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# Mobilizing America's Health Care Reservoir

**The tragic events of September 11 have changed the world.** The readiness of this nation and its health care organizations and public health agencies to respond to terrorist acts or to naturally occurring epidemics and disasters has been drawn to the center of public attention by the events of the past three months. How well prepared are we? What needs to be done to substantially strengthen both our response capability and the confidence of the American public in this capacity?

In January 2001, JCAHO introduced new emergency management standards, building on its long-standing disaster preparedness requirements. These standards represent an important evolution in the concept of managing emergencies. They identify four specific phases of emergency management; direct health care organizations to conduct hazard vulnerability analyses in collaboration with their communities; and set forth the specifics of emergency management planning. While the modified standards requirements articulate clear accountabilities for health care organizations, the community relationships that the standards anticipate vary in reality from highly sophisticated to non-existent. The same is true for the *current* state of health care readiness.

Among the multiple challenges on the table are the links between the medical care and public health systems; the absence of templates for creating community-based response systems which can be scaled to the characteristics of individual communities; definition of federal, state, and local accountabilities for response development, testing, and maintenance; and determination of the priorities for, and means for effectively deploying, the finite resources to support these response systems.

In testifying before the Subcommittee on Oversight and Investigations of the U.S. House of Representatives Committee on Energy and Commerce on October 10, 2001, JCAHO president Dennis S. O'Leary, MD, urged Congress to act quickly to improve the nation's bioterrorism response capacity by developing systemwide, integrated community approaches to emergency management that are supported at the federal, state, and local levels. "We as a nation are *not unprepared* to deal with bioterrorism, but this country's public health and medical care systems could be *better prepared* than they are today," said O'Leary (see article on p. 2). There is a reservoir of untapped response capacity. Now is the time to catalogue and organize that capacity and then identify and meet the additional system needs.

In the wake of the September 11 attacks, John Noble, MD, chair of JCAHO's Board of Commissioners, and senior staff from JCAHO traveled to New York City to meet with leaders from health care organizations and public health, government, and other agencies who responded on the frontline in the days and weeks following the event. "The remarkable response and preparedness of those organizations was the result of hospital and regional disaster drills, previous experience with the 1993 World Trade Center bombing, and carefully thought out emergency management planning," observed Noble. The lessons that were reported in those discussions and discussions with other organizations that have successfully managed large-scale emergencies, together with a review of the modified emergency management standards and how they will be surveyed, provide the foundation for this special issue of *Perspectives*. ▲

# SPECIAL ISSUE: Emergency Management in the New Millennium

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# The need for a national bioterrorism response

## *JCAHO's president testifies at Congressional bioterrorism hearings*

The tragic events of September 11, 2001, have served as an unwelcome catalyst to focus on America's ability to deal with terrorism. All aspects of our nation's infrastructure have received renewed attention, and in some cases heightened attention, to their particular vulnerabilities and response capabilities. Recently, JCAHO president Dennis S. O'Leary, MD, urged Congress to act quickly to improve the nation's bioterrorism response capacity.

Federal, state, and local governments urgently need to support the development of systemwide, integrated community approaches to emergency management. The abilities of individual health care organizations, and indeed of communities, to prepare for and respond to the full array of potential threats are seriously limited by the major costs involved. To do their jobs effectively, individual health care organizations must take their lead from responsible federal, state, and local government authorities.

### Recognizing the need

At bioterrorism hearings before the Subcommittee on Oversight and Investigations House Committee on Energy and Commerce in October, O'Leary emphasized that strong links between medical care and public health systems are essential to effectively prepare for bioterrorism. To better prepare the country's medical care and public health systems, O'Leary urged that we "start addressing the identified needs with all due haste."

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Appropriately evaluating and upgrading the capabilities of our medical care and public health care systems will allow us to respond effectively to massive disasters. O'Leary stressed that preparedness priorities include

- training health care workers to become familiar with pathogens that may be used in bioterrorism, their symptoms, and their routes of transmission, and to be alert to the possibility of their use;
- creating a single, integrated system of response to effectively address a full range of diseases and disasters, whether of terrorist or natural origin;
- analyzing community and state preparedness, including available medical facilities and delivery sites;
- establishing a medical/public health surveillance system to promptly detect naturally occurring epidemics and terrorist activity;
- evaluating and resolving issues related to national supplies (for example, vaccines) and how they are distributed; and
- reevaluating national funding policies, which have progressively reduced the ability of the nation's medical system to respond to increased demand (for example, the decrease in hospital beds and closed emergency rooms).

The full text of O'Leary's testimony can be found at www.jcaho.org/news/testimony1010.html.

As part of an ongoing project with the Agency for Healthcare Research and Quality, JCAHO recently surveyed hospitals to assess their community integration for purposes of responding to bioterrorism. Although the survey was conducted before recent bioterrorism threats, some of the obstacles identified by those hospitals without effective community links were lack of community awareness of the issue and, therefore, interest in planning, and inadequate resources for bioterrorism planning and training at both the community and organization levels.

"The modified Joint Commission accreditation standards for emergency management represent a significant step toward improving the nation's readiness for a biological emergency," O'Leary noted. "But national leadership in the area of risk analysis will be necessary to convince many organizations that bioterrorism threats are worthy of their serious attention."

The article "Nuclear, biological, and chemical decontamination" on page 20 provides practical steps to help you prepare. ▲

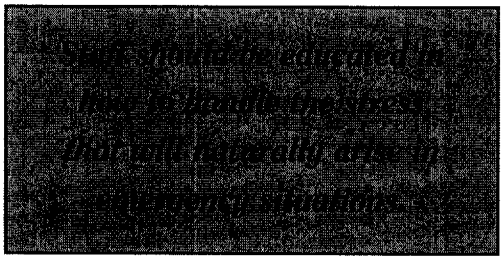
# Developing practical emergency management education programs

## *Preparing staff to respond to crisis*

When emergencies strike, the casualties are not the only victims. Staff members in your organization will be on the front line responding to any emergency your community faces. The best way a health care organization can prepare staff members to meet the challenges of an emergency is to educate them in all aspects of working and protecting themselves in such a situation.

## Methods

Staff education and emergency management training can take place in your facility or off-site. Depending on the nature and subject of the training, staff educators, risk managers, or clinical staff leaders can lead the training. Representatives of your state OSHA office, local police or fire departments, emergency medical service or public health representatives, or equipment and pharmaceutical manufacturers may provide insight and information to prepare your staff to work effectively in an emergency situation.




Education cannot stop at the inservice level. To demonstrate the knowledge they have acquired and confirm competency in emergency-related issues, staff must be involved in realistic drills of a variety of situations. By putting what they have learned into practice prior to a real-life emergency, staff members can become more comfortable with and skilled at these procedures. This can ease staff anxiety over emergency situations and improve efficiency during actual events. These drills should involve clinical and nonclinical staff at all levels.

## Topics

Staff should be educated in the skills required to perform their roles within your organization's emergency plan. Education and training for emergency management is not just for acute care settings. In an epidemic or a terrorist attack, all health care facilities (including ambulatory care, behavioral health, and long term care settings) become a refuge to survivors seeking medical treatment or even safety.

Educate your staff in at least the following areas:

- **Emergency identification.** In today's environment, it is the job of every health care staff member to assess for potential threats within the health care environment and know how to recognize emergency situations. The type of emergency to look for can depend on the staff member's role. For example, security, reception, and administration staff need to know how to handle a bomb threat. Clinical staff need to know the symptoms that could present in a victim of nuclear, biological, or chemical terrorism. Early and accurate diagnosis is key in America's current war on terrorism.
- **Triage.** Clinical staff must be educated in the facility's triage procedures and know how to respond quickly and effectively to help a large influx of patients at one time. Procedures for prioritizing patient needs should be included.
- **Decontamination.** Hazmat experts should be called in to educate staff in this important area. Drills of decontamination procedures should be conducted to train staff in putting on protective gear, following specific procedures, and avoiding further contamination. It is also important that staff learn how to explain decontamination procedures to patients to make them more comfortable and compliant with the process. (See article on p. 20.)
- **Treatment.** Staff may be called on to treat illnesses and injuries that they may not see on a regular basis or in mass quantities. Infectious diseases once almost eradicated or very rare, such as smallpox or the plague, may resurface in a terrorist climate. Treatment procedures should be clear in these instances. In addition to treating victims of an emergency situation, staff should be educated in how to provide treatment without compromising the care of other patients in the facility.
- **Media and crowd control.** Selected staff should be educated on how to handle a large influx of other people into a facility in the wake of an emergency. Large numbers of people present security problems and impediments to smooth operation if not handled properly. Included in this group are members of the media, families and friends of possible victims, and volunteers wanting to help.

  Generally, staff should refer the media to the individual designated to provide them with information. They should be housed in an area some distance from patient care areas (see article on p. 16). Families and friends of casualties may be directed to one centralized area, away from the media, to await information.
- **Stress management.** Finally, staff should be educated in how to handle the stress that will naturally arise in emergency situations. In addition, the organization should plan for counselors to be on hand during disasters to provide further assistance in traumatic times. (See article on p. 19.) ▲

# Using JCAHO standards as a starting point to prepare for an emergency

## *A comprehensive approach to emergency management*

Environment of care (EC) standard EC.1.4 requires hospital, ambulatory care, behavioral health, home care, and long term care organizations to *develop* a management plan that ensures effective response to emergencies affecting the environment of care. Standard EC.2.4 requires these organizations to *implement* the emergency management plan. Standard EC.2.9.1 requires them to *execute* the plan by conducting emergency management drills. Although not required by JCAHO standards, it would be prudent for other types of health care organizations to plan for disasters given today's environment.

How does JCAHO define an emergency? It is a natural or manmade event that suddenly or significantly

- disrupts the environment of care (for example, damage to the organization's buildings, and grounds due to severe windstorms, tornadoes, hurricanes, or earthquakes);
- disrupts care and treatment (for example, loss of utilities—power, water, telephones—due to floods, civil disturbances, accidents, or emergencies within the organization or in its community); or
- changes or increases demands for the organization's services (for example, bioterrorist attack, building collapse, or airplane crash in the organization's community).

EC.1.4 requires organizations' emergency management plans to address the four phases of emergency management activities of mitigation, preparedness, response, and recovery.

***Mitigation activities*** lessen the severity and impact of a potential emergency. Mitigation begins by identifying potential emergencies (hazards) that may affect the organization's operations or the demand for its services, followed by implementing a strategy that supports the perceived areas of vulnerability within the organization.

***Preparedness activities*** build organization capacity to manage the effects of emergencies should one occur. Some of the important preparedness steps include creating an inventory of resources, including supplies and equipment, that may be needed in an emergency, including prearranged agreements with vendors and health care networks; maintaining an ongoing planning process; holding staff orientation and training on basic response actions; and implementing organizationwide rehearsals or drills.

***Response activities*** control the negative effects of emergency situations. These activities are best divided into two categories. The first category is actions that all staff must take when confronted by an emergency, such as reporting to prearranged locations. The second category is actions taken by management, such as initiating the plan, assessing the situation, issuing warning and notification announcements, setting objectives and priorities, and serving as a liaison with external groups.

***Recovery actions*** begin almost concurrently with response activities and are directed at restoring essential services and resuming normal operations. Depending on the emergency's impact on the organization, this phase may require a large amount of resources and time to complete. Recovery not only includes activities related to the facility, but loss of revenues, support of staff, dealing with community reaction, and so forth.

## Standards requirements

The requirements of standards EC.1.4 and EC.2.4 vary among the accreditation programs. Refer to your accreditation manual to identify what specifically is required of your organization. As part of the four phases of emergency management activites, organizations may be required to identify and implement processes to

- conduct a hazard vulnerability analysis (see article on p. 8);
- establish, in coordination with the community emergency planning, priorities among the potential emergencies identified in the analysis;
- identify procedures to mitigate, prepare for, respond to, and recover from the priority emergencies;
- define and integrate the organization's role with that of community emergency response agencies, including identifying a community command structure;
- define a common command structure (for all hazards) within the organization which links to the community structure;
- cooperate with health care organizations within a contiguous geographic area to establish a process to share information about the essential elements of a command structure and emergency control centers; names, roles, and phone numbers of individuals in the command structure; resources and assets to share or pool in a community emergency response; and timely identification and location of names of patients and deceased individuals following an emergency*;

* *While not currently a requirement, this suggestion is being proposed as an addition to standard EC.1.4.*

- describe how, when, and by whom the plan is activated;
- identify which personnel are responsible for which activities during emergencies;
- initiate response and recovery phases;
- notify external authorities of emergencies, including possible community emergencies such as evidence of a bioterrorist attack;
- notify care providers and other personnel when emergency procedures are initiated;
- identify personnel during emergencies;
- assign available personnel to cover all necessary positions under emergency conditions;
- manage patient/resident care activities, staff and family support activities, logistics of critical supplies, security, and communication with news media during emergencies;
- evacuate the facility if necessary;
- establish an alternate care site(s) that can meet patients' clinical needs;
- transfer patients/residents or transport and track patients/residents, staff, and equipment to an alternate care site as needed;
- communicate with the alternate care site;
- reestablish and/or continue operations following the disaster;
- provide alternate means of meeting essential building utility needs to provide continuous service;
- establish backup internal and external communication systems (see article on p. 16);
- identify radioactive, biological, or chemical isolation and decontamination sites (ambulatory care and hospital only);
- clarify alternate responsibilities of personnel, including to whom they report during a disaster, in a command structure consistent with that used by agencies in the local community;
- establish an orientation and education program for staff, including licensed independent practitioners, who participate in implementing the plan (see article on p. 3);
- monitor ongoing performance in drills and real emergencies; and
- determine how an annual evaluation of the plan's objective, scope, performance, and effectiveness will occur.

