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FEMA: Change or die

Royce Saunders

Structural change, not total annihilation, is needed at FEMA. Eliminating FEMA, as has been discussed in the media, would unnecessarily add more confusion to the nation’s emergency management system. On top of the creation of the Department of Homeland Security (DHS), this strategy would be ill-advised at this time.

What has worked for FEMA in the past is realignment from within. Such was the case when FEMA’s core legislative mandate, the Robert T. Stafford Disaster Relief and Emergency Assistance Act, was enacted in 1988. The concept for the Stafford Act was originally developed by a relatively unknown congressman from Erie, Pennsylvania, who was upset with FEMA for not properly serving his constituents after a local disaster. At the time, little chance of success was ascribed to that congressman in his quest to reinvent FEMA. Contributions to this bill came from many areas; good staff work, support of his fellow members of Congress, and comments from state partners including two Californians, Charlie Wynne and Paul Jacks. While in the Senate the bill was tombstoned with the name of the Senator from Vermont, Robert T. Stafford.

The congressman, who was ill-served by FEMA, wrote the most pivotal legislation in emergency management history, surrendered his bill to history, and later became Governor of Pennsylvania and the first secretary of DHS. As a congressman, Tom Ridge sought to change FEMA from the inside out. The Robert T. Stafford Act, formerly known as the Ridge Bill, resulted in major changes in the way FEMA conducted business. The bill provided standards for disaster program decisions that did not exist prior. This legislation had a profound improvement on the orderly delivery of disaster relief and recovery services throughout the emergency management system.

In the aftermath of the 9/11 terrorist attacks and Hurricane Katrina, a new era in emergency management has emerged. The complexity of the new era requires an improved approach to emergency management. The time has come to rekindle the spirit of the Ridge Bill to remake FEMA into a robust customer service organization serving their state counterparts. As demonstrated by the Ridge Bill earlier, it is possible for FEMA to change toward the better. Positive change requires courageous leadership and a dedication to fact-based, continuous improvement management. Like a house that is worthy of remodeling, FEMA has a good foundation. It has a sound structure and knowledgeable staff that can be built upon. Starting from scratch does not always guarantee success. The DHS experience itself is a testament to this point. FEMA should be saved from the scrapheap of history and improved. Improvements could include the FEMA director reporting directly to the President and giving states the primary responsibility and support to fully administer recovery and mitigation programs, just to name a few.

Since customer service has been a chronic problem at FEMA, Congress should rethink the role of DHS in emergency management and revive FEMA with a sense of pride, purpose, and process to serve America through the Republic for which it stands.

Royce Saunders, Certified Emergency Manager (CEM) and instructor in continuous improvement techniques.
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Part 3: Social dimensions of interagency collaboration—building alliances

Neil Simon, BS, MA

“We depend on each other!”

“Our lives are interrelated!”

“Can’t do it without your assistance!”

These claims are made daily within and between agencies and their components of the emergency services. Relationships exist within our units, between shifts, between units, and, now more than ever, between agencies. In order to ensure survival in today’s turbulent times, alliances must be made. But what makes them work? What makes them good? What can we do to improve them?

This article, the third in a series of five on the social dimensions of interagency collaboration, focuses on the fundamental requirements for building an alliance.

Formally, an alliance is an association between parties that furthers common interests, or, you might say, an alliance is a bond or a connection between individuals or groups. Basically (that is, for our purposes in this article), there are two types of alliance. The first is that of the Sponsor(s), and the second is that of the Champion(s).

The sponsors are the individuals who are giving the orders and paying the “bucks”; sponsors expect to see “results.” For example, in the United States and Canada, Homeland Security developed an initiative for “civilian corps” to be formed within communities and trained to react in a coordinated manner to assist the professionals. In this case, Homeland Security is the sponsor.

The champions drive the initiative within the community. Champions expect to create results, but they do not put up the bucks; they use them. Often there is no fiscal contribution on their part, just the emotional and intellectual effort of working toward a cherished goal. For example, in Windsor, Canada, a firefighter was appointed to act as the community coordinator. He is now considered the champion of this effort. In Farmington Hills, Michigan, a city councilman has worked toward the coordination of a community corps, along with selected firefighters and police officers. This councilman is considered the champion of this community effort.

Champions and sponsors must work with one another within a successful alliance. The sponsor(s) and champion(s) must develop a shared vision, a mission, and a set of goals that allows them to achieve a balance, so that everyone’s needs are satisfied. The fundamental question that must be addressed is: what is in it for the sponsor(s) and champion(s)?

A sponsor understands the value of the initiative and is willing to lead the advancement of the concept, placing and securing it within a group. Champions take the initiative and try to work with their community groups to implement plans for the good of their groups/communities, or perhaps on the basis of a personal agenda. The champions have a personal mission to integrate the initiative into the community.

In order for a sponsor and a champion to create a successful alliance, they need to know about each other. In simple organizations, one can sit and talk with sponsors and stakeholders about needs, desires,
and outcomes. In more complex organizations, tools¹ may need to be introduced to help foster understanding of the personal agendas of sponsors, stakeholders, and key implementers in organizations. The bottom line for creating successful alliances is understanding one another’s needs and goals and producing relationships that benefit all parties in the transaction. Current examples of alliances can be found in many Homeland Security initiatives. For example, establishing common communications so that all response units involved in a crisis response can communicate with one another is crucial; indeed, it is essential for the work of the allied emergency services. Many cities have had individual communication frequencies for each response service. Homeland Security, as a sponsor, can offer an initiative that would allow champions to unify communication frequencies within their jurisdictions, thus creating a more effective response and, ultimately, a safer community.

By definition alone, you can assume the champion’s interests, those personal goals and agendas, are aligned with the sponsor’s organizational goals. A champion’s needs could include the following:

- creating a fact-finding service for the community;
- gaining an understanding of community needs;
- establishing a locus of control for response information;
- assisting personnel in effective decision making based on more comprehensive information; and
- developing team players who can assist the team in relevant fact finding, analysis, and formulation of strategic and tactical actions.

The sponsor’s needs and wants may not be as lofty as the champion’s; they may even have overtones of political and/or personal needs not aligned with the organization (here, it must be remembered that appearances can be deceiving). Alliances, then, are formed around common interests and, where possible and appropriate, meet individual, identified needs.

To wield power and influence in support of emergency management response, some basic assurances may be required from the champion(s) and the sponsor(s), and indeed other supporters as well. These include:

- provision of a reliable service;
- trust in the champion’s ability to do the job;
- confidentiality regarding shared strategies; and
- ongoing appraisal of status.

Underlying all of the above is the recognition that the key element in any alliance is the relationship between the sponsor(s) and champions(s). It is the degree of trust and the balance in meeting each other’s needs that form the foundation of a successful alliance.

COMMON BARRIERS TO ALLIANCE BUILDING

Within these relationships, there are two types of barriers. The first is one of “personal issues” between sponsors and champions. A previous article² was devoted to conflict management between individuals. Barriers can be seen, particularly in the area of personal issues, between co-sponsors, between sponsors and champions, or between co-champions. These barriers to alliances and relationship building within units, between shifts, between units, or between agencies are often rooted in one or more of four basic fears:

1. Fear of loss of control. Control is important personally, professionally, and economically. Alliances threaten control. For example, if you work within an alliance, other people make decisions that determine how you work; they often determine how you are perceived by those outside (and
within) the alliance, and/or they determine your economics. The question arises: how much control are you willing to give up? Further questions also arise: does the alliance partner really understand how you work? Does your alliance partner value your perception of yourself? Does he or she share your values and have the same priorities as you? Is the alliance partner trustworthy? What if something happens to your current alliance partner? Will the previous relationship be honored by a new contact?

Control factors must be dealt with right at the beginning. Sponsors need to set boundaries for champions to live within, and the implementers must follow them. Also, the champions and sponsors need to work out a mutual agreement (something both sides can live with) so that the whole operation is not compromised. It is better to deal with these sorts of issues at the outset rather than after the fact.

2. Being perceived as disloyal or insubordinate. Often if the needs and agendas of sponsors are not fully understood, the actions of the champions are not in sync with their partners’ desires. It is very common for the champions to view the world differently from the sponsor(s) and disagree with decisions or actions. The emergency management professional, when acting as a champion, must carefully evaluate the differences in viewpoints, seek to understand the sponsor’s perspective, and determine how best to take a stand so that he or she will never be regarded as disrespectful or insubordinate. Free expression of ideas and opinions must be encouraged as part of being a team player. Once the arena for debate is determined, the relationship between champion and sponsor is strengthened; otherwise, there is an erosion of any relationship created at all.

3. Fear of being political. Most organizations are interconnected or interrelated. Everyone acts as part of a team, whatever the size. If the sponsor believes that the champions or implementers are helping people cut deals at the expense of someone else or are trying to advance their own positions and status, a reputation will arise that will inhibit all relationships and limit the potential of any alliance. If the sponsor feels that the champion is not interested in doing the right things for the sake of the organization, credibility and professional status erode. The creation of any alliance fails in proportion to the perception of the politicization of activity on the champion’s part (or sponsor’s, for that matter).

4. Fear of empire building. Many organizations were first started as independent service units. As the services were used more and communities developed an appreciation for the work they provided, relationships formed, political lines were developed, and the delivery of service became more effective and efficient. In today’s environment, organizations often have to step out of these old roles. They must reevaluate and reorganize their relationships. Communities are also changing their demands on these service units. In this phase relative to today’s times, service units are stepping out of the boundaries of “just doing their jobs.” In this evolution, and sometimes revolution, these service units are attempting to do more. Many early champions are being perceived as having attempted to “build an empire”—either grasping tightly to their original remit or trying to grab onto additional areas.
Champions, with the sponsor’s assistance, must differentiate between “taking initiative” and “grabbing turf.” Additionally, they must consider whether, in their attempts to get things done, they pose a threat to a colleague’s territory and self-esteem.

The second barrier is that of organizational culture. As organizations form and develop, they create a unique history. Within that development, the work one does and how it is accomplished merge. Formally and informally, attitudes are expressed, and they form a unique pattern—a way of approaching the world. This is the organizational culture. Cultures are made up of people, their experiences, their events, and their services. Individuals within a culture are very protective of that culture. What they do and how they do it become pieces of themselves. Organizational identity and pride are built on this cultural foundation. Threats to that culture become threats to the self because the culture becomes ingrained.

When alliances are imposed from outside a group, these cultural clashes are often the first things to occur when the disparate members of the alliance come together. Each member bears a significant piece of his or her culture; it may even be that the members understand themselves only through that culture. People consciously or unconsciously compare cultures; “I (or my group) have always done it this way!” is the cry that so often goes up when alliances challenge how one works. When individuals are threatened with any change that implies loss, they tend to believe their own culture is the better one. Regardless of what people think in “normal” situations, they often become possessive of what they have when they attempt to form alliances. When confronted with any loss or, more accurately, any alteration of their cultures, they often go into a comparative and nonbeneficial mode called “we vs. they.”

When threatened with loss, people often lash out. When a culture is facing the possibility of becoming extinct, the people that make up the culture will band together to attack the perceived threat. This phenomenon can continue throughout the formation of the alliance and also well into the future. Often cliques form within an alliance. People support one another in the clique to keep their cultural ways alive; this can be seen as a politicization of the alliance.

**BASIC STEPS FOR CREATING, MAINTAINING, AND IMPROVING AN ALLIANCE RELATIONSHIP**

A collection of operating rules must be implemented for anyone (i.e., organizations, agencies, and work units) wishing to create an alliance. The rules include:

- **Create a quid pro quo foundation.** Identify what the sponsor wants from you as a champion. Identify what you want from the sponsor. Come to an agreement with the sponsor regarding what you will do and how it will be performed. The exchange process leads to cooperation rather than retaliation or refusal to engage. People cooperate because they see something of value in the alliance, which sometimes has nothing to do with the original reasons for forming a new “hybrid” culture.

- **Create an environment of openness.** Create a relationship where both parties can “talk straight” to each other. If you have a relationship of openness, you can address issues frankly and continue to work for the benefit of each other and the organization. It is not possible for any one person to know everything, so give your partners the information they need in order to help you better. When you communicate differences, remember that it is important to carefully attack ideas, not the people who present them.

- **Build a trusting relationship.** Make sure to do what you say you are going to do, and do it in a timely fashion. Reliability, consistency of performance, and quality of service will assure the
growth of a relationship, as they are key factors in laying the foundations for trust.

- **Mutually benefit each other.** Plan every strategy so that both parties win. Dialogue, not debate, ensures that one party understands the other, and where there is understanding there is a greater probability of everyone winning. Once dialogue begins, the people/groups in the alliance can reasonably choose what will work best and come to an agreement as to why. If the alliance’s decisions are not mutually determined, over time the alliance will deteriorate and eventually fall apart. When, as a last resort, the alliance needs to dissolve, remember that your goal will be to try to do it in a clean way and in a manner that minimizes any negativity or residual anger; someday you may need or want a new alliance with that party.

**TACTICS TO MINIMIZE CONFLICT**

In the heat of dealing with alliance formation, it is important to remember specific tactics that will help ensure creation of the desired relationship. The following are some practical guidelines:

- **Recognize differences between groups.** Assist the alliance partners in understanding how they are different. Differences could include work styles, cultural norms regarding work behavior and expectations or jobs and their functions, beliefs around such things as gender or race, work product, nationality, etc.

- **Educate members regarding differences.** Use tools to predict areas of potential difficulty that may arise during the alliance process. Develop a set of rules that will assist in dealing with areas of stress—for instance, conflict management and differences in working practices—and that will help groups to respect others’ ways.

- **Develop a support mechanism for management.** The sponsor and champions must be clear regarding the aims of the alliance and what latitude is being offered in order to make the alliance successful. Ask alliance participants to develop transition programs that will prevent transition difficulties. Work closely with leaders and members who appear unable to deal with differences among the members of the alliance.

**CONCLUSION**

The basic steps to creating and maintaining constructive and successful alliances include:

1. Determine the potential ally’s interests.

2. Determine how you fit into your ally’s plans, and vice versa.

3. Determine the give-and-take that governs the exchange relationship.

4. Build the relationship through dialogue.

5. Continuously improve and align your goals and tactics.

The next article will explore the subscription process, i.e., getting members to subscribe or “buy in.”

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Neil Simon, BS, MA, Managing Partner, Incident Mitigation LLC, Southfield, Michigan (njsimon@incidentmitigation.com).

**REFERENCES**


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Karen L. Cobuluis, Meeting Coordinator
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ABSTRACT
Effective leadership must already be in place when a crisis occurs. Leadership must be able to function during the crisis and effectively bring it to resolution so that recovery can begin and proceed as successfully as possible.

The existing challenges reinforce the need for leadership that can operate on multiple planes. Competence, planning, and problem-solving abilities form the basis for determining a leader’s success. Innovation, decision making, a prevention orientation, risk taking, and risk management must all be part of the leadership skills package.

INTRODUCTION
Leadership is assumed by an individual with the ability and the drive to lead, give guidance, and/or supply direction. The ability to lead encompasses the capacity to guide or direct a course of action, mold behavior and/or opinion, direct performance, inspire the conduct of others, and anticipate and envision future needs and concerns. Leadership styles can be culturally and morally neutral. For example, leadership can be effective even when the aim of the endeavor and its leader are corrupt or evil. Therefore, leadership derives its meaning from the context in which it is used.

The published literature, including books, articles, and scholarly journals, for the most part concentrates on everyday situations—improving productivity, a vision for the future, becoming more efficient in a competitive world. A focus on leadership in crisis mode—when the unexpected occurs suddenly—is less frequently addressed. Little guidance is available about how to lead in dangerous or ambiguous situations; when there is an absence of necessary information, especially in the early stages; or when lives, property, and economic stability are immediately at stake.

The challenge is in the need to find better ways for selecting and training leaders, understanding what makes up leadership roles, creating effective responses to crises, and eliminating unnecessary repetition. Paramount in overcoming any existing challenge facing crisis leadership is the understanding that prevention is the best strategy. In the preparedness spectrum, preparedness to prevent must be equal in importance to preparedness to respond.

CRISIS LEADERSHIP: THE OPTIMAL SOLUTION, OR A RISK-TAKING STRATEGY?
In a crisis, time is the critical element. Therefore, a solution incorporating calculated risks that will work immediately is preferred over waiting for the optimal solution before acting. A profound historical example of the dangers of waiting for the optimal solution is that of General George McClellan, commander of the Union Army during the American Civil War (1861-1862). McClellan employed such overcautious tactics and would not engage the Confederate Army in significant battles. As a result, the Union Army was regularly defeated and in retreat.
President Abraham Lincoln finally relieved General McClellan from command. After a series of commanders, new leadership, ultimately under the command of General U.S. Grant, adopted an aggressive, risk-taking strategy, with the outcome being in favor of the Union.

