STRATEGIES FOR INCIDENT PREPAREDNESS:

A National Model

CiMeRC
National Bioterrorism Civilian Medical Response Center

Strategies for Incident Preparedness: A National Model

NATIONAL BIOTERRORISM CIVILIAN MEDICAL RESPONSE CENTER

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Preface

In October 2001, the Mercy Health System of Pennsylvania and Drexel University's National Bioterrorism Civilian Medical Response Center (CiMeRC) sponsored a project to prepare the medical and healthcare community of southeastern Pennsylvania for the possibility of a medical emergency resulting from an act of terrorism. Preparedness for such a previously unthinkable event was felt an urgent necessity in view of the terrorist incidents in New York, Pennsylvania and Washington, DC (2001). The project was funded through a grant awarded to Mercy Health System from the U.S. Army Medical Research and Materiel Command (USAMRMC) and its Telemedicine and Advanced Technology Research Center (TATRC).

The resultant Delaware Valley Disaster Preparedness Task Force was composed of the leadership of county emergency management and public health agencies, hospitals from six major health systems in the Greater Philadelphia Area (Mercy Health System, Tenet Health System, Temple University Hospital, Thomas Jefferson University Hospital, University of Pennsylvania Health System, and Crozer Keystone), major independent hospitals, the Burn Foundation, the U. S. Public Health Service, the National Disaster Medical System (NDMS) and other select agencies, the City of Philadelphia, the American Red Cross, representatives from CiMeRC at Drexel University, Greencastle Associates Consulting and the Delaware Valley Healthcare Council. The Task Force operated in full capacity from October 2001 to March 2002 and continues in a modified form with the publication of this manual.

The Task Force discovered minimal awareness on the part of the medical and healthcare community regarding the degree of preparedness required to effectively manage civil emergencies in which injuries or deaths could measure in the hundreds or thousands. Nor was there any model available for hospitals, clinics or healthcare organizations to identify requirements, coordinate with civil agencies, or train staff for medical "worst case scenarios."

As a first step in resolving such deficiencies, the Disaster Preparedness Task Force began development of a handbook to aid hospitals and healthcare organizations in devising contingency plans, coordinating preparedness efforts with local authorities and emergency management agencies, and exercising personnel in mass casualty events. The result of that effort was the issuing of the **Mass Casualty Incident Preparedness Exercise Guidebook (2002)**. The guidebook addressed representative examples of natural, industrial and terrorist incidents that could occur in the greater Philadelphia region, and exercises in the Guidebook were carefully tailored for geographic and demographic accuracy.

This edition is an outgrowth of that initial effort. While similar in structure, **Strategies for Incident Preparedness: A National Model (2003)** is designed to aid community hospitals, medical clinics and other healthcare organizations in planning, coordinating and exercising for large-scale medical emergencies arising from mass casualty events across the United States. It is intended that this be a living document, incorporating experiences, best practices and lessons learned from the medical community, emergency management agencies, civil authorities, and non-governmental agencies nationwide. Mercy Health System of Pennsylvania and CiMeRC are proud to sponsor this document.

NOTICE

This manual is intended for the official use of hospitals, medical clinics, healthcare organizations, public health officials, emergency management professionals and civil authorities. The information contained herein is for training and planning purposes only and is not intended in any way to reflect past incidents, or to speculate about future events. Procedures and recommendations are offered solely as an aid to managers, planners and decision-makers in the healthcare profession. Nothing herein is to be construed as an endorsement by Mercy Health System, the National Bioterrorism Civilian Medical Response Center or the author.

Strategies for Incident Preparedness: A National Model

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Introduction

Since the terrorist attacks of 2001, the American medical community's sensitivity to events that could generate large-scale death and destruction has intensified. Modern society has a long acquaintance with ecological disasters, industrial accidents and political strife resulting in widespread damage and mass casualties among civilian populations. Until recently, however, American society remained largely immune from the effects of disasters on such a scale, owing to a favorable climate and geography, a sound civil infrastructure, a vigorous public health system, high standards of safety in the engineering and construction of both private and public structures, a comparatively high standard of living, and a strategically favorable isolation from threatening enemies.

However, after the terrorist attacks on New York City, Washington, D.C. and Somerset County, Pennsylvania, it became clear that this new era holds dangers previously thought highly improbable, if not impossible. Recent civil emergencies and national disasters have demonstrated an escalating, threatening significance for American society, the nation's medical community and the United States' public health system. A listing of such events includes the following:

- Nuclear power plant disasters at Three Mile Island (1979) and Chernobyl (1986)
- Detonation of a bomb aboard Pan Am Flight 103 over Lockerbie, Scotland (1988)
- Sabotage to Kuwaiti oil fields by the Iraqi Army (1991)
- Hantavirus Disease outbreak in the southwest United States (1993)
- Sarin gas attacks in the Tokyo subway system (1995)
- Terrorist bombing at the Atlanta Olympics (1996)
- Khobar Towers truck bombing, Riyadh, Saudi Arabia (1996)
- Terrorist bombings at U.S. embassies in Nairobi and Dar es Salaam (1999)
- Intentional Salmonella infections in Oregon (1999)
- Introduction and outbreak of West Nile Virus in the United States (1999)
- Preparations for potential computer system failures from Y2K (1999)
- Outbreak of Bovine Encephalitis (Mad Cow Disease) in the United Kingdom (2000)
- Terrorist bombing of USS Cole in Aden, Yemen (2000)
- Outbreak of Foot and Mouth Disease in the United Kingdom (2001)
- Terrorist attacks on New York, Pennsylvania and Washington, DC (2001)
- Anthrax attacks and distribution in Connecticut, Florida, New Jersey, New York and Washington D.C. (2001)
- Suicide bombings in Israel (2000-2003)
- Breakup of space shuttle Columbia and distribution of debris over five states (2003)