Methadone/LAAM clinics must also provide

- links with community agencies to ensure emergency dosing capabilities;
- 24-hour telephone answering capability to respond to facility and patient emergencies; and
- updated patient rosters and medication dosage logs that are accessible to the staff on call.

The emergency management standards also address the needs of your staff. In an actual emergency, staff will naturally be concerned for the safety and well being of their colleagues and loved ones. Accordingly, standard EC.1.4 calls for the management of staff activities—including housing, transportation, and incident stress debriefing—and staff and family support activities.

## Testing and evaluating the plan

Creating and implementing an emergency management plan is just the first step. Standard EC.2.9.1 requires health care organizations to regularly test the emergency management plan through planned drills. The plan must be executed twice a year, either in response to an actual emergency or in planned drills.

In hospitals and long term care organizations and ambulatory care occupancies or behavioral health facilities not classified as business occupancies, drills must be performed twice per year, at least four months but no more than eight months apart. (In a facility designated as a business occupancy, only one annual drill is required). If you offer emergency services or are designated as a disaster receiving station, you must perform at least one exercise yearly that represents an external disaster and includes an influx of volunteer or simulated patients (beyond those presently receiving care in the organization).

Volunteer patients are just that—community members who have been recruited to represent disaster victims. Simulated patients, also known as "paper patients," are usually represented by cards with symptoms written on them. Both volunteer and simulated patients must be triaged, put on a gurney or in a wheelchair, and transported through the system as if they were real patients. Tabletop drills may serve as effective learning exercises, but they do not count as a required emergency drill.

JCAHO encourages organizations to create a wide variety of scenarios to test internal and external disasters and disasters that require extensive community cooperation. Participate in a community drill (where appropriate), relevant to your priority emergencies, that assesses communication, coordination, and the effectiveness of your organization's and the community's command structures. Your community may range from a contiguous geographic area served by the same health care providers to a large borough, town, city, or region. ▲

# Revised Environment of Care Standards for the *Comprehensive Accreditation Manual for Hospitals (CAMH)*

**Note:** These standards contain revised, clarified language, ***not*** additional requirements. Although this language is hospital-specific, similar language is under development for other health care settings.

**Standard**

**EC.1.4** The organization has an emergency management plan.

**Intent of EC.1.4**

The emergency management plan comprehensively describes the organization's approach to responding to emergencies[1] within the organization or in its community that would suddenly and significantly affect the need for the organization's services, or its ability to provide those services. The plan addresses four phases of emergency management: mitigation,[2] preparedness,[3] response, and recovery.

The planning process provides for

a. the conduct of a hazard vulnerability analysis[4] to identify potential emergencies that could affect the need for the organization's services, or its ability to provide those services.

b. the establishment, in coordination with community emergency management planning (where available), of priorities among the potential emergencies identified in the hazard vulnerability analysis for which mitigation, preparation, response and recovery activities will need to be undertaken.

c. identification of specific procedures to mitigate, prepare for, respond to, and recover from the priority emergencies.

d. definition of and, where appropriate, integration of the hospital's role in relation to community-wide emergency response agencies, including identification of the command structure in the community.

e. definition of a common (that is, "all-hazards") command structure within the organization for responding to and recovery from emergencies, that links with the command structure in the community.

f.* ***Based on the experiences of health care organizations responding to the September 2001 terrorist attacks in New York City and Washington, DC, it is recommended that the following be included in the planning process. While not currently a requirement, it is being proposed as an addition to the standard.***

*Cooperative planning among health care organizations that, together, provide services to a contiguous geographic area (for example, among hospitals serving a town or burrough) to facilitate the timely sharing of information about*

- *essential elements of their command structures and control centers for emergency response.*
- *names, roles, and telephone numbers of individuals in their command structures.*
- *resources and assets that could potentially be shared or pooled in an emergency response.*
- *names of patients and deceased individuals brought to their organizations to facilitate identification and location of victims of the emergency.*

g. initiation of the procedures in the response and recovery phases of the plan, including a description of how, when, and by whom the phases are to be activated.

h. notification of emergencies to external authorities, including possible community emergencies identified by the organization (for example, evidence of a possible bioterrorist attack).

i. notification of personnel when emergency response measures are initiated.

j. identification of care providers and other personnel during emergencies.

k. identification and assignment of personnel to cover all necessary staff positions under emergency conditions.

l. management of the following under emergency conditions:

1. Patient care-related activities (for example, scheduling, modifying, or discontinuing services; control of patient information; patient transportation).
2. Staff support activities (for example, housing, transportation, incident stress debriefing).
3. Family support activities.
4. Logistics relating to critical supplies (for example, pharmaceuticals, medical supplies, food, linen, water).
5. Security (for example, access, crowd control, traffic control).
6. Communication with the news media.

m. evacuation of the entire facility (both horizontally and, when applicable, vertically) when the environment cannot support adequate patient care and treatment.

n. establishment of an alternate care site(s) that has the capabilities to meet the clinical needs of patients when the environment cannot support adequate patient care, and procedures that address, where applicable,

1. Transportation of patients, staff, and equipment to the alternate care site.
2. The transfer of patient necessities (for example, medications, medical records) to and from the alternate care site.

* While not currently a requirement, this suggestion is being proposed as an addition to standard EC.1.4.

***(Continued)***

3. Patient tracking to and from the alternate care site.
4. Interfacility communication between the organization and the alternate care site.

o. re-establishment of usual operations following an emergency.

The plan identifies

a. an alternative means of meeting essential building utility needs (for example, electricity, water, ventilation, fuel sources, medical gas/vacuum systems) when the organization is designated by its emergency management plan to provide continuous service during an emergency.

b. backup internal and external communication systems in the event of failure during emergencies.

c. facilities for radioactive, biological, and chemical isolation and decontamination.

d. alternate roles and responsibilities of personnel during emergencies, including who they report to within the organization's command structure, and, when activated, within the command structure of the local community.

The plan further provides for

a. an orientation and education program for all personnel, including licensed independent practitioners, who participate in implementing the emergency management plan. Education addresses, as appropriate to the individual

1. specific roles and responsibilities during emergencies.
2. how to recognize specific types of emergencies (for example, the symptoms caused by agents that may be used in chemical or bioterrorist attacks).
3. the information and skills required to perform assigned duties during emergencies.
4. the backup communication system used during emergencies.
5. how supplies and equipment are obtained during emergencies.

b. procedures for an annual evaluation of the organization's hazard vulnerability analysis and of the emergency management plan, including its objectives, scope, functionality, and effectiveness.

**Standard**
**EC.2.9.1** Drills are conducted regularly to test emergency management.

**Intent of EC.2.9.1**
The response phase of the emergency management plan is tested twice a year, either in response to an actual emergency or in planned drills. Drills are conducted at least four months apart and no more than eight months apart.

Testing includes

a. for organizations that offer emergency services or are designated as disaster receiving stations, at least one drill yearly that includes an influx of volunteer or simulated patients.

b. participation in at least one community-wide practice drill yearly (where applicable) relevant to the priority emergencies identified by the organization's hazard vulnerability analysis, that assesses communication, coordination, and the effectiveness of the organization's and community's command structures.

**Notes:**

1. *Tests of a and b may be separate, simultaneous, or combined.*
2. *Drills that involve packages of information that simulate patients, their families, and visitors are acceptable.*
3. *Tabletop exercises, though useful in planning or training, are* ***not*** *acceptable substitutes for test a.*
4. *Staff in each freestanding building classified as a business occupancy, as defined by the* Life Safety Code, *that do not offer emergency services nor are designated as disaster receiving stations need only participate in one emergency preparedness drill annually. Staff in areas of the building that the organization occupies must participate in such drills.*
5. *In test b, "community-wide" may range from a contiguous geographic area served by the same health care providers, to a large burrough, town, city, or region.*

[1] **emergency** A natural or man-made event that significantly disrupts the environment of care (for example, damage to the organization's building(s) and grounds due to severe winds, storms, or earthquakes); that significantly disrupts care and treatment (for example, loss of utilities, such as power, water, or telephones, due to floods, civil disturbances, accidents, or emergencies within the organization or in its community); or that results in sudden, significantly changed or increased demands for the organization's services (for example, bioterrorist attack, building collapse, or plane crash in the organization's community). Some emergencies are called "disasters" or "potential injury creating events" (PICEs).

[2] **mitigation** activities: Those activities an organization undertakes in attempting to lessen the severity and impact of a potential emergency.

[3] **preparedness** activities: Those activities an organization undertakes to build capacity and identify resources that may be used should an emergency occur.

[4] **hazard vulnerability analysis**: The identification of potential emergencies and the direct and indirect effects these emergencies may have on the health care organization's operations and the demand for its services.

# What the survey process expects of your organization

## *Assessing your emergency management plan on site*

The modified 2001 environment of care (EC) standards for emergency management planning have not changed fundamentally, but the events of September 11, 2001, have necessitated a greater focus on this planning and an increased flexibility and applicability of the emergency management plan. EC standards continue to require hospital, ambulatory care, behavioral health care, home care, and long term care organizations to design, implement, and test a plan that ensures the organization is prepared to respond to a disaster (see article on p. 4). Although the current climate does *not* require organizations to start from scratch with a new emergency plan, organizations need to look closely at their plan, as will surveyors, to ensure that it applies to a variety of disasters on many different scales and that it considers all-important elements of emergency management.

During various functional interviews in an accreditation survey, JCAHO surveyors assess how an organization plans, designs, implements, and improves its emergency management plan; how that plan applies to a variety of possible events; and whether staff at all levels has been trained in their roles and responsibilities in the plan. Surveyors look to see that your plan addresses all key aspects related to emergency management.

## Questions to ask yourself

The rest of this article presents some probing questions to help you assess your emergency management plan in a new light, organized by the point in a survey in which the issue may arise. Some questions may not apply in all health care settings.

***Leadership.*** This interview addresses, among other topics, the collaboration of senior leaders in planning, designing, implementing, and improving the emergency management plan. All leaders need to work together to create, support, and communicate an emergency management plan that meets the changing circumstances and needs of the organization and its community. The following questions will help you determine if leaders have been successful in this endeavor.

- How have leaders determined the scope and resources for your emergency management plan (that is, hazards vulnerability analysis [HVA], command structure, and community integration) and implementing the plan? (LD.1.1.1)
- How have leaders planned to rapidly expand clinical and nonclinical staff in the event of a disaster? (consultation under EC.1.4)
- Who is involved in the HVA? Is the emergency management plan flexible enough to allow response to a variety of disasters? To what types of disasters is your plan capable of responding? (EC.1.4)
- What is your command structure? How have staff members been oriented in their roles and responsibilities within this structure? How does your internal command structure integrate into the community's structure? (EC.1.4)
- How will critical supplies (such as medical supplies, water, pharmaceuticals, ventilators, and so forth) be obtained and allocated? (EC.1.4, EC.2.4)

***Unit visits.*** Surveyors visit various care units in the organization to determine whether staff understand the emergency management plan and applies it to the activities of that unit. During visits to care units, surveyors ask staff how they are involved in planning, designing, and implementing the emergency management plan.

- What education have you received about recognizing hazards identified in the emergency management plan? (EC.2.4)
- What type of orientation, training, and education have you received about your roles and responsibilities in the emergency management plan? What types of emergencies were addressed in the education? (HR.4, HR.4.2, EC.2.4)
- Has a command center been identified to coordinate community response? (HR.4, HR.4.2, EC.1.4)
- Does the unit participate in emergency-preparedness drills regularly? What was your role in the most recent drill? (EC.2.9.1)

***Clinical leadership.*** This interview addresses the role of clinical leadership (for example, nursing or medical staff leaders), including their participation in planning, designing, implementing, and improving the emergency management plan. Involving clinical staff in implementing the emergency management plan is key because they directly affect the safety and care of patients through the plan's use.

- How is clinical leadership involved in developing the emergency management plan, including the command structure and its specific roles? Who from the clinical staff was involved in its development? (EC.1.4)

- What was the clinical staff's contributions to the development of the emergency management plan, including command structure? Who from the clinical staff is included in the command structure? (EC.1.4)
- How has the clinical staff planned to rapidly expand the number of physicians and other licensed independent practitioners (LIPs) in the event of a disaster? Has clinical leadership considered how it will quickly credential volunteer physicians and other LIPs? (consultation under MS.5.14.4, EC.1.4)
- How are clinical staff members trained in emergency management? (HR.4, HR.4.2, EC.1.4)
- What education is provided to clinical staff to recognize symptoms of and/or manage hazards or treat conditions identified in the emergency management plan? When was the training conducted? Who attended? (HR.4, HR.4.2, EC.2.4)
- What type of orientation and education is provided to clinical staff about their roles and responsibilities in the plan? (HR.4, HR.4.2, EC.2.4)

***Environment of care interview.*** During this interview, surveyors address how the emergency management plan is integrated with other EC-related functions. The most intensive assessment of an organization's emergency management plan occurs at this time.