Ongoing, strategic planning, with its multiple contingency or scenario components, helps bridge the gap between the need for crisis leadership and the goal of devising the optimal solution. It should be recognized that most plans are obsolete the moment they are written, and that no plan survives its first encounter with a crisis. This is the truth no matter how much work has gone into the plan’s development. The basic reality is that no two crises are ever the same. Each crisis has its own unique characteristics. Invariably, something not considered in the plan design will occur early on and disrupt the plan’s execution, requiring shifts in thinking and in the previously determined actions. Effective leadership needs to be in place when a crisis ensues, but as importantly, it must be prepared to bring about subsequent resolution and recovery with the minimum amount of disruption.

Management differs from leadership. Management is viewed as producing control, consistency, regulation, and efficiency. In the search for creative solutions, management, at times, will adopt new ideas as a sign of progress. These “ready to wear” managerial stock solutions discourage managers from dealing with the unexpected and prompt them to embrace a thinking process based on a “one size fits all” mentality. This approach actually serves as a creative disincentive when the one size produced turns out to be the size that fits no one.

Leadership is associated with change, vision, innovation, and risk taking. Leadership takes an idea from a plan to an ongoing planning process, moves its emphasis from static to dynamic, directs the engagement from diffuse to strategic, and shifts the paradigm from necessary to sufficient.

**COMPETENCE**

There should be a requirement, for those who find themselves in positions of leadership where crises are likely to occur, to have already established competence. This includes possessing the ability to perform consistently in a crisis. Demonstrating the necessary range of skills and knowledge defines this competence. Leadership roles at strategic, tactical, or operational levels are different, though encompassing some similar functions. However, leadership accountable for direct crisis intervention also has unique responsibilities, including high-level decision-making potential and capacity.

Leadership intervention fosters change in the dynamics of interactions and influences the environment in which the interactions occur. Leadership gains from the power that is attributed to it because it encourages the perception of the leadership’s ability to lead. There is a gain of actual power when the application of resources under changing conditions supports the ability to lead. Leadership and power are inseparable. Leaders’ function is to avoid and avert disorganization and chaos. A single method of leadership is not, and cannot be, effective in all situations. Realistically, a leader understands that the methods employed must vary depending on the characteristics of the situation.

Effective leadership behavior is likely to be dependent on the leader’s personality and skills and the competence and motivation of the team being led. Field Marshall Bernard Montgomery, a senior British military commander in World War II, stated, “The vital attributes of a leader are decision in action and calmness in crisis. Given these two attributes he will succeed; without them, he will fail.”

**PLANNING AND PROBLEM SOLVING**

Interoperability is the state of making a process or interaction work between or among entities or definable functions. Interoperability has significant applications in bringing together such considerations as the quality, value, and practical aspects of preparedness and resources; the changing and expanding nature of global interfaces, including the environment; and the ramifications of global networks, including terrorism. Just as success can be limited by unrealistic expectations, it is equally counterproductive to excuse recurring errors and failures that clearly can be anticipated and prevented. The hallmarks of the preparedness process are ongoing planning and the anticipation of the unexpected. This approach, along with the consideration of contingencies and
alternative needs, must be actively incorporated into decision-making functions.

Ongoing planning is mandatory for the strength of all operational functions. There is a need to understand the factors and systems in play. Preparedness is an operational goal that allows for realistic solutions. A planning process allows for consideration of the spectrum of possibilities and for adjusting actions deliberately as conditions change.

Problem-solving and planning systems are usually focused on trying to define the whys; this effort is counterproductive. The large amount of time invested usually leads to divergent and contradictory conclusions. A practical perspective for planning and preparedness comes when the focus is on the who's, the what's, the how's, the when's, and the where's, which are the operative factors.

Planning is a strategic and dynamic process that goes beyond the sole development of a plan. This process is strategic because it has a defined focus, is intentional, applies the best case, and utilizes best-fit analysis; planning incorporates “connecting the dots” to support decision making. It is dynamic because it is flexible and capable of adaptation. This process requires all assumptions to be constantly examined and reexamined. The resulting planning approach must create an atmosphere that is conducive to considering the global, environmental, and future impacts. Lasting solutions occur through maximizing the value-added contributions of a prevention perspective.

**INNOVATION**

Innovation is the natural outcome of the process of human inquisitiveness and allows for practical applications in changing circumstances. Innovation is stimulated by need, competition, and the search for “a better way.” It is fueled by enthusiasm and passion and is reinforced by success. The controlling forces in play must support the notion of taking necessary risks and making the required sacrifices in order for innovation to flourish. Obviously, risk entails potentially adverse consequences and losses. The “sure thing” may appear to be the better choice, but, in the long run, the potential gains are always limited. As Robert Burns wrote in To A Mouse, “The best-laid plans of mice and men often go awry.”

**WHERE LEADERSHIP GOES AWRY**

Leadership should ensure the existence of a clear and open thinking process that must be applied throughout all phases of the planning, decision-making, and action-taking processes. This constitutes a spectrum of action that represents an independent continuum requiring support of all of its components simultaneously, without neglecting the importance of each individual component and its essential contributions. The pillars that support leadership in decision making and action taking consist of four dimensions. The first is information. This can be acquired by the integration and analysis of data obtained through the sharing and cooperation, in real time, of multiple database sources, and it can be used to elicit trends. This is a systems approach. The second is effective communication, where the information used is shared and effectively transmitted to all appropriate components in real time. This communication system must be rapid, multidirectional, and multileveled. The third dimension is education and training that challenges mindsets and benefits people at all levels (leadership, personnel, community, the public, government, and the private sector). The fourth is resources management, in which the allocation and reallocation of resources (personnel, material, finances) is focused on high-risk situations and supports early proactive interventions and the reduction of consequences.

Intrinsic weaknesses are found in these areas and within the implementation of the four dimensions described. Under the stress of a crisis, the weaknesses become exaggerated and can even inhibit efforts, resulting in loss of control of vital processes and functions. Communication is America’s major skill deficiency. This weakness becomes amplified under the stress of a disaster or crisis. Many other key elements can also unravel simultaneously and/or consecutively, rendering the leadership effort less than successful.

**DECISION MAKING**

Decision making is a major process element applied to the progression of problem solving. In considering the methods leading to solutions, the first requirement is to describe and understand the existing problem, with its full range of ramifications and
consequences. Clearly specifying the objectives and the achievement goals contributes to an understanding of the purposes involved. In addition, all major alternatives and tradeoffs must be identified and considered. This defines the awareness phase of the decision-making process. The next, or confirmation, phase incorporates clarifying uncertainties and considering risk tolerance and linked decisions. The decision point is then reached. This is followed by the fulfillment phase, which requires effective implementation with all appropriate education on all levels, followed by monitoring, evaluation with measurable results, and outcome assessment.

With each completion of a decision-making cycle, we find ourselves back again at the beginning of a new cycle. In some ways it will be different and in some ways not. The level of challenge will vary. However, one thing is certain: we can be better prepared and wiser each time around because we are able to learn from previous experiences.

The decision-making process includes the use of a series of skills and tools that supports the process phases and their components leading up to the decision and in the critical post-decision assessment efforts. Skills can be routine, like questions and information gathering, or defining in nature, like critical thinking and problem solving. Tools can likewise be standard, like listening; enabling, like teamwork; or assembling, like connecting the dots.

Decision making is multidimensional, requiring the consideration and implementation of several courses of action simultaneously. Effective leadership understands the “wide brush” approach or, if you prefer, the need to maximize any evaluation method by utilizing both sensitivity and specificity. The significant factors consist of: applying strategic and dynamic planning; assembling all of the relevant facts, data, and information; understanding the forces at work; being aware of the systems in place and their interactions; weighing all of the competing options; and making smart choices and the best decisions.

Educational strategies are integral elements in supporting the decision-making process. Such strategies include: awareness of individual, group, and community needs; personnel education; public, private, and community partnerships; ongoing planning and development with community involvement; exercises with the primary intent of discovering and correcting errors; and reinforcement of successful outcomes.

**PREVENTION**

Prevention employs planning and incorporates anticipatory counteraction to effectively avert, neutralize, or eliminate a circumstance before it can occur. Prevention equals survival and security, and it is the most cost-effective strategy available for producing positive outcomes. Sharing of information and effective communication, for example, among government agencies involved at the federal, state, and local levels or throughout a given sector is mandatory.

Thomas Paine wrote, in his 1776 pamphlet *Common Sense*, “... security being the true design and end of government, it unanswerably follows that whatever form thereof appears most likely to ensure it to us, with the least expense and greatest benefit, is preferable to all others.” Secrecy devalues participation and trust. When faced with a crisis, an uninformed and uneducated public tends to respond with fear and panic.

**RISK TAKING AND RISK MANAGEMENT**

Risk is the degree of endangerment that exists in any exposure, with the consideration of loss compared with the viability of a return. It involves loss exposure, the chance of loss, and the inherent and uncertain danger present in every interaction. This definition is as applicable to crisis leadership as it is to insurance actuaries.

Risk is the potential (possibility) or likelihood (probability) of suffering harm or loss. Risk can be taken in the face of a known exposure after considering cost-benefit parameters and consequences. The goal of a risk assessment process is to acknowledge and then respond to situations that create risk and its associated consequences. It requires careful evaluation to determine the causes of the risk. The management of risk is based on quantifying it and applying efforts to reduce risk when possible.

It is appropriate to paraphrase an often quoted
adage, “No ‘risk,’ no gain.” Risk is always a consideration when functioning in the realm of crisis leadership. A helpful guidepost to support necessary risk taking is the second adage, “It’s not always what you do, but how you do it.”

**DISCONNECTS**

Major disconnects have plagued crisis leadership and the disciplines of security, emergency preparedness, and disaster management. Significant disconnects relate to professional preparedness and the competence of the leadership. A project was undertaken in mid-2002 to evaluate the basic skills possessed by individuals in security leadership positions, especially in the aftermath of the September 11, 2001, crisis. The theme of the project was to define and evaluate the desired criteria through posing the quandary: Wanted: Security Pros Able to Expect the Unexpected.

Security professionals are responsible for a spectrum of tasks, including the unexpected. Preparation, experience, and skills and strategies mastery are mandatory. The job description includes being able to analyze risks, determine vulnerabilities, develop strategies, plan, implement solutions, evaluate personnel performance, establish training, educate personnel, support operational policies, communicate effectively, and generate stability. There is a need to determine what preparation the applicant has; the skills required; the training needed; and the tools, strategies, and skills present to handle the unexpected. Prevention strategies for terrorism and emergency management require examining risk assessment, risk modeling, and risk management.

Security professionals must have the skills to perform required diversified functions. Dynamic educational changes reverse deficiencies and enhance functional improvement.

Security professionals from varying backgrounds and employment were evaluated for entry-level familiarity with nine basic security skills. Included were 300 individuals holding senior security management positions, distributed throughout the United States and among diverse entities (corporations, universities, government). A tested information-gathering instrument was utilized, and the results demonstrated that 273 (91 percent) possessed familiarity with four or fewer of the nine skills, 18 were familiar with four to six, and nine recognized six to eight. The security professionals were previously recruited to the private sector from two primary sources: the military and law enforcement.

In approaching crisis and disaster situations, leadership tends to focus primarily on the response aspects. In doing so, the totality of the disaster gets obscured, and the prevention, preparedness, and long-term recovery components are neglected. The result is a failure in leadership. The basic need is for a commonly expected purpose. To accomplish such a goal demands an inclusive process that brings together all aspects of the planning, decision-making, and implementation teams with the community, the population in general, and other support entities. To make this work requires that the existing disconnects relating to communication and education be resolved. Unequal relationships between federal and local entities tend to be the rule, with artificial interactions and the development of distance and pretense. These contacts are less than productive and are actually detrimental to the purpose of a disaster effort. The paradigm shift from primarily disaster response to comprehensive disaster management with increased collaboration and communication is essential. This responsibility is within the prevue of crisis leadership.

John Adams, the author of the Constitution of the Commonwealth of Massachusetts, incorporated the following into the text: “It is the obligation of the State to educate its citizenry. The foundation of America’s democracy is based on an educated citizenry.” Education at all levels, including the community, is an essential tool for any disaster program to succeed, yet at best such approaches are virtually nonexistent. There is an almost elitist attitude on the part of emergency preparedness and disaster management professionals in considering the value and potential contributions of the public in general to a disaster effort. This seems to parallel the attitude of federal officials toward local officials. There is an important educational lesson here to be learned by all.

Natural disasters seem to have changed for the
United States over the past century. These disaster events have become more severe. The factors of worsening weather patterns, changes in population demographics, infrastructure deterioration, deficient land use planning, and building code inadequacies have significantly impacted outcomes. Add to this the existing, expedient political denial, and the forecast for the future becomes miserable.

FAILURE OF LEADERSHIP: THE LEADERSHIP VOID

Hurricane Katrina came on August 29, 2005, but left its devastation, both of property and of human beings, to likely continue for decades. The more that predisaster plan documents are reviewed and the state of preparedness evaluated, the more the basic process is found to have been flawed. Glaring deficiencies of communication and cooperation among entities at various levels persist. Failures of the recovery phase continue despite the promises of funding and programs, especially in light of a waning public consciousness.

Immediately following the disaster brought on by the ravages of Hurricane Katrina, the Gulf and Texas coasts faced the threats of Hurricane Rita, which, fortunately, only partially materialized. The challenges posed by Rita created stresses for the disaster preparedness and emergency management systems of Houston and surrounding communities in terms of evacuation planning and implementation. The existing strategies and tactics unfortunately failed. Communication systems were ineffective and community education was nonexistent, resulting in confusion and an unnecessary and unsafe evacuation process. Had community education elements been part of the operational disaster planning process and been instituted and reinforced in advance—a doable ideal—effective and safe evacuation would have occurred.

The Federal Emergency Management Agency (FEMA), already in disarray due to changes instituted during its absorption by the Department of Homeland Security (DHS), functioned poorly in almost all aspects of the Hurricane Katrina disaster, including preparedness and response, and continues to function dismally in ongoing recovery efforts to date. Leading candidates for FEMA director have removed themselves from consideration because of agency failures. One third of the most senior positions are filled only on an acting basis. A leadership void exists, and the acting director has been made the permanent director. A crisis and failure of leadership continues, as does the uncertainty of FEMA’s role and future.

PERSPECTIVES

Leaders create and apply ongoing planning, implement effective communication, and apply educational programs. They should have developed the applicable skills and be able to utilize the specialized tools that support their efforts. They should be able to delegate responsibility while continuing to maintain overall control of relevant actions and interventions.

In addition to top-down guidance, successful outcomes require a bottom-up, “grassroots” commitment, along with a community-centric focus that creates the drive for cooperative partnerships. These partnerships must include the active participation of the community and encompass the private and public sectors. The necessary tools, skills, and perspectives must support function from a prevention perspective and be able to respond to global and future threats and their ramifications. The flow of information must sustain an environment conducive to prevention.

Practical applications and solutions are created using evidence-based decision making. The applications of technology impact prevention, yet simultaneously contribute to infrastructure vulnerabilities.

Evaluation and analysis of results are required, and these evaluations must consider growth potential and the anticipation of and preparation for future needs. Such an evaluation process finds its value in allowing for dynamic changes over time, changes that can be tested through a coherent assessment sequence to produce improvement.

Leadership is action, not position. One does not become a leader until recognition as a leader is conferred by those who have been led.

Saul B. Wilen, MD, CEO, International Horizons Unlimited, San Antonio, Texas.
Should Tamiflu™ be stockpiled locally?

Sandro Cinti, MD
Gerald Blackburn, DO

**ABSTRACT**

The outbreak of H5N1 avian influenza in Asia raises serious concerns about an influenza pandemic of the kind seen in 1918. In addition, the recent federal response to Hurricane Katrina highlights the need for advanced local preparation for biological disasters. It is clear that there will not be enough vaccine early in an influenza pandemic. Without vaccine, the role of antivirals, especially oseltamivir (Tamiflu™), in treatment and prophylaxis becomes of paramount importance. It is unlikely that the Centers for Disease Control and Prevention (CDC) will be able to stockpile enough oseltamivir to protect every first responder in the United States. Thus, it is important that local governments and hospitals consider stockpiling oseltamivir for the treatment and/or prophylaxis of local first responders.

**Key words:** pandemic, influenza, oseltamivir, Tamiflu™, antivirals, first responders

**INTRODUCTION**

It is estimated that the 1918 influenza pandemic claimed 40 to 50 million lives, 500,00 of those in the United States.¹ The ongoing outbreak of avian influenza (H5N1) in Southeast Asia claimed 60 lives between January 28, 2004, and September 29, 2005,² and has posed the possibility of a pandemic that could claim up to 150 million lives worldwide if human-to-human transmission were to become efficient.³ A recent model suggests that such a pandemic could cost the United States between $71 and $167 billion.⁴

First responders, including healthcare personnel, police, and emergency management personnel, will be at the highest risk of exposure during their care of infected patients. This group will require rapid access to medications, vaccines, and personal protective equipment (PPE). The response to Hurricane Katrina demonstrates that, even with advance notice, the federal government is not capable of intervening quickly enough to provide adequate protection for first responders.⁵ It is therefore incumbent upon local governments and hospitals to provide such protection in the event of a pandemic influenza outbreak. Because vaccine will not be available early in a pandemic, and PPE and infection control practices will not be adequate to contain influenza, local governments and hospitals should consider stockpiling the antiviral oseltamivir (Tamiflu™). The rationale for this recommendation is outlined below.

