regional Homeland Security Gaps	Mission Areas				
	Common	Prevent	Protect	Respond	Recover
Lack of transparency	X				
Inadequate involvement of stakeholders	X	X	X	X	X
Inadequate means of oversight/accountability	X				
Lacking assessment of standardized alert notification		X		X	
Media not effectively partnered with NCR	X				
Lack of overall strategic communications plan	X	X	X	X	X
Inadequate information to the public in all emergency stages	X		X		
Lack of concerted public (and individual) preparedness plans	X		X		
Lack of agreement between key players	X				
Vulnerability public/private coordination			X		
No region-wide risk assessment framework (NIPP)			X		
Inadequate incorporation of Lessons Learned	X	X	X	X	X
Lack of consistent real-time emergent incidents				X	
General lack of understanding of long-term recovery issues					X
Inadequate response and recovery (special needs populations)				X	X
Recognize shortcomings in mass care			X	X	

implementation, and funding. Out of the entire set of proposed initiatives nine overarching themes [see *Overarching Themes table at right*] emerged, ranging from Feedback Mechanisms and Gap Analysis to the establishment of Protocols for Emergency Communications.

Out of the 40 initiatives the goal groups identified goal-specific priority initiatives and presented them to a peer review group, which cross-checked the initiatives against the seven national preparedness priorities and 37 target capabilities that had earlier been developed by the Department of Homeland Security. The peer review group also determined how the priority initiatives could be used to address one or more of the NCR's underlying weaknesses. The first set of priority initiatives were established by the goal groups. [See *Goal Groups Priority Initiatives table at bottom*].

A matrix of "priority initiatives" and how they relate to the seven national homeland security priorities also was developed, and plans were made to, among other things:

1. **Implement NIMS and the National Response Plan;**
2. **Expand Regional Collaboration;**
3. **Implement the National Infrastructure Implementation Plan;**
4. **Strengthen Information Sharing and Collaboration Capabilities;**
5. **Strengthen Interoperable Communications;**
6. **Strengthen Chemical, Biological, Radiological, Nuclear Detection, Response and Decontamination; and**
7. **Strengthen Medical Surge and Mass Prophylaxis Capabilities.**

[For full listing, see the *Priority Initiatives Matrix on page 10*]

OVERARCHING THEMES		
Feedback Mechanisms	Training and Exercises	Private Sector/NGO involvement
Long-Term Recovery	Gap Analysis	Information Sharing
Jargon-Free Language	Threat-Based Scenario Analysis	Protocols for Emergency Communications

Additional Initiatives Expected in the Future

The regional homeland-security gaps addressed by the Planning and Decision Making group within their initiatives include: enhancing transparency; increasing the involvement of stakeholders; and establishing oversight and accountability. The Community Engagement group initiatives will address the lack of an overall strategic communications plan and deficiencies in the information provided to the public.

Prevention and Mitigation initiatives will look at stakeholder involvement, standard alert notification, information provided to the public during emergency stages, and the vulnerability aspects of public and private coordination. Response and Recovery priority initiatives will address such topics and issues as a standardized alert notification, information provided to

the public, long-term recovery, special needs, and mass care.

At this point it seems clear that the NCR's Strategic Homeland Security Plan will accomplish several goals: It will bring the region closer together and increase cooperation among all of the jurisdictions involved; it will establish appropriate priorities within the region and set up a plan for grant funding of the initiatives; finally, it will be used to close or reduce the homeland-security gaps previously identified and thereby move the entire region closer to developing capabilities in the mission areas targeted.

The implementation of NIMS and the NRP will be accomplished on a regional basis in such a way as to ensure that no jurisdiction is left behind. In short, the completed plan will both complement and build upon the NCR's own Homeland Security Mission Statement: "Build and sustain an integrated effort to prepare for, prevent, protect against, respond to, and recover from 'all-hazards' threats or events."

Brian Geraci, Battalion Chief with the Montgomery County Fire and Rescue Service, Montgomery County, Maryland, is presently assigned to Montgomery County's Homeland Security Department. Chief Geraci has over 30 years of service in the County and was a charter member of the County's Hazardous Incident Response Team and served as one of the team leaders. Chief Geraci has certifications as a Fire Investigator, Fire/Explosive Investigator, Bomb Technician, Hazardous Materials Technician, Fire Inspector III, and Police Officer.

GOAL GROUPS PRIORITY INITIATIVES		
1.1.1 Regional Strategic Planning & Decision-Making	2.1.2 Integrated System to Alert/Notify/Inform	3.2.1 Info Sharing & Collaboration Framework
1.4.2 Improve Program Development Process	2.1.3 Enhance "Special Needs" Communications	3.3.1 Assess Risk and Prioritize CIP
1.5.2 Project Management & Performance	2.2.2 Engage the Media	4.1.1 Corrective Action Program
1.3.1 Design Scenario-Based Risk/Threat Analysis	2.4.1 Civic Involvement	4.2.1 Develop Notification Protocols
1.3.2 Prepare Comparative Gap Analysis	3.1.1 Develop Prevention/Mitigation Framework	4.4.1 Model and Exercise 15 DHS Scenarios
	3.1.3 Develop Health Surveillance/Detection Plan	

