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Publisher's Message

By Martin (Marty) Masiuk, Publisher

This issue of *DomPrep Journal* focuses on mass-casualty incidents, advanced technology, and medical training.

Leading off the list of working professionals contributing to the issue is Dr. Michael Allswede, who discusses medical competency. More specifically, the competency needed to provide medical care in the aftermath of a major disaster that leaves hundreds of victims suffering from a varied assortment of injuries, infections, and – in a worst-case situation – exposure to hazardous chemical or biological materials.

Dr. Christopher Holland follows up with a report on the special handling required for burn patients, and tells how the nation's civilian and military "burn specialists" are working together in many ways that not only save lives and relieve the pain suffered by burn victims but also contribute immeasurably to the thin body of knowledge in this difficult field.

Dr. Jerry Mothershead provides an insider's look at an aspect of medicine that is of exceptional importance but little known to the general public – namely, the pros and cons between the executive and legislative branches of government on matters that pit expert opinion on one side against human emotions on the other. There is always one loser in such situations: the American people.

Among the other topics covered in June are: the much improved Federal Emergency Management Agency temporary housing program – by Kay Goss; the synergistic new capabilities available to U.S. law-enforcement agencies from the marriage between GIS (the geospatial information system) and GPS (the global positioning system) – by Rodrigo Moscoso; the organizational improvements made possible by evolution of the former National Response Plan into a more flexible National Response Framework – by Joseph Cahill; a helpful "How-To Guide" for purchasers of EMS systems who know what they want but cannot always distinguish one manufacturer's product from another's – by Diana Hopkins; and an alarming commentary, by Editor in Chief James D. Hessman, on the numerous difficulties encountered by the U.S. Customs and Border Protection agency in its efforts to implement a "100-percent screening program" that would examine all of the eleven million cargo containers now entering U.S. seaports annually.

The "clean-up" hitter for the June issue is Adam McLaughlin, who takes a look this month at: (a) a BATF (Bureau of Alcohol, Tobacco, and Firearms) counterterrorism training drill just outside of Atlanta, Georgia; (b) a port-safety exercise in Green Bay, Wisconsin; (c) a pre-Olympics journey to Beijing by a Missouri fire-fighting team (to train their Chinese counterparts in the handling of terrorist incidents); and (d) a major MCI (mass-casualty incident) training exercise in Denver involving eight hospitals and a number of law-enforcement and other agencies preparing for the 2008 Democratic National Convention, being held in the mile-high city at the end of August.

About the Cover: The saving of lives during and in the aftermath of a major disaster requires the combined skills of many medical professionals trained in a broad spectrum of complementary specialties. The photo on this month's cover shows members of the Johnstown (Pa.) Memorial Medical Center Level One Trauma Team working on a simulated "victim" injured during a training exercise.

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Developing Competency for Disaster Medical Response Situations

By Michael Allswede, DO, Public Health

"Never ascribe to malice that which can be adequately explained by incompetence"

-Napoleon Bonaparte

Responding to the medical challenges posed by natural or manmade disasters requires a complex set of knowledge, skills, and attitudes. As it now exists, though, the nation's healthcare system does very little to cultivate these desirable qualities in U.S. healthcare professionals. Moreover, Hurricane Katrina and other notable recent failures in disaster medical response have brought legal, political, and media scrutiny that more often than not blamed healthcare practitioners for lacking desirable competencies that are presumed, but not taught. If the United States is truly serious, therefore, about improving the medical capabilities needed in times of disaster, the concept of disaster medical competence must first be *defined*, and then developed.

To meet that ambitious goal one starts with a basic question – namely, how is medical competency developed? In the normal education of medical and allied specialties such as nursing, training in medical competencies is commonly divided into three categories: knowledge, skills, and attitudes. Knowledge acquisition and mastery is largely the task of professional medical schools, and competence is measured by professional board examinations – which are developed, monitored, and controlled in almost all cases by state medical boards. To ensure not only that there are enough competent medical practitioners, but also that those practitioners who are licensed are truly competent, the United States Medical Licensing Examination will fail anywhere from 10 percent to 50 percent of those who attempt the test.

Skill acquisition is largely taught through practical training – in settings (hospitals, primarily) in which the novice practitioner is trained by a more senior and experienced supervisor. Generally, the novice must successfully complete a certain number of required procedures in a satisfactory and supervised manner prior to the determination, by qualified supervisors, of the novice's competence. Physicians in training are often held back, or dismissed, should they fail to progress to a certain degree of competence. For physicians, training residencies may last 3-6 years after medical school, after which another specialty-board examination is required – failure rates on the latter commonly run anywhere from 5 percent to 30 percent.

Attitudinal training, a more nebulous concept, refers to development of the judgment needed to guide the professional on the proper time and place to apply his or her medical knowledge and skills. Understanding the complex social, emotional, and ethical needs that must be met through the use of acquired knowledge and developed skills represents the "art" of medicine. Attitudinal training is largely the responsibility of the role model who is emulated by the trainee. During medical school and training residencies, young doctors are constantly evaluated on these three competencies in training programs that continue for several years, and in some instances a decade or more. The young doctors also must pass periodic and extremely difficult examinations – and, should they fail to pass just one of those examinations, they risk completely failing their planned careers.

Difficulties in Developing Medical Competency

To develop the specialized skills needed to cope with the massive medical challenges posed by mass-casualty incidents – e.g., natural disasters, epidemics, hazardous materials events, and even combat situations – the nation's medical practitioners (doctors, nurses, paramedics, and other healthcare professionals) must acquire the additional knowledge, skills, and attitudes needed to complement their previous medical competencies. Unfortunately, there are currently very few medical schools, residencies, or allied schools of the health professions that actually teach what might be described as "disaster medical competence" in an organized and productive manner.

There seem to be two principal reasons for this apparent lack of professional interest on the part of the medical schools and those who run them. First, the nature of most disasters is that they are low-frequency/high-intensity events. This means that disaster response may or may not occur, even once, during an individual practitioner's career – and, if it does, the skills needed may be unique to the particular event and not broadly applicable to the general practice of medicine.

The second reason is that the forefront of medical knowledge is constantly expanding – but for various practical reasons the professional training provided by most U.S. medical schools (usually four years minimum for an M.D. degree, followed by a minimum one-year apprenticeship) cannot be compressed into a shorter period of time, and also cannot easily be extended. This unavoidable time squeeze creates a strong pressure to create and follow an economical curriculum that is focused primarily on the main practice of the specialty, with little if any time and/or attention paid to such "frill" courses as disaster medical response. The result of these combined time and economic pressures is that most U.S. medical professionals currently have rather significant gaps in the comprehensive (and still growing) set of knowledge, skills, and attitudes needed to respond to a disaster.

Training residencies may last 3-6 years after medical school, after which another specialty-board examination is required — failure rates on the latter run anywhere from 5 percent to 30 percent

Unexplored, Unfunded, And Undone (Unfortunately)

In addition to the lack of individual competence in disaster response, competence at the health-system level of the overall U.S. medical system is largely unexplored except for the scheduling of a few carefully planned and tightly choreographed disaster drills. Here it should be emphasized that, although a health *system* per se is composed of *individuals*, that system must respond as a complex *team* to meet the logistical, safety, medical care, and financial challenges that a disaster may present. It is largely for that reason that a comprehensive "systems design" perspective for private medical-system disaster-response is at present both unfunded and undone.

In that context, it also is worth noting that, although many health systems do have competent and trained disaster-response professionals who do their very best, a system-level response is limited, as elsewhere in life, by the *least competent* members of the team. In the complex world of natural disasters, rapid climate changes, and random acts of terrorism, an incompetent medical system will therefore cost lives – and perhaps in large numbers.