- Does your plan address the four phases of emergency management planning: mitigation, preparedness, response, and recovery? How does it address them? (EC.1.4)
- Does an HVA exist? Is it consistent with the community analysis? How was the HVA used to develop the emergency management plan? (EC.1.4)
- Can you provide evidence that the HVA is shared with the key leaders/staff and the emergency management program committee (if one exists) and that they are knowledgeable about its content? (EC.1.4)
- How are the hazards identified in the HVA linked to mitigation, preparedness, response, and recovery activities? (EC.1.4)
- Are there clearly defined staff roles for external emergencies? How does your emergency response plan address your organization's mission in terms of its role in community disaster response? (EC.1.4)
- Are there clearly defined staff roles for internal emergencies? Does your response plan identify the expected roles that community response agencies/organizations will assume? (EC.1.4)
- Does your plan identify key response agencies or institutions in the community with which your organization will interact during a disaster (such as police and fire departments, public health agencies, laboratories, other hospitals, and the National Disaster Medical System)? (EC.1.4)
- Does your plan list whom to contact specifically within each community response agency and institution (including telephone numbers, e-mail addresses, and so forth) and the process for updating this information? (EC.1.4)
- Does your plan identify how to contact each community response agency or institution during a disaster (such as through the use of two-way radio, cell phones, and so forth)? (EC.1.4)
- Does your plan identify a command center where community response will be coordinated? (EC.1.4)
- What are the details regarding your evacuation/alternative care site? (EC.1.4)
- Does your plan describe processes to identify an alternative care site and how it will be used? (EC.1.4)
- Does your plan describe how a reporting or command structure is to be used during a disaster? (EC.1.4)
- Does your plan include a command structure consistent with that used by the local community? Have you reviewed the community's emergency management plan? (EC.1.4)
- During an incident, can your organization quickly identify whether someone is an employee, a visitor, or a patient? (EC.1.4)
- How will you identify certain individuals in charge of managing the incident? (EC.1.4)
- Can you provide evidence that your external emergency management plan has been implemented in the past 12 months? (EC.2.9.1)
- Has your organization participated with community response agencies' or institutions' occurrences or drills as described in your emergency management plan? Was the drill in which you "actively participated" led by your organization or the community? (EC.2.9.1)
- Have you verified that the contact individual (for both participating and nonparticipating community response agencies/institutions) and the method for communicating with that individual during a disaster specifically identified in your plan is current? (EC.1.4, EC.2.4, note to EC.2.9.1) ▲

# Analyzing your vulnerability to hazards

### *Preparing your organization for any emergency*

Health care organizations have always prepared for various disasters. JCAHO environment of care emergency management standards require it; common sense demands it. For years, organizations informally analyzed the emergencies to which they are most vulnerable, with the home care organization in Florida knowing that it must deal with hurricanes and not snowstorms, and the converse for the long term care organization in Minnesota. Modified JCAHO emergency management requirements for 2001, however, necessitate a formal, documented hazard vulnerability analysis (HVA).

An HVA identifies the disasters most likely to strike your organization and its community and their probable impact if they were to occur. Given recent events, every health care organization should be reevaluating and perhaps redefining the realm of possible disasters that may affect its operations. The foundation already exists in emergency management plans, but you may have to build on it.

## Identifying hazards

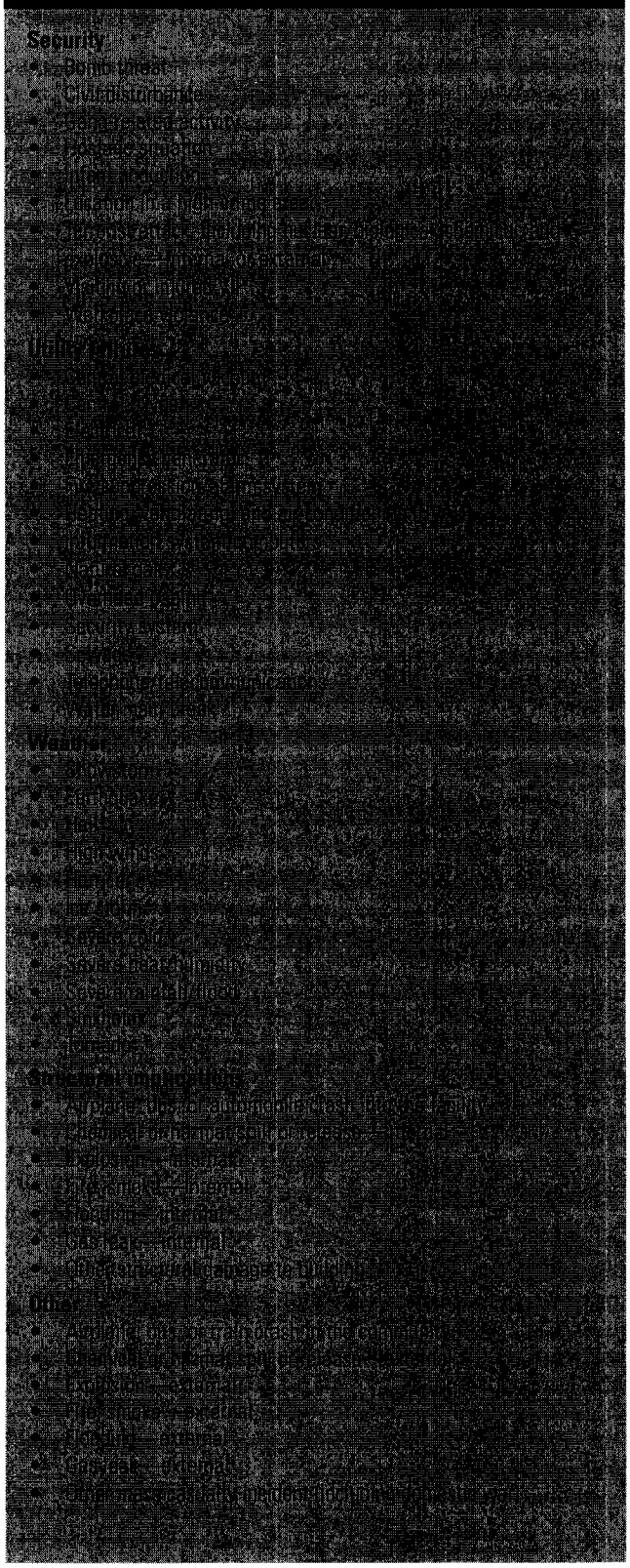
Your organization needs to identify all hazards that could occur in or near your organization. The length of this list depends on your location and particular organization. After identifying the possible hazards, rate the probability of their occurrence (for example, high, moderate, low) and how well prepared you are to deal with each situation (for example, good, fair, poor).

Some hazards are more predictable, such as an advancing hurricane, and give health care organizations and communities time to prepare. Other hazards are more insidious, such as bioterrorism, and may not be immediately apparent. These undetected emergencies place a greater burden on the health care system the longer they remain unnoticed.

Organize your analysis in any way that integrates with your overall emergency management plan. Some organizations classify hazards by scope or overall category, as shown in the list of possible emergency situations in the box to the right. The purpose of identifying *all* hazards is to ensure your organization will formulate an appropriate response in any emergency situation. The possible threats listed in each category may not relate to each other except for their general categorization.

Other organizations classify the hazards or emergencies listed in an HVA as being internal or external. An *internal* emergency is limited in scope to a specific facility, for example, loss of power. While the facility may experience significant loss of capability, the surrounding community infrastructure is typically still intact and available as a resource. An *external* emergency is focused outside a facility, for example, an earthquake. However, the September 11 terrorist activities illustrate how an external emergency may also become an internal emergency

### Possible threats to your organization



and directly affect an organization's ability to keep operating. For example, a health care organization may be near the target of a terrorist bomb and receive structural damage as well as casualties or fatalities.

An organization can perform an HVA in many ways, and no particular method is mandated. You may use any system that works effectively and reference it in your emergency management plan.

### Analyzing risk

The American Society for Healthcare Engineering suggests one way you can evaluate and document your organization's vulnerability to a variety of hazards in "JCAHO emergency management plan: Hazard vulnerability assessment tool," published on its web site (www.ashe.org). The scoring tool can be modified to meet your needs. The tool uses three factors—probability of occurrence, risk, and preparedness status—to give various disasters a quantitative score. (Note that JCAHO does not require quantification.) Disasters can then be ranked based on their scores to determine where the organization must focus its preparedness efforts.

Issues to consider for estimating *probability* could include known risk, geographic location, historical data, presence of local high-risk industry (such as a chemical manufacturer or nuclear power plant), manufacturer or vendor statistics, or discussions with a local emergency management officer. In assessing *risk*, you might consider issues such as threat to life and/or health, disruption of services, equipment or facility damage or failure possibilities, loss of community trust, and financial trouble. Consider a variety of tools, such as population density, seismic, and water table maps of the area.

Assess how *prepared* you currently are for each hazard by first looking at the status of your current emergency plans for that hazard, the training of your staff to manage that hazard, how you performed in a test of the emergency plan, how you handled real emergencies, the availability of back-up systems (and systems to back up the back-ups), the available community resources, and other appropriate issues.

Whatever method you modify or create to analyze all the hazards that threaten your health care organization, be sure to proactively identify how your facility and surrounding community may be affected. The hazards identified in your analysis will focus your organization resources for emergency planning and drive future emergency drills.

Emergency planning should not be done in a vacuum. Integrate your planning process with your community's plan for emergencies. Incorporate the available resources of other health care facilities. Remember, all hospitals, ambulatory care clinics, long term care organizations, and other health service providers are working toward the same goal of maximum preparation for staff and community. Work together to prepare everyone for the collaboration that is necessary during a true disaster. ▲

# Adapting tools to the task ahead

### *FMECA well suited to hazard analysis*

Developing a hazard vulnerability analysis. It sounds scary. It sounds like a lot of work. Unless you look at it from a perspective and place you've already conquered. A failure mode, effect, and criticality analysis (FMECA), essentially a proactive risk analysis, can be modified to fit an organization's needs to analyze risks that could disrupt care or services. It's a tool that many high-risk fields have used extensively for decades, but has only recently been formally introduced to health care by JCAHO's new hospital patient safety standards (LD.5.2).

You can use FMECA to not only identify risk-reduction opportunities in the clinical arena but also adapt it to identify possible threats to your organization. FMECA walks you through analyzing the probability and possible effects an emergency might have and allows you to prioritize your emergency-management planning activities.

In adapting FMECA to a hazard vulnerability analysis (see box to the right), each hazard or emergency is identified as a failure mode (the F in FMECA). For each potential hazard (failure mode), identify the possible effects on your total health care system. The severity of these effects, their likelihood of occuring, and the difficulties in rapidly identifying the hazard if it should become a reality are the factors that together determine the importance (or "criticality") of the various potential hazards. Assessing criticality can help you prioritize your efforts to eliminate or reduce the possibility of the hazard or, if that is not possible, to minimize the consequences of the hazard. ▲

### Adapting FMECA to analyze other hazards

# Preparing for a mass casualty event

## *Plan your response for common risks*

An event that results in mass casualties and affects your health care organization and community may take many forms. However, common elements among these emergencies present your organization with similar challenges that can be met with a well thought out and tested emergency plan.

## External emergencies

Your organization may face three types of external emergencies, including

- natural events, such as earthquakes, unprompted epidemics, or floods;
- unintentional events, such as accidental plane crashes or nuclear accidents; or
- intentional events, such as biological or chemical attacks and the events of September 11.

Any one of these emergencies can result in a health care facility experiencing a great influx of people in need of all levels of care for a wide variety of issues. Health care organizations and other community institutions need to make an effort to work together to meet the needs of these people. This includes participating in drills the community stages to test their preparedness and developing cooperative agreements to support each other should one or more organizations become overwhelmed during a disaster.

## Common elements

Planning for the management of mass casualty events starts with recognizing the common elements that you need to address. These important elements are described below.

**Patient care.** The transport, triage, stabilization, and treatment of patients are the first priorities for all health care organizations in a mass casualty event.

**Local and national agency coordination.** Before a disaster takes place, establish a relationship and communication with local and national health and emergency agencies, such as local emergency medical services, the local health department, the FBI, and the CDC. Know whom to contact should you need their assistance.

**Bed availability.** Know how many beds you have available for a possible influx of patients and how many beds can be cleared quickly and safely through patient discharge or transfer to another organization. Have arrangements in place with other health care facilities in your community should you be unable to handle any portion of a patient influx. Have transfer plans to make room for an influx of new patients.

**Personnel issues.** Every staff member in your facility should know his or her role in the event of a disaster. Plan for additional staff and volunteers in times of crisis and in the days and weeks following an event.

**Possible need for decontamination.** In the event of nuclear, biological, or chemical emergencies, casualties may be contagious or contaminated. Have a clear plan in place to provide for their segregation or isolation from the rest of your care population. (See article on p. 20.)

**Possible need for prophylaxis.** Together with the medical staff and public health officials, consider and plan appropriately for specific situations in which the safety of your staff is in question. You may need to administer vaccines or antibiotics to staff at risk for exposure to a specific, defined pathogenic agent (for example, consider administering ciprofloxacin to emergency department staff in a community with known exposures to anthrax).

**Hazardous waste issues.** Your disaster plan should include how you will handle hazardous waste associated with the disaster. Know how to work with a hazmat unit to assist you in this area.

**Special lab specimens.** Have available shipping containers to safely transport specimens as requested by agencies such as the FBI and CDC.

**Internal and external traffic control.** Within your facility, plan for free and uninterrupted flow of in-house traffic for movement of pedestrians and casualties to treatment areas. Egress routes should be planned for patients and staff in case of the need to evacuate the building(s). Plan for unimpeded access to your facility for emergency vehicles. Know how you will control access and egress of authorized nonemergency vehicles providing supplies. (See article on p. 12.)

**Communication and media management.** When planning for emergencies, identify the location of and staff involved in a control command center from which information can be disseminated to staff and, in a separate area, to the media. Consider alternative communication channels (such as cellular phones or hand-held two-way radios) if traditional channels fail or become overloaded. (See article on p. 16.)

**Morgue capabilities.** Large death tolls may accompany a mass casualty event. Your organization or community may need to provide increased morgue capabilities in such a situation.

**Water and/or sewage issues.** Your plan should provide for emergency access to water supplies should your current supply be damaged, contaminated, or cut off.