 Goal 1: Planning & Decision Making	 Goal 3: Prevention & Mitigation
 Goal 2: Community Engagement	 Goal 4: Response & Recovery

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PRIORITY INITIATIVES MATRIX

Priority Initiatives	NIMS	Regional Collaboration	NIPP	Info Sharing	Interoperable Comm.	CBRN	Medical Surge/Mass Care
1-1-1) Document, describe, recommend, and implement enhancements to the regional strategic planning and decision-making process		X					
1-4-2) Align, staff, and inform the ESFs to facilitate practitioner priorities into the program development process		X		X			
1-5-2) Define and staff the SPG's and CAO's oversight and accountability function to assure that project management, system performance, and bottom-line public service objectives are being met		X					
2-1-2) Establish or enhance a "system of systems" for emergency warning, alert & notification, and continuing information		X		X	X		
2-1-3) Identify and enhance methods for targeted communication to reach populations with "special needs"				X			
2-2-2) Partner with the media to effectively provide the public with information before, during, and after events				X			
2-4-1) Increase civic involvement in all phases of disaster preparedness		X					
3-1-1) Develop a prevention and mitigation framework (i.e. an NRP/NIMS for prevention)	X						
3-1-3) Develop and implement an integrated plan related to health surveillance, detection, and mitigation functions between NCR Partners							X
3-2-1) Develop common regional information sharing and collaboration frameworks, to include determining roles, responsibilities & protocols		X		X	X		
3-3-1) Identify, prioritize, and conduct risk assessments of critical infrastructure and high-risk targets within the NCR, by key ESF, working closely with private sector, integrating & leveraging existing assessments		X	X				
4-1-1) Establish a corrective action program to modify plans by addressing gaps identified in analyses, exercises, and events		X					
4-2-1) Develop coordinated and standardized protocols for mandatory notification of regional partners during an emerging incident to maintain situational awareness		X		X	X		
4-4-1) Model and exercise the 15 DHS scenarios most relevant to the NCR to assess region-wide impact		X				X	

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Triage Primer: The HazMat MCI***Triage Strategies for Hazardous Materials Mass-Casualty Incidents****By Duane Caneva, Public Health*

The development of best-practices guidelines for the triage of victims of mass-casualty incidents (MCI) is and for the foreseeable future will remain a critical component of the nation's preparedness strategy to deal with "all hazards" types of disasters. The START (Simple Triage And Rapid Treatment) system, commonly used throughout the United States today, provides an easily understood way to categorize patients by a color indicator (red, yellow, green, or black) that shows their medical condition and the order in which they should be seen (immediate, delayed, minimal, or expectant).

START relies on criteria that are: (a) easily obtained, in most cases, in a field setting; (b) relatively objective; and (c) statistically linked to a measurable outcome. Those criteria were derived from a trauma database registry to correlate physiologic parameters to outcome of survivability, primarily by identifying the "RPMs" – i.e., respiratory rate, pulse, and motor functions – as the factors most likely to provide the best indicators of probable survivability.

The usefulness of START in responding to MCIs that involve the presence and/or spread of hazardous materials is not yet certain, but the professional literature already available on the subject – e.g., a 2005 article in the *European Journal of Emergency Medicine* – provides a wealth of helpful information on various systems in use internationally to cope with incidents involving CBRN (chemical, biological, radiological, nuclear) weapons or devices.

Resource and Time Factors Included in STM System

Equally helpful is the recently developed Sacco Triage Method (STM), which provides a mechanism to link triage casualty numbers to the resources available and the times required to transport patients to a medical facility. With the RPMs serving as the core, STM expands on the trauma-registry data

to correlate patients' RPM scores with their likelihood of survival. The more severely traumatized patients receive lower scores, indicating they are less likely to survive, and more likely to decompensate en route to the hospital.

By using statistical and other data developed on the scene, STM optimizes the order of patient evacuation from an incident site to ensure that those most likely to survive – i.e., those with higher STM scores – are the first patients transported to a hospital or other medical facility. Sadly, this means, of course, that those with the lowest STM scores and therefore least likely to survive transport and tie up critical resources are transported later to whatever hospitals are available. The end result of these extremely difficult decisions, though, translates into more survivors in the aftermath of any given incident.

The START system provides an easily understood way to categorize patients by a color indicator

Several additional points in using such a system are worth further consideration. The first is that whatever system is used requires a link to information-management tools, with optimal results integrating the medical first responders at the incident site with the medical desk of the operations section at the incident/unified command system command post, through the emergency operations center (EOC) to the receiving hospitals.

The second point is that, to lower the time required for transport, security and law-enforcement personnel not only at the incident site but also along the transportation nodes and pathways also must have access to the system to ensure that the transportation routes are clear.

Analyses and Outcomes, Updates and Adjustments

An ancillary benefit is that such systems would provide a mechanism to use artificial intelligence to improve predictability of the system. The local, regional, or national statistics collected could provide an updatable and constantly evolving database from which criteria are correlated and survivability optimized. Such additional information as the breakout of population subsets, the impact of transport times, and/or the level of care provided en route could and should be analyzed on a continuing basis. Modifications for local or regional factors and/or the identification of quality-of-care issues also could be determined. Finally, and of the greatest importance during hazardous-materials incidents, separate criteria for specific types of incidents could and should be identified.