This list spans the range of potential disasters that could befall an American city or municipality with devastating consequences for immediate public safety and long-term public health. Add to this list of dramatic events the routine (but equally dramatic) natural disasters such as floods, droughts, hurricanes, tornadoes, earthquakes, forest fires, mudslides and naturally-occurring diseases, and it is clear that preparedness among the nation's medical healthcare providers and the public health system is a significant dimension of national security, as well as of community vitality and welfare.

However, developing the expertise and the resources needed to respond to this array of medical emergencies is a daunting task. This was the central problem faced by the Disaster Preparedness Task Force in the wake of the 9/11 attacks: how to prepare an entire region's healthcare system and its medical practitioners against a frightening array of "worst case scenarios" with potential for casualties in the hundreds or thousands, and significant damage to the region's transportation, communications and public utilities infrastructure. There are significant reasons why a high level of preparedness for such contingencies will be difficult to obtain in the immediate future.

First, business decisions and resource allocations spanning several decades have virtually eliminated the excess bed-space in hospitals that form the reserve capacity for patient care during mass casualty situations. These decisions have been driven not only by economic or fiscal considerations, but also by the fact that America's extraordinarily capable public health system has made epidemics and widespread childhood illnesses virtually a thing of the past. Moreover, the high standards of engineering design, safety and survivability have reduced casualties during natural disasters to historic minimums. Lastly, modern medicine has made outpatient care much more viable even for relatively complex medical procedures, thus reducing the necessity for the routine lengthy hospitalization of patients.

Secondly, experience among the vast numbers of senior medical managers has traditionally emphasized problem-solving and resource allocation pertinent to managing their own institutions or hospitals, with an emphasis on improving the service and efficiency of critical day-to-day operations. Only rarely does a hospital administrator or his staff have previous experience in planning and operations during extreme conditions at the fringes of available resources and staffing under the conditions representative of a national crisis, a large-scale civil disaster, or a terrorist attack with a weapon of mass destruction. Even among medical personnel experienced in emergency room operations, the natural inclination is to focus on efficiently managing on-hand emergency cases, as opposed to future emergencies requiring resources beyond those routinely available at the hospital.

Lastly, there has historically been limited collaboration between medical personnel and emergency managers regarding policies and protocols—whether at the local, state or federal levels—when dealing with a mass casualty incident. The common perception among medical professionals, as frequently voiced among members of the Disaster Preparedness Task Force, is that emergency managers and Incident Commanders provide little support in relation to medical issues once the ambulances depart the scene of the incident. The emergency management (EM) professionals who served on the Task Force were likewise in agreement that EM personnel are unaware of the types of response plans that occur within a local hospital and staff, or the obstacles involved in responding to a mass casualty incident.

Resolving these systemic deficiencies is the sort of challenge that will take years of planning, education and resource direction. Indeed, the establishment of a federal Department of Homeland Security is focused on addressing these very issues. There are no illusions about either the importance or the difficulty of this task. Nevertheless, the problems that face the nation could have repercussions for medical and emergency management professionals in any community at any time in the immediate future. The most urgent question is, therefore, what steps can be taken

at this moment—even in the absence of additional funding, staffing or resources—that might have an immediate positive impact on the ability to administer emergency medical assistance during a widespread national, regional or local crisis?

Recognizing the challenges that face the medical community, emergency management professionals and response agencies, this **Guidebook** establishes a foundation for training medical staff to think about and prepare for the medical "worst-case scenario." The exercise events described herein are generic in nature with many blanks where region-specific information is required. The concept is to develop a program for training, planning and challenging hospital staff with scenario-based exercises for a number of biological, chemical and related terrorist incidents as well as other, more common, natural and man-made disasters. In order to make the exercises relevant to a healthcare facility's personnel, it is recommended that the following measures be adopted:

(1) The scenarios should be tailored to actual locations and venues of the region in which a respective facility resides. This is important not simply to establish credibility of the exercise, but to allow medical personnel to recognize as possible previously unforeseen events and to learn to recognize and think about the implications of other similar hazards and vulnerabilities in their region.
(2) The scenarios should be fictitious, but nevertheless within the realm of possibility, and statistically reasonable. For example, the anthrax terrorist scenario in the **Guidebook** effectively occurred in the United States in 2001, although its targets were high profile media personnel, postal employees, and members of Congress, rather than school children. Similarly, the nuclear attack scenario is demographically proportionate to the Japanese experience at Hiroshima.
(3) The scenarios should be general enough to permit tailoring by individual hospital staffs, and should be useful for developing exercises to prepare a medical facility for accreditation under the Joint Council for Accreditation of Healthcare Organizations (JCAHO) standards. They should also provide a framework for developing community or regional exercises involving medical facilities, emergency management agencies, public officials and other first responders.