**CONCERNS**

**Vaccine will not be available early in a pandemic**

According to the World Health Organization (WHO), influenza vaccine will be in limited supply during the first part of a pandemic and may not be available at all.⁶ The mass production of vaccine using current techniques cannot be accomplished in fewer than six to eight months, even under the most optimal conditions.⁷ A pandemic influenza strain could spread around the world in half that time.⁸

More rapid vaccine production methods (e.g., reverse genetics) are unlikely to be widely available before the next pandemic occurs. At present, there is no commercially available vaccine for H5N1 avian influenza.

**Pandemic influenza will be deadlier over a wider range of the population**

The groups at increased risk of complications
from influenza during typical yearly outbreaks are very predictable and are the basis for yearly vaccination recommendations by the Centers for Disease Control and Prevention (CDC). These groups, which make up approximately 30 percent of the population, include the elderly, young children, and the immunocompromised population. Although many first responders are targeted for yearly vaccination, this group (usually aged 24 to 50) is generally at low risk for serious complications from influenza. Yearly influenza epidemics may lead to a few sick days, but death and debility are rare and unexpected among first responders.

A pandemic influenza outbreak, however, will result in much higher rates of morbidity and mortality across a wider range of the population. In fact, during the 1918 influenza pandemic, the highest mortality rates occurred among young adults between the ages of 15 and 35. Thus, a large part of the first responder workforce will be at high risk for influenza complications. Without vaccine, first responders will be left to rely on antiviral medications and effective infection control practices.

**Standard infection control practices may not provide adequate protection during a pandemic**

Influenza is generally transmitted through respiratory droplets, and droplet precautions are recommended to control spread of the virus in a healthcare setting. Even with such precautions in place, healthcare worker attack rates during influenza outbreaks are as high as 59 percent. Furthermore, first responders will be at high risk of acquiring influenza in the community, where infection rates as high as 15 to 25 percent can be expected in an unimmunized population. Viral shedding of influenza occurs one to two days before symptoms and can continue for seven days after symptoms begin. Infants and immunocompromised individuals may shed for weeks. Thus, containment of pandemic influenza will be almost impossible. In contrast, the Severe Acute Respiratory Syndrome (SARS) coronavirus shedding peaks seven to 10 days after symptoms begin, making this disease more easily contained with current infection control practices.

**THE BENEFITS OF STOCKPILING OSELTAMIVIR LOCALLY**

If the mortality rate for the next pandemic approaches that seen in the current avian influenza (H5N1) outbreak in Southeast Asia (52 percent), it may be difficult to persuade frightened first responders to care for sick patients. In this setting, the role of antivirals becomes very important, especially if vaccine is unavailable. The WHO and, more recently, the CDC have suggested that, in the absence of vaccine, stockpiling of antiviral drugs may be an alternative strategy for managing the next influenza pandemic.

Unfortunately, the H5N1 avian strain is resistant to the relatively cheap adamantanes rimantadine and amantadine, and future pandemic influenza strains are likely to be resistant as well. This leaves the neuraminidase inhibitors oseltamivir and zanamavir as the antiviral drugs of choice for stockpiling. Zanamavir is difficult to administer (inhaled powder) and is not widely available. Therefore, the CDC, the WHO, and several countries have chosen to stockpile oseltamivir. Unfortunately, these centrally located stockpiles may be useless if pandemic influenza simultaneously descends upon many US cities, in which case antivirals will not arrive promptly enough to protect first responders. On the other hand, local stockpiles created by hospitals and city governments could be quickly and efficiently disseminated based on the needs of local responders.

There are four potential strategies for using antivirals during an influenza outbreak: 1) chemoprophylaxis for the entire influenza outbreak/season (or until vaccine is available), 2) post-exposure chemoprophylaxis, 3) treatment of infected patients, and 4) a combination of chemoprophylaxis and treatment. Chemoprophylaxis is the best strategy to prevent the spread of influenza. Several nursing home studies of influenza prevention support the use of prophylactic antivirals. In a model of the 1957 to 1958 influenza pandemic (H2N2), targeted antiviral prophylaxis of close contacts of influenza cases for eight weeks reduced the attack rate from 33 percent to 2 percent. However, this strategy is prohibitively expensive for most hospitals and local governments. For instance, the cost of administering prophylactic oseltamivir (75 mg/day) for six to eight weeks (the
average length of a pandemic outbreak in a community) to up to 10,000 hospital workers in a 600-bed hospital would range between $1 to $2 million (pharmacy data). This stockpiling cost would be incurred every five years as the expiration date approached.\textsuperscript{26}

The most reasonable strategy is one that focuses primarily on treatment of ill first responders with additional targeted chemoprophylaxis of heavily exposed workers (e.g., respiratory therapists, those intubating influenza patients). This is financially feasible and offers adequate protection to first responders caring for influenza-infected patients during a pandemic outbreak. Recent studies have demonstrated that neuraminidase inhibitors administered as treatment (75 mg twice a day for five days) within 48 hours of symptoms not only decrease the duration of illness but also decrease the incidences of hospitalization, antibiotic use, and mortality.\textsuperscript{24,27,28} First responders could easily be monitored for symptoms (e.g., fevers, myalgias) of influenza. It is likely that such monitoring would identify the majority of ill workers and thus allow timely administration of antiviral therapy.

Even with optimal infection control practices, approximately 25 to 30 percent of first responders will become ill during an influenza pandemic. Using a 600-bed hospital with 10,000 employees as an example, between 2,500 and 3,000 people would require treatment with a five-day course of oseltamivir (10 pills). The total cost to stockpile enough oseltamivir using this strategy would be $100,000 to $120,000 (pharmacy data). Additional stockpiling for limited chemoprophylaxis and treatment of patients and high-risk contacts could be expected to add another $20,000 to $40,000. Given the five-year expiration date on capsulated oseltamivir,\textsuperscript{26} the cost per year for a 600-bed hospital would be $24,000 to $32,000. Costs to smaller hospitals would be considerably less. Local governments could stockpile for nonhospital first responders with economic support from the state and federal governments. The federal government currently has plans to stockpile enough oseltamivir for 81 million people.\textsuperscript{29} Much of this stockpile could be stored locally, where it would be immediately accessible to first responders.

**CONCLUSION**

In summary, hospitals and local governments should take on some of the burden of stockpiling oseltamivir. When the next influenza pandemic...
occurs, there will almost certainly not be enough vaccine available to protect the citizenry and, if mortality rates are high, it may be difficult to convince first responders to continue to care for patients with influenza. The availability of antivirals, especially oseltamivir, will be of paramount importance, as they offer the possibility of both chemoprophylaxis and treatment. Even if the CDC maintains a large stockpile of antivirals, it is unlikely that this cache will be efficiently distributed in the early stages of a rapidly spreading influenza pandemic. The demand for this drug will be too great, too diffuse, and too immediate. Hospitals should consider stockpiling enough oseltamivir to offer a combination of treatment and chemoprophylaxis to employees and patients. Furthermore, the CDC should help local governments establish their own stockpiles for nonhospital first responders. The cost is both reasonable and justifiable when one considers the inevitability of future influenza pandemics.

Sandro Cinti, MD, Clinical Assistant Professor, Infectious Diseases, University of Michigan Hospitals/Ann Arbor VA Health Systems, Ann Arbor, Michigan; National Center for Critical Incident Analysis (NCCIA), University of Michigan Hospitals/Ann Arbor VA Health Systems, Ann Arbor, Michigan; National Center for Critical Incident Analysis (NCCIA), University of Michigan Hospitals/Ann Arbor VA Health Systems, Ann Arbor, Michigan; National Center for Critical Incident Analysis (NCCIA), University of Michigan Hospitals/Ann Arbor VA Health Systems, Ann Arbor, Michigan.

Gerald Blackburn, DO, Botstorf Hospital, Farmington Hills; Michigan State University College of Osteopathic Medicine, Michigan.

REFERENCES
17. CDC Guidelines and Recommendations: Influenza antiviral medications; 2005-2006 chemoprophylaxis (prevention) and treatment guidelines.
INTRODUCTION

“We have had great success in the [last] five years in controlling outbreaks, but we have only recently come to understand that communications are as critical to outbreak control as laboratory analyses or epidemiology.”

Dr. Jong-wook Lee, Director General, World Health Organization, September 2004

“The major public health challenges since 9/11 were not just clinical, epidemiological, technical issues. The major challenges were communications. In fact, as we move into the 21st century, communication may well become the central science of public health practice.”

Dr. Edward Baker, US Assistant Surgeon General, December 2001

Until something dramatic goes wrong, such as a terrorist attack or an outbreak of an exotic communicable disease, the elaborate infrastructures and mechanisms that protect public health on a daily basis often go unnoticed. In the heat of a public health emergency, risk communication will directly influence events. Poor risk communication can fan emotions and undermine confidence. Good risk communication can rally support, calm a nervous public, provide needed information, encourage cooperative behaviors, and help save lives.

Effective risk communication is a key responsibility of public health professionals and information officers in emergencies and disasters.1-7 The public, the news media, policy makers, and other interested and affected parties expect timely quality information from public health officials about the situation. Communicate poorly and you may be perceived as incompetent, uncaring, or dishonest, thus losing trust; communicate well and you can reach large numbers of people with clear and credible public-health messages.3,5

While emergencies and disasters are difficult to predict, risk communication strategies for such events can be planned.5 Such planning greatly increases the likelihood that communications will further public health interests and contribute positively to emergency response efforts. Well-constructed and well-delivered messages will inform the public, reduce misinformation, and provide a valuable foundation for informed decision making.

To communicate effectively during emergencies and disasters, messages must be carefully framed and delivered. One of the most powerful tools available to risk communicators for this purpose is the “message map.” A message map is an organized means for displaying layers of information; it is a lens through which principles for effective risk and crisis message development can be focused into effective and powerful communication. A message map contains detailed, hierarchically organized responses to anticipated questions or concerns. It is a visual aid that provides, at a glance, the organization’s messages for questions and concerns raised during an emergency or disaster. The message map template enables spokespersons to meet the demands of the public, the media, and other interested parties for timely, accurate, clear, concise, consistent, credible, and relevant information. The information contained
in the message map contributes to the achievement of the main goals of risk communication: to inform and educate; to gain trust and credibility; and to create informed dialogue, decision making, and behavior.1-3,8-10

As shown in Figure 1, a message map is a grid containing multiple boxes. The top portion of the map identifies the audience for the message map as well as the question or concern the message map is intended to address. The next layer of the message map contains the three key messages. These messages function individually and collectively as a response to a stakeholder question or concern. Key messages are intended to address the information needs of a wide variety of audiences. The three key messages can also serve as media sound bites. Sound bites are critical to successful media interviews during emergencies and disasters.

The next tier of the message map contains supporting information. Supporting information is blocked in groups of three under the key messages. Supporting messages amplify the key messages. They provide additional facts or details. Supporting messages can also take the form of visuals, analogies, personal stories, or citations to credible sources of information.

**Figure 1. Message map template.**

**BENEFITS OF USING A MESSAGE MAP**

As a strategic tool, a message map affords multiple benefits. It provides a handy reference for leaders and spokespersons who must respond swiftly to questions on topics where timeliness and accuracy are critical. Multiple spokespersons can work from the same message map to ensure rapid dissemination of consistent messages across a wide spectrum of communication outlets. Message maps provide a unifying framework for releasing information about questions and concerns raised during an emergency or disaster.

When used consistently, message maps promote the benefit of multiple partners “speaking with one voice.” Message maps also minimize chances of “speaker’s regret”—regretting saying something inappropriate or regretting not saying something that should have been said. A printed copy of the message map allows spokespersons, during interviews, to “check off” the message map talking points they want to make, in order of their importance. This helps prevent omissions of key facts or misstatements that could provoke misunderstandings, controversy, or outrage. Message maps also allow organizations to
develop messages in advance for emergencies and crises. Once developed, the effectiveness of message maps can be tested through focus groups and other empirical studies.

Message maps were developed by the author in the early 1990s as a specialized tool for communicating effectively in high-stress, high-concern, or emotionally charged situations. Message mapping was first adopted as a public health tool in the aftermath of the anthrax attacks of the fall of 2001. For example, early in 2002 message mapping sessions were held which focused on the communication challenges posed by a potential smallpox attack. The product of this workshop was several hundred smallpox message maps. Figure 2 provides one example.

Since 2002, public health agencies at the national, regional, state, and local level have conducted dozens of message mapping workshops. Emergency events that have already been mapped include the release of anthrax, smallpox, plague, and botulism; viral hemorrhagic fevers (e.g., ebola); contamination from a radiation dispersal device; and pandemic influenza. Several important outcomes have resulted from these mapping efforts. These include identification of key stakeholders early in the risk communication process; anticipation of stakeholder questions and concerns before they are raised; internal and external partnering in the development of messages; and a vetted central repository or shelf kit of clear, concise, and accurate information for major types of emergency events.

The process used to generate message maps can be as important as the end product. Message mapping exercises—involving teams of scientists, communication specialists, and individuals with policy expertise—often reveal a diversity of viewpoints for the same question, issue, or concern. Gaps in message maps often provide early warnings that a message is incomplete. In doing such, they provide opportunities for focused efforts by scientists and issue management teams to fill the gaps. Message mapping exercises also frequently identify needed changes in organizational strategies and policies.
Seven steps are involved in constructing a message map (Table 1).

The first step in message mapping is to identify stakeholders for a specified emergency or disaster event. Stakeholders include the public at large as well as all interested, affected, or influential parties. Every emergency involves a different set of stakeholders. Each stakeholder has a distinctive set of questions and concerns that may be voiced. Table 2 provides a list of potential stakeholders for a public health emergency.

As part of this first step of message mapping, stakeholders can be further distinguished according to: 1) their potential to affect outcomes; 2) their credibility with other stakeholders; and 3) whether they are apathetic, neutral, supportive, nonsupportive, critical, adversarial, or ambivalent regarding issues on the table.

The second step in message mapping is to identify a complete list of questions and concerns for each important stakeholder group. Questions and concerns typically fall into three categories:

1. **Overarching questions**, such as, “What do people need to know?”

2. **Informational questions**, such as, “What is the budget for your response?”

3. **Challenging questions**, for example, “Why should we trust what you are telling us? How many people have to die before you take more aggressive action? Can you guarantee people are safe? What are you not telling us?”

Lists of specific stakeholder questions and concerns can be generated through empirical research, including:

- media content analysis (print, radio, television);
- analysis of Web site material;
- document review, including public meeting records, public hearing records, and legislative transcripts;
- reviews of complaint logs, hotline logs, toll-free number logs, and media logs;
- focused interviews with experts;
- facilitated workshops or discussion sessions with individuals intimately familiar with the issues;

**Table 1. Seven steps involved in constructing a message map**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Identify stakeholders for a specified emergency or disaster event</td>
</tr>
<tr>
<td>2.</td>
<td>Identify stakeholder question and concerns</td>
</tr>
<tr>
<td>3.</td>
<td>Identify common sets of concerns</td>
</tr>
<tr>
<td>4.</td>
<td>Develop key messages</td>
</tr>
<tr>
<td>5.</td>
<td>Develop supporting information</td>
</tr>
<tr>
<td>6.</td>
<td>Conduct testing</td>
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<tr>
<td>7.</td>
<td>Plan for delivery</td>
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</tbody>
</table>
Public health agencies at the federal, state, and local level have used these techniques to generate lists of questions and concerns for a wide variety of public health issues. For example, Table 3 lists questions and concerns related to outbreaks of disease, whether natural or intentional. These questions could be further refined by grouping them according to themes (for example, clinical traits, epidemiological traits, accountability, blame, vulnerable groups, and protective actions).