The efficacy of using trauma data registries to determine the appropriate triage criteria to use in MCI events involving hazardous materials is still far from certain. However, such information probably could be determined, with a reasonable degree of certitude, by continuing real-time analyses of outcomes within the system – with the analyses later adjusted as additional information is compiled.

It should not be surprising, incidentally, that the STM method was developed by a mathematician. In the information age, the ability to capture large amounts of data also requires a careful analysis of outcomes – which frequently drive protocols, guidelines, and system designs. Multidisciplinary efforts are required to ensure that strategies and tactics are optimized to the maximum extent possible to meet the goals established, and that the analyses of the systems available are both comprehensive and adequate.

Duane Caneva is Head of Medical Plans & Policy at the Navy Medicine Office of Homeland Security. He currently serves as a medical consultant on chemical, biological, radiological, nuclear, & high-yield explosives (CBRNE) to the Office of the Attending Physician at the U.S. Capitol.

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Triage II: The Man on the Scene***Tags of Survival: The START System***

By Joseph Cahill, EMS



From an EMS point of view, the goal of triage is to maximize the number of lives saved, and the best way to do that is to get patients to a medical facility as soon as possible, and in as healthy a medical condition as possible. Obviously, the faster a critically injured patient reaches a surgeon the better his or her chances of survival.

One way to achieve this goal is to take the sickest/most seriously injured patients from the scene first and deliver them to an adequately equipped medical facility immediately. Doing so, though, may mean requiring those less severely injured to wait their turns.

Although any situation that causes an EMT to make difficult choices between patients may – for all practical purposes – be considered triage, in EMS circles that term

is commonly reserved for the handling of mass-casualty incidents (MCI). New York City defines MCI as an incident that produces five or more patients and/or requires the use of extraordinary resources.

Simplicity: The Hallmark Of an Effective System

During an MCI some hard but necessary decisions must be made, immediately and on the scene, about which patients receive how much care, and in what order of priority. Without a triage system in place, these decisions would be made capriciously and may be based on the personal opinions of the individual EMS provider.

The hallmark of an effective – i.e., workable – triage system is its simplicity. The criteria established may have to be recalled many months after training, and under

The most important characteristics of an effective triage system are clarity, simplicity, and thorough training.

pressure. One such system that has been particularly effective is START (Simple Triage And Rapid Treatment), which has been used well both in New York City and in Los Angeles.

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under theoretically “normal” conditions, the EMTs follow this model from their first interactions with the patient, then return to it again and again as their assessments become more knowledgeable and more detailed.

The START system is based primarily on a rapid assessment of the three factors previously mentioned, the correction/amelioration of specific life-threatening issues, and the need to move on to other patients as rapidly as possible. In practice, the care provider quickly assigns the patient to one of four categories: “deceased,” “immediate,” “delayed,” or “minor.” The resources that are available at the scene of the incident dictate how fast the individuals assigned to each group will receive the medical care they need.

A Quick-Glance Stoplight System

One common tool used by many if not all EMS agencies is the triage tag – i.e., color-coded pieces of paper (or other material) that show at a glance the medical priority of the individuals in each of the four categories listed. Typically, a stoplight

pattern is used, with each patient tagged with the appropriate color exposed – green for Minor, yellow for Delayed, red for Immediate, and black for Deceased. The tags tell other providers and medical personnel: (1) that these patients already have been triaged; and (2) what triage category they have been assigned to.

To further expedite matters, all patients who are ambulatory when the START process begins are asked to move to another area; those who can, in fact, proceed to the area designated are given a green tag. The EMTs on the scene then assess those who have not been able to move on their own, starting with airway and breathing. Patients who are not breathing after two immediate treatments are pinned with black tags.

The EMT receives additional quick information about a victim’s status by squeezing the nail bed of the patient and timing the return of color – which, under many circumstances, is a fairly reliable indicator of the patient’s circulatory system. Patients who have an abnormal or slow return of color are pinned with red tags. If a patient cannot

follow a simple direction – e.g., “open your eyes” – he or she also is given a red tag. All other patients are given yellow tags. At this point, the EMT(s) will go back and re-triage all those in the walking-wounded (green tag) area to ascertain if there are patients in that area who require more attention.

Triage is, in short, an essential component both of EMT training and of MCI operations. Without an effective triage system in place patients could suffer and die needlessly. The most important characteristics of an effective triage system are clarity, simplicity, and thorough training. Without all three, the survival of patients/victims will depend on the personal skills, background, and training of the individual EMT – or, worse, on their personality and emotions.

Joseph Cahill is Exercise and Training Coordinator for the Massachusetts Department of Public Health – Center for Emergency Preparedness. He worked as an emergency planner in the Westchester (N.Y.) County Office of Emergency Management, and served as a line Paramedic for over ten years in The South Bronx and North Philadelphia.