Despite the difficulties noted above, disaster training *is* being conducted through an impressive, and growing, number of private, state, and federal programs focused on a variety of different disaster-related medical problems. These programs generally run from one day (or even one half-day) to as much as several days in duration, and are designed to accommodate a rather wide range of students. An impressively broad array of disaster-*related* training programs also is available. However, a casual analysis of a representative sampling of these programs identifies what seems to be a rather common problem – namely, "competence assessment." The blunt fact is that most current U.S. disaster medical education programs lack either: (a) minimum standards of competence; or (b) a legitimate validation method of those core competencies; or (c) both. Not incidentally, the goal of the training strategies designed for most of those programs is to achieve a somewhat imprecisely defined "Awareness level."

Needed: A Higher Level of Unawareness?

By not establishing and validating core competencies for different medical professions, it is possible for subsequent teams to be led, and plans to be developed and approved, by individuals who have indeed been "trained" – but remain incompetent nonetheless. To put this concept into perspective one might consider for a moment the discomforting possibility of boarding an airplane piloted by an "awareness-level" pilot, or raising a family in a building designed by an awareness-level architect, or having an operation performed by an awareness-

level surgeon. All of these, and many others that might be considered, would be unacceptable choices. Nonetheless, disaster medical response currently depends on planning and teams led by awareness-level practitioners with unmeasured skills.

From an educational design perspective, the lack of competence validation blinds the training program's ability to assess instructors, training strategies, and instructional techniques. Without competency measurement, any training program is as good as any other one. By not measuring competence in meaningful ways, curriculum instruction cannot progress beyond current levels.

Another concern is that the current panoply of disaster medical curricula is largely defined by the members of so-called "expert" panels. However, although expert panels can help, to some degree at least, to define a place to start, they also can easily create fixed understandings that have "blind spots." A particularly conspicuous example of a specific blind spot that had lethal consequences was the question of whether anthrax could be transmitted by mail – the anthrax deaths that followed shortly after the 9/11 terrorist attacks proved that the answer was "Yes."

In short, it should be remembered that medical knowledge is a constantly growing entity and is always being reshaped both by research and by new ideas. For that reason, the disaster medicine curriculum probably must make the difficult transition into a "sub-specialty" status for it to remain both relevant and updated.

Finally, without the continuing engagement of professional societies and board-certification organizations, existing training efforts may be wasted. "How?," "Who?," and "To what level of competency?" are questions that must be answered by the medical professions themselves. Specialty-specific knowledge, skills, and attitudes must be integrated into existing health-profession education, residency training, fellowship training, and research programming. By taking the long view and creating a viable new career path for professionals with validated competency, disaster plans, teams, and response capabilities all can be improved and elevated to a high national standard. Then, actual competency will eventually – over some impossible-to-define period of time – replace awareness-level incompetence and expert-panel limitations.

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.

Interim Housing Following Disasters: The FEMA Temporary Housing Program

By Kay C. Goss, Emergency Management

After presidentially declared disasters, the Federal Emergency Management Agency (FEMA) offers Direct Assistance – in the form of campers, trailers, and mobile homes – to those who are without shelter. Direct Assistance is available to eligible applicants in addition to cash grants.

Disaster survivors are often assigned a camper, trailer, or mobile home after they have been made homeless; the temporary accommodations provided are frequently not suitable for extended use in harsh climates, though, and more often than not were intended for recreational use by their manufacturers. They also are generally not designed for long-term use in extremely hot or cold climates, and lack adequate insulation as well. Most do not have a reliable ventilation, humidification, or dehumidification system. For that reason, the inside air may not be properly conditioned, significant mold can develop, and various other related problems may result.

One example of such problems, and the additional difficulties created for the suddenly homeless: Because of the higher levels of humidity prevalent in the warmer months of the year, cloth materials such as upholstery and stored clothing grow significant mold throughout the campers. In some of the hotter months, moreover, air conditioners often cannot maintain a safe cooler temperature for any extended period of time. Just the reverse happens in colder months, though, when heaters cannot keep up with the lower temperatures. One distressing result of the latter problem is that pets left unattended have perished due to equipment malfunctions and the rapid changes in temperature that follow. Yet another problem is that pipes often freeze in colder months, rendering indoor plumbing inoperable.

Too Many Problems, Not Enough Time

Further exacerbating the already difficult situation is that, because of the large numbers of complaints received, it can sometimes take weeks for the official agencies and private-sector organizations involved to respond to these problems, leaving the families and children living in the trailers and mobile homes, etc., to fend for themselves.

> ***The troubled housing situation that developed mobilized legions of volunteers, including a number of highly respected architects, to take matters into their own hands in an effort to build more permanent housing***

The provision of temporary housing following disasters has been a continuing challenge to FEMA ever since its creation in 1979. The agency is now looking for a solution through various sections of the Stafford Act – which not only authorizes FEMA to meet immediate threats to life and property resulting from a major disaster but also permits it to contribute financially to state and local governments for the repair, restoration, and replacement of damaged public facilities – as possible avenues to engage the U.S. Department of Housing and Urban Development (HUD) in the temporary housing program, or at least to assume some of the responsibilities now shouldered by FEMA.

Most recently, Hurricane Katrina challenged the agency more than ever before. Within days of Katrina's landfall in August of 2005, FEMA ordered nearly $2.7 billion worth of trailers and mobile homes to house storm victims. Manufacturers produced the trailers with extraordinary speed. Very soon thereafter, though, some residents reported unusual illnesses – frequently accompanied by breathing problems, burning eyes, noses, and throats, and even, tragically, a few deaths. Eventually, an estimated 300,000 people who had been uprooted by Katrina were living in FEMA homes. Subsequently, though, about 17,000 plaintiffs have alleged damaging health consequences, naming 64 trailer makers and the federal government as defendants in collective-action lawsuits.

A Long But Welcome List of Belated Initiatives

Since the not quite three years that have passed since Katrina, FEMA has established a Gulf Coast Housing Strategy Action Plan, which is monitored and supervised by FEMA's

own Gulf Coast Recovery Office. Other organizational changes have included the establishment of a number of FEMA Transitional Recovery Offices – which have developed new Housing Action Plans in certain individually declared states – as well as a Joint Federal/State Housing Relocation Task Force.

Additionally, since early 2006, FEMA: (a) has offered immediate alternative housing to those who have asked to move out of their assigned units for any reason, including concerns about formaldehyde; and (b) has been actively looking for ways to increase the rental resources available to the applicants by using a large and varied number of outside resources. Among those resources, according to Carlos Castillo, assistant administrator for the FEMA Disaster Assistance Directorate – who discussed the situation in recent testimony before Congress – are HUD's National Housing Locator System, various Internet sites, classified ads in newspapers, realtor associations and real-estate magazines, local governments and agencies (e.g., city halls and chambers of commerce), landlord "housing fairs," and simple word of mouth.

Castillo's testimony, which was requested by both the Financial Services Committee and the Homeland Security Committee of the U.S. House of Representatives, covered a broad cross-section of interrelated topics, including but not limited to: the Gulf Coast Housing Strategy Action Plan; the Joint Federal/State Housing Relocation Task Force; the Disaster Housing Assistance Program; a HUD/FEMA Memorandum of Understanding (on the National Housing Strategy); the agency's 2008 Disaster Housing Plan; several state-led Housing Solutions Task Forces; various "Alternate Housing Options"; the Alternative Housing Pilot Program; and the Joint Housing Solutions Group.

Significant Help Provided by the Private Sector

In addition to the numerous federal initiatives developed and being pursued in the aftermath of Hurricane Katrina, it is worth pointing out, the troubled housing situation that developed at that difficult time also mobilized legions of volunteers, including a number of highly respected architects, to take matters into their own hands in an effort to build more permanent housing. Following are a few of the more notable examples of the private-sector successes recorded during that difficult period:

1. Brett Zamore, working with $3.3 million provided from Oprah's Angel Network, opened an operation for Architecture for Humanity in Biloxi, Mississippi, with 250 volunteers who helped residents rebuild or replace their homes. The volunteers designed, among other things, a 1,415 square-foot shotgun/dogtrot called the Parker House at a cost of $135,000.