Recent empirical research conducted by the Center for Risk Communication and other groups indicates a large percentage of the questions and concerns raised by stakeholders in emergency situations can be identified in advance using these techniques. For example, Table 4 lists the 77 most frequently
### Table 3. Questions and concerns related to a disease outbreak

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>How contagious is the disease?</td>
</tr>
<tr>
<td>Can people be vaccinated? Will antibiotics and antiviral medicines work?</td>
</tr>
<tr>
<td>How effective is vaccination, antibiotic treatment, or antiviral medicine for those who do not have the disease?</td>
</tr>
<tr>
<td>How fast do the vaccines or antibiotics work?</td>
</tr>
<tr>
<td>What are the signs and symptoms of the disease?</td>
</tr>
<tr>
<td>Who's in charge of the disease-control effort? How are you coordinating the efforts among responsible agencies?</td>
</tr>
<tr>
<td>Is the outbreak due to terrorism? Has the disease been “weaponized?” How certain are you it is not a deliberate release?</td>
</tr>
<tr>
<td>What if the disease is a genetically altered strain that is resistant to any known medical treatment?</td>
</tr>
<tr>
<td>What makes you think the disease-control strategies of the past will work today?</td>
</tr>
<tr>
<td>What's being done to stop the spread of the disease?</td>
</tr>
<tr>
<td>What kind of medical care is available to the population at risk? Are there enough medical care facilities? What happens if these care facilities are overwhelmed by demand?</td>
</tr>
<tr>
<td>What resources are being used to respond to the disease outbreak?</td>
</tr>
<tr>
<td>Can the disease be treated? How effective is treatment? Are there strains of the disease that cannot be treated?</td>
</tr>
<tr>
<td>How does one know if the vaccination, antibiotics, or antiviral medicines are working?</td>
</tr>
<tr>
<td>Are laboratories able to quickly diagnose the disease? How long does confirmation take?</td>
</tr>
<tr>
<td>Is the disease airborne? Waterborne?</td>
</tr>
<tr>
<td>Can people get the disease from insects, pets, farm animals, or wild animals?</td>
</tr>
<tr>
<td>What are authorities in nonaffected areas doing to prepare for an outbreak?</td>
</tr>
<tr>
<td>How is the vaccine made? How are the antibiotics and antiviral medicines made? Are there enough vaccines, antibiotics, or antiviral medicines for everyone who wants them? Who will pay for vaccines, antibiotics, or antiviral medicines?</td>
</tr>
<tr>
<td>How will vaccines, antibiotics, and antiviral medicines be distributed? How much time will be needed? Where can people can vaccinated, get antibiotics, or get antiviral medicines? If there is a shortage, who will get priority? Who will make these decisions?</td>
</tr>
<tr>
<td>What should people do if they think they have the disease?</td>
</tr>
<tr>
<td>Do you recommend people get vaccinated, take antibiotics, or take antiviral medicines now? How long does protection last?</td>
</tr>
<tr>
<td>Are the vaccines, antibiotics, or antiviral medicines licensed and approved? What is the expiration date? Should people be concerned?</td>
</tr>
<tr>
<td>Are the vaccines, antibiotics, or antiviral medicines safe? How do you know? What studies have been done to demonstrate their safety?</td>
</tr>
<tr>
<td>Who should not get vaccinated, should not take antibiotics, or should not take antiviral medicines? What can these people do to protect themselves?</td>
</tr>
<tr>
<td>Who will tell people when to be vaccinated, take antibiotics, or take antiviral medicine?</td>
</tr>
<tr>
<td>Is there an adequate supply of medicines available to treat complications from getting the vaccine, from taking antibiotics, or from taking antiviral medicine?</td>
</tr>
</tbody>
</table>
### Table 3. Questions and concerns related to a disease outbreak (continued)

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What are the alternatives to vaccination, antibiotics, or antiviral medicine?</strong></td>
</tr>
<tr>
<td><strong>How safe are people who get vaccinated, take antibiotics, or take antiviral medicine?</strong></td>
</tr>
<tr>
<td><strong>Do you have a contingency plan if current control measures fail?</strong></td>
</tr>
<tr>
<td><strong>What does the contingency plan say? What is the worst-case scenario?</strong></td>
</tr>
<tr>
<td><strong>Who developed and approved the plan?</strong></td>
</tr>
<tr>
<td><strong>What is the risk to the population? How many could die?</strong></td>
</tr>
<tr>
<td><strong>How prepared were you for the disease outbreak?</strong></td>
</tr>
<tr>
<td><strong>How do you know whether the outbreak is real? Could it be a false alarm?</strong></td>
</tr>
<tr>
<td><strong>If people get sick from the vaccination, from taking antibiotics, or from taking antiviral medicine, who will care for their families, pets, homes, and property?</strong></td>
</tr>
<tr>
<td><strong>How common are side effects from vaccinations, antibiotics, or antiviral medicine? What are the risks of each side effect occurring?</strong></td>
</tr>
<tr>
<td><strong>Can pets and farm animals be vaccinated, take antibiotics, or take antiviral medicine?</strong></td>
</tr>
<tr>
<td><strong>Can people with HIV/AIDS, transplants, cancer, and other causes of weakened immune systems be treated?</strong></td>
</tr>
<tr>
<td><strong>Can elderly persons and children be treated? Can pregnant women be treated?</strong></td>
</tr>
<tr>
<td><strong>What are you recommending for your own family?</strong></td>
</tr>
<tr>
<td><strong>How long does it take for the vaccination, antibiotics, or antiviral medicine to protect people against the disease?</strong></td>
</tr>
<tr>
<td><strong>Are there people who will not be protected even after getting vaccinated, taking antibiotics, or taking antiviral medicine? How many people are in this category? What are their options?</strong></td>
</tr>
<tr>
<td><strong>How can people keep the disease from spreading to others?</strong></td>
</tr>
<tr>
<td><strong>Will people be forced to be vaccinated, take antibiotics, or take antiviral medicine?</strong></td>
</tr>
<tr>
<td><strong>Will infected people be isolated or quarantined?</strong></td>
</tr>
<tr>
<td><strong>How long will quarantine and isolation last?</strong></td>
</tr>
<tr>
<td><strong>What are the legal bases for quarantine and isolation?</strong></td>
</tr>
<tr>
<td><strong>How effective are quarantine and isolation for preventing spread of the disease?</strong></td>
</tr>
<tr>
<td><strong>How will bills be paid while people are in quarantine or isolation?</strong></td>
</tr>
<tr>
<td><strong>How will people get healthcare, water, food, and other services while in quarantine or isolation?</strong></td>
</tr>
<tr>
<td><strong>Where will people in quarantine or isolation be put?</strong></td>
</tr>
<tr>
<td>Table 3. Questions and concerns related to a disease outbreak (continued)</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Will people in quarantine or isolation be isolated from each other?</td>
</tr>
<tr>
<td>Under what circumstances will people be put in quarantine or isolation?</td>
</tr>
<tr>
<td>What are the legal rights of a person who is quarantined or isolated?</td>
</tr>
<tr>
<td>Are there alternatives to quarantine and isolation?</td>
</tr>
<tr>
<td>How is quarantine/isolation done?</td>
</tr>
<tr>
<td>What is life like in quarantine or isolation?</td>
</tr>
<tr>
<td>Under what circumstances would a large-scale quarantine or isolation effort be started?</td>
</tr>
<tr>
<td>If someone becomes sick in quarantine or isolation, who will care for him? How good will the medical care be?</td>
</tr>
<tr>
<td>Will people in quarantine or isolation be able to communicate with family and friends?</td>
</tr>
<tr>
<td>Will a person’s job be protected while in quarantine or isolation?</td>
</tr>
<tr>
<td>What happens to people who refuse to be quarantined or isolated?</td>
</tr>
<tr>
<td>Can people get sick when in quarantine or isolation?</td>
</tr>
<tr>
<td>What happens if someone dies in quarantine or isolation?</td>
</tr>
<tr>
<td>What happens to facilities after they are used for quarantine or isolation?</td>
</tr>
<tr>
<td>Can people bring their pets/family/friends into a quarantine or isolation facility?</td>
</tr>
<tr>
<td>Can a community refuse to have a quarantine or isolation facility located nearby?</td>
</tr>
<tr>
<td>How will quarantine and isolation affect community life, including transportation?</td>
</tr>
<tr>
<td>Are there differences of opinion among experts about the need for and effectiveness of quarantine or isolation procedures?</td>
</tr>
<tr>
<td>After release from quarantine/isolation, will people be able to go back to work?</td>
</tr>
<tr>
<td>What are the personal, family, and job consequences for people in quarantine/isolation?</td>
</tr>
<tr>
<td>In quarantine/isolation, will special provisions be made for cultural, religious, and ethnic beliefs/values?</td>
</tr>
<tr>
<td>Who will pay the costs for quarantine or isolation?</td>
</tr>
<tr>
<td>Who will pay the costs for lost wages of people in quarantine or isolation?</td>
</tr>
</tbody>
</table>
asked questions by journalists during an emergency or disaster. This list was generated from a large database of questions posed by journalists at news conferences immediately following public health emergencies and disasters, including Hurricane Katrina.

The third step in message map construction is to analyze the lists of specific concerns to identify common sets of concerns or categories of concern. Case studies indicate most high-concern issues are associated with no more than 25 categories of concern. Table 5 provides a sample list of categories of concern for a public health emergency or disaster.

Once specific concerns are listed and analyzed, a useful next step is to construct a matrix that contains a list of stakeholders on one axis and a list of stakeholder questions and concerns on the other axis (Figure 3).

Within the boxes of the matrix, stakeholder questions and concerns can be designated as high concern, medium concern, low concern, or not applicable. One of the most important uses of the resulting matrix is as a resource allocation guide. For example, boxes that have the highest numbers of entries should be the first addressed.

The fourth step in message mapping is to develop key messages in response to each stakeholder question or concern. Key messages should be based on what the target audience most needs to know or most wants to know. Key messages are usually developed through brainstorming sessions with a message mapping team. The message mapping team typically consists of a subject matter expert, a communication specialist, a policy/legal/management expert, and a facilitator. The brainstorming session produces message narratives—usually in the form of complete sentences—which are entered as key messages onto the message map. The session can be used to produce key words as a memory aid for the fully scripted message. These key words are then entered onto the message map. Key words are generally more easily accessed and recalled by spokespersons than narratives and scripts. Most people have difficulty memorizing or delivering scripts; however, they can deliver agreed-upon key words using their own words to form whole sentences. Each box in the message map should have no more than three keywords.

The most important message map is the overarching message map—the map that contains and displays the organization’s core messages. The overarching message map addresses what you most want people to know about the issue or topic and what you would put in your opening statement at a presentation or news conference relating to the issue or topic. It is crucial that the overarching message map be delivered to the intended audience. One technique for assuring delivery is “bridging.” An example of a bridging statement is, “I want to remind you again that . . .” or “What is important for people to know is . . . .” The overarching message map can also serve as “a port in a storm,” especially when questioning by journalists or others becomes intense or aggressive.

Construction of the overarching message map, as well as other maps, should be guided by the theories and principles of risk and crisis communication. For example, mental noise theory—one of the main constructs of risk and crisis communication—indicates that when people are upset they often have difficulty hearing, understanding, and remembering information. Mental noise can reduce a person’s ability to process information by more than 80 percent. The challenges for risk and crisis communicators, therefore, are to 1) overcome the barriers mental noise creates, 2) produce accurate messages for diverse audiences in diverse social and cultural contexts, and 3) achieve maximum communication effectiveness within the constraints posed by mental noise.

Professional risk and crisis communicators use a variety of means to overcome mental noise. For example, they limit the number of key messages offered to three. They limit the amount of time and words used to express their three key messages to nine seconds and 27 words. They construct messages that are clearly understandable by the target audience. For example, message maps produced by public health agencies in industrialized nations are typically constructed to be easily understood by an adult with a sixth- to eighth-grade education. This can be tested using the readability utility contained in word-processing programs. Additional tactics include:

- Adhere to the “primacy/recency” or
<table>
<thead>
<tr>
<th></th>
<th><strong>Table 4. The 77 most frequently asked questions by journalists in an emergency or disaster</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What is your name and title?</td>
</tr>
<tr>
<td>2.</td>
<td>What are your job responsibilities?</td>
</tr>
<tr>
<td>3.</td>
<td>What are your qualifications?</td>
</tr>
<tr>
<td>4.</td>
<td>Can you tell us what happened?</td>
</tr>
<tr>
<td>5.</td>
<td>When did it happen?</td>
</tr>
<tr>
<td>6.</td>
<td>Where did it happen?</td>
</tr>
<tr>
<td>7.</td>
<td>Who was harmed?</td>
</tr>
<tr>
<td>8.</td>
<td>How many people were harmed?</td>
</tr>
<tr>
<td>9.</td>
<td>Are those that were harmed getting help?</td>
</tr>
<tr>
<td>10.</td>
<td>How certain are you about this information?</td>
</tr>
<tr>
<td>11.</td>
<td>How are those who were harmed getting help?</td>
</tr>
<tr>
<td>12.</td>
<td>Is the situation under control?</td>
</tr>
<tr>
<td>13.</td>
<td>How certain are you the situation is under control?</td>
</tr>
<tr>
<td>14.</td>
<td>Is there any immediate danger?</td>
</tr>
<tr>
<td>15.</td>
<td>What is being done in response to what happened?</td>
</tr>
<tr>
<td>16.</td>
<td>Who is in charge?</td>
</tr>
<tr>
<td>17.</td>
<td>What can we expect next?</td>
</tr>
<tr>
<td>18.</td>
<td>What are you advising people to do? What can people do to protect themselves and their families—now and in the future—from harm?</td>
</tr>
<tr>
<td>19.</td>
<td>How long will it be before the situation returns to normal?</td>
</tr>
<tr>
<td>20.</td>
<td>What help has been requested or offered from others?</td>
</tr>
<tr>
<td>21.</td>
<td>What responses have you received?</td>
</tr>
<tr>
<td>22.</td>
<td>Can you be specific about the types of harm that occurred?</td>
</tr>
<tr>
<td>23.</td>
<td>What are the names of those who were harmed?</td>
</tr>
<tr>
<td>24.</td>
<td>Can we talk to them?</td>
</tr>
<tr>
<td>25.</td>
<td>How much damage occurred?</td>
</tr>
<tr>
<td>26.</td>
<td>What other damage may have occurred?</td>
</tr>
<tr>
<td>27.</td>
<td>How certain are you about damages?</td>
</tr>
<tr>
<td>28.</td>
<td>How much damage do you expect?</td>
</tr>
<tr>
<td>29.</td>
<td>What are you doing now?</td>
</tr>
<tr>
<td>30. Who else is involved in the response?</td>
<td></td>
</tr>
<tr>
<td>31. Why did this happen?</td>
<td></td>
</tr>
<tr>
<td>32. What was the cause?</td>
<td></td>
</tr>
<tr>
<td>33. Did you have any forewarning this might happen?</td>
<td></td>
</tr>
<tr>
<td>34. Why wasn’t this prevented from happening? Could this have been avoided?</td>
<td></td>
</tr>
<tr>
<td>35. How could this have been avoided?</td>
<td></td>
</tr>
<tr>
<td>36. What else can go wrong?</td>
<td></td>
</tr>
<tr>
<td>37. If you are not sure of the cause, what is your best guess?</td>
<td></td>
</tr>
<tr>
<td>38. Who caused this to happen?</td>
<td></td>
</tr>
<tr>
<td>39. Who is to blame?</td>
<td></td>
</tr>
<tr>
<td>40. Do you think those involved handled the situation well enough? What more could/should those who handled the situation have done?</td>
<td></td>
</tr>
<tr>
<td>41. When did your response to this begin?</td>
<td></td>
</tr>
<tr>
<td>42. When were you notified something had happened?</td>
<td></td>
</tr>
<tr>
<td>43. Did you and other organizations disclose information promptly? Have you and other organizations been transparent?</td>
<td></td>
</tr>
<tr>
<td>44. Who is conducting the investigation? Will the outcome be reported to the public?</td>
<td></td>
</tr>
<tr>
<td>45. What are you going to do after the investigation?</td>
<td></td>
</tr>
<tr>
<td>46. What have you found out so far?</td>
<td></td>
</tr>
<tr>
<td>47. Why was more not done to prevent this from happening?</td>
<td></td>
</tr>
<tr>
<td>48. What is your personal opinion?</td>
<td></td>
</tr>
<tr>
<td>49. What are you telling your own family?</td>
<td></td>
</tr>
<tr>
<td>50. Are all those involved in agreement?</td>
<td></td>
</tr>
<tr>
<td>51. Are people overreacting?</td>
<td></td>
</tr>
<tr>
<td>52. Which laws are applicable?</td>
<td></td>
</tr>
<tr>
<td>53. Has anyone broken the law?</td>
<td></td>
</tr>
<tr>
<td>54. How certain are you about whether laws have been broken?</td>
<td></td>
</tr>
<tr>
<td>55. Has anyone made mistakes?</td>
<td></td>
</tr>
<tr>
<td>56. How certain are you mistakes have not been made?</td>
<td></td>
</tr>
<tr>
<td>57. Have you told us everything you know?</td>
<td></td>
</tr>
<tr>
<td>58. What are you not telling us?</td>
<td></td>
</tr>
</tbody>
</table>
“first/last” principle. This principle states that the most important messages should occupy the first and last position in a list.\textsuperscript{20} In high-stress situations, listeners tend to focus most on, and remember, whatever they hear first and last. Messages that are in the middle of a list are often not heard. Focus-group testing demonstrates that people often cannot recall middle messages.