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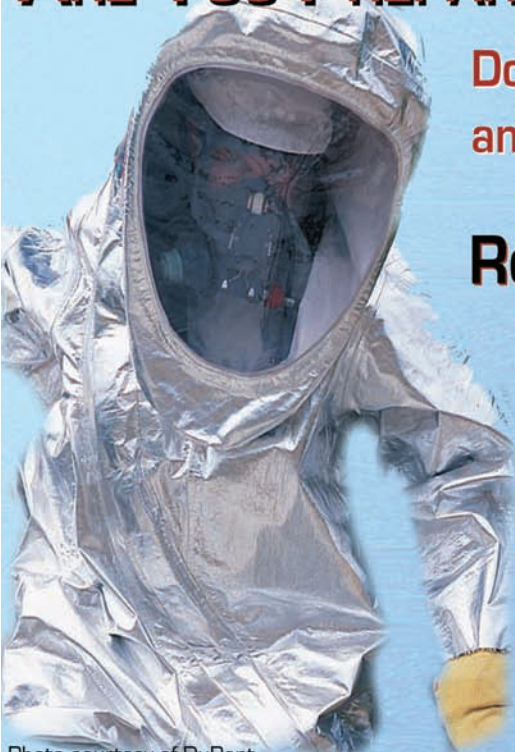


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The IMR Group, Inc. publishing DomesticPreparedness.com (DomPrep) since 1998 to integrate the diverse first responder communities of state, local, national, and federal preparedness communities. Most recently, the reach was extended to include building-facility managers and critical-infrastructure, maritime, borders, ports, and public-health officials and operators.

Texas, New York, Maine, Florida, Colorado, and North Carolina

By Adam McLaughlin, State Homeland News



Texas **State's USAR Team Prepares for Hurricane Season**

For the first time in the nine-year history of the state's Urban Search and Rescue (USAR) Team, Texas Task Force 1 conducted a full-scale hurricane exercise at "Disaster City," a 52-acre training facility maintained by the National Emergency Response and Rescue Training Center not far from the campus of Texas A&M University.

The exercise, carried out in late April, was sponsored by the Texas Engineering Extension Service (TEEX) and drilled team members on a simulated hurricane catastrophe the scenario for which included many of the major problems encountered last year during Hurricanes Katrina and Rita. "Texas is very concerned and takes ... [hurricane preparedness] very seriously," said Robert McKee, director of the task force.

About 90 emergency workers from across the state, including a number from San Antonio, converged at the sprawling training complex to test their search-and-rescue skills both on land and on water. Also participating in the drill were 78 volunteers; that many were needed, coordinators said, to simulate the large numbers of hurricane victims that task force members encountered in New Orleans after Katrina.

Among the specific incidents and problems incorporated in the exercise were stranded victims, collapsed buildings, and the presence of hazardous materials. Task force members also had to confront a few personal challenges, such as living in a tent under a hot Texas sun and bathing in portable showers. "Although we regularly train in San Antonio, this facility in particular is very hard to duplicate and is the best substitute for a

real-world event," said Nim Kidd, a San Antonio firefighter and the Alamo City's emergency management coordinator.

Extension of the system to the other FDNY vehicles is scheduled to be completed by the end of the summer.

Last year, the task force was deployed to help various communities deal with the aftermath of five major storms, including Katrina and Rita. This year may well be another busy hurricane season for task force members – several forecasters already have predicted another season with more than the average number of named storms, between 15 and 20 of which are expected to spawn off the coast of Africa and head toward the U.S. mainland.

New York **NYC Installs AVL Units In Ambulances, FDNY Vehicles**

New York City Mayor Michael R. Bloomberg and Fire Commissioner Nicholas Scoppetta have announced that all of the city's ambulances and FDNY (Fire Department of New York) vehicles – including engines and ladder trucks – will be equipped with Automatic Vehicle Location (AVL) systems by the end of the summer.

The AVL system uses GPS (Global Positioning Satellite) technology to track the real-time movements of GPS-equipped vehicles, helping dispatchers deploy emergency resources both more quickly and more accurately.

The city started AVL as a pilot program in September 2005 with the installation of systems on the vehicles of engine companies on Staten Island and a number of FDNY EMS (emergency medical services) units on Staten Island and in Southern Brooklyn. All NYC ambulances participating in the city's 911 system will be equipped with AVL by 30 June of this year, officials said. Extension of the system to the other FDNY vehicles is scheduled to be completed by the end of the summer. The cost of equipping the estimated 1,565 FDNY and EMS vehicles scheduled for upgrading through the AVL installations will be approximately \$50 million, the officials said.

Currently, a Computer-Aided Dispatch (CAD) system is used to determine the appropriate EMS unit to deploy to the scene of an incident, with the determination based on where ambulances are assigned throughout the city. However, because ambulances are not dispatched from a central location and are able to move about within their assigned response areas, the use of AVL will provide a more accurate real-time update of where they actually are at any given time. The use of AVL, combined with CAD, will give dispatchers a powerful tool that creates and maintains a constantly updated visual map of where emergency resources such as GPS-equipped vehicles are, and in what direction they might be heading.

Improvements in the EMS response times already recorded under AVL have been significant. During a typical four-month period prior to the use of AVL, the average response time to the most serious life-threatening emergencies was 6 minutes and 55 seconds. After AVL units had been installed the average response time, during the same typical four-month period in the same response areas, was reduced to 6 minutes and 22 seconds – a net improvement of 33 seconds.