The **Guidebook's** intended purpose is to assist hospitals, health systems, and other health care organizations in preparing for the consequences of natural or man-made disasters that could result in mass civilian casualties. Under this broad objective, three specific goals are identified:

First, the book is intended to raise a range of diverse issues—through a series of representative disaster scenarios—that should be considered in preparing for the consequences of an overwhelming demand on a facility, community or regional medical system.

Secondly, the scenarios are intended to assist community and regional medical facilities in addressing issues associated with coordinating disaster plans and response between regional medical facilities within the context of existing Mutual Aid Agreements.

Finally, by offering scenarios that require the participation of multiple agencies across the board, the **Guidebook** fosters an awareness of the coordination required between local medical facilities

and other agencies tasked with responding to civil disasters. These agencies include such diverse organizations as county emergency management agencies, local civic organizations, community volunteer organizations, municipal leaders and local, state, and federal officials, National Guard and state police, fire and emergency medical services.

Purpose and Use of the Exercise Guidebook

From a planning perspective, the **Exercise Guidebook** is intended to be used at three specific levels within any community medical facility or hospital: at the executive level for long-range planning and resource allocation; at the operational level for internal planning, drilling and training among hospital facility staff and support personnel; and among hospitals and emergency management and response agencies in a given community or region. Specific elements of these three objectives are as follows:

(1) For executive-level planning by hospital administrators, CEOs and medical leadership to:
- Identify existing resources and shortfalls during mass casualty incidents;
- Develop plans for coordination and response of hospital assets in times of crisis;
- Develop strategies for mutual support, external liaison, and public relations.

(2) For operational planning involving:
- Hospital and medical staff;
- Medical facility support personnel, including security personnel;
- First responders and community organizations, including private voluntary organizations (PVOs) that coordinate with and assist local hospitals.

(3) For planning and conducting regional exercises involving coordination between:
- Hospitals and medical facilities in mutual support under Mutual Aid Agreements;
- Local disaster response agencies (County/State Emergency Management Agency; Fire Department; Police Department; Public Health Service; American Red Cross);
- Federal and State agencies activated during disasters (National Guard; Department of Health and Human Services; Centers for Disease Control and Prevention; National Disaster Medical System (NDMS) Federal Emergency Management Agency; Federal Bureau of Investigation).

Within these three categories, planning sessions and exercises are recommended for every level within the hospital or medical facility organization. For example, well in advance of a hospital-wide exercise based on one of the enclosed scenarios, hospital leadership should consider ensuring that the scenario is reviewed and a table-top exercise or planning session conducted by each unit, clinic and division within the hospital. This would serve to familiarize each participant with the scenario and initial structure of the exercise, and also to generate plans and operating procedures for existing clinical procedures to be re-evaluated as necessary to ensure their accuracy before an actual full-scale exercise (and prior to an actual event).

Similarly, it would be appropriate for a hospital or medical facility to conduct a hospital-wide exercise, including an After Action Review and Lessons Learned Review (Appendix G) before

attempting a community-wide or regional exercise. In general, preparation for evolutions as complex as unit or hospital-wide casualty exercises are often best approached using a CRAWL-WALK-RUN philosophy, with concentration on mastering the basics of organization and internal coordination before attempting the more complex functions of inter-agency coordination or exterior liaison with regional hospitals or EMAs.

Phased Training Program for Medical Response to Mass Casualty Incidents

In addition to an array of planning scenarios, the **Guidebook** provides the framework for a training program aimed ultimately at preparing a medical facility to conduct a mass casualty exercise involving region-wide coordination of medical facilities, EMAs, civic organizations and local and regional government officials. Such a training program might be organized in the following fashion.

Phase 1: **Internal hospital exercises** to organize staff and identify coordination methods and internal communications for disaster response

- Executive and Director-level scenario review and planning sessions;
- Individual unit/clinic planning and coordination meetings between units in the facility;
- Table-top exercise involving hospital leadership and unit/clinic directors;
- Hospital-wide walk through drills using a pre-planned and distributed scenario;
- Hospital-wide exercise with real-life coordination of resources (JCAHO standards).

Phase 2: **Community outreach and coordination of local resources** involved in regional disaster response

- As appropriate, representatives from local government agencies observe/participate in hospital planning sessions and walk-through exercises to familiarize external agencies with hospital requirements and provide input to scenario development;
- Community voluntary organizations and commercial enterprises participate in hospital planning sessions to identify assistance available through community civic organizations and identify possible division of labor (American Red Cross, Rotary International and Kiwanas International clubs, church-based organizations, local industry and businesses, etc.);
- Hospital-wide exercise (JCAHO standards) conducted with appropriate involvement of government officials such as county EMS, Fire Department, Police/Sheriff, Public Health representatives and city/county officials.