2. Lowe's Katrina Cottage, designed by Marianne Cusato, was made available for construction at $120,000 per unit. There are 18 more house designs in the Lowe's line; most are approximately 697 square-foot two-bedroom homes.

3. Looney Ricks Kiss built a number of 400 square-foot cottages at a unit cost of $50,000; the cottages were used, as an alternative to the FEMA trailers, by over 2,000 families in Mississippi.

Not incidentally, all of the cost figures cited above include labor costs as well as the costs for plumbing, wiring, fixtures, cabinets, and other "add-ons" not always included in the "total costs" advertised by some unscrupulous realtors.

In Greensburg, Kansas, where 95 percent of the community's homes were completely destroyed last year, the housing crisis was both dramatic and acute, and the community was more satisfied with the FEMA temporary housing than the Katrina refugees had been. In the Greensburg case, FEMA developed a mobile home group site, named Keller Estates, on the southeast edge of town -- which is now making a solid recovery.

FEMA also has established new and more stringent air-quality specifications for factory-built housing units. In addition, the agency recently released its new (2008) *Disaster Housing Plan: Operational Guidance for Housing Disaster Victims* – in which the agency has set four priorities for action: (1) maximizing available housing resources; (2) using traditional forms of interim housing; (3) employing innovative forms of interim housing; and (4) authorizing permanent construction when and where feasible.

The 2008 FEMA Disaster Housing Plan can be accessed at: http://www.fema.gov/news/newsrelease.gema?id=43784

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

GIS+GPS: Making "Police Presence" More Precise

By Rodrigo (Roddy) Moscoso, Law Enforcement

"Social Networking," popularly defined in one sense as the creation of software-enabled virtual communities, has become a significant factor in how most Americans live their professional and personal lives. Many people, both young and old, now spend their days instant-messaging with coworkers and friends, sharing photos and movies with the same people, participating in discussions of common interest, and coordinating activities through a common calendar. Most of these varied activities, and many others, can be carried out through a single online interface or web page.

Social networking has even started to cross into the realm of "physical space" through the integration of GIS (geospatial information system) technologies and GPS (the global positioning system). Thanks to the network's knowledge of where specific individuals are at any given time, the new virtual communities being created can even alert the person being called when a friend or colleague is geographically *near* him or her. Many cell phones now provide extremely precise information, in fact, on the phone user's exact geographical location as well as turn-by-turn directions to just about anywhere.

By "mashing" this information into a given social network, friends and coworkers can find out where the other members of the same network are, which way they are heading (if they are traveling somewhere), and even how fast they are moving. For law enforcement and other legitimate purposes, the implications of this technology are significant and usually represent a major step forward. The potential social and political implications, though, are somewhat disturbing, and even frightening.

Worst-Case Fears And Remote Slowdowns

However, the absence of this new networking technology can be even more frightening. One company, in fact, the OnStar Corporation, has successfully played on this fear of technology "absence" by marketing a worst-case (but plausible) scenario of a person involved in a severe accident but with no way of requesting assistance. The OnStar network will "find you and send help," though, even if the person in the car or other vehicle is unconscious. GPS-equipped vehicles allow the OnStar system to determine the exact location of the accident and to provide that information to an OnStar call center, which will notify the nearest emergency responders and direct them to the scene of the accident.

Command officers could use their mobile computers to instantly plot not only an intercept route but also turn-by-turn directions as well as an estimated time to intercept

Taking this technology one step further, OnStar plans to deploy its new "Stolen Vehicle Slowdown" (SVS) service next year on a number of new cars. Basically, the Stolen Vehicle system will make it possible for law-enforcement personnel to use remote control to *slow down* an SVS-equipped vehicle when it has been reported stolen. The implications of this capability are huge – but so are the risks: What happens, for example, if a non-authorized user "hacks" into the system? Nevertheless, consumer-supported private industry is pushing the envelope by focusing on what GPS/GIS technology can do for law enforcement.

Meanwhile, of course, there is obviously much more that law-enforcement agencies can do for themselves by judiciously exploring and implementing these amazing new technologies. Many law-enforcement agencies, in fact, already have started to use GPS/GIS systems in operational settings (but many more have elected to wait a while longer, or are only selectively using the same systems). For example, some agencies may use GPS to support "call routing" (i.e., providing turn-by-turn directions to accident scenes) but may not enable their command officers to identify their exact locations in real time. The potential for abuse of these combined technologies, coupled with labor-union concerns, has to some degree limited, thus far, the potential operational benefits available from full use of the GPS/GIS networking technologies. The reason is simple: When political decision makers fully consider the potential pros and cons of combining the technologies, it seems to some of them, at least, that the benefits may outweigh the risks.

Nonetheless, with a sophisticated GPS/GIS-enabled law-enforcement social network available, command and control could know *precisely* which officers are nearest to an incident call and how long it should take for them to arrive on-scene. Responding officers therefore would not have to

press an "on scene" button on their mobile computer system – a GIS-enabled command system would use their already-known GPS positions to automatically denote their status.

The High-Speed Pursuit Of Advanced Capabilities

With additional and more detailed information available about each unit – e.g., not only the skill sets of the officers but also the types of vehicles and equipment at the accident scene – command officers would be able to take a more thoughtful approach in assigning secondary units to complement the responders already present.

Another potential benefit from the combined technologies would be GPS-based incident alerting. Officers physically near a particular type of incident – e.g., a high-speed pursuit – could be automatically alerted to join in if the information available to command officers indicates that those officers are already in close proximity to the incident. With a cruiser-level view available of the officers already in pursuit presented on a map, command officers could use their mobile computers to instantly plot not only an intercept route but also turn-by-turn directions as well as an estimated time to intercept.

Because the underlying GPS/GIS technology is standards-based, command-and-control systems could share information across jurisdictional lines. For a large, regional incident, a unified command system could show not only the current locations but also the political jurisdictions and other relevant information about *all* responders ordered to an incident scene. By sharing additional resource information, such as skill sets and physical assets, the unified command would have a clearer and more accurate real-time picture of a multilevel response to almost any given incident.

Law-enforcement agencies have long used location-based information as a helpful tool for tracking trends and performing detailed analyses of incidents across geographic areas. Judiciously used, the technology already deployed and available today should enable those same agencies to elevate their new technological capabilities from the status of after-the-fact analyst's tools into the realm of real-time operations.

Rodrigo (Roddy) Moscoso currently serves as Communications Manager for the Capital Wireless Information Net (CapWIN) Program at the University of Maryland. Formerly with IBM Business Consulting Services, he has over 15 years of experience supporting large-scale IT implementation projects, and extensive experience in several related fields such as change management, business process reengineering, human resources, and communications.

Plan Nationally, Respond Locally

By Joseph Cahill, EMS

The newly released National Response Framework (NRF) attempts to fill some of the readiness gaps exposed by Hurricane Katrina and other disasters that have taken place over the past several years. It starts by providing a structure for combining the efforts by the many agencies and levels of government during a catastrophe. And its first three chapters focus on three specific questions of the response equation: "How?", "What?", and, of particular importance, "Who?"

Through initiatives such as *Ready.Gov* the Federal Emergency Management Agency (FEMA) has been emphasizing the importance of individual and household preparedness, taking the common-sense position that being prepared is first of all a personal responsibility. The NRF builds on the foundation of individual resilience postulated by FEMA by addressing the roles and responsibilities of the local, county, and state levels of government.

Special care has been taken to avoid dictating to state and local authorities, and allowing local structures to prevail. Nonetheless, the NRF does define the specific responsibilities of the agencies and officials most likely to be involved in response operations. This post-Katrina document also makes it clear, moreover, that the federal government will not always wait to be requested (as happened in the aftermath of Katrina) before responding.

An Equal-Opportunity Definition of Disasters

Unlike its predecessor, the original National Response Plan, the NRF does not draw a distinction between "Incidents of National Significance" and other events of seemingly lesser magnitude. For those involved in the on-the-scene efforts in the wake of a mass-casualty incident of any type this recognition that all events begin and end locally is a significant step forward.