Using the emergency management checklist (on p. 11) can help your organization ensure that the appropriate elements are in place to allow your organization to function efficiently and provide care effectively should an emergency occur. These issues are just a starting point and should be added to, revised, and integrated according to your organization's specific circumstances. ▲

## Emergency management checklist

| | Risks assessed | Action plan developed | Staff contact assigned |
|---|---|---|---|
| **Identification of authorized personnel** | | | |
| • Individual designated as incident commander on all shifts | | | |
| • Lines of authority and role responsibilities identified and communicated to all staff | | | |
| • Identification of staff access provided to authorized personnel | | | |
| **Activation of the plan** | | | |
| • Time to convene the team under [illegible] circumstances [illegible] will be communicated | | | |
| • Actions to be taken [illegible] prior to [illegible] | | | |
| • Alert—Disaster possible, [illegible] preparedness | | | |
| • Standby—Disaster [illegible] | | | |
| • Call out—Disaster [illegible] | | | |
| • Stand down—Disaster [illegible] | | | |
| **Notification process** | | | |
| • [illegible] | | | |
| **Resource [illegible]** | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| **Communication** | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| **Security [illegible]** | | | |
| • [illegible] | | | |
| • Plan for [illegible] | | | |
| • Process [illegible] | | | |
| • [illegible] | | | |
| **Alternate [illegible]** | | | |
| • Alternate [illegible] | | | |
| • Organized [illegible] | | | |
| • [illegible] | | | |
| **[illegible]** | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| **Facility evacuation** | | | |
| • [illegible] | | | |
| • Standards [illegible] | | | |
| • [illegible] | | | |
| **Relocation of patients and staff** | | | |
| • Safe area within [illegible] | | | |
| • Alternate [illegible] | | | |
| • Safe [illegible] | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| • Locations of transfer [illegible] | | | |
| **Facility isolation or quarantine** | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| **Environmental [illegible]** | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| **Business [illegible]** | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| • [illegible] | | | |
| • [illegible] | | | |

# Disseminating lessons learned from a terrorist attack

### *Comprehending and responding to an incomprehensible disaster*

For most Americans, the events of September 11, 2001, have been seared into our consciousness. Two planes strike the towers of the World Trade Center in New York City. A third plane speeds over restricted airspace in Washington, DC, crosses the Potomac, and crashes into the Pentagon. Then a fourth slams into a field in Somerset County, PA. Emergency teams jump into action at all three sites.

The tragedies were immense and the response immediate. Hospitals, long term care organizations, mental health facilities, and other health care organizations prepared for the worst and responded successfully under enormous pressure.

Several health care organizations and other agencies shared lessons learned with JCAHO staff and surveyors in late October. While it was not possible to talk with all the health care organizations that responded to the tragedy, we thank those that we did speak with for sharing their insights about how the disaster was managed and how the response could be improved in the future. We are privileged to share their experiences with you. The articles covering people management (below), readiness (p. 13), communications (p. 16), caring for community needs (p. 19), and decontamination (p. 20) share insights from the following organizations:

Bellevue Hospital Center, New York City

Continuum Health Partners, New York City (including Beth Israel Medical Center, Long Island College Hospital, New York Eye and Ear Infirmary, and St. Luke's-Roosevelt Hospital Center)

Department of Veterans Affairs, Emergency Management Strategic Healthcare Group, New York Regional Office

Elmhurst Hospital Center, New York City

Gouverneur Nursing Facility and Diagnostic and Treatment Center, New York City

Greater New York Hospital Association, New York City

Hospital Association of New York State, Renssalear, NY

Inova Alexandria Hospital, Alexandria, VA

Jacobi Medical Center, New York City

Metropolitan Hospital Center, New York City

New York Presbyterian Hospital, New York City

New York State Department of Health, Troy, NY

New York State Office of Mental Health, Albany, NY

NYU Downtown Hospital, New York City

Queens Hospital Center, New York City

Saint Vincent Catholic Medical Centers, New York City (including St. Vincent's Hospital Manhattan)

Virginia Hospital Center–Arlington, Arlington, VA

United States Public Health Service, Office of Emergency Preparedness, Atlanta, GA ▲

# Managing people and resources effectively

### *Transportation, security, and volunteers*

After the attacks on September 11, police cordoned off city blocks, health care organizations went on alert, and volunteers flooded phone lines and lobbies of health care facilities. The need to transport patients and staff, secure facilities, and manage the influx of professionals and volunteers came to the forefront for health care organizations. It is important to plan now how your organization would handle these and other resource issues effectively, should it experience a disaster.

**Anticipate transportation needs.** When hospitals in New York began clearing beds in anticipation of mass injuries, those near Ground Zero had difficulty physically transferring stable patients to nearby long term care and mental health facilities and transporting discharged patients (or getting family members in to pick them up) because vehicles were prohibited from entering the area. Health care organizations may need to arrange for transport of noninjured individuals if the police are not able to assist them. Staff from NYU Downtown Hospital took the initiative and organized community volunteers to lead, on foot, nearly 450 stranded commuters in groups to outlying boroughs after all traffic to Manhattan was restricted.

It is important to plan for transportation of staff and supplies to and from your organization. In the days after the attack, health care organizations had trouble getting what police considered "nonessential employees," such as housekeeping staff, to the organization as areas around the facility were being secured. Many organizations indicated that without the use of private ambulances it would have been nearly impossible to transfer patients and pick up needed supplies. For seven weeks NYU Downtown used a van service to meet staff transportation needs.

Because of the breakdown of external communications, many hospitals were unable to contact vendors to deliver

*(Continued on page 18)*

# The power of preparation

## *When Code Yellow is no longer a drill*

Solid planning and drilling and deft execution helped the staffs of hospitals, long term care organizations, mental health facilities, and other organizations to meet the health care challenges presented by the World Trade Center collapse and the Pentagon crash to provide quality care to those hurt in the disasters. Each facility fully implemented its emergency management plans on September 11 and learned valuable lessons to apply in the future, including dealing with the continued threat of nuclear, biological, and chemical terrorism. These lessons can become strategies for any health care organization to follow in preparing for such emergencies.

**Review the membership of your emergency management team.** Be sure that all disciplines involved in handling a disaster are represented on the team. For instance, staff from pathology, nutrition, and mental health services should be present. After the Pentagon crash, staff at Virginia Hospital Center–Arlington, the official hospital of the Pentagon, in Arlington, Virginia, learned that their team could have benefited from the inclusion of additional staff, including representatives from medical records and pediatrics. After the overwhelming need following September 11, St. Vincent's Hospital Manhattan in New York City elevated family support to a "cabinet position" on its emergency management team.

**Review the scope of and procedures in your emergency management plan.** Be prepared for the influx of a greater number of patients. The magnitude of potential disasters has changed. No longer is planning for an influx of 50 to 100 patients sufficient preparation; an organization nearest to a mass casualty event may receive thousands of victims. Since no one health care organization can handle this volume of patients in a short time, plans must be in place to work with the community and neighboring health care organizations to deal with such a situation.

Review your evacuation plans. Are they up to date for your current patient mix and census? Have you specified why, when, how, and to where an evacuation would be performed? Have cooperative agreements been established with other health care organizations so your facility knows to where it will evacuate?

Plan for how you will open beds in the event of a mass casualty disaster. Work with the medical staff to approve a plan for discharging and transferring patients whose attending physicians are not available. Anthony Gagliardi, MD, medical director at St. Vincent's Hospital Manhattan, designates on the monthly house surgical schedule that staff should report to designated disaster expansion areas if an emergency is declared while they are on duty. Consider transferring stable patients to a designated long term care organization.

Develop a structure that can expand if a second wave of patients arrives. Where will you expand triage and treatment areas? Can staff expand into cafeterias, outpatient surgery, or rehabilitation therapy, endoscopy, other ancillary services, or to an off-site location? In a disaster of long duration, how will you provide a reserve staff and allow staff to rest between shifts? How will extension treatment areas be set up in an appropriate manner and time frame? Beth Israel Medical Center in New York City worked with the police department to block off part of 16th Street for use as a triage area. Traffic was diverted and parked vehicles were removed from the area to provide space for medical equipment, staff, and patients.

Prepare for increased morgue requirements. After a mass disaster, your community may be overwhelmed with bodies or body parts. Do you have short-term and long-term solutions to deal with this volume? Consider making arrangements with local warehouses, truck lines, or supermarkets to have refrigerated facilities available. To assist with increased demands on the Manhattan medical examiner's office, staff from Queens Hospital Center's mortuary department volunteered for 12-hour shifts.

Foundations for these new contingencies may be found in your Y2K plans. As the year 2000 approached, many health care organizations planned for possible communication and utility failures as well as potential resource shortages. Revisit those plans. What was developed for Y2K can be adapted and implemented for our current challenges.

**Create a command center.** Outline clear procedures for establishing the location of this center and its responsibilities, as well as necessary resources and personnel. Define position descriptions and create job action sheets for command responsibilities, operations, planning, logistics, and finance/administrative issues.

It is important to establish a command center as soon as possible to allay any confusion and to take charge of an emergency.

Queens Hospital Center was prepared to deal with emergencies even though its command post was undergoing renovations because it had equipped an alternate area for emergency operations. The command post opened within minutes of the COO's directive to activate the emergency management plan on September 11.

*(Continued on page 14)*

## The power of preparation

(Continued from page 13)

Inova Alexandria Hospital in Alexandria, Virginia, used its command center to, among many other functions, direct the 500 to 600 incoming calls to the hospital from people trying to locate their family members so the lines could stay clear. The hospital helped distraught families by contacting the other hospitals in its system through its command center to locate patients if these individuals were not at the Alexandria location. Virginia Hospital Center also had a designated phone line for patient inquiries at its command center. Phone numbers for various hotlines were posted in Elmhurst Hospital Center's command center, which allowed staff to relay appropriate phone numbers to callers looking for further information.

Staff at NYU Downtown Hospital implemented a modified incident command system (ICS) in reaction to the September 11 attacks. "It was so logical, efficient, and successful," said Michael Rawlings, engineering director. "You take on a new title, a new role, new responsibilities." Staff created a series of responsibility checklists for each role within the command structure to make an easy transition for any staff member fulfilling a role. Individuals with appropriate skills on the off-shifts were assigned and trained as back-ups for each role. Staff kept daily logs to report off at shift changes. One improvement the hospital will make for future emergencies is to establish a mini command center in the emergency room staging area.

Practice setting up the command center frequently. In the midst of an emergency, command center responsibilities must be second nature to the assigned staff members. Determine your procedure for declaring an emergency and notifying staff. Plan for communications with external agencies. Have the emergency management plan, contingency plans, and the appropriate community contacts and hotlines available in the staging area. Train off-shift staff to perform needed functions in the command center in case an emergency would occur during off hours.

No matter how extensive your emergency management plan is, unanticipated scenarios will emerge. "Your plan is only a roadmap to guide you through the first few minutes," said Jane Connorton, president and incident commander at St. Vincent's Hospital Manhattan. "After that, the training of the incident commander and the sequencing of decision making take over." The incident commander must have the respect and support of the entire organization and the ability to make good decisions quickly.

**Foster relationships with other health care organizations and community agencies.** "You can't plan in a vacuum," said Robert Hessler, MD, associate director of Bellevue Hospital Center's emergency services. "There has to be a citywide plan for managing an emergency, and you have to know how your organization fits into that plan." Develop formal relationships with local police and fire departments, departments of corrections, schools, hotels, and other health care organizations and agencies. Plan and conduct communitywide drills.

Arrangements with other health care organizations for emergency situations provide an organization with options for opening beds and securing critically needed personnel and supplies. Hospitals found their relationships with long term care organizations in their areas to be particularly valuable during an emergency. Jacobi Medical Center in the Bronx transferred psychiatric patients to the state psychiatric hospital nearby. Gouverneur Nursing Facility and Diagnostic and Treatment Center recognized that area residents might not be able to access nearby hospitals. Staff kept the urgent care clinic open until midnight on September 11 and prepared to treat walk-ins or even perform emergency births.

Because of the working relationships the Virginia hospitals had with other health care organizations in their areas, they had the ability to call on additional support, if needed, but the nature and duration of the disaster made that unnecessary. If your organization is part of a health care system, planning should take place at a system level as well as within the organization and with the community.

Incident commanders were challenged in New York City after the destruction of the city's command center, which was located at the World Trade Center. After hours of relative isolation, the Greater New York Hospital Association was able to begin coordinating information and resource needs. Establish ties in your community so that, at a minimum, you know the names of the incident commanders at surrounding health care organizations and how to contact those individuals in emergency situations. Work with community organizations to develop an accounting of available beds in hospitals, long term care organizations, mental health facilities, and other appropriate health care organizations.

Pete Velez, executive director of Elmhurst Hospital Center, is forging a coalition of hospitals in Queens, to prepare for future nuclear, biological, and chemical terrorist attacks. Velez says, "It is vital for hospitals that are geographically close to each other to develop plans to share supplies, pharmaceuticals, and staff under a clear chain of command if bioterrorism is suspected." Coordinate with local public health organizations to define a method for handling possible contamination and for disseminating accurate public

information about anthrax and other biological and chemical threats.

After discussions with several New York agencies and organizations, Russell Massaro, MD, executive vice president for accreditation operations at JCAHO, observed, "The critical nature of established relationships with other health care organizations and community agencies rises exponentially with the scope and duration of the threat."

**Prepare to be self-sufficient and act independently, as necessary.** This strategy does not contradict to reaching out to other organizations. Rather, self-sufficiency is another part of a comprehensive emergency management plan that addresses all contingencies. Depending on the disaster, a health care organization may be cut off from the organizations with which it has emergency arrangements. Because of communications breakdowns and the loss of the physical facilities of the city's command center, some hospitals in New York City were disconnected from the command center for up to 48 hours.

As the scope of the terrorist action became known, Elmhurst Hospital Center's medical department staff checked its inventory of appropriate antibiotics. Joseph Masci, chief of infectious diseases, began promoting the proper use of antibiotics, distributed information on recognizing likely symptoms of biological agents (such as anthrax, smallpox, and the plague), and arranged for the complete removal of all white powdery substances from care areas to alleviate patient and staff confusion and fear.