Maine **Prepares Medical Task Force To Cope With Major Disasters**

In 2003, Dartmouth College created a collaborative tri-state (Maine, New Hampshire, and Vermont) disaster-response



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partnership known as the Northern New England Metropolitan Medical Response System, or NNE-MMRS.

The Maine component of NNE-MMRS is known as Maine Task Force 1, or MTF-1. It addresses multiple areas of need, including various support activities

help meet national requirements. MEMA has final decision-making authority over where and when MTF-1 would deploy.

According to Olan Johnston, MTF-1 project administrator, the biggest challenge facing MTF-1 is the unit's sustainability. "Properly training, supplying, and

storms, including nine that will become full-scale hurricanes.

Chris Warren, the turnpike's chief operating officer, noted that the four consecutive storms that hit Florida in 2004 made it clear that the smaller generators then used to provide power to the plazas could not handle the projected increase in residents (and visitors) expected to need more services this year. Three of the 2004 storms tore through Central Florida.

Turnpike officials said that, with adequate power, the plazas would be able to serve as oases on one of the state's major north-south routes. James Ely, executive director of the Florida Turnpike Enterprise, said he had been assured that the generators planned for installation "are the biggest, baddest generators in the United States. At least on a turnpike," he quickly added.

Turnpike officials said the generators – which they said would be installed by June 30 – would be financed by using some of the toll revenues projected. This year, as in years past, tolls will be suspended during evacuations as one way of helping to move traffic at a faster pace along the route. Toll suspensions caused a loss of \$32 million in revenues from the Florida Turnpike Enterprise in 2004, and another \$19.1 million in 2005.

For operational purposes, Memoranda of Understanding have been signed that define each state's level of control

involving the Maine Center for Disease Control and Prevention, the Maine Emergency Management Agency (MEMA), and Maine Emergency Medical Services. All of the agencies and activities involved have the same primary mission: ensuring that adequate numbers of trained medical personnel and other medical resources are available when and where needed.

"MTF-1 is a very valuable resource designed to augment our staffing during a pandemic or mass casualty event," said Kathy Knight, director of the Northeastern Maine Regional Resource Center, which is headquartered at the Eastern Maine Medical Center in Bangor.

From an operational standpoint, MTF-1 falls under the U.S. Department of Homeland Security (DHS), with the Federal Emergency Management Agency (FEMA) and the DHS Preparedness Directorate playing key supporting roles. MTF-1 is now expanding its membership in a controlled fashion. Across the entire tri-state region, the goal is for at least 200 operational personnel to start, including between 50 and 60 in Maine.

Response teams are strategically headquartered in each of the three states. For operational purposes, Memoranda of Understanding have been signed that define each state's level of control in situations calling for deployment of units to one or both of the other two states, and/or to

keeping a dynamic team such as this one engaged costs money," he pointed out. "We are seeing dwindling funding from all levels of government, so now more than ever before the approach has to be very collaborative with engaged partners.

"The good news," he continued, "is that we have some very good relationships with both public- and private-sector agencies. The goal is to work together to make a strong and sustainable system."

Florida Plans to Install New Generators Along Major Evacuation Artery

Officials of the Florida Turnpike Enterprise have announced the start of a \$7.5 million project to install eleven powerful new generators at key sites along the state's principal evacuation artery prior to what will likely be the most dangerous months of this hurricane season.

Eight of the million-watt generators will provide power to major plazas during outages – one generator per plaza – on the route between Miami and Wildwood. Three others will be used for Florida Highway Patrol missions and for turnpike operations.

The generators could be needed soon. Meteorologists already have predicted that the 2006 hurricane season, which begins on June 1, may produce 17 or more named

Colorado Hosts Chemical Stockpile Emergency Preparedness Exercise

Nearly one thousand decision-making officials, first responders, and other representatives of a broad spectrum of local, state, and federal agencies recently participated in a major community exercise to test emergency-response capabilities in Pueblo County and at the state's Centennial-based Multi-Agency Coordination Center.

The federally managed and evaluated exercise was sponsored by officials of the Chemical Stockpile Emergency Preparedness Program (CSEPP). "They test plans, procedures, and resources, allowing the community to better prepare for a wide range of events," said Steve Douglas, director of the Pueblo County Department of Emergency Management.

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The exercise, which focused on two simulated (and unrelated) events in Pueblo, tested the ability of participants to collaborate in response to such events on short or no notice. The CSEPP event occurred at the U.S. Army Pueblo Chemical Depot and focused on notification procedures, communications systems, and emergency public-information and emergency-response capabilities.

The other event, carried out at Pueblo West High School, tested fire and hazardous-materials response capabilities, law enforcement, and emergency medical and victim assistance response abilities, as well as the overall incident command and management system.

The drill used Pueblo County's Reverse 911 system to provide notification to area residents. Homes and businesses in the immediate area received an emergency message via Reverse 911 on the morning of the event, reminding homeowners and businessmen of the drill and asking them to detour around certain areas to minimize traffic delays.