One of the major failings of most if not all U.S. emergency-management and -response agencies has been that they group their policies and procedures into two separate heaps: (a) traditional day-to-day tasks and responsibilities; and (b) true disaster-response situations. The advantage of closing this previous divide is that on-the-scene operational staff are now no longer forced to switch between two sets of procedures but, rather, can follow the basics of more or less the same plan every day. By doing so, local and state decision makers still are able to introduce new plan elements or embellishments – but without having to shift gears into a disaster-plan format at the same time.

An important step in making the new system work is the requirement to break plans down into goal-oriented tools such as what are called PMAs (Pre-Scripted Mission Assignments). The PMAs break large plans down into smaller elements that can be used in a variety of situations. For example, rather than developing both a pandemic influenza plan and a smallpox plan, the working staff will have available a collection of basic PMAs that can be used in almost any type of hazard situation.

Thanks to the introduction of the new framework, a preparedness plan now might call for the typical county warehouse – which stores and delivers day-to-day supplies to county facilities – also to provide storage and delivery services for vaccines during an influenza pandemic. Under the framework, this component of the plan would be available for use as a more generic materials-distribution plan and, as such, could be used whether the supplies that have to be delivered are paper, vaccines, road flares, or any of a broad spectrum of the numerous other supplies and materials needed in most emergency situations. If nothing else, this fundamental change relieves local officials of having to create a separate distribution plan for each of the materials stored.

Three Sames & a Helpful Bonus

By following the same materials-handling model, filling in the same paperwork, and using the same response personnel every day – and applying these common denominators to disaster-response situations – the warehouse staff becomes emergency-ready simply by showing up ready to work.

A bonus factor to be considered is that the working staff will also now have a solid basis for decision making during high-stress situations. As a result, when extra training is needed – for example, in observing the precautions mandated for the handling of smallpox vaccine – the staff is much less likely to be overwhelmed by examining anew the information that previously may have been used or discussed only once or twice a year in training sessions.

In short, the development and promulgation of the new National Response Foundation is not only a major step forward, but also a step in the right direction – one that encourages decision makers to adjust their thinking, both: (a) by creating tools that can be employed under any circumstance; and (b) by *not* changing certain events into unique incidents that require the development of special customized plans. However, this new tool-based model for planning does allow emergency planner to focus on what is truly unique about each hazard that might be encountered, rather than creating an entirely new scenario to deal with each separate incident.

Joseph Cahill, a medicolegal investigator for the Massachusetts Office of the Chief Medical Examiner, previously served as exercise and training coordinator for the Massachusetts Department of Public Health, and prior to that was an emergency planner in the Westchester County (N.Y.) Office of Emergency Management.

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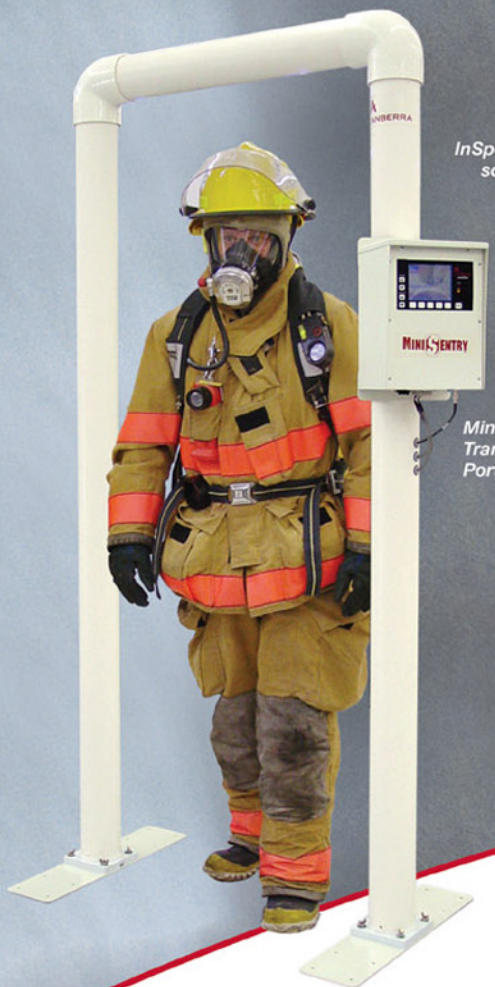

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Military and Civilian Burn Management: Lessons Learned

By Christopher S. Holland, Public Health

The U.S. experience with burn care in Iraq and Afghanistan, and from the 9/11 attacks and recent natural disasters, has accelerated improvements in burn care in both the civilian and military spheres of medicine. The experience has often been a symbiotic one. Civilian physicians are deployed, and re-deployed, as military reservists, or participate in 2-4 week tours at the U.S. military's Regional Medical Center in Landstuhl, Germany, where they learn by participating in the care of severely injured soldiers and assist in the education of clinical staff. In addition, the Department of Defense has opened trauma training sites where military surgeons are exposed to cutting-edge civilian concepts in trauma care. These programs have facilitated a dialogue between military and civilian trauma surgeons and burn specialists, and are helping: (a) to improve clinical outcomes in burn management during the ongoing wars in Iraq and Afghanistan; and (b) to sharpen the nation's community planning for civilian mass-casualty programs.

Historically, 10-25 percent of all casualties inflicted during a military conflict involve burns of some type. Of these, nearly 20 percent are categorized as severe and/or involve greater than 20 percent of the patient's total body surface area (TBSA). As in civilian burn care, the strategic priority for military burn management is the early evacuation to a facility that specializes in burn management, careful management of acute resuscitation, and the early excision of burn wounds and definitive coverage with auto-graft.

To prevent organ failure and death, optimal resuscitation while avoiding over-resuscitation morbidity is critical in the first 24 hours post-burn. Burn patients injured in the continental United States generally experience triage and early resuscitation efforts by a team of emergency medical technicians, followed by transportation to a definitive care facility, within several hours after injury. Military burn casualties injured in the Middle East, though, are rapidly evacuated, not across town, but across three continents, to the U.S. Army's Institute of Surgical Research Burn Center (Army Burn Center) in San Antonio, Texas. Transport times average 3-6 days versus the several weeks it took to transport burn casualties injured during the Vietnam War.

Military burn casualties injured in the Middle East are rapidly evacuated, not across town, but across three continents, to the U.S. Army's Burn Center in San Antonio

From the Battlefield to Balad to Landstuhl to Brooke

In the current conflicts in Iraq and Afghanistan, the typical soldier or marine victim has been injured by an improvised explosive device (IED) that has caused a combination of blunt and penetrating injuries and burns. The patient receives first aid from a medic and is then transported by helicopter to trauma facilities in the combat zone, where initial decontamination, débridement, and abbreviated operations (damage-control surgery) are carried out. Within a few hours after being injured, the patient is transported by helicopter to the next level of care (at Baghdad or Balad in Iraq, and at Bagram in Afghanistan), where more definitive care – including fasciotomies, escharotomies, and burn débridement – is provided.

These severely injured patients are then transported by the Air Force's Critical Care Air Transport Teams (CCATTs) in large, fixed-winged planes to Landstuhl, where they typically arrive within 24 to 36 hours after being injured. The receiving teams at the trauma center at Landstuhl usually receive eight hours notice of incoming patients and, by using the Web-based Joint Patient Tracking Application, can preview each patient's case (including injuries sustained, operations performed, blood products received, and medications administered) even before the patient arrives at Landstuhl. Computed tomographic scans and the results of other radiographic assessments also are available on this Web-based registry. In addition, burn teams from Brooke Army Medical Center in Texas have frequently flown to Germany both to assist in the early management of major burns and to accompany patients back to Brooke to facilitate continuity of the care provided.