Because local police were needed at the site of the Pentagon crash, Virginia Hospital Center could not call on these officers to provide planned security and crowd and traffic control. The organization had to rely on its own security team to secure entrances. Know how you will handle the security of each entrance and every area of your organization.

Having emergency provisions of necessary pharmaceuticals and supplies on site can also help a facility operate on its own. Also, plan how prescriptions for discharged patients will be processed during an emergency in which the organization is discharging appropriate patients.

In the aftermath of a disaster, people will not care that you do not have the facilities to care for traumatic injuries. Patients will come to you on their own in huge numbers. NYU Downtown is a small community hospital, about 180 beds, located within blocks of the World Trade Center complex. "Everybody *has* to have the same level of preparedness," said Howard L. Beaton, MD, chief of surgery and emergency services. "You don't have the opportunity to say, 'Hey, we're not a level 1 trauma center.'"

**Take disaster drills seriously.** Effective drills can mean the difference between success and failure. They work. But they must be given serious and comprehensive attention. "As prepared as you think you are, you will find you are not prepared enough," said James L. Stone, Commissioner with the New York State Office of Mental Health.

Drill every aspect of your emergency management plan, including

- testing and retesting all equipment you will be using during an emergency (for example, communications backups, emergency generators);
- involving community agencies;
- the role of clinical staff;
- setting up the incident command center;
- evacuating and transporting the patient population; and
- requesting and receiving emergency supplies and equipment from other organizations.

Drill for multiple elements of an emergency at a time, for example, a large influx of patients and loss of power, and a variety of internal and external disasters. At the moment the World Trade Center towers collapsed, the disaster had clearly taken on a life of its own. Several perilous components were involved: plane crash, major fire, building collapse, mass casualties, public health emergency, and loss of utilities. As the events played out, health care organizations anticipated how to respond to the next possible aspect of this multi-faceted catastrophe.

In New York, across the river from the World Trade Center, Bruce Morgan found himself taking part in Jacobi Medical Center's lockdown response. Jacobi, a Level One Trauma Center with a burn unit, implemented its emergency management plan, awaiting any victims. "They were well-drilled and well-prepared," says Morgan, who is a JCAHO specialist with the VA Medical Center in Augusta, GA. "The lockdown went off like clockwork."

**Be prepared to respond on a regional basis.** Health care organizations need to be prepared to respond to emergencies in neighboring communities as well as their own community. After the attack on the World Trade Center, health care organizations in the tri-state area went into emergency mode. As news of the disaster reached New Jersey, beds in hospitals nearest New York were cleared and stable patients were sent to farther outlying hospitals and other health care organizations. According to Ronald Czajkowski, Vice President of Communications and Member Services of the New Jersey Hospital Association, 60 hospitals in New Jersey cared for 1,019 patients injured in the attacks. Health professionals in Hoboken and Jersey City triaged thousands more as people streamed across bridges or landed at the ferry docks. ▲

# Talking to each other in a crisis

## *Backup communications needed during disaster*

Don't rely on just one form of emergency communication. That's the advice of those who have experienced recent disasters. In the wake of the New York City, Pentagon, and Pennsylvania terrorist attacks, the cell bands were overloaded by users trying to contact loved ones feared missing at the crash sites. "We started out using cell phones," reported those involved in the recent Houston flooding. "But within a matter of hours, they were overloaded, and it was fortunate that we had radio backup." Cell phones may be vulnerable to weather-related incidents—for instance, in Houston, many cell towers flooded. A more common issue is that cell towers can't handle the volume of calls during an emergency.

Bellevue Hospital Center in New York City equipped its command post with 18 telephone lines, a computer, cable television, two-way radios, a copy machine, and a full staff, all of which played a role in maintaining both internal and external communications in the wake of the terrorist attack. Two-way radios were also used at New York University Downtown Hospital in its clinical staff staging area to keep lines of communication going and at St. Vincent's Hospital Manhattan, where staff called the two-way radios "a godsend."

Other communication tools used by New York City hospitals during and after the attack included ham radio, combination cell and two-way telephones, broadcast fax, and e-mail. Creative use of available communication tools kept vital information moving during the chaotic time.

Although some issues, such as the communication equipment discussed above, apply to all communications, health care organizations must consider separately internal and external communications issues in their emergency plans.

### Internal communication

*Systems and equipment.* As part of your emergency management plan, develop options for communications equipment and train staff to use them before a disaster strikes. You should also train appropriate staff to repair functioning communications equipment after a disaster. Because radio and microwave systems can be damaged, have on hand replacement supplies of antennas, coaxial cable, and other hardware susceptible to damage. Make sure that telephone lines coming into communications centers are buried, clearly marked, and protected from damage. Keep written records available for quick reference of line locations.

**Communications systems backup checklist**

- ☐ Does the plan recognize and make provisions for normal systems (for example, telephone, fax, cellular phones, paging) that may be overloaded or rendered unserviceable during disasters?
- ☐ Is there provision for alternative communication arrangements (for example, [illegible]) in circumstances where the hospital communication system overloads or fails?
- ☐ [illegible]
- ☐ [illegible]
- ☐ [illegible]

If possible, several radio transmitter/receivers equipped to operate on multiple frequencies should be available. Consider using a closed circuit television to broadcast important one-way messages. See the box above for a communications systems backup checklist.

*Staff information.* Communicate frequently with staff members so they have accurate knowledge of the disaster. Staff members need to know what has happened, how many patients to expect, and when patients will begin to arrive in order to prepare themselves and the facility for what is to come. Staff members also need to know how the organization plans to meet their personal needs. This helps staff members manage their anxiety and focus on the situation at hand.

Queens Hospital Center in New York City set up an area in its facility where staff could go, as scheduled by their supervisors, to watch television coverage of the day's events. Staff were also e-mailed at least twice a day with information about the citywide response to the attacks and the hospital's response to the disaster. Keeping everyone informed helped staff feel connected to the outside world while enabling them to focus on their jobs.

Also consider staff members' need to communicate with their own families during a time of crisis. Reflecting on the crisis, Louis Capponi, MD, medical director of Gouverneur Nursing Facility and Diagnostic and Treatment Center in New York City, said that it is important to set up a call tree to help staff members communicate with their families in an efficient way that would not overwhelm the phone system.

*Patient records.* During regular operations as well as emergency situations, the patient medical record is an important piece of internal communication. Updating and keeping track of these records, including information on registration, history, and treatment, became particularly difficult for New York City hospitals as they received a large and rapid influx of patients on September 11.

NYU Downtown Hospital started out using standard triage tags affixed to patients' necks to monitor this information. But staff found it difficult to quickly tie on these tags and more difficult to write on them while they were attached to patients. In addition, the hospital only had about 250 of the tags on site—and treated 1,200 patients in the first few days. Beth Israel Medical Center in New York City found it helpful to have patients keep their medical records with them at all times as they moved throughout the facility, rather than having staff keep the records in a central location.

Hospitals in the New York City and Washington, DC, areas all experienced a deluge of inquiries from family members looking for patients and from the media looking for information. Consider how you will keep patient information confidential in an emergency where normal procedures may have to be sidestepped in the wake of emergency care. Because medical records are such a crucial form of communication, consider having a representative from this area on the facility's emergency management team.

## External communication

*Community lines.* Establish how you will communicate with your community and national disaster agencies well before an emergency occurs to ensure smooth transitions. Reliable communications must exist between the health care organization and

- patients, family members, friends, and visitors;
- the organization's employees, medical staff, and volunteers;
- the onsite incident director;
- the emergency medical services (EMS) dispatch center;
- ambulances and helicopters at the scene and en route;
- field treatment teams;
- other involved health care organizations;
- the community office of emergency management;
- law enforcement agencies; and
- the media.

You should also establish communications paths with military, amateur, air, public utility, and other radio operations outside the public safety communication services. Test and update these systems and contact numbers regularly, and keep updated copies at your command center.

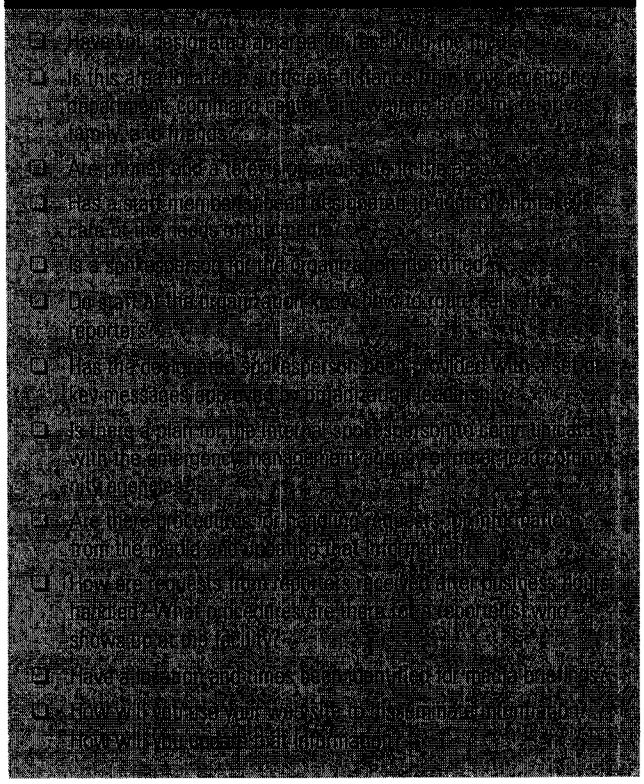
*Media relations.* Health care organizations especially need to know what to say and how to say it when communicating with the outside world and the news media. Be honest, straightforward, and direct. Keep it clear and simple. Communication of rumors through the media and staff can cause more chaos in an emergency situation. The best way to counter rumors and control misinformation is through regular, direct, and honest communication of what is known and not known. A number of hospitals in the New York City area recommend establishing an area outside your facility for the media to gather and receive information from designated hospital staff. This keeps the media out of busy care areas but close to the facility.

Experts recommend that you establish a "baseline of knowledge" that outlines what you know to be true about the situation. Stick to the facts, and avoid speculation. Use your baseline as the starting point for updates, clarifications, and revisions. Remember to respect individuals' right to privacy.

Another strategy is to create templates. "Most potential crises can be identified," says Lou Hampton of The Hampton Group in Washington, DC. "Create some generic text for each type. In the event the crisis does occur, add the specifics to the template."

See the box below for a media management checklist. ▲

## Media management checklist



## Managing people and resources effectively

(Continued from page 12)

critical additional supplies. But the inclusion of provisions in emergency management plans led vendors to send supplies without an actual request from the health care organization. Police checkpoints in Manhattan asked hospital staff for the color and license plate numbers of vendor vehicles and descriptions of their drivers.

Emergencies don't have clear end points, and emergency-related transportation needs can extend weeks or more into the future. Even two months after the events, staff at NYU Downtown worried about women in labor being able to get to the hospital at 3:00 AM. For scheduled visits, staff members often arrange to meet patients at a central location to escort them to the campus, which remains in a restricted area. Staff members also use this building as a meeting point for public transportation.

**Plan for new security needs.** As the World Trade Center collapsed and the massive cloud of debris rolled through lower Manhattan, NYU Downtown opened its doors to receive 500 to 1,000 people fleeing the chaos, some without shoes, purses, or other personal belongings. Security staff needs to be prepared to maintain staff and patient safety and rapidly perform effective crowd control.

Securing access and egress during an emergency is vital. With the possibility of nuclear, biological, or chemical attacks, staff must secure all entrances and direct foot traffic to the appropriate decontamination site.

In the case of a manmade disaster, you need to maintain a chain of evidence for any criminal or other investigation. Valuables, including the gear of any rescue personnel, must also be protected. New York hospitals secured the badges, helmets, and other equipment of firefighters and police officers.

**Create a staging area for clinical staff.** Coordinate the assignment of clinical staff to cases in a single location, possibly the emergency department. Monitor the area to keep authorized staff in the area and away from possible contamination, and to keep unauthorized individuals out. Virginia Hospital Center–Arlington near Washington, DC, used its patient waiting area for clinical staff staging. Plan to provide all assigned clinical staff members with a special badge or vest to easily identify them.

Assign a staff member to manage, and possibly verify credentials of, any influx of professional staff offering their services in the emergency. Establish a procedure for processing a potentially large number of staff from other health care facilities and other volunteers and directing them to useful purposes. Some questions you should be prepared to answer are: At what point would you request staff from other health care organizations in your network or geographic area? Will you use unsolicited volunteers? How will you ensure minimum credentials (such as current licensure)? Many of the nurses who responded in New York City carried their licenses and hospital ID badges with them. Consider orienting local clinical staff you plan to use as resources in an emergency to familiarize them with operations in your facility. Planning in these areas with the advice and assistance of state licensing boards and medical, nursing, and other health care professional societies will decrease the burden of making such decisions in the midst of an emergency.

To help with the influx of more than 325 patients in the first two hours, NYU Downtown accepted the help of a group of trauma surgeons who had been at a conference in midtown Manhattan. The emergency department nurse director grouped the volunteer physicians by specialty in a central location near the ambulance port. As victims arrived via ambulance, volunteer physicians were teamed with staff physicians and nurses who monitored the situation to ensure they were performing per policies and procedures. St. Vincent's Hospital Manhattan accepted the services of ophthalmologists to treat eye injuries from the overwhelming dust and debris.

**Create a special triage area.** It is important that this area have enough space to accommodate a large number of casualties arriving in a condensed period of time. To keep this triage area working smoothly, the organization should also have a clear system for assigning cases rapidly. Develop an abbreviated medical record for use in a large-scale emergency that can be kept with the patients as they move through the system.

**Know how to handle and request additional help and resources.** Establish a receiving area for additional equipment and supplies, including medications. Know where you will store these resources and how you will keep track of them. Plan for managing unsolicited donations. In the case of a terrorist attack, you will need to screen or test donations.