- Cite third parties or sources that would be perceived as credible by the receiving audience. The greater the extent to which messages are supported and corroborated by credible third-party sources, the greater the trust and the less likely it is mental noise will interfere with the ability to comprehend messages.\textsuperscript{20}

- Develop key messages and support information that addresses important risk-perception and outrage factors, such as trust, benefits, control, voluntariness, dread, fairness, reversibility, catastrophic potential, effects on children, morality, origin, and familiarity.\textsuperscript{3,22-24} The list of risk-perception factors found in Table 6 contains those causing the highest levels of worry, anxiety, and mental noise. Research indicates the greater the extent

<table>
<thead>
<tr>
<th>Table 4. The 77 most frequently asked questions by journalists in an emergency or disaster (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>59. What effects will this have on the people involved?</td>
</tr>
<tr>
<td>60. What precautionary measures were taken?</td>
</tr>
<tr>
<td>61. Do you accept responsibility for what happened?</td>
</tr>
<tr>
<td>62. Has this ever happened before?</td>
</tr>
<tr>
<td>63. Can this happen elsewhere?</td>
</tr>
<tr>
<td>64. What is the worst-case scenario?</td>
</tr>
<tr>
<td>65. What lessons were learned?</td>
</tr>
<tr>
<td>66. Were those lessons implemented? Are they being implemented now?</td>
</tr>
<tr>
<td>67. What can be done now to prevent this from happening again? What steps need to be taken to</td>
</tr>
<tr>
<td>avoid a similar event?</td>
</tr>
<tr>
<td>68. What would you like to say to those who have been harmed and to their families?</td>
</tr>
<tr>
<td>69. Is there any continuing danger?</td>
</tr>
<tr>
<td>70. Are people out of danger? Are people safe? Will there be inconvenience to employees or to</td>
</tr>
<tr>
<td>the public?</td>
</tr>
<tr>
<td>71. How much will all this cost?</td>
</tr>
<tr>
<td>72. Are you able and willing to pay the costs?</td>
</tr>
<tr>
<td>73. Who else will pay the costs?</td>
</tr>
<tr>
<td>74. When will we find out more?</td>
</tr>
<tr>
<td>75. Have these steps already been taken? If not, why not?</td>
</tr>
<tr>
<td>76. Why should we trust you?</td>
</tr>
<tr>
<td>77. What does this all mean?</td>
</tr>
</tbody>
</table>
to which risk-perception factors are addressed in messaging, the less likely it is mental noise will interfere with the ability to comprehend messages.\textsuperscript{20}

- Provide a preamble to the message map that indicates authentic empathy, listening, caring, and compassion, which are crucial factors in establishing trust in high-concern, high-stress situations.\textsuperscript{9,20,25} People typically want to know that you care before they care what you know. The greater the extent to which individuals and organizations are perceived to be empathic, caring, listening, and compassionate, the less likely it is that anxiety and stress will interfere with the ability to comprehend messages.

- Use graphics, visual aids, analogies, and narratives (e.g., personal stories). These methods can increase an individual’s ability to hear, understand, and recall a message by more than 50 percent.

- Construct messages recognizing the high levels of anxiety and exaggerated fears often associated with the dominant role played by negatives in high-concern situations.\textsuperscript{20} According to negative dominance theory (asymmetry theory), people tend to focus more on the negative than on the positive in emotionally charged situations. Two potential solutions to this include: 1) balancing negative key messages with positive, constructive, or solution-oriented key messages, employing a ratio of at least three positive messages for each negative message; and 2) avoiding unnecessary, indefensible, or nonproductive uses of absolutes and of the words “no,” “not,” “never,” “nothing,” and “none.”

- Present the full message map using the repetitive structure found in the “tell me,
Table 6. Risk-perception factors

<table>
<thead>
<tr>
<th>Risks are more worrisome and feared if they are perceived to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>be involuntary or imposed</td>
</tr>
<tr>
<td>be inequitably distributed</td>
</tr>
<tr>
<td>be inescapable</td>
</tr>
<tr>
<td>be under the control of others, especially those we don’t trust</td>
</tr>
<tr>
<td>arise from an unfamiliar or novel source</td>
</tr>
<tr>
<td>result from manmade rather than natural sources</td>
</tr>
<tr>
<td>cause hidden and irreversible damage</td>
</tr>
<tr>
<td>pose some particular danger to small children, pregnant women, or, more generally, to future generations</td>
</tr>
<tr>
<td>threaten a form of death (or illness/injury) that is particularly dreaded</td>
</tr>
<tr>
<td>threaten or harm identifiable rather than anonymous or theoretical victims</td>
</tr>
<tr>
<td>pose a personal threat by singling you out from others</td>
</tr>
<tr>
<td>offer little or no compensating benefits</td>
</tr>
<tr>
<td>be new and poorly understood by science</td>
</tr>
<tr>
<td>be subject to contradictory statements</td>
</tr>
</tbody>
</table>

tell me more, tell me again,” or “Triple T” model: 1) tell people what you are going to tell them in summary form, i.e., the three key messages; 2) tell them more, i.e., the supporting information; and 3) tell people again what you told them in summary form, i.e., repeat the three key messages. The greater the extent to which messages are repeated and heard through various channels, the less likely it is mental noise will interfere with the ability to comprehend messages.

Studies recently conducted by the Center for Risk Communication indicate it is crucial that key messages be concisely stated if they are offered to the news media as sound bites or quotes. Based on an analysis of 10 years of print and media coverage of emergencies and crises in the United States, the studies found:

- the average length of a sound bite in the print media was 27 words;
- the average duration of a sound bite in the broadcast media was nine seconds;
- the average number of messages reported in both the print and broadcast media was three; and
quotes most likely to be used as sound bites contained compassion, conviction, and optimism.

Adherence to the 27 words/nine seconds/three messages size limitation, or 27/9/3 template, helps ensure spokespersons are quoted accurately and completely in media interviews.

The fifth step in message map construction is to develop supporting facts, information, or proofs for each key message. The same principles that guide key message construction guide the development of supporting information. Proof points, especially when they are highly complex or technical, do not necessarily need to be included in the message map. They are often attached to the map as an appendix. In addition, proof points are often held in reserve to support a particular message if challenged.

The sixth step in message map construction is to conduct systematic message testing using standardized
message testing procedures. Message testing should begin by asking subject matter experts who are not directly involved in the original message mapping process to validate the accuracy of information contained in the message map. Message testing should then be done with partner organizations and individuals or groups who have the characteristics to serve as surrogates for key internal and external target audiences. Sharing and testing messages with partners ensures message consistency and coordination.

The seventh, and final, step is to plan for the delivery of the prepared message maps through trained spokespersons, trusted individuals or organizations, and appropriate communication channels. Once developed, message maps can be used to structure press conferences, media interviews, information forums and exchanges, public meetings, Web sites, telephone hotline scripts, and fact sheets or brochures focused on frequently asked questions.

In conclusion, message maps are a viable tool for communicating information about public health emergencies and disasters. They ensure risk information has the optimum chance of being heard, understood, and remembered. Message maps allow organizations to convey timely, accurate, clear, and credible information. They enable audiences to better understand issues, act constructively upon the information provided, recover more quickly from the stress of the event, and gain or regain trust in risk managers.

Vincent T. Covello, PhD, Director, Center for Risk Communication, New York, New York.

REFERENCES
This article discusses the paucity of information that exists concerning the traumas and stresses that affect emergency responders (ERs) and terrorism investigators (TIs). There has not yet been an in-depth, phenomenological, qualitative study examining the perceptions of ERs or TIs during and after emergency incidents to determine whether their experiences led to serious stress or trauma.

More research is needed concerning the work experiences of these individuals, which is often dangerous, sometimes taking place in horrific settings, and often occurring in high pressure and high profile situations. We do not know why some ERs and TIs are traumatized by their experiences and others are not. We do not know why some are able to cope with their various stressors in a healthy manner when others develop symptoms clearly indicative of acute stress disorder (ASD) and post-traumatic stress disorder (PTSD). We are not certain to what degree the severity of the trauma experienced directly affects the severity of these symptoms, and we have not studied the resultant ability or inability of ERs and TIs to continue to work and interact with family and friends.

By conducting additional studies on this topic, ERs and TIs can be taught better coping mechanisms, we can establish more proactive professional mental health responses, gain a more empathetic understanding of ERs and TIs, and help emergency and law enforcement organizations prepare more effective educational and training materials.

Key words: emergency responders, terrorism investigators, acute stress disorder, post-traumatic stress disorder

This research was begun in an effort to understand the reactions of TIs to the harsh and often dangerous environment in which they are required to work. Due to the recent events following Hurricane Katrina and the fact that existing research clearly demonstrates a commonality between the traumas experienced by emergency responders (ERs) and terrorism investigators (TIs), it was deemed appropriate to expand the focus of this article to address the trauma and stress experienced by both groups.

The writer is currently an assistant professor at Florida A & M University and a veteran of over twenty years as a unit chief and supervisory special agent of the Federal Bureau of Investigation (FBI) who managed counterterrorism investigations from 1991 to 1996, supervising all extraterritorial terrorism investigations occurring in Asia (Pakistan to Japan). Among the cases the writer supervised were the discovery of Ramzi Yousef’s bomb factory in the Philippines and the plot to blow up US flagged airlines in the Pacific, the murders of consular employees in Karachi, Pakistan, and the sarin attack in Tokyo. The writer was also involved in emergency management as the FBI’s representative at the Hawaii federal emergency working group chaired by the Federal Emergency Management Agency. The group engaged in planning, risk assessment, and in recovery efforts from the devastating Hurricane Ineke.

Based upon this experience, the writer has observed that there are three major causes for stress in ERs and TIs:

1. ERs and TIs are often in actual danger in their working environments immediately before, during, and after incidents.
2. There are constant, vivid, and often horri
cific reminders of the incidents long after
y they have occurred. ERs and TIs are
expected to continue their efforts until
their agencies’ goals are met.

3. As natural emergencies and terrorism
incidents are by their basic nature “high
profile,” there are almost always political-
ly motivated demands for immediate and
effective action, accompanied by intense
administrative pressures from within
their own agencies. For investigations,
solving the crime is of paramount impor-
tance. For emergency management,
ensuring that all possible resources are
brought to bear to alleviate the suffering
of the populace is the goal.

These three stressors are often accompanied by
attempts to assign blame to the agencies responsible
for the recovery work or investigations by the media,
special interest groups, and political organizations,
while at the same time these agencies are expected to
accomplish their missions.

As a result, it is not surprising that sometimes
ERs and TIs become stressed. Fortunately, during
the past thirty years or so a greater understanding of
trauma and stress disorders, including acute stress
disorder (ASD) and post-traumatic stress disorder
(PTSD), has emerged to help explain what results
from a single trauma or a series of traumas. This
understanding gives us a greater appreciation for
what happens to ERs and TIs in their work and the
beginning of a strategy to help address their needs.

Prior to the World Trade Center (WTC) bombing,
research concentrated largely upon the traumas and
symptoms experienced by abused women, children,
and Vietnam veterans. Recently, some studies have
explored in a general manner the trauma symptoms
experienced by ERs and TIs due to natural disasters,
terrorist attacks, and major motor vehicle accidents.

After the WTC bombing, some preliminary work
examined how ERs and TIs reacted to the bombing.
In a cursory mental health evaluation of over 11,000
rescuers, recovery workers, and volunteers, about 50
percent were found to meet the “threshold criteria for
clinical mental health evaluation,” yet only three per-
cent said they had sought mental health services prior to
being interviewed. It is not known whether others who
were interviewed later sought professional counseling.

METHOD

The literature of the past decade was searched for
articles and studies concerning trauma, stress, ASD,
and PTSD. Particular emphasis was placed on arti-
cles that dealt with ERs, TIs, and law enforcement.
While the selection of articles cited is representative
of the literature as a whole, it is not meant to be a
definitive list.

What is known about adult stress?

Where a situation was “viewed extreme and
threatening, that is contrary to his or her life experi-
ence,” it was considered “psychologically shocking”
and could be “interpreted as traumatic.” “Between
40 percent and 70 percent of the population” may
have experienced a traumatic event in their lives. A
subject’s recall of traumas, whether accurate or not,
was found to be the basis for stress-related reactions.

Stress, defined as “hardships, straits, adversity or
affliction,” was considered a nonacute response and
had three defined stages: an alarm stage where one
was “alerted to potential threats”; a resistance stage
where “fatigue, anxiety, tension, and irritability”
ocurred; and an exhaustion stage where physical or
emotional illnesses developed.

As an example, the alarm stage would be when an
emergency responder watches weather reports con-
cerning an approaching hurricane, is ordered to work,
and is forced to leave his family at home. During this
stage stress is very common. Continuing with this
example, the resistance stage would include the time
preparing for the hurricane, managing the response,
and responding after the storm has ended. During
this stage the responder works long hours, is required
to accomplish many tasks, usually under very trying
circumstances, and often feels “put upon” by the media
or politicians to justify what he is doing or has not done.
During this stage stress may be well elevated.
While the experience of stress during these first two stages is normal and occurs in the majority of ERs and TIs, the third stage is considerably more problematic. Generally, symptoms observed during this stage are nonspecific in nature, such as irritability or shortness of temper. Some ERs and TIs progress to this third stage, exhaustion, exhibiting symptoms that suggest a progression to ASD or PTSD. ASD symptoms were described as a “more acute reaction and of briefer duration” than PTSD. If symptoms lasted less than one month, the disorder was considered ASD; if its duration was in excess of one month, it was diagnosed as PTSD.

Examples of acute PTSD symptoms included nightmares, intrusive or distressing recollections, guilt, denial, flashbacks, shock, outbursts of anger, emotional numbness, hypervigilance and exaggerated startle response, panic, feelings of loss, disorganized thought, memory impairment, detachment, anxiety, poor judgment, inability to concentrate, lack of trust, and avoidance of activities, places, thoughts, and feelings or discussions related to the trauma.

In the exhaustion phase, the writer has encountered personnel who had to be removed from their work assignments for the following observed symptoms: nonperformance of work (from an employee who had been a superior performer), insubordination (from a TI who had never before exhibited any rebellious behavior), excessive alcoholic consumption (from employees who had been moderate or nondrinkers prior to their assignments), abrupt personality changes noted by peers or managers (in a variety of instances), and an exaggerated sense of the importance of their work (in one memorable instance the TI often remarked, “But boss, no one else can do what I am doing!”). The majority of affected personnel were referred to our Employee Assistance Program for diagnosis and professional counseling. It was not management’s function to determine whether someone had ASD or PTSD; they were only concerned if emotional problems interfered with the individual’s job performance. Unfortunately, managers were often not in a position to determine whether family situations were disturbed by symptoms of ASD or PTSD.

Could a natural emergency or act of terrorism be a cause of stress, ASD, or PTSD, and, if so, is the severity of the symptoms related to the nature of the exposure to that event?

Classes of trauma that constitute stressors include living through a natural disaster or witnessing a terrorist attack. Intense fear, helplessness, terror, a threat of seriously being injured or killed, or exposure to others seriously injured, killed, or traumatized needed to be present to fall within this category. After the Oklahoma City bombing, a study of persons in the community who were not directly involved as victims, including ERs and TIs, showed that there was a consistently strong relationship between an individual’s exposure to a traumatic event and the “number, severity and persistence” of PTSD symptoms.

Is the trauma experienced by ERs or TIs in a dangerous, shocking, or high-profile environment sufficient to cause symptoms of stress, ASD, or PTSD?

“Exposed disaster workers are at an increased risk of ASD, PTSD and depression.” In acts of terrorism, a significant relationship was found between “exposure, proximity and the level of post-disaster” symptoms. “In Vietnam, there was no front line, and in reality there was no front or back to a combat zone. The war was all around the soldier.” Operating in a hostile foreign environment where an individual was never sure of the level of danger for an extended period was traumatic and sufficiently extreme to cause many veterans to develop stress, ASD, and PTSD. Physical danger was found to spur symptoms of stress, ASD, and PTSD in persons working and living in the vicinity of major traffic accidents, child homicides, natural disasters, and terrorism incidents.

What are the coping mechanisms used by some ERs and TIs to explain how they manage better than others through similar traumatic events?

Characteristics shown to aid in dealing successfully with great stress include intelligence, self-control of emotions, positive self-image, strong social support within family or work group, optimism, altruism,
a sense of control over the event and the recovery process, spiritual forgiveness, and religious reappraisals.20

How can one assist ERs and TIs in receiving improved mental health treatment, informed and compassionate management, and better educational materials? ERs and TIs should be informed about the specific symptoms they or their colleagues might experience in their work. They should be aware of the specific actions they can take to better protect themselves and their mental health. “Policymakers and clinicians should consider how a coordinated public mental health response” might effectively supply “needed information, counseling and psychological support following terrorist events.”21 Since it has been demonstrated that ERs experience similar symptoms to TIs, these recommendations should apply to them as well.