Phase 3: **Coordination of medical response** among hospitals and medical facilities within a county or state geographic region

- Planning sessions on a regional and local level between medical staffs
- Development of coordination protocols and communications methodologies between medical organizations (hospitals, clinics, universities, medical centers, EMS, pharmacies);
- Single-hospital, JCAHO-standard exercise conducted with coordinated assistance of hospital(s) under an agreement similar to a Mutual Aid Agreement;
- Coordinated regional exercise (JCAHO standard) involving the hospitals and medical facilities within a given geographic or administrative region.

Phase 4: **Regional, multi-agency disaster response exercise**

- Planning sessions to prepare for a county/community-wide disaster response exercise;
- County/community-wide disaster response exercise coordinated with participation of hospital, county response agencies, local government leadership, and civic organizations involved in disaster response;
- County/community-wide disaster response exercise coordinated with involvement of state and federal agencies involved in national-level response (FEMA, FBI, National Guard, USCG, NDMS and the Centers for Disease Control and Prevention).

The Emergency Health Care Support Zone

In order to better facilitate this long-term objective, a regional planning and coordination model should be developed. The Emergency Health Care Support Zone (EHSZ) conceived by the **Disaster Preparedness Task Force** represents one example. The purpose of the EHSZ system is to aid local medical facilities in the planning and coordination of resources for mass casualty incidents requiring the involvement of more than one hospital or medical facility within a community or region. The EHSZ initiative would attempt to organize medical facilities by identifying sub-regions or communities within a county, district or geographic region where medical facilities share common interests, a history of cooperative effort, and/or similar vulnerabilities and degrees of medical risk.

There are two important prerequisites for the EHSZ system to function capably (in addition to the commitment of hospital and health system leadership). Those prerequisites are: (1) the ability to communicate in real time with adjacent medical facilities or hospitals; and (2) the ability to assume either the supporting or the supported roles, as circumstances require. The latter is principally a function of the training of the hospital's Incident Commander and staff, and is an intermediate goal that should be adopted for any medical facility, regardless of whether the EHSZ concept is appropriate or feasible.

In addition to the coordination of medical support during an actual emergency, the EHSZ could aid in the coordination of preparedness efforts between hospitals and other medical facilities within a Support Zone. Specific roles and functions that could be coordinated should address the following general areas:

- Enhancing basic emergency preparedness through coordinated training for large-scale community or regional medical emergencies;
- Coordinating community-wide, as well as facility-specific, hazard and risk assessments;
- Standardization of Incident Command System procedures within a region having similar vulnerabilities and assets;
- Familiarization of hospital staff within communities before a crisis occurs; and
- Mutual aid among regional medical facilities during disaster response exercises.

In order to facilitate mutual assistance preparedness and training for large-scale mass casualty incidents, the following general categories should be addressed when considering a basis for designating EHSZs:

- Statutory jurisdictional lines (county, municipality, city) and the districts of emergency response agencies;
- Regional human population and their commuting patterns throughout the identified support zones;
- Existing collaborative structures and bilateral relationships among facilities;
- Capability and capacity of participating regional hospitals;
- Capability and capacity of community surrounding participating regional hospitals.

Summary

Use of the **Strategies for Incident Preparedness: A National Model** should be considered the first step of a larger and more comprehensive effort to develop the training program for emergency response among health care professionals in the event of a mass casualty incident. The **Guidebook** can serve as a model for virtually any region of the country, as long as a conscientious attempt is made to reconcile the exercise with existing guidelines and procedures of the medical facility, and the exercises are tailored by the inclusion of geographically accurate detail.

The **Guidebook** has attempted to incorporate the sorts of planning and training issues that encompass the problems faced by healthcare facilities within small rural communities, within industrial communities, and within large metropolitan areas. Likewise, it attempts to address issues of coordination and resource allocation common to medical and health care professionals, the emergency management community, and first responders at the community, regional, state and federal levels.

The need to prepare America's communities and metropolitan areas for the effects of a terrorist strike involving a weapon of mass destruction continues to increase. Viewed from the perspective of any single community, it would seem virtually inconceivable that a terrorist event could occur "close to home." However, it is important to recognize that the objective of terrorism is to undermine the faith of American citizens in their national institutions and in their ability to deal with a direct threat to American society. One of the institutions at the foundation of American security is the medical community and the national infrastructure of public health services that insure community health and vitality. It is therefore fundamentally important that the medical community be prepared to maintain the continuity of medical services during times of crisis, not only to alleviate pain and suffering of the victims, but moreover, to guarantee that America's faith in its medical institutions and public health system remains sound.

The **Strategies for Incident Preparedness: A National Model** is a step along that path.

REPRESENTATIVE MASS CASUALTY EVENTS AND EXERCISE SCENARIOS

The information contained in this section is sensitive in nature. Once the appropriate details are completed, this guidebook should be considered "for official use only" in the training and education of healthcare professionals; emergency managers; community, city and county officials; and public safety and law enforcement officers.