Consider cross-training nonprofessional staff to perform in different capacities during an emergency. For example, medical records staff could be trained for patient admissions or discharge, and lab technicians could be trained to send blood samples for testing. Consider training community volunteers before an emergency to undertake specific functions during large-scale emergencies.

Often, an emergency brings out the best in people. Health care organizations in New York City were overwhelmed with volunteers and donations. Hospitals quickly doubled blood donation capacity. Donations of blankets, clothing, and food piled up. Thousands called to offer help.

Health care organizations found the management of nonprofessional volunteers very challenging. When faced with numerous calls from volunteers, consider setting up a dedicated phone line for this purpose. Staff at St. Vincent's Manhattan found the best response to be "We'll take your name and call you back." It is critical that the management of these calls does not interfere with operations in your health care organization. ▲

# Caring for our own

### *Widespread mental health needs follow a mass disaster*

One of the more overwhelming impacts of the September 11 crashes at the World Trade Center, the Pentagon, and Somerset County, PA, was the enormous mental health needs of survivors, rescuers, families of victims, and the community at large. Hospitals in New York, Connecticut, New Jersey, and the DC area experienced an especially acute need for counseling and an outlet for mourning among other social services. Locations all across America, even the world, were the sites of makeshift memorials to those who were lost. The Wall of Prayers, the Wall of Remembrance, the Wall of Hope and Remembrance, and countless other sites provided outlets for families to maintain their thin threads of hope and for the community to mourn its losses.

Almost immediately after the attacks, New York and New Jersey hospitals were overwhelmed with thousands of people seeking information about the missing. A relationship with a school across the street provided St. Vincent's Hospital Manhattan with an offsite staging area for its Family Center, as described in the hospital's emergency management plan. St. Vincent's cared for 6,000 people at the center in the first three days. Soon, the city took over coordinating the massive services. The need was beyond what any one organization could handle. The Armory was opened to provide services, including meeting social, psychological, and physical needs.

When the Armory could no longer accommodate the large numbers of people, the NYC Family Assistance Center was opened at Pier 94. The Family Assistance Center is a comprehensive array of human service resources established by New York City to aid families of victims and the affected community at large. Eventually, 100,000 people were seen and helped at the pier. (The center is still providing care and services.) The site offers visitors the opportunity to comb through victims lists; find spiritual sustenance, housing services, and food stamps; and take advantage of therapeutic child day care, one-on-one counseling, and psychological and social services.

## Community integration

The human services needs following a mass casualty event require cooperation between the community and the health care organizations that serve it. After a community disaster, hospitals and other health care organizations become a place of refuge not only for medical assistance, but also for a sense of security and basic human needs. Be prepared to respond to those needs until your community can take over. This requires contingencies in emergency management planning to address as best as possible the nutritional, housing, spiritual, psychological, and other psychosocial needs of your community—and to integrate these plans within your community plan. It is critical to consider mental health and related social services during regional and state emergency management planning.

Community organizations, associations, institutions, and individuals began the healing process in New York City. For example, the Community Assistance Unit of New York City coordinated the logistics of and services available at Pier 94. Counseling needs were so great that New York City contracted with LifeNet, a confidential crisis intervention and referral service for mental health providers, to coordinate community agency volunteers that offered their services. Mental health professionals trained up to 60 bar association attorneys to work with families in obtaining death certificates and assist with other legal matters. The list of services and types of other responders are too numerous to name.

Mental health professionals in New York implemented a new approach to interact with individuals, learned from experiences from the Oklahoma City bombing. Counselors in New York approached individuals in a "concerned friend" fashion, not a formal mental health intervention.

This was especially needed since individuals waited up to eight hours in lines to comb through victims lists that often consisted of descriptive information without names. Families were not rushed and could review the lists as long as they needed or wanted. This was not traditional counseling, but crisis management.

Workers felt that care might have been improved with more interpreters in a greater number of languages and more trained staff to comb through lists with families.

## A real need

As with medical care after a disaster, a triage is also performed in behavioral health. It starts with survivors, people who lost a loved one, rescue workers, and people who witnessed the events in person. It quickly moves to people who lost a home, business, or job because of the event and then to anyone who the event deeply affected. Most health care organizations agreed that after the September attacks, mental health was their major focus and the way in which they provided the most help. But none had prepared for such a large-scale effort.

Hospitals in New York immediately set up 800 numbers, one-on-one counseling services, and group education sessions. Mental health teams worked 24 hours a day. A simple yet effective practice was ensuring no phone call went unanswered.

In the immediate aftermath of a disaster, people are looking for kindness and human connection—chaplains are especially effective in this capacity. Chaplaincy and interfaith

*(Continued on page 23)*

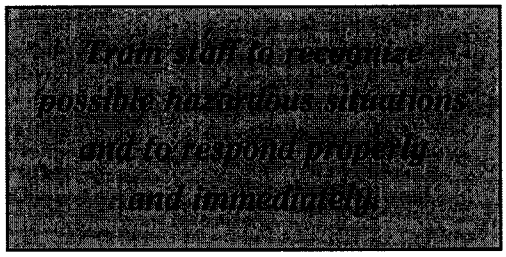
# Nuclear, biological, and chemical decontamination

### *Checklist for bioterrorism preparedness*

With the reality of recent events, the possibility of a nuclear, biological, or chemical emergencies cannot be overlooked. Your health care organization needs to be prepared to quickly and effectively implement decontamination procedures to treat the contaminated individuals and protect other patients and staff by containing the causative agent.

Thoroughly prepared decontamination areas should have

- a location with strictly controlled access to decontaminate victims;
- an easy procedure for removing contaminants, regardless of the season;
- an appropriate means of handling the contaminated material and storing it as directed by proper authorities before removal by a certified hazmat (hazardous materials) removal contractor;
- disposable or cleanable medical equipment dedicated to treating victims' injuries; and
- appropriate personal protective equipment (PPE) for the decontamination team.




## Location

The best place to set up a decontamination area is outside your main facility. If the weather is cold, prearrange for tents or other temporary structures. Outdoor decontamination is preferable to protect your facility's staff, equipment, and other patients from becoming contaminated. If a large volume of victims flood into your facility, it can be very difficult to keep the contamination contained and away from other care settings. The possibility that the contamination may spread is real and must be considered. Your emergency management plan should address how your organization would respond to the functional loss of part of your facility due to contamination to ensure the continued quality and safety of patient care and protection of staff.

Some organizations have a dedicated decontamination room. This is fine, as long as you have only a few contaminated victims to treat and they do not have to be transported a long distance through the emergency department or other common areas. This room should have easy access; it should *not* be in close proximity to other care areas.

It is important to coordinate decontamination efforts with your community's local hazmat response team. This team may have portable decontamination units and prefer to go directly to the site of the contamination rather than risk spreading the contaminant to other sites, including your facility, by moving contaminated individuals. Realize, though, that in a large event, contaminated individuals will probably arrive at your facility before the hazmat team can access the situation, especially if individuals come via private car rather than through the local emergency medical service (EMS).

Also evaluate your facility's air-handling systems. In a terrorist event, some victims may arrive at the health care facility before the details or implications of the event are clearly understood. Determine how you would isolate your HVAC systems to prevent spreading a contaminant throughout the building.

## Training

An essential component of a successful decontamination program is training. OSHA mandates operations training requirements for those who will be involved in the actual decontamination. All employees in the emergency department should be trained at a minimum to the awareness level, with an understanding of patient decontamination issues.

Train staff to recognize possible hazardous situations and to respond properly and immediately. This includes your entire professional staff. "When I had a chance to look outside the command center I saw all the doctors and nurses watching and waiting," said Mary Thompson, the incident commander (and COO) at Bellevue Hospital Center in Manhattan. "I realized if there was a biological component to this attack, they would all be contaminated. If that had been the case, I would have had to call all new surgeons." Staff within Continuum Health Partners have developed and are working to gain consensus on clinical treatment algorithms to broaden clinical diagnosis to rule out biological and chemical contamination.

Focus the training on identifying patients who may have come in contact with biological agents or chemicals and on avoiding contamination of the facility and staff. If any part of the facility becomes contaminated, it may have to be shut down or the facility itself quarantined and victims diverted to another facility until the situation can be resolved.

## Decontamination and treatment

Decontamination begins with clinical assessment and should proceed in an orderly manner from head to toe in keeping with the primary trauma assessment. The primary goal is to make the victim "as clean as possible" (ACAP) after life-threatening conditions have been addressed.

Whenever possible, have the victim remove his or her clothing, double-bag the items in plastic bags, and seal the bags. Staff can then label the bags clearly. With patients who cannot care for themselves, staff members must be prepared to conduct this procedure themselves while keeping protected from contamination. Clean any open wounds and cover them in waterproof dressing.

Gently wash the victim's skin with soap and a sponge beneath a spray of water. Some organic materials require an emulsifier to aid in removal. It is important to explain to a victim what you are doing during the decontamination process to keep the individual as calm and compliant with these procedures as possible.

If multiple victims arrive at your facility the principles of triage must apply. Medical treatment priorities will be to

- treat life-threatening conditions (with appropriately protected staff),
- perform a primary assessment together with contamination reduction,
- thoroughly decontaminate, and
- identify hazardous material.

Remember that as soon as a victim is decontaminated, he or she can then be treated as a "normal" patient.

## Maintaining future readiness

There's no denying that purchasing decontamination chambers, facilities, and equipment, and stocking appropriate pharmaceuticals for possible emergencies will incur significant expenses. The nation as a whole must be prepared to support and fund these efforts. And planning must be accelerated.

Assess your staffing in areas like security, infection control, pathology, medical records, and health education for the appropriate mix and number of trained personnel.

Educate security personnel as to what they are looking for in these situations. Security must look for suspicious packages or suitcases left in the facility, unusual powders and other substances, patients looking for drugs to treat themselves in a biological scare, reporters and other unauthorized individuals breeching security into unauthorized areas, and so forth. Controlling access is critical when locking down the facility in the event of a mass casualty or contamination event. The nature of health care security is changing.

As fears and threats of anthrax, smallpox, and other nuclear, biological, and chemical agents rise, you have to work with public health officials in defining who will be tested, when they will be tested, and how they will be treated. Your laboratory staff may need to rapidly expand to handle the testing capacity.

Medical records or infectious disease staff must monitor medical records for evidence of disease related to these agents. "Surveillance is our greatest weapon in America's new war," says Steven Garner, MD, chief medical officer for Saint Vincent Catholic Medical Centers. "It's not a chore. It's a necessity."

Decide whether personal protective equipment needs to be stored at all lobby entrances, not just the emergency department, in case staff need to suit up during a facility lockdown. Refer to guidelines from the Centers for Disease Control and Prevention (www.cdc.gov) to identify what type of PPE is appropriate for your facility.

Plan for large-scale decontamination needs. Think of how you will ensure for privacy and modesty in such an event. Decide what part of your facility you are willing to convert to a decontamination site and how will you separate airflow.

If you don't yet have the facilities, arrange with your local fire department to use an appropriate hose. Plan for how you will use it. It would be best to do a vertical spray, perhaps from the roof of your facility, so that a horizontal spray will not contaminate others in the vicinity.

There is a real risk to staff members' health as they respond to contaminated victims. There are no easy answers for many of the tough questions that arise in response to current threats of terrorism. Dealing with infectious or off-gassed agents makes staff susceptible to injury and loss. Who will staff such events and how will they handle them? When do you provide treatment? How will you protect staff? What areas of your organization might you lose to contamination? Your staff needs direction in these areas.

As we adjust to the new "normal" of nuclear, biological, and chemical threats in America, health care organizations also must be prepared for increased need in the behavioral health arena. "The very nature of terrorism implies a major mental health function," says Manuel Trujillo, MD, chair of the psychiatry department at Bellevue Hospital Center. He urges health care organizations to prepare for this aspect in far higher numbers and for the longer term. New York City, which may have the most mental health professionals per capita in the United States, mounted a major response to this need. Small communities across America will not be as effective without preplanning and building relationships with community and regional organizations. ▲

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## Common symptoms due to exposure to contaminants

- Nuclear—nausea, vomiting, nonhealing burns
- Biological—flu-like symptoms (high fever, headache, exhaustion) that worsen and cause respiratory failure within days; rash that progresses to pustular vesicles
- Chemical—pinpoint pupils, vomiting, salivating, choking, redness and blisters, gastric anomalies

Visit the Centers for Disease Control and Prevention (www.cdc.gov/EmergencyPreparedness/Protocols.asp) for protocols on reporting suspected outbreaks.

# Responding effectively in the midst of a natural emergency

## *Adapting lessons learned during a tropical storm*

This issue of *Perspectives* focuses on health care organizations' ability to maintain operations in the midst of extraordinary crises. Lessons learned from the recent disasters in New York and Virginia are discussed elsewhere in this issue. However, the strategies in this case report come from the experiences of staff at six Houston hospitals during flooding in June caused by Tropical Storm Allison. The hospitals include Ben Taub General Hospital, Christus St. Joseph Hospital, Memorial Hermann Hospital, Methodist Health Care System, St. Luke's Episcopal Health System, and Texas Children's Hospital. Many of the lessons learned from this natural disaster about emergency management, evacuation, internal communication, leadership, security, continuum of care, and environment of care can be adapted to prepare for any other natural or manmade event, whether intentional or not.

As a result of the tropical storm in June 2001, flooding devastated portions of the Houston health care delivery system. Some hospitals reported as much as 40 feet of water in lower floors and basements. Some hospitals lost all power (including back-up systems), vital facilities (such as lab, supplies, and dietary), communications, medical vacuum and medical gas systems, and other resources. Some hospital staff were unable to come to work, and patients were evacuated on an emergency basis.