A CALL FOR PHENOMENOLOGICAL RESEARCH

There has not yet been an in-depth, phenomenological, qualitative study to investigate the stress and trauma experienced by ERs and TIs. A phenomenological, qualitative research design consists of a qualitative study, where as a result of in-depth, one-on-one unstructured interviews, the participant’s perspectives and views of the realities of their situations are closely examined.22

“Qualitative research deals with human lived experience. It is the life-world as it is lived, felt, undergone, made sense of, and accomplished by human beings.”23 Phenomenological research has been defined as consisting of “suspending scientific assumptions” about a participant’s problems, “gaining a descriptive access, through interviews, to the life-world situations,” “an analysis of the meanings of situations” and “the processes that gave rise to them,” and “imaginative variation through which the essentials were first grasped” by the participant and then at a “more general level held by all” participants.24

We should begin by seeking to conduct interviews of TIs within six months of the terrorist incident. This should limit problems associated with memory and recall and allow assessment of the severity of the symptoms felt by the participants.25 We should encourage them to describe the nature of their experiences through extensive interviews, providing researchers with in-depth comments and detailed stories of their experiences.26 In addition, they should describe what they perceive to be the causes of their symptoms, their inner logic, and their understanding of the symptoms they have experienced.27

In particular, questions should seek to elicit responses that describe what the TIs perceived to be the physical and emotional threats inherent within the event or how they felt they were pressured to solve this case of terrorism. EMs and TIs should be queried about whether they believe they were traumatized as a result of this danger or pressure and whether they had any symptoms that would indicate stress, ASD, or PTSD. Of course, the emphasis in all interviews should be to assist participants to recall their experiences.28 Suggestions for interview questions are found in Appendix A and were developed from a review of reported experiences of ERs and TIs in natural disasters, terrorism incidents, traffic fatalities, and juvenile murders.29

The researcher might then characterize the participant’s narrative experiences as being highly, moderately, or not symptomatic of stress, ASD, or PTSD.30 These categorizations would allow the researcher to organize data for later in-depth analysis.31

CONCLUSION

There is presently no real baseline of knowledge concerning how trauma and stress affect ERs or TIs. Future studies should help mental health professionals better understand how ERs and TIs respond to traumatic events and to determine how prevalent ASD and PTSD are among this select population.

Through such understanding, the mental health community can provide ERs and TIs with effective coping mechanisms and treatments to help them overcome these symptoms, return to work, and resume their normal lives. Commonalities are expected to be found between the experiences and symptoms of ERs and TIs that should allow mental health professionals to apply lessons learned from one group to the other. In addition, emergency services and law
enforcement managers will increase their understanding and empathy for their ERs and TIs and push to develop better educational materials, increase the availability and acceptability of professional counseling services, and provide their frontline staff with the necessary time to heal from traumas without negative administrative action.

Finally, ERs and TIs will gain insight to help them cope with the traumas they are likely to experience, have information on hand that will enable them to make their own informed determination as to what their response is to a stressful event, and be aware of and encouraged to use the professional mental health services available to them.

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Thomas J. Friedman, JD, Assistant Professor of Criminal Justice, Department of Sociology and Criminal Justice, Tallahassee, Florida

REFERENCES


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### APPENDIX A. OPEN-ENDED QUESTIONS FOR EMERGENCY RESPONDERS AND TERRORISM INVESTIGATORS

The questions below are designed for individual emergency responders and terrorism investigators following an emergency/terrorism event that they were personally involved in. Each question should be posed within the context of this event (e.g., “Since you began your work at the __________________ scene...”) to help gauge the level of specific stress-related attitudes and behaviors caused by this event.

1. Have you noticed you are drinking more?

2. Have you had recurrent thoughts, memories, or dreams of the event or your related investigative actions?

3. Have you avoided feeling or thinking about the event or your related investigative actions?

4. Have you noticed a reduced emotional response to your family, friends, and coworkers?

5. Have you found it difficult to fall/stay asleep? If so, do you know why?

6. Have you been irritable or angry? If so, do you know why?

7. Have you had any memory problems or forgetfulness?

8. Have you felt frustration with the pace of the investigation and/or antipathy toward your superiors or coworkers? If so, do you know why?

9. Have you found any coping mechanisms to help you deal with the stress you have experienced?

10. Is there anything else you would like to tell us about your feelings or thoughts that you think would help us understand your response to this event?
Abstract

With the recent actual, and the anticipated possible, disastrous events in this country, it is an absolute duty of responsible agencies on all levels to prepare and improve the medical response system. Past experience has shown that one critical area of preparedness that needs to be addressed is the available number of trained individuals in the public health workforce that can and will respond. We propose that the dental profession, with proper additional training and integration into an organized healthcare system, can be one additional source of this much needed manpower.

Key words: disaster, surge response, dental profession

Introduction

Disasters are different in magnitude than routine emergencies, and disasters often pose unique problems that are not present in routine emergencies. Disasters disrupt the normal lives of a population, and the resources available for response are likely not adequate for the given situation. Disasters involve different levels of government, change the command structure of responding organizations and their programmed tasking, and can disable the medical facilities and emergency personnel that routinely respond. Further, it is likely that response confusion will result, which can include a failure in communication due to both the physical destruction involved and the new evolving command and control structure.

Catastrophic events have the potential to place severe stress on the manpower resources of medical and public health systems. A requirement for effective response from the health systems may be the existence of a reserve “surge response” capacity. This surge response may be defined by temporal parameters: 1) short term with a very high casualty volume, e.g., aerosol weapons-grade anthrax over an urban area; and 2) sustained labor with intensive demands, e.g., avian flu. Moreover, surge response can also be considered a spatial/density manpower adaptation to highly demanding events, such as 1) overwhelming casualties or demand for preventive treatment, e.g., smallpox vaccinations; 2) shortage of health workers due to casualties, fear, or infrastructure destruction preventing movement; and 3) newly operational event-driven systems, e.g., telephone triage by public health departments for an emerging disease. This surge manpower demand is especially present in urban settings because the high population density and reliance on a complex and concentrated urban infrastructure (e.g., mass transit systems, tunnels and bridges, and high-rise buildings) adversely affect the ability to meet surge capacity needs. In addition, these factors hinder the ability of healthcare workers to report to work during various overwhelming events, and even their willingness to report under those circumstances may be limited.

With recent events such as hurricanes Katrina and Rita and anticipated events such as a possible Avian flu pandemic or large-scale acts of terrorism, it is an absolute necessity that the medical care infrastructure and emergency services work toward preparedness for major disasters. Preparedness requires that many areas be addressed: risk analysis, prevention and surveillance planning response efforts, training, and storing additional equipment and supplies. Finally, the most pressing issue, and the one that is the focus of this paper, is increasing the medical manpower available to meet the demands of these events. As an example, in 1994 more than 5,000 people presented themselves to hospitals in Tokyo after the release of sarin gas in the
subway, all needing to be evaluated, and yet 80 percent were released after examination without requiring any treatment.³

Experience indicates that to be properly prepared for a disaster, additional trained, willing, and available personnel should be identified beforehand to insure optimal survival rates and healthcare outcomes. To meet such surge medical and public health manpower needs, a paradigm shift may be required in terms of projecting the sources and potential roles of catastrophic-event responders. A surge capacity must be built by drawing on and training other professionals to complement the traditional medical and public health workforce. Clearly, these personnel sources require some familiarity with health/public health principles and practice and must be from an elective health service, as the normal day-to-day demands on the surviving medical and public health services will continue during any type of disaster. Dentists, with their healthcare training and clinical skills, are one group of professionals that is prototypical of these requirements for a surge reserve medical/public health group.

The New York University School of Medicine and the New York University College of Dentistry were jointly awarded a Department of Justice (DOJ) and, subsequently, Department of Homeland Security (DHS) grant entitled “Enhancing Medical and Public Health Capabilities during Times of Crisis.”⁴ This grant is the mechanism being used to develop training content and programs for dentists (and other potential responders) that heighten their knowledge of weapons of mass destruction and other “all hazards” catastrophic events to prepare them for potential inclusion in responding to such events, e.g., by complementing emergency room staff, performing triage, providing certain basic hands-on skills, and possibly playing a role in decontamination. For example, some grant activities have shown that as members of the local (New York City) Medical Reserve Corps (MRC), dentists are very effective in manning points of distribution, which distribute medications or vaccines to an affected population.⁵ In addition, a limited number of dental personnel have been trained in telephone triage by the NYC Department of Health for epidemiological tracking in widespread infectious disease reporting.⁴

**METHOD**

First, a broad consensus must be established regarding the utility of the concept of nontraditional medical and public health professionals as a surge manpower resource. A critical element in the discussion when considering dentists in that role is assessing how committed the leadership of the medical and dental professions is to the concept in general and what specific roles it envisions. This question motivated a survey that was reported by the NYU grant team on their Web site http://med.nyu.edu/chip: What is the attitude of the academic and professional leadership of the medical and dental communities regarding the participation of dentists in a surge manpower environment? This leadership is defined as deans of US medical and dental schools, presidents of state medical and dental societies, and a select group of national experts and leaders in catastrophic response. This survey is a first look at the issue, and the survey can subsequently be modified and applied to other targeted catastrophic event planners, e.g., emergency management officials, emergency medicine directors, and state public health directors.

The targeted academic and professional leaders were invited to complete a mailed, self-administered, structured questionnaire on their opinions about the potential roles of dental professionals in a catastrophic event. The questionnaires were prepared by this project’s staff and included 22 categorical items with an open-ended comments page. Questionnaires were sent twice at an interval of two months. The data from completed questionnaires were double-entered and then statistically analyzed. A total of 261 questionnaires were sent to five groups of health profession leaders: the deans of dental and medical schools, the presidents of dental and medical societies, and other experts. As to the distribution of questionnaires sent, 46 percent of the questionnaires were mailed to deans of medical schools, 20 percent to deans of dental schools, and 16 and 13 percent to presidents of dental and medical societies, respectively (Table 1).

**RESULTS**

Overall, this survey found broad, statistically supported agreement among the leadership groups
that dental professionals have skills that can be part of a catastrophic response team; in fact, they have an ethical obligation to provide assistance during the response to such an event. This favorable view of dentists’ involvement in catastrophic-event response appears conditional on some type of significant additional training and integration into an organized response system. Although all groups agree that dentists need additional training, there was not strong agreement that dental professionals are receptive to additional training, or that medical professionals would be receptive to assistance in a surge environment. The survey’s reported findings may suggest that most communities are in the early stages in surge response planning and that the public health infrastructure has not yet given sufficient deliberation to the idea that response systems could utilize this potential manpower pool.6

In terms of specific tasks suggested in the survey questions, the traditional forensic role of dentists is strongly recognized and supported. Other tasks deemed acceptable tend toward minor surgery, infection control, and prescribing medications. Medical school deans are less favorably disposed toward tasks that may be construed as “medicine,” i.e., taking medical histories and interpreting radiographs. These may be real limitations, or they may only apply to those dental professionals without advanced and/or hospital training.

**DISCUSSION**

It can be concluded that the medical and dental academic communities and the dental profession’s organized leadership, as well as specialists in the field, see a role, and perhaps obligation, for dentists in meeting surge manpower requirements in response to catastrophic events. This role will require additional training. Definitions of specific tasks and the operations/systems in which these tasks will be performed need to be developed. The leadership of more varied catastrophic response stakeholders, i.e., first responders and emergency room directors, should be both informed of these findings and assessed as to their views. This survey should initiate serious discussions of “stepping outside the box” in thinking and planning for surge manpower demands. Other “elective” health services personnel may consider their roles in light of this report’s findings that dentists can potentially participate in catastrophic-event response. The overall results and recommendations summarized by this DOJ/DHS-funded report are clearly that the healthcare surge response manpower pool must be considered by the wider professional community.

The following proposals bear consideration by the dental, medical, and public health leadership:

1. Dental curricula should be redesigned and should incorporate education in catastrophic-event procedures in the dental and graduate programs.

2. Dental educators, in collaboration with their medical counterparts, should develop

### Table 1. Questionnaires received and returned by health profession leaders

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Number of questionnaires sent</th>
<th>Number of questionnaires filled out and returned</th>
<th>Percent returned of the number sent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental school deans</td>
<td>53 (20.3 percent)</td>
<td>32</td>
<td>60 percent</td>
</tr>
<tr>
<td>Medical school deans</td>
<td>120 (46.0 percent)</td>
<td>36</td>
<td>30 percent</td>
</tr>
<tr>
<td>Dental society presidents</td>
<td>42 (16.1 percent)</td>
<td>26</td>
<td>62 percent</td>
</tr>
<tr>
<td>Medical society presidents</td>
<td>34 (13.0 percent)</td>
<td>7</td>
<td>21 percent</td>
</tr>
<tr>
<td>Other experts</td>
<td>12 (4.6 percent)</td>
<td>7</td>
<td>58 percent</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>261 (100 percent)</td>
<td>108</td>
<td>41 percent</td>
</tr>
</tbody>
</table>
catastrophic-event continuing-education programs for the dental community.

3. Catastrophic-event training for dentists should be flexible in adapting to future defined roles and should be particularly attentive to the local medical and public health infrastructures.

4. Various other professional leadership groups should be included in more detailed role/tasking surveys regarding dentists’ and other professionals’ participation in catastrophic-event response (e.g., state public health officers, Office of Emergency Management).

5. Command and field exercises testing prototype operations and systems that incorporate dentists and other nontraditional medical support personnel should be encouraged at the levels of institutions (e.g., hospitals), communities (e.g., Office of Emergency Management), and federal government (e.g., DHS, Health and Human Services).

6. Surveys and assessments should be done of individual members of the dental profession regarding their willingness to participate and be trained in catastrophic-event response.

Since September 11, 2001, and the anthrax attacks that followed, the federal government has increased the support, development, and national attention given to public health emergency preparedness. The survey reported here suggests one willing and appropriately trained supplemental workforce that can be developed for catastrophic-event response. However, the challenges to the use of surge or supplemental healthcare professionals that can be mobilized to respond within an organized preplanned system are significant. Hospital administrators involved in responding to the World Trade Center tragedy reported that they couldn’t use medical volunteers when they were unable to verify the volunteer’s identity, licensing, and credentials (training, skills, and competencies). In effect, this precious, needed surge force of unorganized individuals could not be used.

At least two systems are now in place and are available to emergency healthcare planners to insure that surge volunteers have a professional license, have recognized professional skills, and may have additional preparedness training. Congress recognized the need to make optimum use of volunteer health personnel in an emergency and authorized the development of an Emergency System for Advance Registration of Health Professions Volunteers (ESAR-VHP).

<table>
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<th>Table 2. DHS planning scenarios</th>
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<tr>
<td>Scenario</td>
</tr>
<tr>
<td>1. Improvised nuclear device attack</td>
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<tr>
<td>2. Aerosol anthrax attack</td>
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<tr>
<td>3. Pandemic influenza</td>
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<tr>
<td>4. Biological attack with plague</td>
</tr>
<tr>
<td>5. Chemical attack with blister agent</td>
</tr>
<tr>
<td>6. Chemical attack with toxic chemical agent</td>
</tr>
<tr>
<td>7. Biological attack with foreign animal disease (foot-and-mouth disease)</td>
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<tr>
<td>8. Chemical attack with nerve agent</td>
</tr>
<tr>
<td>9. Chemical attack resulting in chlorine tank explosion</td>
</tr>
<tr>
<td>10. Major earthquake</td>
</tr>
<tr>
<td>11. Major hurricane</td>
</tr>
<tr>
<td>12. Radiological attack with dispersal device</td>
</tr>
<tr>
<td>13. Attack with improvised explosive device</td>
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<tr>
<td>14. Biological attack with food contamination</td>
</tr>
<tr>
<td>15. Cyber attack</td>
</tr>
</tbody>
</table>

Source: DHS National Planning Scenarios.
Table 3. National preparedness capabilities; national priorities

<table>
<thead>
<tr>
<th>Priority</th>
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<tbody>
<tr>
<td>1. Implementation of NRP and National Incident Management System</td>
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<tr>
<td>2. Implementation of the Interim National Infrastructure Protection Plan</td>
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<tr>
<td>3. Expanding regional cooperation</td>
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<td>4. Strengthening capabilities in interoperable communications</td>
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<tr>
<td>5. Strengthening capabilities in information sharing and collaboration</td>
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<tr>
<td>6. Strengthening capabilities in medical surge and mass prophylaxis</td>
</tr>
<tr>
<td>7. Strengthening capabilities in detection and response for chemical, biological, radiological, nuclear, and explosive weapons</td>
</tr>
</tbody>
</table>

the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, Section 107. The Health Resources and Services Administration (HRSA) was delegated the responsibility for carrying out this legislation and is assisting each state (and territory) in establishing a standardized volunteer registration system. The establishment of these standardized systems will give each state the ability to quickly identify and better utilize health profession volunteers in emergencies and disasters.

The program goal of ESAR-VHP is to have in place state-based systems that will, when complete, form a national system that will allow efficient utilization of health profession volunteers in emergencies by providing verifiable, up-to-date information regarding the volunteer’s identity and credentials. This will allow for the quick and easy exchange of health professionals with other states. Through extensive collaboration with individual States, professional associations, accrediting organizations, and federal partners, HRSA developed draft interim Technical and Policy guidelines and Standards and Definitions guidelines. Pilot testing of the guidelines began in spring 2005 for physicians, registered nurses, and behavioral health professionals, with 10 states involved. The next version of the guidelines will involve credentialing standards for additional high-priority occupations, including dentists, paramedics, and pharmacists.