To ensure high quality and consistent care, and because of the high turnover rate of deployed nurses and physicians, standardized treatment guidelines

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have been implemented and rigidly adhered to. The National Institutes of Health developed intensive-care protocols for burn management. In response to an increased incidence of over-resuscitated patients, burn-resuscitation guidelines (BRGs) were developed and promulgated, along with a burn flow sheet (BFS) to better document the resuscitation efforts carried out during the evacuation. Use of the BRG and BFS has been extremely effective in improving the documentation and standardization of care.

Team Efforts, Rapid Treatment, High-Speed Transportation

These initiatives at standardizing burn management during evacuation and in intensive care were often team efforts that included civilian consulting surgeons as members of the team. The application of these standard operating procedures to civilian burn management is expected to be equally beneficial, because the procedures address problems common to both the civilian and military medical communities: communication and documentation deficiencies; the care delivered by personnel possessing different levels of specialization; and frequent staff turnover.

Rapid treatment and critical-care transportation capabilities remain vital to the survival of burn casualties who may have been injured thousands of miles away from medical centers where definitive care can be provided. Early consultation, both remotely and in-theater, and early communication between deployed providers caring for the burn casualty and the burn center staff are essential. Special training – such as that provided through the CCATT and Joint Combat Predeployment courses – serves as a core curriculum that inculcates standardized protocols and a common clinical language, both of which facilitate uniform and continuous care, the protocol-driven in-flight management of burn and trauma patients, and uniform documentation requirements.

The Advanced Burn Life Support Course at the U.S. Army Institute of Surgical Research at Fort Sam Houston, Texas, has been used to train military physicians and nurses for more than 16 years. While preparing for the hostilities in Iraq, the faculty developed several add-on modules, including specialized segments on: (a) the treatment of white phosphorus burns; (b) the treatment for mustard gas exposure; (c) the long-range aeromedical transfer of burn patients; (d) the management of burn patients beyond the first 24 hours; and (e) the delivery of burn care in austere environments. These new modules are also applicable to many if not all civilian terrorist or mass-casualty situations.

The true incidence of post-traumatic stress disorder after a combat burn injury – and how best to prevent or treat it – remains an important unresolved issue

Psychological Responses To Burn Injuries

Psychological problems are a frequent component of the response to burn injury. Burn victims often display symptoms that can impede recovery, a problem that can cause severe long-term impairment, both physical and psychological. Among the psychiatric problems frequently seen in burn patients are depression and post-traumatic stress disorder (PTSD), usually characterized by a fear reaction during the trauma and subsequent intrusions, avoidance, and hyperarousal. The PTSD rate of burn victims varies between 9 percent and 35 percent at 2 to 4 months after the burn injury. Unfortunately, the extent to which psychological factors such as coping style predict the psychological outcome for burn patients is not yet well understood. The true incidence of post-traumatic stress disorder after a combat burn injury – and how best to prevent or treat it – also remains an important unresolved issue.

A study of the burn support received by 38 burned service members from Operation Iraqi Freedom determined that 44.7 percent of them had core symptoms of anxiety, and 26.3 percent had core symptoms of depression. Careful consideration must be given to each diagnosis when evaluating service members exposed to explosions – who also may be suffering from minimal brain trauma, which has overlapping symptoms with PTSD. The need to provide psychological care for the burn victim's family, and for the treating team, also has received belated attention.

The experience at burn centers has confirmed the value of certain services. It is important, for example, to provide families with free lodgings near the burn-care facility. Soldiers also should be supported by events such as award ceremonies and visits by military leaders and other dignitaries. Having the burn-service members grouped in one location facilitates this type of support and improves morale.

Prevention Strategies Plus Protective Clothing

The civilian experience in the primary prevention of burns has assisted military efforts to develop barriers to burn injury. New developments in weapons seek to exploit the vulnerability of the serviceman and servicewoman to burn injury. Clothing can be a barrier to some types of burn, not only inherently in the properties of the material but also by trapping air between layers of clothing.

Conversely, ignition of the clothing may exacerbate a burn. Even relatively lightweight combat clothing can offer significant protection to skin from short-duration flash burns; the most vulnerable areas are the parts of the body that are not covered – i.e., the face and hands. In one study, 98 percent of tank crewmen who had sustained burn injuries were found to have been wearing fireproof suits at the time they were burned. The wearing of protective suits: (a) increased the percentage of minor burns from 21 percent to 51 percent; and (b) reduced, from 29 percent to 18 percent, the percentage of burns greater than 40 percent TBSA. Only 12 percent of the victims studied had sustained abdominal burns, whereas 77 percent had facial burns (in large part because none of them were wearing fireproof masks).

On the other hand, only 9 percent of the soldiers burned who wore fireproof gloves sustained hand burns, compared with 75 percent of those who were not wearing the gloves. The Army alone has issued almost two million pairs of FR-rated gloves to its combat personnel. However, simply because gloves (or any other types of protective gear) have been issued does not guarantee they will be used. Numerous studies have reinforced the importance of continuous supervision to optimize and maintain compliance with the requirement to wear preventive clothing.

Dwindling Capacity And Other Problems

Burn-care capacity in the United States has decreased significantly during the last decade. In the 12-year interval between the two desert wars, the number of burn beds in the United States, according to the ABA *Burn Care Resources Guide*, has decreased from 1,966 beds to 1,897 beds. In the same time frame, 16 burn centers have closed, and several others (including the Army Burn Center) have downsized. The remaining burn centers have lost at least some of their surge capacity.

Burn care beds and nurse specialists are suffering critical shortages. As one author described it, changes in inventory management to "just in time" delivery means that the hospital warehouse now probably stores only a one-week supply of silver sulfadiazine instead of the several months' stock of supplies usually maintained only a few years ago. At the same time, the possibility of a civilian burn mass-casualty incident producing hundreds of patients has become more real in the post-9/11 era. At least one strategy – based on a system already in place for military mass-casualty situations – has been described for the regional and national distribution of burn patients resulting from a mass-casualty incident.

To conclude: Burn care is a complex, resource-intensive, multidisciplinary team process. Current care standards require a coordinated capacity for rapid assessment, acute and ongoing resuscitation, and critical care transport to definitive care facilities. The civilian experience in the initial assessment, resuscitation, and transportation of casualties to designated burn centers has informed the basic approach to military burn-care management. Civilian clinical outcomes may be affected by a more decentralized health care system, less well developed communication channels, and the daunting economics of maintaining burn centers and the life–long care of severely burned and disabled victims.

Conversely, the military experience – characterized by complicated burn injuries, logistical challenges, and critical care transportation, inter-echelon communication, definitive care at the Army Burn Center, integrated education and training programs, emphasis on preventive barriers, and attention to the psychological dimensions of burn care – has highlighted some of the many problems that have been addressed, with numerous applications to civilian planning for terrorist or natural disasters. Other important issues, such as the economics of burn-care management, casualty estimates and medical planning for surge capacity, and the limited availability of trained and experienced medical burn practitioners, remain daunting challenges.

Dr. Christopher S. Holland is an assistant professor of preventive medicine and biostatistics at the Uniformed Services University in Bethesda, Maryland. He is board-certified in occupational, emergency, and general preventive medicine and public health, and fellowship-trained in both undersea and hyperbaric medicine as well as occupational dermatology. A graduate of the New York Medical College and a captain in the U.S. Naval Reserve, he is now serving as a consultant in occupational medicine at the Uniformed Services University, at Bethesda Naval Hospital, and for the U.S. Public Health Service.

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A How-To Guide for EMS Purchasers

Proven Reliability: Always the Most Essential Consideration

By Diana Hopkins, Standards

Those responsible for buying emergency-response products such as instruments and devices can be easily overwhelmed by the huge number of choices available. For that reason, it is important that purchasing departments (and individual buyers) develop and implement a prioritized purchasing system – one that places *proven reliability* as a principal criterion in purchasing decisions.

There are two essential factors that are (or should be) used to determine the reliability of a product. The first is whether an acceptable volume of verifiable independent testing data has been provided by the manufacturer that certifies that the product being considered for purchase is both technically and scientifically sound. The second essential factor is the *manufacturer*-provided data on *relevant* consumer experience, performance testing, and training results – all of which, *combined*, should be a reasonable guarantee of user success. The potential buyer should keep in mind, though, that a testing result can be flawed just as much by scientific/technological errors as by user error. In short, the instrument or device purchased might well be useless without the double layer of proven reliability.