EXERCISE SCENARIOS

Conventional Disasters

1. **Transportation System Collision**
2. **Fire and Collapse of a Public Building**
3. **Natural Disaster (Sudden Onset): Tornado**
4. **Natural Disaster (Slow Onset): Heat Wave and Drought / Severe Winter Storm**

Terrorism Involving a Conventional Weapon

5. **Detonation of a Terrorist Device: Truck bomb**
6. **Detonation of a Terrorist Device: Suicide bomber**

Chemical Agent Release

7. **Toxic Industrial Accident**
8. **Chemical Spill in Transit**
9. **Terrorist Attack using a Chemical Agent**
10. **Botulism**

Outbreak of an Infectious Disease

11. **Anthrax**
12. **Tularemia**

Outbreak of a Contagious Disease

13. **Smallpox**
14. **Plague**
15. **Emergence of Tuberculosis**
16. **Influenza**

Nuclear/Radiological Incident

17. **Accident at Nuclear Power Station**
18. **Detonation of a Radiological Device in the Environment**
19. **Detonation of a Radiological Device in a Public Space**
20. **Nuclear Attack on a Population Center**

National Bioterrorism Civilian Medical Response Center

SCENARIO REQUEST FORM

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Submission of this form certifies that the information requested is intended for the official use of medical and healthcare professionals, public health officials, emergency response and management personnel, public officials and civil authorities.

_____
Signature

1 MASS CASUALTY EXERCISE
TRANSPORTATION SYSTEM COLLISION

It is 7:35 a.m. on a Wednesday in late April. At the _____ International Airport, an A-300 Airbus carrying 182 passengers and 8 crew is departing on a trans-continental flight. Immediately after take-off, the aircraft begins a slow roll to starboard taking the aircraft over the industrial and business areas surrounding the airport. The aircraft progressively loses altitude as it continues banking toward the right. Witnesses on the ground can see smoke pouring from the starboard engine nacelle.

The aircraft passes low over the nearby suburbs, skims across treetops and telephone poles, and crashes into a residential area four miles from the airport. The fuselage skids through three blocks of houses, coming to rest less than two blocks from the _____ Regional Hospital, which it miraculously misses. As the aircraft breaks apart, its fuel ignites into an enormous fireball that engulfs at least a dozen homes. The wind carries the cloud of smoke directly onto _____ Regional Hospital, which is rapidly engulfed in smoke. Sirens can be heard almost immediately.

Issues concerning the immediate situation:

1. What immediate actions should be taken by the staff at _____ Regional Hospital? What should be the second and third priorities?

2. How can the hospital mitigate the effects of the smoke and fire cloud in the immediate vicinity? Is evacuation the best option? How should it be executed?

3. What assistance should be requested of adjacent medical facilities and hospitals? Who should be notified and how should status reports and updates be provided? Should _____ Regional Hospital designate itself as the primary response facility for this emergency, or should that be delegated elsewhere? Who determines this designation?

Police, firefighters and first responders immediately begin arriving in the vicinity and mounting a response. The local district Fire Chief immediately assumes the role of Incident Commander.

4. What is the relationship of _____ Regional Hospital's Incident Commander to the Fire Chief?

5. If the Fire Chief orders an evacuation of the hospital, is the hospital's Incident Commander obligated to comply, even if she views her first obligation as assisting in the emergency medical response? If evacuation is to be carried out, who among the hospital staff should be designated to coordinate the evacuation? Who coordinates emergency medical assistance to the response team at the scene of the fire?

6. If evacuation is deemed necessary, how will transportation be coordinated with arriving fire, EMS, and alternative rescue vehicles (e.g., panel trucks, school buses, coach buses, casino style buses, etc.)? What routes have been planned, and how can traffic be controlled?

7. If _____ Regional Hospital is evacuated, what is the responsibility of your hospital to assist? How is that assistance coordinated?

Assume that this incident happens in the vicinity of your hospital and that the aircraft does not miss, but actually strikes your facility, shearing off the top floor of the building.

8. What is the emergency evacuation plan for your hospital, and how quickly may it be implemented? How would the arrival of a large number of fire, EMS, and rescue vehicles (e.g., panel trucks, buses, etc.) in your neighborhood affect your ability to manage this emergency?

2 MASS CASUALTY EXERCISE
FIRE AND COLLAPSE OF A PUBLIC BUILDING

It is 3:15 am on a Thursday in October. At _____ (college/university) a gas line fitting fails on a heating system in the basement of the _____ Dormitory, causing an accumulation of natural gas in a corner of the basement. The spreading gas reaches a pilot light on the dormitory's water heater and explodes, causing an instant fire and collapse of the southern quarter of the building. The fire spreads quickly, due to the interior wood construction and the academic clutter provided by the incoming students. Within minutes, the building has filled with smoke, and the fire is spreading horizontally along the first and second floors.

While some students at the northern end of the building have awakened and escape, the majority is overcome with the rapidly spreading smoke, and remain trapped inside. Students and community residents from surrounding buildings have gathered quickly to lend assistance, but the fire is too intense at the southern end of the building to permit unprotected access. By the time fire trucks arrive one half of the building is engulfed in flames.

Within 20 minutes, immediate casualties reported from first responders include 36 people suffering from varying degrees of smoke inhalation and 62 with serious burns requiring immediate evacuation and medical attention. 40 minutes later, reports indicate that there are 11 known dead and 29 unaccounted for, fire and rescue personnel are attempting to locate the missing and determine their condition. It takes two additional hours to bring the fire under control, during which time, two firefighters also succumb to smoke inhalation and are evacuated from the scene.