North Carolina **Hosts Workshop in Preparation For This Year's Hurricane Season**

In a cooperative effort to prepare for the 2006 round of potentially devastating hurricanes, North Carolina officials from several counties, military bases, and emergency agencies gathered at the Onslow County Multipurpose Center early last week to discuss ways to better prepare for the hurricanes and/or other catastrophic events.

The workshop provided a forum at which officials could listen to informational lectures from weather experts and participate in a federally mandated course on information sharing between agencies – two of the many events on the program. Other preparedness events – scheduled to be carried out later this month – include a review of county shelter plans and facilities, and a large-scale training exercise. The latter, scheduled for May 23-26, will focus on response and recovery tasks likely to follow in the wake of a simulated Category Five hurricane.

The workshop provided a forum at which officials could participate in a course on information sharing

"We have to be innovative in this day and time, and we have to be ready to meet the crisis," said Delma Collins, chairman of the Onslow County Board of Commissioners. "It all comes down to one thing: your leadership," she told the participants. "So let's get to know each other," she added.

Adam McLaughlin is Preparedness Manager of Training and Exercises, Operations, and Emergency Management for the Port Authority of N.Y. & N.J. He develops and implements agency-wide emergency response and recovery plans, business continuity plans, and training and exercise programs. He is a former U.S. Army Military Intelligence & Security Officer.

Upcoming Events

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In the Aftermath of a Disaster **The Creation of New Surge Capacity**

By Michael P. Allswede, Public Health



There is a saying in disaster-medicine circles that “all roads lead to the hospital.” That adage, well grounded in reality – particularly for the victims of natural or manmade disasters, including terrorist attacks – succinctly describes what is already a serious problem for the nation’s medical systems and a critical issue for preparedness planners.

The primary challenge facing planners as well as medical personnel is that the fiscal realities of U.S. healthcare have led to widespread use of an “economy model” of medical practice in which a system’s resources are scaled to the needs of an “average day” – however that nebulous term is defined. For practical purposes, this means that no additional hospital beds, or medical staff, usually will be available than the

numbers typically required or “consumed” in an average working day at any U.S. hospital or other medical facility.

The same operational philosophy applies to medicines, medical equipment, and other physical assets and resources. Unfortunately – for practitioners as well as patients – so-called “just in time” inventory practices may be economically efficient, but they allow little surge capacity. The fact is, there already is a significant surge-capacity problem throughout the U.S. medical system that will all but guarantee the failure of any individual facility should it be challenged with overwhelming numbers.

Maximum Efficiency, But Minimum Flexibility

In Allegheny County (i.e., the Pittsburgh area) of Western Pennsylvania, to cite but one example, there are an estimated 6,700 hospital beds currently available for the county’s approximately three million citizens. On a good day – defined as one during which a facility’s physical assets are being used with close to maximum efficiency – about 95 percent of those hospital beds are occupied. This means, though, that there is a “surge capacity” of only 335 beds – enough, in other words, for slightly less than one-hundredth of one percent of the remainder of the people in the area.

To create additional surge capacity within any medical system – and/or throughout the entire U.S. medical system as a whole – there obviously must be some redistribution of medical care. To achieve that redistribution, though, without causing a number of other problems, requires a clear understanding of the various surge-capacity options that might be used. Among the most important of the factors to be considered in this process are the following:

- *Establishing a threshold:* The determination – before the outbreak of a crisis – of when a facility needs a surge strategy, and of which strategy to choose, must be defined by clear and defensible numbers.
- *Understanding the sometimes variable meaning of “medical utility”:* The proper use of medical resources changes not only from one disease to another but



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also from treating a disease to dealing with an injury.

- *The proper role of medical ethics:* In any major disaster, determining how to allocate what usually will be scarce medical resources means that some people may not receive the care they need, expect, deserve, and/or have paid for.

From Normal to Triage In Three Uneasy Stages

By understanding these key points, various surge-capacity strategies can be developed to manage at least four stages of medical treatment in the aftermath of a disaster. Stage I, which may be defined as "Normal Care," would basically involve treating those individuals who could be cared for in addition to the average daily load of the medical facilities in the area. The Stage I ceiling would be 335 patients in the Allegheny County example cited earlier.

Stage II, which may be termed "Near-Normal Care," would increase the number of patients who could be cared for by suspending normal operations, postponing or denying non-essential care for a limited period of time, providing care in atypical locations, and using relatively junior and less experienced medical personnel (under supervision, though, insofar as possible).

Stage III may be termed "Augmented Care" and could be defined as the number of patients cared for by augmenting community resources with "outside" assets, including those drawn from neighboring communities through mutual-aid agreements. Stage IV, the last in the escalating series, might require implementation of a "battlefield" type of triage system in which care may have to be denied entirely to some patients.

In this as in other triage situations, the case-by-case decisions on individual patients would have to be based strictly on medical utility and ethics. In any event, establishing when a specific strategy threshold has been reached is the essential first step required in medical planning for future disasters. Medical utility must be evaluated in each surge strategy because the use of scarce resources must be driven by decisions believed to have the greatest potential for achieving a good outcome.