It also is important to remember that, although the Department of Homeland Security (DHS) publishes acceptable performance standards (on the DHS webpage) for most if not all emergency medical services (EMS) instruments and equipment, it is still the responsibility of the EMS buyer to collect enough information, and then analyze it sufficiently, both to provide better customer service and to spend government and/or company funds wisely. Some product information is provided upfront by manufacturers on the inserts that they almost always include with the product, and considerably more information usually can and will be provided by the same manufacturers if the buyer requests it. Product information also is available from many well known EMS resources – e.g., the Responder Knowledge Base – and through general EMS networking and communications.

Stress-Test Data May Take Greater Diligence

With regard to an instrument's performance under stress, it is particularly important for the EMS buyer to: (1) ask the manufacturer for product performance data in stress areas of interest (weather, rough handling, etc.); (2) also ask about any known product limitations that are already known by the manufacturer; and (3) talk to other responders who have used the equipment in stressful or "rugged" situations. Environmental testing is usually a very expensive proposition for a manufacturer, so the buyer may have to ask for independently conducted environmental testing data, with the specific testing parameters included, before making a purchase decision. It would be up to the manufacturer, of course, to decide if such testing would have sufficient commercial value.

Voluntary consensus performance standards usually are developed through balanced inputs from stakeholders who contribute the scientific knowledge, technological capability, and experience required to protect the public and/or to improve its standard of living. If the EMS buyer is not sure if a voluntary consensus performance standard is available for a particular product, that question could be answered by a telephone call or email to a member of the staff of the American National Standards Institute (ANSI) – preferably someone assigned to the ANSI Homeland Security Panel. Every business wants to be able to claim that its products conform to the ANSI standards, so the ANSI list is a good one for buyers to refer to when communicating with manufacturers about the standards their instruments and devices are measured against.

The EMS buyer may not always be able to find a published performance standard for the product being considered for purchase. For that reason it is important to keep in mind that a manufacturer's use of a certain performance standard is voluntary, which means that a manufacturer has the option to develop and/or use alternative standards (and also can either modify established standards or use them only in part) – *if* the alternative standards meet the same essential principles used in setting the established standards. In these cases, the purchaser would have to compare the manufacturer's testing data with the data accumulated on products known to follow established standards.

But What If …?

If the purchaser of EMS instruments and devices is unable to find a published performance standard for the product, that does not mean that an acceptable standard does not exist and/or that acceptable performance criteria have not been established. Indeed, the homeland security community endeavors not only: (a) to stay receptive to extant standards, and to the new standards being developed almost every day (on an international scale); but also (b) to stay receptive to the advent of new technologies. The bottom line here is that, no matter what the source of a manufacturer's performance standard,

it would be up to the manufacturer to supply the purchaser with the documentation needed to prove the reliability of the product and ensure that it conforms to a desired and acceptable standard.

In short, the buyers of EMS instruments and devices should always be very careful in making their decisions. But in today's market they usually do not have to be overly concerned, either, about most of the EMS products now offered. Acceptable and verifiable performance standards are almost always available – as well as cogent advice and guidance from ANSI, standards developers, and the Department of Homeland Security itself. In the final analysis, when the buyer has any reasonable question regarding a new standard, it is up to the manufacturer to produce data for the buyer that shows conformance with products that are already meeting published standards and/or that meet the essential principles of previously established standards.

For additional information on performance standards: (a) email or call a member of the ANSI staff assigned to that organization's Homeland Security Council (e.g., mdeane@ansi.org/1-212:642-4992 or jcarl@ansi.org/1-212:642-4903); or (b) consult the Standards and Guidelines sections of the DHS webpage (http://www.dhs.gov/xfrstresp/standards); or (c) review the standard list provided at http://www.dhs.gov/xfrstresp/standards/editorial_0420.shtm.

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

Politics and Science: A Glowing Combination?

By Jerry Mothershead, Public Health

Definition: *Political science:* [noun] The study of the processes, principles, and structure of government and of political institutions; politics.

Definition: *Risk management:* [noun] The process of analyzing exposure to risk and determining how to best handle such exposure.

Politics and science usually mix about as well as oil and water. Attempts to mix the two are frequently distasteful, and at times can be hazardous. A recent case illustrates this.

Included in the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 is a provision requiring that the President direct the expansion of the Potassium Iodide (KI) distribution program to include all persons living or working within 20 miles of nuclear-power facilities. Prior to the passage of the 2002 Act, the KI distribution program included only those persons living or working within 10 miles of such facilities. The legislation authorized the President or his delegate to waive the new requirement if "an alternative and more effective prophylaxis or preventive measures for adverse thyroid conditions" was available. In January of this year, Dr. John H. Marburger III, the science advisor to President Bush and director of the Office of Science and Technology Policy, waived the expansion of the requirement to 20 miles.

His decision was immediately assailed by a number of critics, including several members of Congress. *USA Today* published an article in which it quoted one member of Congress as calling the decision "… [a] reckless endangerment of the American people." Dr. Marburger's own assessment and the dissenting comments received from a number of other critics were widely published in the print media.

Dr. Marburger's 13-page decision memorandum and the supporting 91-page Technical Evaluation (prepared by the Federal Radiological Emergency Preparedness Coordinating Committee) provide the rationale for his decision. Following are some of the more important findings (all of which are supported by research or expert opinion):

- KI is a blocking agent that prevents the uptake and concentration of radioactive iodine by the thyroid gland. Prolonged exposure of that organ to radioactive substances has been linked to the subsequent development of thyroid cancer. KI does nothing to remove radioactive iodine (or other radioisotopes) from the body and does not prevent harmful effects of radiation (radioactive iodine or other radioisotopes) to the thyroid (or other parts of the body) from isotopes that are outside the thyroid gland.

- Radioactive iodine is not the only or necessarily the most important hazardous substance that would be released by an American nuclear reactor should an accident occur. Other substances, such as radioactive noble gases and other particulates, also would be of some concern, but exposure to these substances would not be affected in any fashion by the use of KI.

- The construction of nuclear reactor facilities in the United States has been carried out with such care that the possibility of extreme release of *any* radioactive substance would be infinitesimally small, even if the reactor came under a terrorist attack.

- Plume modeling has demonstrated that even an extreme release from the reactor core would affect only a small portion of the population. Such modeling is in agreement with the scientific findings developed after the one significant reactor accident that has occurred in the United States. Over 40 percent of the radioactive iodine and 50 percent of the radioactive cesium in the Three Mile Island nuclear reactor were released into the reactor building in 1979, but environmental analysis indicated that the ingestion of KI by the population surrounding the reactor was not indicated, and environmental levels of these two isotopes were below the thresholds that had been set for any action to be taken. U.S. reactors are of a totally different design, and have several layers of safety features that were not present in the Soviet-built Chernobyl reactor. (The extremely harmful consequences of the Chernobyl IV reactor accident are frequently cited by those opposing expansion of nuclear power in the United States.)

- KI does have some harmful side effects (although these are generally mild); it also has a limited shelf life, and consumes resources that could be used elsewhere as part of the nation's overall emergency-preparedness and response programs.

- Use of KI by the general population may reduce willingness to comply with other protective measures directed by authorities in the event of a reactor mishap.

Unfair and Unequal Criticism?

The conclusions of the technical committee, which were supported by the Office of Science and Technology Policy, were that a significant release of radioactive iodine from a U.S. reactor would be an extremely low-probability event in which the actual escape of radioactive material would occur over a long-enough period of time to allow the implementation of better radiation exposure reduction methods – including public notification, shelter-in-place measures, evacuation (if necessary), and the interdiction of contaminated food.