The six Houston hospitals overcame these extraordinary circumstances through the heroic efforts of staff, rapid access to contractors and back-up equipment, and reliance on hospitals not impacted by the floodwaters. The quick activation of well-designed and drilled emergency management plans allowed them to function within an effective command structure and to solve problems creatively.

In September, representatives from JCAHO and the Texas Hospital Association visited these hospitals to learn how they successfully responded to these difficult conditions for extended periods of time. Remarkably, no patient deaths after the flooding are attributed to service disruptions. The following strategies were suggested by a majority of leaders and staff at the Houston hospitals. Applicable standards are noted in parentheses.

## Emergency management and evacuation strategies

- Become familiar with any alert systems in your area for floods, tornadoes, and so forth. (EC.1.4) Is emergency-related information available online? by radio? by telephone? Will an emergency or the consequences of an emergency (for example, a power outage) affect your ability to get information? What will be your back up?
- Know if your area has a local or regional emergency management plan, know your outside command structure (within city, county, region, and state and at the federal level), and know your contacts. (EC.1.4)
- Have an evacuation plan for internal emergencies—including loss of power or elevators. (EC.1.4)
- Develop more than one evacuation plan—you need as many options as possible.
- Make provisions for all staff to be involved in emergency drills. Have some drills after hours and between the hours of midnight and 6:00 AM.
- Prepare for the worst regarding staffing levels—especially nursing staff. They may be unable to get to your facility or unable to work not only on the day of the event, but in the subsequent weeks as they may need to attend to their own family priorities. (EC.1.4)
- Prepare for limited or no transportation. (EC.1.4)
- Prepare for a long-term emergency—weeks or months, not just days. Include staff as well as supply chain issues in this preparation.
- Establish a reciprocal agreement with local and outlying health care organizations (or with other facilities if no other health care organization is available) to "share" space or create a hospital within a hospital. Have a plan to staff such spaces, or set up a system with outlying hospitals or facilities to provide staff expertise. (EC.1.4)
- Make provisions for quickly evaluating essential credentials of any temporary or volunteer professional staff and/or establish emergency privileges for local doctors and nurses. (MS.5.14.4, hospitals only) Care of patients in a life-threatening emergency is the highest priority, but plan now for how you might at least evaluate licensure at the appropriate time in a crisis.

## Internal communication, leadership, and security strategies

- Alert your staff when there is an imminent disaster in the area. If you have the resources, pull in extra staff. (EC.1.4) Ensure that staff home phone or cell phone numbers are updated regularly.
- Make your priorities—patient care, maintaining the facility as best as possible, and evacuating if necessary—known to all. (EC.1.4)

- Plan to communicate clearly to all levels of staff in a crisis. Have many face-to-face meetings to ensure that problems are addressed as soon as possible and that leadership is aware of what is happening in specific areas. (EC.1.4)
- Identify a clinical leader and a nonclinical leader.
- Have an adequate back-up communication system (for example, cell phones, walkie-talkies), but be prepared for cell phones to work intermittently. (EC.1.4, IM.2.1) Consider creating a list of volunteer runners if all else fails.
- Make provisions for maintaining security (for example, temporary badges for contractors, volunteers). (EC.1.4)

## Continuum of care strategies

- Make provisions for continuing care of acute care patients during crisis—either on site or at a suitable off-site facility. (EC.1.4)
- Ensure that keys for automated medication dispensing machines (for example, Pyxis units) are available after hours. (EC.1.4, EC.1.6) Determine whether loss of power affects the locking mechanism.
- Make provisions for continuing tube or special feedings for patients. (EC.1.4)
- Provide food, a place to rest, and support for your employees who may also be affected by the emergency. (EC.1.4)

## Facility, equipment, and systems protection strategies

- Maintain a log of key contractors for important equipment and systems, especially life support systems. (EC.1.7)
- Investigate the vulnerability of back-up equipment and systems, and have an additional back-up system for medical gas systems. (EC.1.4)
- Know how a power surge or emergency generator affects life safety equipment. Will someone need to be standing by to reset, adjust, or reload software? (EC.1.7, EC.1.6)
- Have floor plans readily available in a safe place—not in the basement or near windows where they may be affected by weather-related disasters. (EC.1.7, IM.2.1)
- Make provisions for dealing with biowaste on a large scale. (EC.1.4)

As you review and update your emergency management plan in the wake of recent events, you'll find that some of the strategies in this article apply to your facility and the type of services you provide, and you can integrate them into your updated plans. ▲

## Caring for our own

*(Continued from page 19)*

departments were overwhelmed with requests. "We're not saying 'No' to anybody or any mental health need," said Gail Donovan, incident commander, executive vice president, and COO of Beth Israel Medical Center.

St. Vincent's Manhattan staff members in mental health, human resources, social work, organizational development, and mission developed a program for all employees, and highly encouraged all emergency medical service (EMS) and emergency room staff to attend. Once its Family Center was back on site, St. Vincent's Manhattan offered acupuncture and massage to staff, rescue workers, and community members to relieve stress. The program was heavily used.

The psychiatry department at Elmhurst Hospital Center in Queens sent more than 30 staff to the Armory and Pier 94 and trained more than 60 community clergy and community agency staff in crisis counseling and debriefing. Metropolitan Hospital Center in the Bronx developed a comprehensive community outreach program, "A Time for Healing," to assist patients, employees, and community residents in coping with the disaster, providing medical, psychological, and spiritual support to those affected by the tragedy. Similar programs and services were provided by virtually every health care organization in the tri-state area.

In the weeks and months following September 11, mental health professionals and chaplaincy staff members across the country have attended housing meetings, school assemblies, church services, and other meetings to provide comfort and education. Candlelight ceremonies, commemorations, and memorials have been held across America to help address the human need to articulate the tragic sense of loss.

At NYU Downtown Hospital, just five blocks from Ground Zero, there are constant reminders in the permanently altered landscape, the memorial wall, the smell of burning buildings, and refrigerated morgue trucks in satellite parking lots. It's hard for staff and the community to find closure in such a situation. ▲

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# Emergency Management Resources

In addition to this Special Issue of *Perspectives,* JCAHO and Joint Commission Resources have or are developing a number of items to help health care organizations, including

- a book titled *A Guide to Environment of Care Management Plans* (ECMP-01R, $55, currently available)
- a consulting service to enhance emergency planning (currently available)
- frequently asked questions (and answers) about JCAHO emergency management standards (www.jcaho.org, currently available)
- enhanced emergency management advice and education during survey (starting November 2001)
- an audioconference/Internet presentation on emergency planning and bioterrorism ($249, November 16, 2001)
- a book titled *Guide to Emergency Management Planning in Health Care* (EMPHC-01R, $60, January 2002)
- Joint Commission Satellite Network program, *Managing and Mitigating the Unthinkable: Nuclear, Biological, or Chemical Attacks* (March 14, 2002)
- a paper on models of emergency management that can meet increasing needs (early 2002)
- a national conference on emergency management (2002)
- continuing coverage in *Perspectives*™ and *Environment of Care® News*

To learn more about or to order any of these resources, visit www.jcrinc.com or contact JCAHO's customer service at 630/792-5800.

## Internet resources

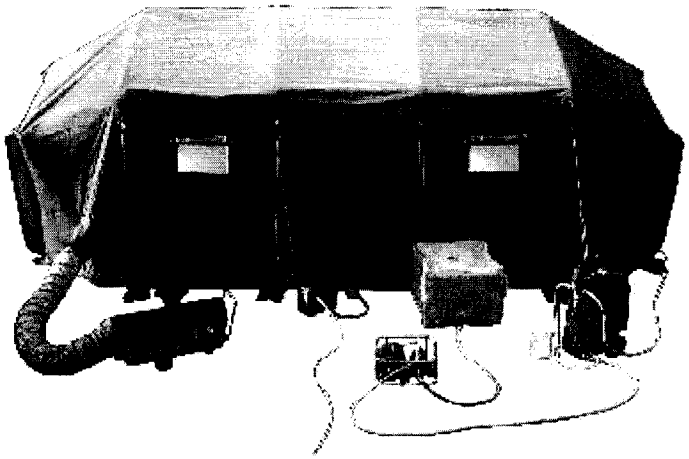
American College of Physicians/American Society of Internal Medicine (www.acponline.org)
American College of Surgeons (www.facs.org)
American Health Information Management Association (www.ahima.org)
American Hospital Association (www.aha.org)
American Medical Association (www.ama-assn.org)
American Organization of Nurse Executives (www.aone.org)
American Society for Healthcare Engineering (www.ashe.org)
American Society for Healthcare Risk Management (www.ashrm.org)
Association for Professionals in Infection Control and Epidemiology (www.apic.org)
Centers for Disease Control and Prevention (www.cdc.gov)
Environmental Protection Agency (www.epa.gov)
Federal Emergency Management Association (www.fema.gov)
Food and Drug Administration (www.fda.gov)
Joint Commission on Accreditation of Healthcare Organizations (www.jcaho.org)
Medline (www.nlm.nih.gov)
National Domestic Preparedness Office (www.hdpo.gov)
National Guideline Clearinghouse (www.guideline.gov)
National Institutes of Health (www.nih.gov)
Occupational Safety and Health Administration (www.osha.gov)
U.S. Department of Health and Human Services (www.hhs.gov)
U.S. Department of State (www.state.gov)
United States Postal Service (www.usps.gov)

EQUIPMENT MANAGEMENT COMPANY

Phone: 815-467-8762 Fax: 815-467-8763

# Equipment Management Co. Decon Systems

## *Mass Decon System*



Fully self supporting decontamination responds system for personnel
Integrated 2 showers
Ready for use in less than 10 minutes
Decontamination of 50 persons per hour
Easily stored and transportable
Made to customer demand

**Shower Cabin Inside Tent**

Tent, integrated compartments and shower system erected in less than 5 minutes nothing to assemble
No assistance from third parties during the decontamination process to avoid human error
2 shower cabins with 4 high effective nozzles
Efficient water consumption only 12 liter (3 gal) per person.
Ample room for placing casualty rescue litter in cabin

be omitted. If the area serves children, additional storage shall be provided to accommodate supplies and equipment in the range of sizes required for pediatrics. Soiled and clean workrooms or holding rooms shall be separated and have no direct connection.

**7.9.D17.** Administrative center or nurses station for staff work and charting. These areas shall have space for counters, cabinets, and medication storage, and shall have convenient access to handwashing stations. They may be combined with or include centers for reception and communication or poison control. These nursing stations may also be decentralized near clusters of treatment rooms. Visual observation of all traffic into the unit and of all patients should be provided from the nursing station, where feasible.

**7.9.D18.** Securable closets or cabinet compartments for the personal effects of emergency service personnel, located in or near the nurse station. At a minimum, these shall be large enough for purses and billfolds. Coats may be stored in closets or cabinets in the unit or in a central staff locker area.

**7.9.D19.** Staff lounge. Convenient and private access to staff toilets, lounge, and lockers shall be provided.

**7.9.D20.** Housekeeping room. A housekeeping room shall be directly accessible from the unit and shall contain a service sink or floor receptor and provisions for storage of supplies and housekeeping equipment.

***7.9.D21.** Security station. A security system should be located near the emergency entrances and triage/reception area. The non-selective 24-hour accessibility of the emergency department dictates that a security system reflecting local community needs be provided.

**7.9.D22.** Airborne infection isolation room. At least one airborne infection isolation room shall be provided as described in Table 7.2 and paragraphs 7.2.C3, 7.2.C4, 7.2.C6, and 7.2.C7. The need for additional airborne infection isolation rooms or for protective environment rooms as described in Section 7.2.D shall be determined by the Infection Control Risk Assessment.

***7.9.D23.** Bereavement room.

**7.9.D24.** Secured holding room. At least one holding/seclusion room of 120 square feet (11.15 square meters) shall be provided. This room shall allow for security, patient and staff safety, patient observation, and soundproofing.

***7.9.D.25.** Decontamination area. A decontamination area shall be provided. The functional program shall define the location of the area and the types of exposure (i.e., nuclear, biological, chemical) to be considered. The location of the area shall be permitted to be on the exterior perimeter of the facility adjacent to the ambulance entrance or built within the walls of the facility.

**APPENDIX**

**A7.9.D21**

A security station and/or system should be located to maximize visibility of the treatment areas, waiting areas, and key entrance sites. The system should include visual monitoring devices installed both internally in the emergency department as well as externally at entrance sites and parking lots. Special requirements for a security station should include accommodation for hospital security staff, local police officers, and monitoring equipment. Design consideration should include installation of silent alarms, panic buttons, and intercom systems, and physical barriers such as doors to patient entry areas.

The security monitoring system should be included on the hospital's emergency power backup system.

**A7.9.D23.** At least one bereavement room should be provided. This room should be accessible from both the emergency treatment corridor and the emergency waiting area. This room should be comfortable enough to provide respite to the bereaved family and should be equipped with a sound transmission coefficient equivalent to 65 for the walls and 45 for the floors and ceiling.

**A7.9.D25.** Decontamination area on the exterior perimeter.

(1) Ideally 50 yards (45.72 meters) from the ambulance entrance (if required by the constraints of the structures involved, this may be no less than 10 yards (9.14 meters) from the ambulance entrance).

(2) At a location where no windows or doors abut the defined area or where all doors are securable from the outside and all windows are capable of being shuttered.

(3) Boundaries shall be defined on the paved ground surface with a yellow paint line and the word "DECON" painted within these boundaries.

(4) At least two shower heads, temperature-controlled and separated by at least 6 feet (1.83 meters); a separate spigot for attachment of a hose.

(5) Semipermanent or portable/collapsible structures (curtains, tents, etc.) that will provide both shelter from the environment, privacy, and some containment of the contaminant/infectious agent.

(6) Secured access to the hospital telephone system and a duplex electrical outlet for each two shower heads and no closer than 4 feet (1.22 meters) to any shower.