Regarding the immediate emergency:

1. By what medium does your facility receive initial reports and updates on an incident such as this? How does your county plan to receive and share this information? How does your facility intend to share this information across jurisdictional boundaries and hospital regional zones? How do you send a status report regarding the immediate availability of assets such as burn treatment facilities available at your hospital? To whom do you send such reports?

2. _____ Hospital in _____ County, the nearest medical facility to the college (university) finds itself overwhelmed with the casualties, due to existing stress on its capacities. How can you learn of this situation and make known your ability to lend assistance and capability?

It is not until the next morning that firefighters are able to locate an additional 14 people who have expired in the incident, virtually all of whom are charred beyond recognition. Five additional students are determined to have been absent and the remainder are still unaccounted for.

3. What facilities does your hospital maintain for aiding in forensic identification of remains? What are your facility's plans for obtaining refrigerated trailers? For contacting the county coroner? For contacting the Disaster Mortuary Operational Response Teams (DMORT)?

4. How many of the above casualties could be evacuated from the scene by helicopter from your medical facility? How will your facility contact/access the necessary helicopter resources? Where is the nearest helicopter landing zone to your facility? Which casualties should be relegated to ground transportation? What advice would you provide first responders if asked?
5. Assuming that your medical facility is the nearest to this incident, what is your facility's plan for managing the arrival of relatives and loved ones of the injured and killed? What special services can you call on to assist in controlling this problem?
6. What communication plan and procedures are in place for emergency notification to hospital staff? To external emergency response agencies? To the media?
7. What amount of time is required to call hospital personnel back to the emergency department (or designated staging area) for a disaster response?
8. Has your facility identified a location from which media may work (film or live broadcast)?

3 MASS CASUALTY EXERCISE

NATURAL DISASTER (SUDDEN ONSET): TORNADO

NOTE: The objective of this exercise is to examine the coordination required in responding to a natural disaster occurring on the border between two or more jurisdictions: (federal, state, county, municipal). The exercise should be tailored to support this objective.

It is late afternoon on a Saturday in August in southern _____ County. Since noon, there has been a growing overcast moving in from the west accompanied by a drop in temperature of about 10° F. The barometer has also been dropping steadily, and the wind has increased to a consistent 18 knots from the north-northwest. A summer storm seems clearly imminent, and weekend vacationers at _____ Park have begun moving to shelter and stowing loose gear as a precaution. At 3:20 p.m., the National Weather Service issues a severe weather warning for the southern regions of _____ and _____ counties. There is a possibility of a tornado, and citizens are warned to be vigilant. Weather alerts are repeated on area television and radio stations.

At approximately 3:55 p.m., a funnel cloud is sighted south of _____, moving generally southward with the gathering storm. It is not reported to have touched ground. At 4:10, a news bulletin from the local radio station _____ reports that a tornado has been sighted close to the ground north of the _____ border.

At 4:12 p.m., a tornado touches down one mile south of _____, and begins cutting a swath across the farmland and small communities in lower _____ County. Within two minutes, the tornado has traveled six miles along a path between _____ and _____. It dissipates after crossing Route_____, just north of the _____ border. In the tornado's wake lies a quarter-mile wide path of devastation.

In all, fourteen homes are demolished along the path between _____ and _____, including three farmhouses and numerous barns and outbuildings. On the edge of the suburban areas northwest of _____, twenty additional homes are destroyed along with several businesses, fast-food restaurants and a strip mall. Twenty or more cars and trucks lie strewn like toys along Highway _____, and the heavy Saturday evening traffic has come to a chaotic stop.

Seventeen people have been killed in the small towns and business establishments along the storm's path, and another thirty-six have been seriously injured. Damage is extensive and over twenty families are left homeless. The potential clearly exists for the area to be declared a disaster area.

1. Given the proximity of this disaster to the city of _____, what agreements or protocols exist between your area's hospitals and those of _____ to assist in managing emergency situations such as this? Are there any additional or extraordinary

conditions that must be met for bi-lateral medical support between the two (countries, states, counties, municipalities)?

2. How quickly can your medical facility muster support and be ready to receive patients evacuated from this area? How is the storm condition likely to affect helicopter operations? What affect will this have on the type of medical emergencies you might expect to see?

If the tornado had touched down in the center of _____ with significant casualties and loss of life, what sort of support would your region's hospitals be prepared to provide?

3. What is the role of the American Red Cross or other voluntary aid organizations?

4 MASS CASUALTY EXERCISE

NATURAL DISASTERS (SLOW ONSET):
HEAT WAVE AND DROUGHT
SEVERE WINTER STORM

NOTE: These exercises are intended to raise considerations for "slow onset" disasters, i.e., those that arise from sustained environmental conditions, rather than from a single catastrophic incident. There are significant differences between the effects of a summer heat wave and drought, as compared to a winter storm and extended severe cold. Nevertheless, there are also similarities in planning and preparation, and in recognizing the consequences of an extended hazard and in taking steps to mitigate the effects before conditions become severe.