The construction of reactor facilities in the United States has been carried out with such care that the possibility of extreme release of any radioactive substance would be infinitesimally small

It should be noted that, in addition to the findings and recommendations cited above, Dr. Marburger's memorandum honestly stated that the technical evaluation did identify certain weaknesses in the existing KI distribution program, and therefore recommended that the Nuclear Regulatory Commission and other responsible government agencies collectively develop "best practice" guidelines for the existing 10-mile program.

In a democracy, everyone is, of course, entitled to his or her opinion. Government leaders, however, have a higher duty to their constituents – namely, to make sound pronouncements based on all of the evidence available. In this case, the director of the Office of Science and Technology Policy has made what seems to be a reasonable decision – and has provided the scientific and risk-management basis, including some negative factors, for that decision. Nonetheless, his pronouncement has been the subject of considerable criticism in the public press – which is how a democratic society works. The outside critics could and would strengthen their own arguments considerably, though, if they would provide a counterbalancing basis, of approximately equal magnitude, for *their* opinions. So far, however, it seems that few if any of them have been willing or able to do so.

Dr. Jerry Mothershead is the Physician Advisor to the Medical Readiness and Response Group of Battelle Memorial Institute. An emergency medicine physician, he also is adjunct faculty at the Uniformed Services University of the Health Sciences in Bethesda, Md. A graduate of the U. S. Naval Academy, Dr. Mothershead served on active duty in the U.S. Navy in a broad spectrum of clinical, operational, and management positions for over 28 years, and has served in an advisory capacity to numerous local, state, and federal agencies in the fields of antiterrorism, disaster preparedness, and consequence management.

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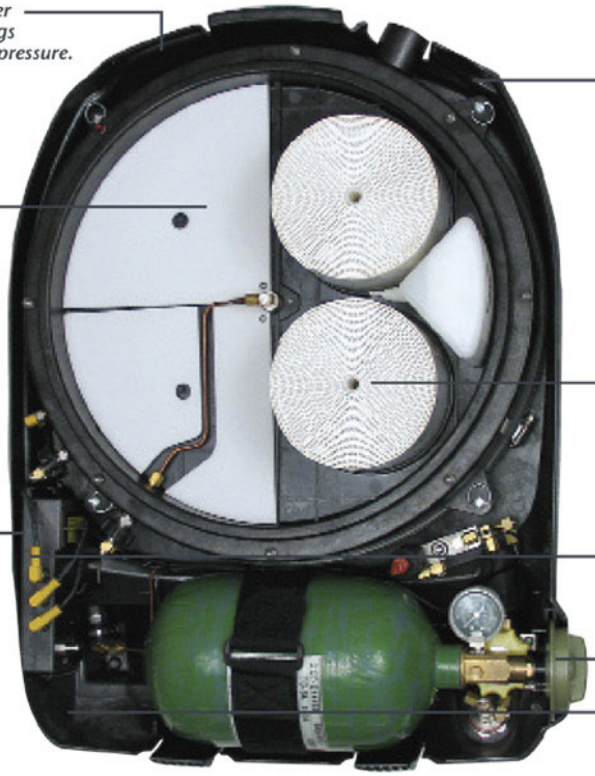

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Containing the Threat: Eleven Million Challenges

By James D. Hessman, Editor in Chief

Item: The *New York Sun* reported last week that the U.S. Coast Guard has been directed to search "any shipping vessel that has docked at an Iranian port within five port calls of coming to American shores." The upgraded DHS (Department of Homeland Security) port-security directive, according to the 16 June article by reporter Eli Lake, "places Iran on a list with seven other nations singled out by the Coast Guard because of lax anti-terrorism controls."

Item: On 26 May, Richard M. Stana, the GAO (Government Accountability Office) director for homeland security and justice issues, told the Permanent Subcommittee on Investigations of the U.S. Senate's Homeland Security and Governmental Affairs Committee that a number of "key cargo security" programs need to be expanded, upgraded, accelerated, and/or otherwise "improved" to "help address the threat posed by terrorists smuggling weapons of mass destruction (WMDs) into the United States."

Item: Many members of the U.S. House and U.S. Senate also have voiced considerable concern over numerous deficiencies in the DHS's port and maritime security efforts – many of the deficiencies are caused by shortfalls in the funding provided by Congress itself, it should be noted – and not only have called for increased funding for expansion of current cargo-screening programs but also mandated, in the SAFE Port Act of 2006, that "a pilot 100 percent cargo-scanning program" be implemented at seven ports. That mandate was repeated and given additional emphasis in the awkwardly named Implementing Recommendations of the 9/11 Commission Act of 2007, which requires, among many other things, that, "within five years, 100 percent of maritime cargo be scanned [overseas] before it is loaded on ships in foreign ports bound for the United States." (Congress significantly weakened the strength of that important "get tough" provision by giving the Secretary of Homeland Security the authority "to extend that deadline if necessary.")

The passage of legislation is extremely important, of course, but accomplishes nothing in and by itself. Also required are, among many other things, appropriation of the funds needed to implement the programs included in the legislation and the recruitment and training of the personnel who will be in charge of those programs. Implementation of the SAFE Port and 9/11 Commission Acts also requires the cooperation of foreign governments (many of which are not always friendly to the United States).

In the field of port and maritime security, the principal action agencies are the DHS's U.S. Customs and Border Protection (CBP) division and the U.S. Coast Guard, which is now also under DHS. Both not only have been underfunded for many years but also have been assigned numerous additional duties and responsibilities in the almost seven years that have passed since the 9/11 terrorist attacks. CBP's "port of entry" responsibilities, for example, under what is called the C-TPAT (Customs-Trade Partnership Against Terrorism) program – the key operational tool available to carry out the mandate to screen 100 percent of all U.S.-bound cargo – require a CBP presence at well over 300 airports, seaports, and various "designated land borders."

A few additional statistics are needed, though, to put the depth and complexity of the 100-percent screening challenge into clearer perspective. Here, there are two examples worth noting: (a) In fiscal year 2007 alone, according to the GAO – in an earlier (April 2008) report on Supply Chain Security – "more than 11 million oceangoing cargo containers carrying goods were offloaded at U.S. seaports." (b) In addition, also according to GAO (in Stana's testimony of 26 May), CBP's "original goal" was to validate the security credentials of all certified C-TPAT members "within three years of certification"; the agency fell somewhat short of that goal, though, validating only "about 11 percent" of certified members in the first three years.

CBP, and the Coast Guard – as well as DHS, the Congress, and the entire Executive Branch of government – all face a daunting and very costly challenge, obviously, in the months and years ahead. However, the cost of *not* succeeding would be exponentially higher than the cost of carrying out the 100-percent screening mandate. The Department of Defense's unofficial estimate of the dollar-cost alone of the 9/11 attacks was "$1 trillion, and counting." That figure does *not* include the cost of the more than 3,000 innocent lives lost in that second grim date that will live in infamy. The cost in dollars, and in lives lost, of a nuclear explosion in or near a major U.S. seaport would be much, much higher, and the cleanup effort required after such a cataclysmic event might well take not months, or even years, but several decades.

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Georgia, Wisconsin, Missouri, and Colorado

By Adam McLaughlin, State Homeland News

Georgia Hosts Bureau of Alcohol, Tobacco, and Firearms (ATF) Training Event

When a bomb's blast shattered the silence of an apartment complex in Atlanta's far eastern suburbs, federal agents already were on the scene. They were there as part of a four-day training exercise scheduled by the Bureau of Alcohol, Tobacco, Firearms (ATF) to demonstrate the type of crime scenes its agents typically encounter.

"We are replicating devices that have actually been used in the United States," said Scott Sweetow, assistant agent in charge of the Atlanta field division of the ATF. "We are going to match our training to the threats that we are seeing."

The key event in the exercise, carried out in late May, started when more than two dozen ATF agents descended on the abandoned two-story brick apartment complex, which is nestled in woods about 30 miles east of downtown Atlanta. Accompanying them were two Labrador retrievers specially trained for the detection of explosives, a mobile laboratory, and an RV version of a bomb response unit. Forensic chemists and other technicians pored over evidence to determine the specific type of explosive used and to develop other information that could be used to help solve the crime.