(7) Exterior lighting to maximize visibility; appropriate for wet/shower facilities.

(8) Negative airflow and ventilation system on the hospital perimeter wall but drawing air within the confines of the decontamination structure;

*(continued on next page)*

### *7.9.E. Other Space Considerations

## 7.10 Imaging Suite

### 7.10.A. General

*7.10.A1. Equipment and space shall be as necessary to accommodate the functional program. The imaging department provides diagnostic procedures. It includes fluoroscopy, radiography, mammography, tomography, computerized tomography scanning, ultrasound, magnetic resonance, angiography and other similar techniques.

**APPENDIX**

**A7.9.D25.** ***(continued)*** exhausted directly to the outdoors, no less than 50 feet (15.24 meters) away from the decontamination site with no recirculation of air. This system shall be defunctionalized when the decontamination structure is not in use.

(9) Water runoff shall be contained and disposed of safely to ensure that it does not enter community drainage systems. This shall be accomplished either by graded floor structures leading to a drain with a collection system separate from that of the hospital or by the use of plastic pools or specialized decontamination stretchers.

Decontamination room within the facility

(1) Separate, independent, secured external entrance adjacent to the ambulance entrance, but no less than 10 yards (9.14 meters) distant; lighted and protected from the environment in the same way as the ambulance entrance; a yellow painted boundary line 3 feet (0.91 meter) from each side of the door and extending 6 feet (1.83 meters) from the hospital wall; the word "DECON" painted within these boundaries.

(2) Internal entrance to a corridor within the emergency area.

(3) It shall have spatial requirements and the medical support services of a standard emergency area airborne infection isolation room, with air externally exhausted separate from the hospital system. It shall contain a work counter, handwashing station with hands-free controls, an area for personnel gowning, and a storage area for supplies, as well as equipment for the decontamination process.

(4) Ceiling, wall, and floor finishes shall be smooth, nonporous, scrubbable, nonadsorptive, nonperforated, capable of withstanding cleaning with and exposure to harsh chemicals, nonslip, and without crevices or seams. Floors shall be self-coving to a height of 6 inches (152.4 millimeters). The surface of the floor shall be self-finished and require no protective coating for maintenance.

(5) Two hospital telephones; two duplex electrical outlets, secured appropriately for a wet environment.

(6) At least two hand-held shower heads, temperature-controlled; curtains or other devices to allow patient privacy, to the extent possible.

(7) Appropriately heated and air-cooled for a room with an external door and very high RH.

(8) Water drainage must be contained and disposed of safely to ensure that it does not enter the hospital or community drainage systems. There should be a "saddle" at the floor of the door back to prevent efflux.

(9) A certified physicist or other qualified expert representing the owner or the state agency shall specify the type, location, and amount of radiation protection to be installed in accordance with final approved department layout and the functional program. These specifications shall be incorporated into the plans.

(10) The decontamination area may function as an isolation room or a patient hygiene room under routine departmental function.

**A7.9.E.** A decontamination room for both chemical and radiation exposure. This room should have a separate entrance to the emergency department, and an independent, closed drainage system. A negative airflow and ventilation system separate and distinct from the hospital system should be provided. Spatial requirements should allow for at least one stretcher, several hospital staff, two shower heads and an adjacent locked storage area for medical supplies and equipment. When provided, solid lead-lined walls and doors should meet the requirements of a certified physicist or other qualified expert representing the owner or state agency.

A separate pediatric emergency area. This area should include space for registration, discharge, triage, waiting, and a playroom. An area for the nurse station and physician station, storage for supplies and medication, and one to two isolation rooms should also be included. Each examination/treatment room should be 100 square feet (9.29 square meters) of clear floor space, with a separate procedure/trauma room of 120 square feet (11.15 square meters) of clear floor space; each of these rooms should have handwashing stations, vacuum, oxygen, and air outlets, examination lights, and wall/column mounted ophthalmoscopes/otoscopes. At least one room for pelvic examinations should be included. X-ray illuminators should be available.

Observation/holding units for patients requiring observation up to 23 hours or admission to an inpatient unit. This area should be located separately but near the main emergency department. The size will depend upon the function (observation and/or holding), patient acuity mix, and projected utilization. As defined by the functional plan, this area should consist of a centralized nurse station; 100 square feet (9.29 square meters) of clear floor space for each cubicle, with vacuum, oxygen, and air outlets, monitoring space, and nurse call buttons. A patient bathroom should be provided. Storage space for medical and dietary supplies should be included. X-ray illuminators should be available.

A separate fast track area when annual emergency department visits exceed 20-30,000 visits should be considered. This area should include space for registration, discharge, triage, and waiting, as well as a physician/nurse work station. Storage areas for supplies and medication should be included. A separate treatment/procedure room of 120 square feet (11.15 square meters) of clear floor space should be provided. Examination/treatment areas should be 100 square feet (9.29 square meters) of clear floor space, with handwashing stations, vacuum, oxygen, and air outlets, and examination lights. At least one treatment/examination room should be designated for pelvic examinations.

A patient hygiene room with shower and toilet facilities.

# The Street Medics

## Street First Aid Manual

### Decontamination Guidelines and Protocol

**Version 0317B**

### General Guidelines

- Always decontaminate people before gear.

- Decontaminate yourself before decontaminating others or gear.
- Always wear decontaminated protective gear (gloves, eye protection, apron or other protective clothing) while decontaminating people and gear.
- These procedures are to be performed at backup stations, protest facilities or at home. They are too elaborate to be performed in the field.
- Any and all persons and gear that have been exposed to chemical agents or pathogens (blood or other bodily fluids) should be assumed contaminated and be properly decontaminated.
- ALL persons should be properly decontaminated before allowed access to non-contaminated facilities.
- If it is necessary to use enclosed private or public transportation before decontamination protocol can be followed then as much contaminated clothing and gear as possible should be removed and stored in airtight containers before boarding. Do NOT mix chemical and pathogen contaminated gear and clothing. If all contaminated gear and supplies have been exposed to chemical agents separate those who are also exposed to pathogens. Clearly MARK or TAG all storage devices as to their contents and the type of contamination. Be discreet or cryptic if you must utilize public transportation.
- If vehicles are parked near protest areas to provide post-event transportation back to homes or facilities they should include a change of clothes and blankets (to cover people who may have to remove clothing and don't have replacements), large plastic garbage bags with twist ties to store contaminated gear and clothing, and non-porous protective material (such as a tarp) for transport of injured people who might be bleeding. Great care shall be taken to not contaminate vehicles and facilities.
- If a person exposed to chemical agents arrives at a non-contaminated backup station or clinic in need of immediate medical aid she must be treated outside of the non-contaminated area. Both medics and patient should then be properly decontaminated before entering the non-contaminated area. For medics it is often sufficient to use protective gear that will be removed before re-entering the non-contaminated area.
- All enclosed backup stations, clinics and protest facilities shall establish a chemical decontamination area by the entry way that is well ventilated and supplied. At least one person at all times should be responsible for the enforcement and supervision of decontamination procedures and protocol. Any facility that is expected to provide medical aid should include an area

set up as a medical station that is isolated from the rest of the facility and in which only medics and people in need of treatment will be allowed and only after they have been properly decontaminated. As it is not always possible to thoroughly decontaminate everyone who will enter the medical stations it is imperative that they are well ventilated.
- At the end of the day all areas that were used to render medical aid should follow pathogen decontamination protocol and all chemical decontamination areas should follow chemical and pathogen decontamination protocols.
- If it becomes necessary to apply chemical or pathogen decontamination protocol on a gas mask you MUST remove all filters prior to decontamination. Most of the time a thorough wipe or scrub of all exposed surfaces with a cloth soaked in a baking soda solution and lightly squeezed should be sufficient for chemical contamination.

**Supplies needed for decontamination procedures:**

- Heavy duty plastic (garbage) bags with twist ties (big enough for clothing)
- Large point permanent red markers
- Tags or other labeling material
- Liquid chlorine bleach
- Baking Soda
- Brushes
- Gauze
- Heavy duty towels and other absorbent material
- Protective eye gear
- Latex Gloves (or equivalent for those with latex allergies)
- Plastic disposable food prep aprons
- Mineral Oil immediately followed by
- 70% Alcohol
- Whole Milk
- Fans

## Chemical decontamination

### Person

- Remove all contaminated clothing and gear and discard or store safely (in an airtight container) until they can be properly decontaminated
- Treat eyes, mucous membranes and genitalia first if necessary
- Rinse entire body with large quantities of clean cool running water for at least 15 minutes, longer if necessary or desired. Showers work best. Do not be stingy about the water. While water is the best decontaminant for skin surfaces, small amounts of moisture will simply reactivate the residue of chemical contaminants (which WILL be present even if no discomfort is noticed or reported) effectively re-exposing the person to the chemical agents. Cool water works best but you may adjust the water temperature as necessary given the ambient temperature and the medical condition of the person
- Do NOT give a contaminated person a bath or immerse her in standing

water prior to following the above decontamination protocol
- Render any additional necessary medical aid for chemical exposure after decontamination
- If it becomes necessary to rinse the eyes for more than two minutes continuously use saline solution instead of water if possible. Continuous direct exposure to running water will dry and irritate the eyes. Perform follow-up care for the eyes.

**Gear**

- Soak contaminated clothes and gear in baking soda solution
- Wash in cold water only (no soap/detergent) first
- If no detectable contamination remains then wash in regular cycle but isolated from non-contaminated clothing
- Repeat cycle once if necessary
- If chemical contamination is present after second cycle safely discard.
- Properly discard all liquids used in decontamination

**Pathogen decontamination of gear**

- All gear and supplies that have come in contact with body fluids should be assumed contaminated and dealt as such. If in doubt decontaminate all gear.
- Professional medical gear should be decontaminated according to manufacturer's recommendations
- Disposable or damaged gear and supplies should be safely discarded (place in a heavy duty undamaged plastic bag, seal tightly, mark as biohazard and dispose properly).
- Standard decontamination method is as follows:

    1. Wash your hands thoroughly with warm soapy water.
    2. Wear protective gloves and eyewear. A plastic apron is strongly advised.
    3. Inspect all gear and plastic surfaces for damage or cracks. Safely discard all damaged items as they cannot be decontaminated properly.
    4. Disassemble all gear if appropriate.
    5. Scrub all internal and external surfaces thoroughly with brush and warm soapy water.
    6. Rinse all gear with clean water.
    7. Wet all surfaces thoroughly with 500ppm sodium hypochlorite solution (¼ cup liquid household bleach in a gallon of water) for at least one minute. Preferred method is a ten minute soak in such a solution. This MUST be a fresh solution. (If sodium hypochlorite solution is objectionable it is possible to use 70% alcohol (ethanol or isopropanol) instead. However alcohol may not be as effective or broad an anti-pathogen agent, especially in short term contact.)
    8. Rinse with 70% alcohol and immediately wipe dry all internal and external surfaces with clean absorbent material (such as a piece of 4x4 gauge). Alcohol aids in the drying of internal surfaces inhibiting the growth of fungal or bacterial pathogens

in gear that will be stored after decontamination. Clean water can be substituted if alcohol is not available but great care should be taken to ensure that internal surfaces have been dried completely (do not simply allow to air dry).

9. Safely discard all water, solutions, and supplies used for cleaning.
10. Decontaminate or safely discard all gear used for cleaning.
11. Wash your hands thoroughly with warm soapy water.
12. Store all gear and supplies in a clean, safe location.

**Cleaning up blood and bodily fluid (vomit, etc) spills**

1. Clean up all spills immediately. If it cannot be cleaned immediately make sure it is isolated from any traffic or contact until it can be cleaned.
2. Use standard protective gear when cleaning spills (see decontaminating gear).
3. Pick up the spill with absorbent material and wipe the area as thoroughly as possible.
4. Once the area has been wiped flood it with 500ppm hypochlorite solution (1/4 cup of liquid household bleach per gallon of clean water) and allow it to stand for 30 minutes.
5. Use standard procedures for disposing of all supplies used in the clean up and for the decontamination of all non-disposable gear.

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## Wearable Computer user refused to undress for mass decontamination

Yesterday's incident showed the problems that wearable computers can create when trying to process large numbers of disease carrying persons, or suspected cases.

Body worn electrical equipment presents a unique decontamination dilemma. Because wearable computers are often used as prostheses, to monitor heart, respiration, and other physiological parameters, and like eyeglasses, by the visually impaired to see, a victim may not be able to safely evacuate an area without the apparatus. A wearable computer user may feel dizzy or disoriented when the system is removed, and cannot safely evacuate an area.

Moreover, some persons using wearable computers in ordinary day-to-day life are not accustomed to undressing in front of strangers.

The police spokesman said ``Computer geeks are the kind of people who never played sports in school, and never got used to the idea of undressing and showering in front of their team mates. When people refuse to undress, this creates a serious problem. We need to bring back the good old days of mandatory physical education in schools and mandatory delousing and hygiene inspections. People got no business wearing computers. Wearable computers are a stupid idea."

Because of this incident, talk is underway on the building of a new decon facility in downtown Toronto.

Toronto has designated the medical center as the Control Facility (CF) in the event of any kind of multicasualty incident, defined as any event that requires more emergency medical resources to adequately handle victims than are available under routine circumstances. A multicasualty incident could result from natural or human-made events, such as floods, earthquakes, a loss of utilities, acts of civil disobedience and accidents in which persons would be rounded up and directed to the CF for processing.

When asked how he would address potential privacy concerns, the spokesman said that men and women would go through different compartments. After the showers, they would have to wear paper suits until uncontaminated clothing could be brought to them. Personal belongings would be decontaminated separately, and some items may have to be destroyed, he said.

Toronto's mass decon facility to solve future problems with uncooperative victims of mass casualty decontamination.

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