HEAT WAVE AND PERSISTENT DROUGHT

It is mid-August during the hottest summer in a ten-year period of record-breaking summer temperatures. Across the nation, communities have struggled with persistent drought that has scorched lawns and forests, decimated agriculture and produce, and reduced municipal water supplies to record level lows. Lakes and reservoirs have been reduced to such a degree that electrical power generation has been affected nationwide. This, coupled with the exceptionally high demand on air conditioning systems, have caused a series of "rolling brown-outs" in cities across the country.

In _____ temperatures have surpassed all records, with significant impact on some sectors of the local community. Hardest hit have been the poorest communities, where air conditioning is infrequently available and ventilation in high-rise apartment buildings is poorest. In retirement and convalescent homes the heat and humidity have had a serious impact on the elderly, particularly with shortages in electrical power limiting the use of air conditioning. In rural communities, wells have been running dry, necessitating the delivery of water in trucks, or the use of less well-monitored water sources. Summer school programs, sporting events and organized recreational activities have all been curtailed or modified, in order to reduce risks due to over-exertion.

For the last three weeks, there has been a noticeable rise in heat-related illnesses throughout the region. EMS serving your facility has responded to as many as eight calls per day for injuries and conditions attributable to heat and physiological stress. For the first time this summer, there were two heat-related deaths in your area within the last week.

1. What specific heat-related injuries or illnesses would you want the EMS and medical staff to be particularly prepared to receive and diagnose?

2. What demographic groups in your area are most at risk for heat related illnesses? What precautions can those groups take to limit exposure and hazard?

3. What steps should your facility take to protect its own staff during a possible increase in patient load and working hours? What institutional or seasonal factors might contribute to overwork and staff stress during this period?

4. What impact is a long-term heat wave and drought likely to have on your facility and its infrastructure? What precautions should your facility take to ensure its ability to maintain service and quality of care?

5. What assistance can or should your facility provide to local municipal leadership in coping with this situation? How can your region's medical community combine its resources and pool assets to assist in a sustained emergency of this sort?

SEVERE WINTER STORM

After the severe storms and record-breaking snows of the previous winter, it was not expected that this year would be as bad. However, for the second consecutive year, records are being broken across the central and eastern United States for severe winter conditions. In _____ there have been persistent freezing temperatures for nearly six weeks, coupled with several winter storms. Accumulated snow has reached record levels, with snow banks along plowed highways and streets exceeding six feet in many places.

With the highest costs of home heating oil since the first months of the autumn, many homes and smaller buildings have gone without heat. As a consequence, the freezing of interior spaces has resulted in a significant demand on plumbing services and public works departments to repair damaged piping systems throughout the area.

Unfortunately, there are few signs of a break in the weather. Long-term predictions are for freezing weather to continue for at least another month. There is also another winter storm approaching from the northwest which is anticipated to arrive in the region within the next week.

1. What are the routine medical emergencies that can be anticipated with a prolonged period of cold weather in your region?

2. In the event that expectations are exceeded and bad weather endures, what impact might those conditions have on such aspects as hospital staffing? Emergency delivery and EMS services for your facility? Staffing for security, administration, food service, and public works personnel?

3. What impact would severe prolonged weather have on mortuary services and burial within your area? How might this interrupt or hinder routine procedures at your facility?

4. What weather-related illnesses or conditions would you expect to see over time? Would confining the local population to homes and indoor activities exacerbate or reduce routine winter medical conditions like influenza, hypothermia, and exposure? How might it affect other problems like automobile and industrial accidents? What preparations should be made for these possibilities?

5 MASS CASUALTY EXERCISE
DETONATION OF A TERRORIST DEVICE: TRUCK BOMB

At 9:40 a.m. on Wednesday morning, the dispatcher at the _____ County Sheriff's Office receives a brief call from an unknown person stating that there is a bomb "inside the County Court House that will be detonated at ten o'clock." The _____ County Sheriff's Department's Bomb Squad is dispatched immediately to the scene. The dispatcher notifies the _____ Fire Department, the Police Department and Emergency Medical Services via the 800 MGHz radio system that connects directly with the County 9-1-1 dispatch center. The dispatcher then calls the Security Officer at the _____ County Courthouse, who begins notifying courthouse personnel to evacuate the building immediately.

Within minutes, the courthouse begins to clear and personnel flood the exits and move quickly into the street. Sirens blare as arriving police stop traffic along surrounding streets and begin moving people onto adjacent parking lots and sidewalks at a safe distance.

At precisely 9:55 a.m. there is a terrific explosion in front of the _____ office building across the street from the courthouse, as a white van parked along _____ Street detonates in a fireball. People along the street who had evacuated from the Court House—as well as passersby, police officers and county officials—are blown to the ground from the concussion, and many are injured from flying debris. In the office building, workers who had crowded the windows to watch the commotion below are injured by the hundreds as glass windows from the façade implode into the office spaces.

On the street there is chaos, as citizens who had thought themselves safe from possible injury in the courthouse suddenly realize that a second bomb could explode at any moment. Police, firemen, emergency medical technicians and some citizens attempt to converge on the scene of the explosion, only to have to fight crowds attempting to escape. The crowd on the street grows quickly as uninjured personnel and mobile wounded from the _____ office building begin evacuating from the three intact sides of the building. Soon the _____ Bank building also begins to empty, as does the county annex across the street from the main courthouse.