Sweetow and other supervisors and agents had personally observed the explosion, which destroyed the downstairs rooms of an apartment building and blew glass and a window screen into the parking lot. (The apartment complex already had been scheduled to be demolished.)

Newton County fire and rescue squad personnel went in quickly, carrying a stretcher, and removed a dummy representing a person who had been "killed" in the blast. One part of the exercise, Sweetow said, required agents to determine, if possible, whether the victim was a bomber who accidentally set off his own device, a roommate of the bomber, or a totally innocent individual. Extremist literature had been scattered about beforehand to provide clues in what was meant to be a simulation of a laboratory built for the manufacture of homemade explosives.

> ***Extremist literature had been scattered about beforehand to provide clues in what was meant to be a simulation of a laboratory built for the manufacture of homemade explosives***

The ATF also trains experts in allied countries, and in 2007, Sweetow said, helped train 2,200 U.S. military personnel headed to Iraq and Afghanistan. "It is naive to think that what has happened overseas will not happen here," he said.

Wisconsin Port Drill Puts Green Bay Security & Safety Plans to the Test

The first signs of trouble were suspicious calls to scuba shops by unknown callers asking to rent dive equipment that could be used near a ship. Those calls were followed by other calls asking for information about chartering a boat for salvage operations.

Local law-enforcement agencies then learned that some of the people aboard a ship trying to enter Green Bay's port were suffering from some chemical rashes. A Coast Guard team quickly boarded the vessel and found not only a chemical lab but also evidence indicating the possible presence of weapons of mass destruction. Dive teams later found explosive devices attached to the ship's hull.

The full-scale exercise, carried out in late May, was intended to test the effectiveness of current port security plans in the area. The drill, funded through a 2007 federal DHS (U.S. Department of Homeland Security) grant to Green Bay's port, involved about 200 people and 35 agencies and gave those participating a hands-on opportunity to practice, assess, and improve the Lake Michigan Area Maritime Security Plan.

"The real goal of the exercise … [was] to ensure that we have an appropriate plan to prevent acts of terrorism and keep the port secure," said Jeffrey Hieb, port security officer for Lake Michigan and team leader for the exercise. "It really shows you the entire scope of what a response would look like."

The terrorism scenario included the coordinated use of security personnel from a number of participating agencies and demonstrated the potential harm that could be done by hazardous materials of various types. The "victims" who had shown the chemical skin irritations were taken first to a mobile decontamination unit at the Metro Boat Launch area and then to nearby hospitals for further "treatment." Meanwhile, an officer trained in the

detection and identification sciences tried to determine the type of chemical involved in the drill.

The exercise found a number of "areas that need improvement," said Timothy Weller, a local Coast Guard spokesman. "The exercise tests how we [the various agencies participating] interact," said Captain Michael Rothschadl, deputy commander of the Wisconsin National Guard Civil Support Team, which was heavily involved in the drill. "We make sure our response is coordinated."

Missouri
Hands Across The Sea to China for Incident Management Training

Three Boone County Fire Protection District officials traveled to China last month to teach officials in Beijing a few helpful lessons about disaster management in preparation for the upcoming summer Olympics.

Fire Chief Stephen Paulsell, Assistant Fire Chief Scott Olsen, and Sherril Gladney, emergency planner and state fire mutual coordinator, taught the five-day course during the last week of May to epidemiologists working with the China Centers for Disease Control.

The purpose of the training was to help the Chinese agency become better prepared for potential chemical, biological, or nuclear incidents during this year's Olympic games in Beijing, but Paulsell said the training would transcend the Olympics.

The training focused on, among other things, explaining such concepts as the U.S. National Response Framework and the U.S. Incident Command System – which, Paulsell pointed out, the fire district has used since the 1980s. The command system became federally required for all U.S. emergency-response agencies after the terrorist attacks of 11 September 2001. "The point being, we did not teach them how to handle anthrax. That is a different deal," Paulsell said of the lessons prepared for Chinese use during the Olympics. "We taught them how to handle the big event."

The fire district was asked to carry out the program after being recommended by the U.S. Centers for Disease Control and Prevention in Atlanta, Paulsell said. The Chinese epidemiologists participating "embraced" the teaching provided, he said. One of the more important segments of the training explained the focus on the "modular management system" – which emphasizes the unity of command and the assignment of well defined roles and responsibilities.

"What can happen at an incident is [that] everyone shows up and everyone does a little bit of everything," Paulsell said. "It's like a toolbox. … There's a lot of different tools you can pull out depending on the size … or complexity of the incident."

Olsen said the classes included not only lectures but also a number of case studies of incidents and events that had actually occurred in the United States itself – e.g., the September 2001 attacks on the World Trade Center, Hurricane Katrina, and the Interstate 35 bridge collapse last year in Minnesota.

The trip marked Paulsell's first visit to China and Olsen's first time outside the United States. Both officials had the opportunity to visit Tiananmen Square and the Great Wall of China when they were not teaching. "Pretty clean city, nice people," Olsen said of Beijing. But, he added, the traffic "is just unbelievable."

Fire-district officials said the program was sponsored and paid for by China's Council of State and Territorial Epidemiologists and the Chinese Field Epidemiology Training Program.

Colorado
Denver Hospitals Conduct Major Mass-Casualty Exercise

Eight Denver hospitals carried out a coordinated series of drills last week to test their individual and collective abilities to respond to a disaster that might potentially injure thousands of people. The mock exercise – which featured a "dirty bomb" explosion at a Pepsi Center event packed with 20,000 people – was one of the largest-ever cooperative drills for the city's hospitals, organizers said. The 10 June exercise took place less than three months before the start of this year's Democratic National Convention in Denver, when the city will host thousands of people from around the United States and overseas.

An estimated 140 or so volunteers, many of them acting as victims, took part in the citywide exercise. Even though the hospitals participating knew there would be "a drill" of some type, the specific details became known only as the scenario unfolded. The Office of Emergency Management alerted hospitals about 9:00 a.m. on 10 June that a "chemical bomb" had exploded at the arena. At Presbyterian/St. Luke's Medical Center, staff members began setting up a decontamination tent outside the emergency room as soon as they received word of the simulated explosion. Shortly thereafter, about 10 volunteer "victims" were lined up along the wall outside the center's emergency room, waiting to be "hosed down" as part of the decontamination process.

The Office of Emergency Management alerted hospitals about 9:00 a.m. on 10 June that a "chemical bomb" had exploded at the arena

The victims wore tags detailing their respective injuries and symptoms. Jodi Rodgers' tag described her as a 2-year-old boy whose right arm was broken. Rodgers, a nurse at St. Joseph's Hospital, said she had volunteered for the exercise because, "In the event of a true disaster, the exercise will help us become better prepared."

The staff herded Rodgers and the other "victims" through the tent, wetting them down thoroughly with water. They were then sent to the emergency room to receive additional treatment specific to their respective "symptoms."

Although the hospital was able to set up the tent in just 30 minutes – 15 minutes less than had been the norm in previous drills – the exercise was not a perfect one, by any measurement. Julie Baumer, director of education at the hospital, said that the drill had revealed a few "kinks" that need to be worked out. For example, the chemical explosion prompted the hospital to spray patients down before they could enter the hospital. But some of the patients needed immediate treatment. One "victim," for example, was in labor and "was screaming bloody murder," Baumer said. "And that baby is not going to wait for decontamination," she continued, "so we need to figure out what we would do right away."

Each hospital will receive a separate evaluation detailing the pluses and minuses of last Tuesday's exercise. The point of a drill is to identify areas for improvement, said Stephen Cantrill, project director of the Colorado Biological, Nuclear, Incendiary, Chemical, and Explosives (BNICE) Training Center in Denver, which helped organize the effort. "If you have a drill that goes perfectly," he commented in discussing the areas in need of improvement, "no one learns."

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