There are three groups of medical patients who must be considered in a triage system governing the allocation of medical resources: (a) Those who are already ill, and in the hospital, and who might die if their care is reduced in scope or quality, or diminished in any of several other ways. (b) Victims of a disaster who are not yet in a hospital and whose principal immediate needs are a relatively moderate degree of medical care – and, probably, some emotional reassurance as well. (c) Other victims with *high* medical-resource needs and who require access to a medical facility to ensure their survival – or at least improve their chances for survival.

Sorting out which resources are provided to which patient is a complex problem, and should be based upon the individual patient's likelihood of survival, the ethical concerns that must be considered, and the surge strategy that has been adopted – again, it is worth emphasizing, *before* a crisis occurs, rather than during the crisis or in the immediate aftermath.

Medical Ethics And Political Procrastination

Medical ethics are a major consideration in this process because it is illegal in the United States to withhold or deny care to victims in need. But that is exactly what

a medical system – more specifically, the medical personnel who first arrive on the scene – might *have* to do during or in the aftermath of a catastrophe affecting thousands or tens of thousands of citizens all at the same time. The use of junior – i.e., inexperienced and/or not fully qualified – medical personnel also is a regulatory infraction, as is the use of non-standard medical facilities.

How these and various related problems can or should be resolved has yet to be determined. Not quite five years after the terrorist attacks of 11 September 2001 there are still no surge-capacity laws on the books that tell first responders, and/or political decision-makers, how to redistribute scarce medical resources during times of crisis.

Note: Additional information on the altered standards of care that might be required during and after mass-casualty events is available at <http://www.ahrq.gov/research/altstand/>

Dr. Allswede is the Director of the Strategic Medical Intelligence Project on forensic epidemiology. He is the creator of the RaPID-T Program and of the Pittsburgh Matrix Program for hospital training and preparedness. He has served on a number of expert national and international groups on preparedness.

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Pandemic Influenza***A Long List of Questions; A Very Short List of Answers***

By Jerry Mothershead, Military Medicine



Several weeks ago, the White House released the *National Strategy for Pandemic Influenza Implementation Plan*, a grim document that includes some stark assumptions: 30 percent of the U.S. population ill, up to two million deaths, estimated workspace absenteeism approaching 40 percent.

Under the White House plan, the federal government will continue its support of vaccine development, and will add to existing stockpiles of antiviral medications. In all, more than three hundred specific tasks are identified in the overarching publication.

Armed with large federal grants, states and cities throughout the nation are developing

or refining their own pandemic influenza plans. However, there is an important question that has not yet been answered: Are any of those plans truly realistic, or are they built on an incomplete understanding of the science of influenza – and/or misguided speculation as well as, quite possibly, avoidance of the difficult choices inherent in responding to a public-health disaster of the magnitude expected?

If a pandemic were to occur in the near future, no “magic bullet” vaccine would be available. In fact, the tasks of tissue-culture vaccine development and, later, the distribution and use of broad-spectrum vaccines may take several years. As of the middle of May, moreover, only nine companies worldwide possessed the technology required to produce flu vaccines. If *all* of those companies switched

production to a single monovalent vaccine, it has been estimated, only about 300 million doses could be produced in one year. That is the approximate population of the United States.

Ethical and Political Problems Present in Abundance

There are other factors that have to be considered. The development of a prioritization list for the distribution of antivirals, for example, would present major political and ethical problems. Those who already have been infected with the disease presumably would have the highest-priority access to medications – but that is not guaranteed. Beyond that, clear choices do not exist. So additional questions come up: Under what circumstances would a blanket community prophylaxis be considered – and would it work? Is it logical, or acceptable, to



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provide prophylaxis to healthcare workers, public safety personnel, and first responders – but not their families?

Also: Would it be ethical to protect prison guards while denying the same protection to the prison population – who, due to the close quarters to which they are confined, their higher-than-normal incidence of HIV and other immune-system diseases, and other factors, automatically fall into a high-risk category? Should priorities be based on an individual's social, economic, and/or political value to society at large? Or his/her anticipated life expectancy? Or a combination of these and other factors?

Finally, who, or what agency, should develop and disseminate the guidelines – by political leaders, probably, rather than by medical professionals? And what agency or combination of agencies should be

threat of repeated exposure may continue throughout the duration of the pandemic.

The use of personal protective equipment, not only by first responders but by the public at large, has been recommended. More specifically, medical healthcare experts have advocated the stockpiling of high-efficiency particulate-air (HEPA) filters for the general population, and positive-pressure air-purifying respirators (PAPRs) for first responders. The cost of building and distributing literally millions of these devices could be enormous, though, for what other experts believe might be only modest gains. Studies have repeatedly shown that, even among trained users, the blow-by of unfiltered air around HEPA masks is routinely in excess of 10 percent.

Many planners also question the efficacy of surgical masks, and it should be

70 percent of respondents were unaware of specific telecommuting policies in their own agencies' response plans.

Other workforce-sparing innovations, such as the use of minimum staffing standards for business-essential functions, and social distancing at the workplace, have yet to be seriously considered by the majority of U.S. employers. Most business plans also do not take into account: (a) the probability that absenteeism due to illness will be spread out over the duration of the pandemic, rather than exposing all workers simultaneously; and/or (b) that the vast majority of the stricken who recover will be immune from a recurrence of the disease.