The second system, already in place, that organizes health professionals in anticipation of a potential mass-casualty incident is the Medical Reserve Corps (MRC). It is a specialized component of the Citizen Corps Council (CCC) that offers an opportunity for all healthcare providers to become an integrated part of an emergency response plan. The CCC is a national network of volunteers dedicated to making sure that their families, homes, and communities are safe from terrorism, crime, and disasters. The MRC program was officially launched as a national community-based system in July 2002 and is overseen by the US Office of the Surgeon General. Its mission is to organize teams of local volunteer medical and public health professionals who can supplement existing community emergency response plans.
response systems during large-scale emergencies. There are approximately 420 MRC units nationwide. There is no “typical” MRC unit; each unit is organized to meet its area’s specific response goals.8

DHS began the process of developing this country’s National Response Plan (NRP) using 15 emergency scenarios developed by the president’s Homeland Security Council, 12 of which are terrorist events.9 According to DHS, their purpose was to form the basis for identifying the capabilities needed to respond to a wide range of major emergency events. These 15 scenarios were developed to identify a range of unique tasks and critical goals, all of which illustrate the scope and magnitude of large-scale catastrophic emergencies for which the nation needs to be prepared (Table 2). DHS also issued the National Preparedness Guidance in April 2005, which provides information, instructions, and examples on how to prepare to prevent, protect from, respond to, and recover from a major disaster.10 This guidance identifies the most urgent needs for enhancing national first-responder preparedness capabilities in terms of seven priorities (Table 3). The first three are more general priorities that will improve overall planning effectiveness. The latter four are more specific goals that will improve capabilities in selected areas in which there is an urgent national need. The one that we are most concerned with, that may demonstrate a potential role for the dental and other health professions, involves strengthening capabilities in medical surge and mass prophylaxis (#6). DHS-written guidance on this issue urges a multidisciplinary and multijurisdictional collaborative approach to ensure effective response capabilities. It calls for meaningful integration among public health, healthcare services, and other appropriate disciplines to enhance the number of surge volunteers.10 The issue of increasing the surge resources involves supplies, facilities, equipment, transportation, and most importantly staffing. There may be short-term solutions now in place for a controlled event such as a plane crash or a train wreck but certainly not for a major disaster over a large geographical area. There may be legal and regulatory obstacles to overcome, but planning must take place to identify available healthcare volunteers and to implement a viable response strategy.

The report of the survey of dental and medical leadership described here is one attempt to develop a source of additional healthcare personnel—members of the dental profession—that can be trained and organized to respond in an overwhelming disaster and that would set a pattern for the other health-associated professions. The full report is presented at http://med.nyu.edu/chip.

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David L. Glotzer, DDS, Clinical Professor, Department of Cariology and Operative Dentistry, New York University College of Dentistry, New York, New York.

Walter J. Psoter, DDS, PhD, Assistant Professor, Department of Epidemiology and Health Promotion, New York University College of Dentistry; Associate Professor, School of Dentistry, University of Puerto Rico, New York, New York.

REFERENCES
ABSTRACT
Rather than simply watch horrific events unfold, many citizens do everything in their power—immediately—to help; they seek outlets for their energy. Organizations that use citizen assistance, while grateful, often find the outpouring difficult to manage. This article describes a positive experience with the American Red Cross (ARC) as a citizen-turned-volunteer. It notes observations about the organization’s management of volunteers during a two-week deployment at regional headquarters in late November 2005 in Baton Rouge, Louisiana, where disaster relief for Hurricanes Katrina and Rita, combined into one disaster relief effort, was scaling down. The volunteer experience was positive because ARC was well organized and catered to expectations. ARC proved to be the natural choice for a volunteer outlet. The ARC can be considered a giant conduit for training, turning bystanders into volunteers and deploying them quickly to disaster relief in the field at little expense.

INTRODUCTION
The September 11, 2001, bombing and collapse of the World Trade Center was the United States’ eighth peacetime disaster to involve more than 1,000 fatalities; Hurricane Katrina is the ninth. Disasters are a “growth business,” experts say, with costs attributed to disasters having increased 15-fold in 50 years and numbers of people affected having tripled in a generation.

This article describes my experience as one of 60,000 newly minted American Red Cross (ARC) relief workers helping hurricane victims in a two-week deployment, from November 29 to December 13, 2005, at ARC regional headquarters in Baton Rouge, Louisiana. At that time, ARC had combined relief for Hurricanes Katrina and Rita into a single disaster relief effort. Some general concerns about volunteers—motivation, isolation, time, cost, training, and satisfaction—will factor into a discussion of volunteer work and ARC management of volunteers.

VOLUNTEERS CAN SWAMP THE SYSTEM
Americans’ per capita expense for international disaster relief is $0.96, while Europeans’ is $1.50. But government tallies do not tell the whole story; citizen volunteers provide in-kind labor for humanitarian efforts in an unquantified, perhaps unquantifiable, effort. Volunteers respond to disasters in droves, and relief coordinators want to tap into that enthusiasm and energy. Volunteers provide needed services—first aid and initial emergency response, for example. Over 31,000 bystanders performed search and rescue after the Loma Prieta earthquake. Volunteers routinely provide transport for victims needing medical care. Using volunteers for such jobs may be a valuable and practical use of local assets, since in a disaster most patients and injuries are noncritical. It may conserve available professionals for critical cases, keep them at their posts, and avoid wasting mismatched resources. Unfortunately, it is difficult to control volunteer forces.

Disasters are not simply big emergencies. One cannot “command” a disaster the way a general commands a battle. Command and control are fragmented. Volunteers, money, and activities “flow” in what is known as “convergent volunteerism.” Converging helpers try to help the process work harder, faster, and longer, but they can swamp the emergency response and must be managed, lest their own
injuries\textsuperscript{13} or disorganization\textsuperscript{11} create a disaster within a disaster.

**VOLUNTEERS IN DISASTER PLANS**

Relief efforts may not have plans to handle volunteer crowds, or those plans may require alteration. To coordinate the outpouring of aid from medical volunteers, for example, hotlines are often set up, sometimes only to be shut down the next day.\textsuperscript{1} Seeking an outlet for my energy, I called the ARC of Massachusetts Bay hotline and, after several tries, was connected with a live contact. I was able to access online registration for training. My time to deployment, however, lasted nearly four months, while ARC national headquarters mounted an unprecedented effort to train new volunteers for the Disaster Services Human Resources (DSHR) pool. ARC geared up to make 60,000\textsuperscript{4} new volunteers DSHR-ready in a disaster response both quantitatively and qualitatively different from that staged for its “normal” emergencies.

In the federal government’s National Response Plan, ARC is the only nongovernmental organization to figure in.\textsuperscript{14} It has a congressionally chartered role to provide mass care (Emergency Support Function #6), accomplishing that role by using, coordinating, and managing a network of nearly one million national volunteers.\textsuperscript{4} In training civilians and deploying them as volunteers, ARC builds capacity while it gets civilians out of the way, puts them to work, and ensures continuation of important community services.

**WHO ARE VOLUNTEERS?**

ARC volunteers come from all states and all walks of life\textsuperscript{4}; at Baton Rouge headquarters, I met volunteers from 13 states. In my team of six, ages ranged from 22 (supervisor) to 65 (workers); they were African American, Asian American, and White. During my deployment, I estimated the number of people in headquarters at 128 each day. Volunteers generally had few time constraints in their daily lives; they were largely young people freshly out of college and with no job, or retired older people, mostly nonprofessionals. Professionals with expertise required for disaster relief were also present—information technologists, labor negotiators, operators of large vehicles. There were two disabled volunteers (one with a canine) and several husband-and-wife teams. All volunteers had been deployed a very short time after notification (48 hours in my case), a good indicator of ARC’s organizational strength in providing manpower immediately. In predeployment training, ARC described Katrina relief as large enough that all new volunteers would likely be deployed. ARC used DSHR to identify candidates randomly, meaning that the timing of deployment was unpredictable.

**ARC WORK**

**Functional organization**

ARC work was organized according to the role of each activity in the relief operation, functionally rather than occupationally.\textsuperscript{15} Every labor function had an acronym, and its headquarters bore a sign. Staff Services, Bulk Distribution, Labor Relations, Client Services, In-Processing, and Out-Processing (volunteers’ sign-in and sign-out), to name some, were all separate functions. Volunteers worked in teams, with no apparent cross-functionality. My assignment was CLS/CC/SA (Client Services, Call Center unit, Staff Associate). Client Services is divided into Call Center, Home Visits, Research and Resolution (R&R), and Appeals. Work assignments had been preassigned by the deploying chapter in consultation with ARC’s national organization, which manages the central database of work needs. Assignments are subject to confirmation upon arrival but in practice do not change, even though the situation on the ground evolves.

**Character of work**

Call Center work entailed calling clients to inquire whether they had received assistance or if they still needed it (Table 1). An estimated 6,000 client intake forms, completed in early October, had recently been found, apparently unprocessed. Nearly 7,000 checks had been returned uncashed. The missing forms and checks represented about 4 percent of over 300,000 households served by November 30, 2005, when the November 18 deadline to submit an application for assistance passed. (Client Services...
had processed about $247 million for Hurricanes Katrina and Rita by then,\textsuperscript{16} compared to ARC’s total relief for Hurricanes Katrina, Rita, and Wilma: approximately $2.1 billion between 1.2 million families as of February 3, 2006.\textsuperscript{4} In eight and a half call days, I was able to ascertain definitive case status for less than one third of my calls to or research on clients. For fully 71 percent of cases, clients were unreachable or information was incomplete. There was enough case research to keep volunteers occupied for weeks calling clients. This record speaks volumes about the amount of work that still needed to be done to locate and assist clients despite the deadline. It also attests to ARC’s strong commitment to helping these clients. In identifying those who still needed assistance, I helped a few people by facilitating their aid. If the proportions in Table 1 were to hold true for all unreachable clients (and if it were possible to reach them), I could have doubled my identifications. Multiplied by all Call Center volunteers over the

<table>
<thead>
<tr>
<th>Venue</th>
<th>Calls/call slips/client records</th>
<th>Disposition</th>
<th>Disposition number (est)</th>
<th>Percent</th>
<th>Disposition number (est)</th>
<th>Overall percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baton Rouge HQ</td>
<td>90 calls</td>
<td>“Closed”: No answer/left message/disconnected/no longer at address (after one attempt)</td>
<td>50</td>
<td>56</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Closed”: Received aid</td>
<td>10</td>
<td>11</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Closed”: Did not receive aid, no need</td>
<td>20</td>
<td>22</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Completed”: Did not receive aid, has need; complete intake form and send to supervisor</td>
<td>10</td>
<td>11</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Baton Rouge HQ</td>
<td>27 case records</td>
<td>“Incomplete”: Needs a clarifying phone call to client or needs further research</td>
<td>25</td>
<td>73</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Closed”: Received aid, research complete</td>
<td>2</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Closed”: Did not receive aid, no need (research verified that aid was denied appropriately)</td>
<td>0</td>
<td>0</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Completed”: Did not receive aid or aid needs to be reissued, has need; complete intake form and send to supervisor</td>
<td>4</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Possible fraud”: Apparent duplication of assistance or multiple aid applications</td>
<td>3</td>
<td>9</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Alexandria local chapter</td>
<td>82 call slips</td>
<td>“Closed”: No answer/left message/disconnected/no longer at address (three attempts)</td>
<td>135</td>
<td>78.5</td>
<td>172</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>“Closed”: Received aid</td>
<td>7</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Closed”: Did not receive aid, no need</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Completed”: Did not receive aid, has need; complete intake form and send to supervisor</td>
<td>30</td>
<td>17.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>199</td>
<td></td>
<td></td>
<td></td>
<td>296</td>
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</tr>
</tbody>
</table>
entire relief period, this would have produced a better result. Often clients told me that assistance would have been helpful earlier but to save it for a needier person now. I either called from ARC regional headquarters or traveled to the Central Louisiana ARC chapter in Alexandria, where many evacuees had sought shelter, to call from there. If my home had been set up as an off-site location, I could have worked there without need for travel. ARC had off-site Call Centers, but we performed our function in Baton Rouge.

My two final days were in R&R. Workers there consulted three databases to research client assistance. The client assistance system (CAS)—the major database—was slow and cumbersome, with an unwieldy search function; the others were not linked to it and contained fewer data. All three contained duplicate records.

The financial assistance system was paper-based. Although headquarters and the two national databases, DSHR and CAS, ran on custom software, initial field contacts between ARC workers and disaster victims used paper intake forms. In a disaster of this scope, perhaps it was too complex or unreliable to outfit ARC field workers with a scanner/laptop for data entry. A paper-based intake system was bound to produce duplicate files and misplaced forms.

The Alexandria chapter couldn’t accomplish some parts of its disaster relief mission on its own. Headquarters sent me and another volunteer there to help resolve client-assistance questions. In implementing CAS, the chapter said, passwords had been deactivated centrally and were not reinstated by December 2005. Consequently, it could not access records or make decisions about assistance, an illustration of the principle that the source of problems in emergency response is often not volunteers but responding organizations.

Headquarters was located in a converted Wal-Mart in a mall, well outside the impact zone, with access to backup utilities, supplies, and off-duty staff. Wal-Mart had donated the space. In December, it was visibly emptying of the people and office equipment that had previously filled it so completely, workers told us, that there was nowhere to walk.

Supervisors and managers—the decision makers—were volunteers, too, recruited from the same ranks. Sometimes they were not visible. They did not introduce themselves, so for a week I did not know for whom I worked. From the top down, work appeared organized, but looking from the bottom up it was less so. Paper passed from person to person without any case resolution; volunteers did not get the “big picture” about their work. That client assistance could be so problematic was discouraging, but it made me want to facilitate aid for as many clients as possible.

We finally got our instructions near the end of the deployment. The general impression was of an operation winding down. Nearly four months after Katrina, ARC relief activities were transitioning into the next phase of disaster—recovery—in which federal and community supports resume and ARC no longer plays a role. ARC is a relief agency, not a rescue or recovery agency. ARC believed at that time that the majority of survivors had already received aid, and so the emergency financial assistance program could be scaled back. Not many clients could appeal a rejected aid application successfully. We were given talking points for our calls, stressing the temporary one-time gift of money for basic life necessities. We told clients that federal and state aid were available and that ARC efforts were now being given over to partnering with local organizations. Some activities were predicted to remain in place for years (ARC still performs mental health casework for victims of 1992’s Hurricane Andrew), while others were being phased out. As Call Center and Home Visits closed, they generated work in other functions (R&R and Appeals), typical of a contracting rather than expanding system. It was an interesting backdrop against which to view disaster relief.

ARC VOLUNTEER

In managing volunteers, ARC pays attention to volunteers’ motivations, isolation, time, cost, training, and satisfaction.

Volunteer motivations

Volunteers enlist for altruism as well as a variety of motivations beyond the desire to help their neighbors. People may want to socialize, or they
may simply want something to do. They may think that a family member could benefit. Some consider a volunteer assignment as a bridge to employment or an opportunity to gain skills and experience. I met three who fit this latter category, one a former Peace Corps volunteer reintegrating into the working world.

Organizations now try to design experiences to attract more and a wider variety of volunteers, taking a customer-orientation approach. Organizations administer surveys to volunteers to ascertain the best fit for each. Volunteers can choose outlets for (and ownership of) their social capital from many types of experience, varying from traditional religious work to community service to student internships.

No Volunteer Functional Inventory or similar instrument was administered. ARC did not attempt to “attract” me. ARC has executed its mission since its charter in 1905, always providing the same stable of services. With a specific, event-driven mission, it does not have to attract volunteers to quite the same degree as other nonprofits. It has a nurtured brand image, a point driven home in orientation materials. ARC is a clearly defined organization with high visibility. Its volunteers are distinct, and they do not dilute ARC program capacity; in fact, they enhance it. I considered the time-honored ARC to be the best, most logical, and natural choice for me.

Isolation

Volunteers’ experiences are as multidimensional as their motivations. Volunteers internalize their experiences differently. No two volunteers or experiences are alike, even in the same function. Families and friends may uniformly praise a volunteer’s effort but can’t share in the details, and consequently volunteers sometimes do not feel “heard.” Employers understand altruism but may not excuse an employee’s
abundance. In both situations, a sense of isolation can be created that must be managed with care.

Volunteers sometimes feel “bad” about their assignments. Because of their particular duties, some volunteers in my location had been allocated a rental car. With a car, well-stocked provisions, and freedom to drive around the region, one volunteer felt that she was too comfortable compared to the circumstances of disaster victims. Derogatory comments often come from clients and bad press; “ARC is all about serving their workers, not about serving the victims,” was heard. I did not have a single bad-press incident, but I did hear about ARC’s inefficiency from clients.

I expected all volunteers to be deployed, like me, for two weeks. Instead I found that many had been working on relief for several months, and were referred to as “lifers.” For such people, volunteering becomes what they do. They extend their stay many times, only returning home for a brief rest until the next tornado or hurricane season, unable to disconnect from the volunteer channel. In disaster relief, one can be overcome or have a sense of not being in touch with the world, and one can return home ill.

ARC manages workers’ mental health by trying to lessen isolation. ARC provided ample opportunity to share my experience with other volunteers, outreaching by telephone, e-mail, Web-based survey, “Welcome Home” groups, and shared contact information and resources. Outreach has continued in the weeks since deployment.