Finally, the importance of a well-planned and well-implemented public-information campaign, coupled with a responsible media, has not been stressed as a possible major determinant of the secondary effects of a pandemic. If the public does not have enough trust in the government to believe the information it is provided, all negative secondary effects will be magnified. Moreover, if the press does *not* act responsibly in its quest for the big story, the public may well perceive the situation in a worse light than it might actually be – and scenes such as those presented in recent television movies on pandemic influenza may become everyday realities.

In short, a broad spectrum of health, planning, economic, and political issues have to be resolved, at all levels of government, *before* any meaningful action can be taken to manage and mitigate a flu pandemic of any size. To date, very few of those issues have been addressed in any detail. Meanwhile, each day that passes brings a potential new flu pandemic of unprecedented scope that much closer to reality.

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***What agency
or combination of
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the responsibility of enforcing
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Unwise and Unwarranted Assumptions Being Used?

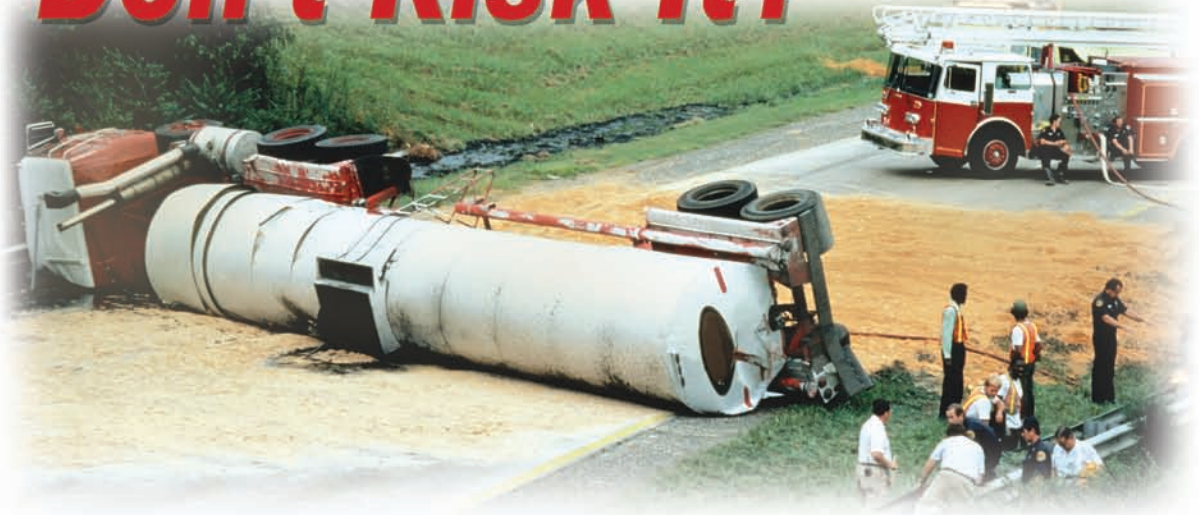
Another major unknown is how long public health interventions and prophylaxis may be required. The administration's implementation plan assumes that a community will be affected by the pandemic for 6-8 weeks. Past pandemics, however, have lasted as much as 18 months, and sometimes longer. In free and open societies, nations such as the United States cannot be guaranteed immunity from reintroduction of the virus. The

remembered that those masks are designed not to protect the wearer from the environment, but to protect the environment (and other humans) from the wearer. Moreover, masks provide the added benefit of serving as a constant reminder that standard operating procedures are not in order.

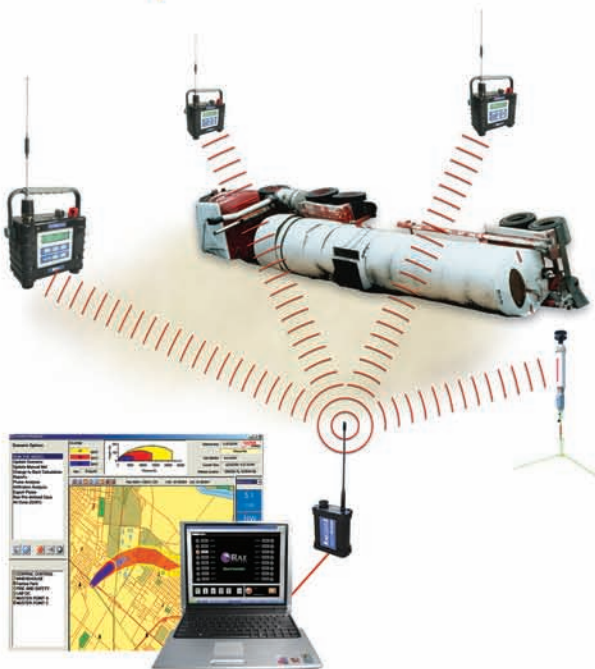
The Approach of Armageddon?

The 40-percent worker-absenteeism rate projected by the administration is in line with other recent surveys on the subject. But there is little evidence that enough has been done to lower that rate. One recent study of government workers indicates that over

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