Time management
Volunteers on short-term deployments can lose up to four days to travel, orientation, evaluations, and processing. Total effective time in a 14-day stint can amount to only 10 days. A social worker reported that due to poor time management, lack of organization, and a feeling of not being put to good use, no mental health nurse in her rotation extended his/her stay. Sometimes there was a sense of not having enough to do while supervisors sorted out the day’s work. The work day moved in fits and starts, usually with some wasted time. Volunteers adapted to the slow flow but predicted that the resulting work product would be minimal. It was unsatisfying to feel the operation close down. Volunteers complained about not wanting to do “clean-up work” and appreciated getting on the telephone with clients who “always have something nice to say or tell a joke at the end.” New crops of volunteers rotated into assignments every day, with as many as 150 in a group. There seemed to be little continuity between the work teams, some duplication of effort, and an occasional mismatch between the number of arriving volunteers and shifting work needs. “Be flexible” was the motto for these fluid situations, partly due to late-season deployments and the character of volunteer work. ARC is now reportedly studying time management issues to better configure deployments. It could probably manage volunteer extensions and short rotations better but may not be able to influence the larger issues of timing or the kind of work needing to be done in disaster relief.

Cost
My deployment cost $1,345 (estimated) for airfare, per diem, and shared hotel room. For hurricanes Katrina, Rita, and Wilma, ARC deployed 233,760 volunteers, spending $9,052/person. These rough aggregates can’t quantify the humanitarian effort; nevertheless, they are low on a per-volunteer basis. Through vendor arrangements, ARC obtains flights, office equipment, and food at reduced or no cost. The volunteer labor component costs nothing.

Training and deployment
ARC is serious about training the volunteer force. In four evenings spaced over a month, I was schooled in “Introduction to Disaster Services,” “Mass Care,” “Shelter Operations,” and “Client Services,” training that was quickly mounted but not hastily put together. Classes were full, with about 50 students in the first three and 30 in the latter. All volunteers reported the same story: being moved by events, they wanted to sign up, and once they took their training they were deployed. After the initial courses, I was alerted to additional coursework. Specialized training is encouraged as one moves up in the system, to give the workforce a professional, consultant-like orientation and to keep it current. DSHR tracks the professional
development of volunteers, credentialing them and acting as an incentive system for their candidacy for future deployments. Instruction covered basic skills, as well as more complex issues such as client confidentiality, relations with the media and local residents, common pitfalls, and the difference between talking about one’s experience and revealing confidential information.

Some professionals have advanced the opinion that organizations should use only experienced personnel as volunteers, not bystanders like me. Contrary to this, ARC is fully engaged with regular folk and prepares them well. It recruits from the civilian world and is in tune with it, and it may be in a better position to respond to civilian disasters because of this strength. It provides a mainstream venue into which any and all persons—elderly, retired, young, or disabled—can venture.

**DISCUSSION**

As it appeals to civilians for more and more volunteers, ARC seems poised to continue. Worker efficiency and professionalism may require attention, however. A more cross-functional approach to the division of labor—matching up large numbers of non-professional volunteers with smaller numbers of experts, for example—might be more efficient. It might offset feelings of not having the “big picture” or not being put to good use. A higher level of computerization in the field might reduce duplication or loss of records, speed up aid distribution, and make volunteers more effective.

I was fortunate enough to have my experience meet expectations. First, it provided something useful and beneficial to the community, and I felt that I had helped some people. Secondly, it proved that ARC is a flexible, well-organized partner. It waived requirements about minimum deployments and health credentials; I would not have been able to volunteer if the length of stay had not been reduced from three to two weeks or if CPR status were required to be updated. Furthermore, although ARC managers talked up altruism and their love of the organization, ARC did not view my volunteering as something that “should be done” because “it’s the right thing.” My time was appreciated, my assignment planned. The experience was reviewed several times, and feedback was requested. Opportunities to continue my involvement and further my experience have been provided; in short, I was “stroked.” Predeployment organization was so impressive that my family had few qualms about my going. One can’t get lost in ARC. It has standardized planning for the use of volunteers, where they will be sent, and how they will be supervised. It had a job for me to do and provided support. It paid attention to the details of travel and orientation and made use of new technology (electronic debit cards) to ensure daily comfort. I enjoyed being “just a volunteer,” a sentiment shared by others, and so I can be considered a first-rate potential repeat customer.

ARC’s attention to Hurricane Katrina relief is lessening, allowing it to revert back to former training procedures. It is informing new volunteers that deployments are strongly recommended to be three weeks, and proof of health credentials, such as immunizations and CPR, is once again required. Enhancing professionalism and maintaining volunteer quality are ARC organizational aims that are extremely difficult to achieve when requirements are waived. Organizations that waive requirements eventually see negative effects on worker quality.

No matter how much training volunteers undergo, however, their integration into community disaster response plans remains problematic because of fragmented emergency response implementation throughout the country. Even within ARC, program quality varies from chapter to chapter. Until localized plans exist in every community and are more centrally supported and broadly disseminated—a goal that ARC is not designed to accomplish on its own—volunteer efficiency, satisfaction with work, and ultimately ARC’s impact will all be lessened.

**CONCLUSIONS**

Volunteers perform needed services in disaster response, but managing them is a complex undertaking. Ways must be found to integrate volunteers into disaster response. ARC has standardized planning for the use of volunteers. This planning has produced systems that work, evident to me, as a volunteer.
from the moment that I came into the system until well after my return. Organizations like ARC that have a structure and strategies for training and management of the large, relatively untapped, unpaid citizen workforce stand a good chance of being on the cusp of disaster relief and being able to deploy volunteers out into the field quickly and at little expense.

Satisfaction with work relates to the ability of an organization to deliver on the volunteer experience, and ARC volunteer enrollment continues to grow. Most volunteers shared my opinion that the experience was worthwhile. The benefits of expanding manpower ranks are considerable, nurturing ARC's ability to respond, solidifying its image, and enabling it to attain a critical mass that can better help impacted communities, both nationally and locally.22

We are somewhat overprofessionalized today. We hear that disaster response is the work of professionals only. ARC is our only national resource for civilian disaster training. With all that civilians can and must do, ARC provides an excellent outlet for social capital. This is especially important in Louisian today, where large numbers of displaced people want to get back to their old lives. Governmental and bureaucratic inefficiency is paralyzing. The recovery stage of the disaster cycle is a long-term process as complex and fragmented as life. We need to have organizations working in it with the same single-minded purpose and ability to manage the total experience that I saw with ARC. We can help solve recovery problems by organizing people for work.

Kirsten Levy, MBA, Boston University School of Medicine, Boston, Massachusetts.

REFERENCES


37. Drummond H: Personal communication. ARC of Massachusetts Bay Communications and Marketing, February 27, 2006.
The Hospital Emergency Incident Command System—
is the Army Medical Department on board?

Major John J. Casey III, USA, MSSI, MHS

ABSTRACT

Catastrophic scenarios that once seemed merely theoretical have become a stark reality. Horrific natural disasters, the emergence of state-sponsored terrorism, proliferation of chemical and biological agents, availability of materials and scientific weapons expertise, and recent increases in less discriminate attacks all point toward a growing threat of mass casualty (MASCAL) events. Hospitals across America are upgrading their ability to respond to disasters and emergencies of all kinds as the nation wages its war on terror. To respond to these challenges, many civilian hospitals are relying on the Hospital Emergency Incident Command System (HEICS), an emergency management model that employs a logical management structure, detailed responsibilities, clear reporting channels, and a common nomenclature to help unify responders. Modeled after the FIRESCOPE (FIrefighting RESources of California Organized for Potential Emergencies) management system, HEICS is fast becoming a key resource in healthcare emergency management. Over the past couple of years, military hospitals have begun embracing the HEICS model as well. This article discusses the prevalence of HEICS and provides an analysis of its effectiveness within the Army Medical Department (AMEDD).

INTRODUCTION

“Crisis consists of danger and opportunity.”
—Chinese proverb

Emergencies and disasters often cause crises, confusion, and inefficiency in hospitals. They can overwhelm a hospital’s resources, including staff, space, and supplies. Mass casualty (MASCAL) events challenge hospitals already running at seemingly maximum capacity and struggling to remedy inpatient and emergency room overcrowding. In addition to these challenges, hospitals must prepare for the possibility of being the victim or site of a disaster.

The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) mandates that hospitals develop emergency response plans to mitigate the devastating effects associated with emergencies and disasters. One such emergency management model that has been modified for use in hospitals is the Hospital Emergency Incident Command System (HEICS).

The number of hospitals using HEICS in the civilian sector continues to grow, perhaps due to its stated advantages, or perhaps due to JCAHO regulatory compliance issues. Although there has been no mandate by the Army Medical Department (AMEDD) to implement HEICS in Army medical facilities, some have elected to do so. By surveying all 29 US Army hospitals around the world, this article illustrates the effectiveness of HEICS in responding to emergencies and disasters within these military hospitals.

METHODS

The research conducted for this article consisted of an online survey to measure the effectiveness of HEICS in Army hospitals around the world. There have been a few similar studies conducted in civilian hospitals but none in military treatment facilities. The purpose of this survey was to collect information on the utilization of the HEICS model in Army healthcare facilities and the successes or challenges these facilities may be experiencing. The survey was designed to determine the percentage of Army facilities using the HEICS model, examine why
the model was or wasn't adopted, and determine the effectiveness of the model in these facilities.

A pretest of the survey questionnaire was given to several Army officers who are familiar with the HEICS model. Based on their responses, ambiguous questions were identified and corrected. The survey questionnaire was kept short (20 questions) in an attempt to ensure minimum inconvenience for participants. The Internet version of the questionnaire was designed first, and the e-mail follow-up was adapted from it.

The survey administration took place between February 1 and February 28, 2006. Survey questions were developed with the goal of identifying participants’ understanding of the HEICS model as well as the effectiveness of HEICS in their facilities. Twenty questions were included in the survey, designed to determine which military hospitals were using HEICS, why they were or were not using the model, the amount of training provided on HEICS, how often it has been used, and its perceived effectiveness.

<table>
<thead>
<tr>
<th>Table 1: List of Army hospitals surveyed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. US Army Medical Department Activity, Camp Zama, Japan</td>
</tr>
<tr>
<td>2. Brooke Army Medical Center, Fort Sam Houston, Texas</td>
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<td>3. Landstuhl Regional Medical Center, Landstuhl, Germany</td>
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<td>4. Moncrief Army Community Hospital, Fort Jackson, South Carolina</td>
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<td>5. DeWitt Army Community Hospital, Fort Belvoir, Virginia</td>
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<td>6. 121st General Hospital, Seoul, South Korea</td>
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<td>7. Tripler Army Medical Center, Honolulu, Hawaii</td>
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<td>8. Womack Army Medical Center, Fort Bragg, North Carolina</td>
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<td>9. Irwin Army Community Hospital, Fort Riley, Kansas</td>
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<td>10. Blanchfield Army Community Hospital, Fort Campbell, Kentucky</td>
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<td>11. Reynolds Army Community Hospital, Fort Sill, Oklahoma</td>
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<td>12. US Army Hospital, Heidelberg, Germany</td>
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<td>13. William Beaumont Army Medical Center, Fort Bliss, Texas</td>
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<td>14. Walter Reed Army Medical Center, Washington, DC</td>
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<td>15. Evans Army Community Hospital, Fort Carson, Colorado</td>
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<td>16. Bayne-Jones Army Community Hospital, Fort Polk, Louisiana</td>
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<td>17. Keller Army Hospital, West Point, New York</td>
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<td>18. General Leonard Wood Army Community Hospital, Fort Leonard Wood, Missouri</td>
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<td>19. Martin Army Community Hospital, Fort Benning, Georgia</td>
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<td>20. Ireland Army Community Hospital, Fort Knox, Kentucky</td>
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<td>21. Madigan Army Medical Center, Fort Lewis, Washington</td>
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<td>22. Dwight David Eisenhower Army Medical Center, Fort Gordon, Georgia</td>
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<td>23. Darnall Army Community Hospital, Fort Hood, Texas</td>
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<td>24. Lyster Army Aeromedical Center, Fort Rucker, Alabama</td>
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<td>25. Weed Army Hospital, Fort Irwin, California</td>
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<td>26. Bassett Army Community Hospital, Fort Wainwright, Alaska</td>
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<td>27. Winn Army Hospital, Fort Stewart, Georgia</td>
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<tr>
<td>28. US Army Medical Department Activity, Wuerzburg, Germany</td>
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<tr>
<td>29. McDonald Army Community Hospital, Fort Eustis, Virginia</td>
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RESULTS

By the end of the survey period, all 29 Army hospitals had responded, producing a response rate of 100 percent (see Table 1 for a complete list of Army hospitals). Survey participants included commanders, deputy commanders for administration (DCAs), operation officers, and emergency management plan (EMP) custodians. Of the 29 respondents, 3 percent were commanders, 59 percent were DCAs, 21 percent were operations officers, and 17 percent were EMP custodians.

The participants who completed the survey were, for the most part, familiar with the HEICS model. Approximately 62 percent stated that they were very familiar with the system, while only 3 percent claimed they were not at all familiar with HEICS. Most of the participants (56 percent) learned about the system on the job, and only half had ever received formal training on the system outside of their organizations.

The AMEDD has made great strides in adopting HEICS. According to the survey, 79 percent of the 29 Army hospitals in the AMEDD reported some degree of implementation of HEICS.

Although most participants claimed they were very familiar with HEICS, nearly half of them (52 percent) were not sure which version of the system their facilities were using. The most prevalent system in place was HEICS III, which is not unusual, since it is the most recent version released.

Each participant was asked why his or her facility decided to implement HEICS. There were a multitude of answers, but two of the most common were that it met the needs of the organization (20 percent) and to adhere to JCAHO regulatory requirements (23 percent). In fact, 96 percent of the hospitals using HEICS stated they are now using it to satisfy JCAHO emergency management plan requirements.

All hospitals surveyed have held training sessions to introduce managers and staff to HEICS, have run tabletop exercises to increase familiarity with the system, and have conducted live drills in HEICS to evaluate its effectiveness. The frequency of training on HEICS varied greatly throughout the hospitals surveyed. Some trained monthly, and others trained annually; one third trained biannually on the system (Figure 2).

Although HEICS was tested in many of the hospitals through participation in community-wide disaster exercises, only 25 percent of Army hospitals have ever used the system in an actual disaster or emergency. Of the 25 percent who have actually had to activate the system in a real emergency, most used it less than three times in the last 24 months. The system has been utilized in a variety of situations, with the most common (30 percent) being to respond to a MASCAL event, followed closely by response to a natural disaster (25 percent).

Each of the hospitals that responded to an actual emergency using HEICS stated that the system produced excellent results. Of those that have used the system, 12.5 percent stated it worked “very well” and had no complaints, while the other 87.5 percent stated it worked “good,” with only minor adjustments needed. No participant surveyed expressed dissatisfaction with the system.

When looking at those facilities that do not use HEICS, there are some common reasons for their choice. As with any conversion, some resistance occurs when hospitals consider converting to the HEICS model. Some surveyed administrators believe it will be too difficult to change existing plans. Others feel that the system is too cumbersome and convoluted. Further concerns deal with the expense of converting, as well as staff reactions to the new system. The survey determined that 21 percent of the Army hospitals around the world have not implemented HEICS as their emergency management system. Most of these facilities (62 percent) felt that the system was too cumbersome, and the remaining 18 percent thought it was too expensive.

DISCUSSION

Effective emergency preparedness and response requires planning, training, and exercising. A well-established emergency management plan can help accomplish these objectives. The AMEDD has embraced the HEICS model, which is evident in the 79 percent implementation rate in Army hospitals. However, this percentage is still lower than that seen in civilian healthcare facilities. Most Army facilities found that the implementation of the system was simpler than expected. The HEICS manual and the templates for the job action sheets are readily available on the Internet, free of charge.
All Army hospitals that have implemented HEICS have been very satisfied with its effectiveness, and the system received a 100 percent satisfactory rating. The system was deemed effective by hospital administrators in every situation, including mass casualties, fire, natural disasters, bioterrorism, hazardous material accidents, and epidemics. HEICS has proven its effectiveness in both civilian and military environments and should be the standard command structure for emergency response throughout the AMEDD.

CONCLUSIONS

Historically, military hospital standing operating procedures often lacked formal command structure; instead, they relied on the presence of key individuals who were familiar with hospital operations or who were in leadership positions during routine, day-to-day operations. This structure may occasionally prove to be successful; however, it is often unreliable at the time of a crisis and isn’t sustainable during a prolonged event. HEICS provides a command structure that does not rely on specific individuals, is flexible and expandable, and is widely present in the military as well as in fire, emergency medical, and police agencies, thus allowing for ease of communication during emergency management.

HEICS has proven to be a flexible and easily implemented system for disaster response in Army hospitals. This model has a record of reliability and cost-effectiveness within these facilities. Policies directed toward increasing implementation of HEICS as a standard emergency response model could have a significant impact on improving emergency response throughout Army hospitals. The AMEDD should urge not only Army hospitals but also Army health clinics to convert to the HEICS model.

Major John J. Casey, III, USA, MSSI, MHS, HHD 168th Medical Battalion, United States Army.

REFERENCES


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