It is clear from the extent of the damage to the street, and to the _____ building, that injuries will be extensive and serious. Many people lie unmoving on the street, and blood, clothing, debris and human body parts lie scattered along the entire block. A _____ fire truck that was across the street from the van is extensively damaged and several firemen are injured. An ambulance that had just arrived lies on its side in the middle of _____Street.

Almost immediately, the Deputy Sheriff and the Fire Chief—both on the scene of the evacuation—call their headquarters and report the bombing incident and casualties. EMS and Sheriff's Office dispatchers immediately turn the calls around and begin notifying area police, fire and rescue services to report to the scene to assist.

_____ Hospital and _____ Medical Center and other area hospitals are immediately notified of the incident via the countywide hospital radio-phone matrix system run

at the Emergency Operations Center in _____, and begin to prepare for the flood of casualties. Measures to assist _____ emergency medical services are put into motion.

1. For an incident of this magnitude at _____, what measures will be taken immediately by your facility to assist? Who initiates these measures? What standard routines are activated and what is your specific responsibility?

2. Blood will be needed immediately. How does your facility involve the American Red Cross in rapidly activating emergency blood supplies?

3. What special medical attention will be most urgently demanded from this incident? What services of a specialized or exceptional nature can your medical facility provide?

4. Much literature on disaster response management indicates that one of the greatest disaster challenges is the management of civilian volunteers who arrive to assist. If your facility was the nearest hospital to this incident, how would you maintain control of potential blood donors and other volunteers? Who at your facility is charged with this responsibility?

5. Assuming that your medical facility is the nearest to this incident, what is your facility's plan for managing the arrival of relatives and loved ones of the injured and expectant? What special services can you call on to assist in controlling this problem?

6. What special precautions must be taken to preserve the value of crime evidence? Specifically, what becomes of the personal effects of victims arriving at your facility to ensure that their value as evidence is not lost? What advanced planning and training has been undertaken to educate medical personnel of this dimension of the medical support role?

6 MASS CASUALTY EXERCISE
DETONATION OF A TERRORIST DEVICE: SUICIDE BOMBER

It is approximately 6:40 p.m. on a Saturday night in early June. Lines at the local multi-plex cinema have begun filling for the first showing of the evening, and people are beginning to pour into a nearby restaurant adjacent to the theater. As a crowd moves about, a lone man wearing a motorcycle jacket enters the restaurant. He walks briskly past the hostess and into the center of the dining room where, without hesitating, he detonates a powerful bomb that is hidden beneath his leather jacket. Instantly, there is a terrific explosion that utterly demolishes the restaurant.

Seen from outside, the front of the building simply disappears behind a brief flash and a hail of smoke and debris. Glass, metal and wood fragments from the restaurant fly through the air injuring scores of people on the sidewalks and along the street in front of the restaurant. Inside there is momentary silence as debris settles from the collapsed roof. Seconds later a few muffled cries can be heard from within.

The street is immediate chaos, as the more distant passersby instinctively run from the damage. Dozens of people are lying on the street, some injured, some merely stunned. Moments later, other people run toward the damaged restaurant in an effort to help. Sirens begin to sound in the distance. The now darkened building and street front is littered with a random mixture of motionless bodies, building materials, human body parts, tables and chairs, and broken glass.

The supervisor at _____ Emergency Room receives a call from the first Emergency Medical Technician on the scene, and is told of the mass carnage. She estimates that there are at least thirty seriously injured persons who will require immediate medical attention. You can expect to begin receiving casualties within fifteen minutes.

1. What immediate steps should you take to prepare the Emergency Room and staff for this influx?

2. On a "routine" Saturday night in early summer, what capacity does your ER have to manage a sudden casualty situation of this magnitude?

3. Given the degree of trauma to these victims, what steps do you need to take at this time of night to ensure that adequate blood supplies are available?

4. What procedures or protocols exist for handling injured victims who may be suffering from prior medical conditions or diseases such as hepatitis or HIV/AIDS? How are large quantities of contaminated tissues, fluids or body parts from mass casualty sites to be handled at your facility? What facilities or capabilities exist for the treatment and/or decontamination of first responders—as well as uninjured bystanders—who may have become exposed or contaminated?

Establishing the identity, motivation and origin of the perpetrator(s) is of crucial (and most likely, national-level) importance, and will require the immediate intervention of police and investigators while on-scene emergency efforts are still in progress.

5. What special precautions must be taken by EMS and hospital personnel to preserve evidence and what training has your facility's personnel received in these procedures? What training has your facility's personnel received in cooperating with and supporting law-enforcement personnel and investigating officers?

Several ambulances arrive at the front of the hospital, and the victims are being transported into the ER receiving area. At that moment, there is a terrific explosion felt in the hospital that shakes the walls of the ER. From the main entrance of the hospital, there come the sounds of panic and screaming. Smoke and dust begin to fill the air. Word comes that a suicide bomber has just blown himself up in the main reception area of the hospital at the start of the evening's visiting hours. There is massive damage to the front of the hospital, to the main entrance and reception area, and to dozens of visitors, patients and hospital staff at the other end of the hospital.

6. What is the immediate responsibility of your ER staff to the arriving victims from the primary terrorist incident, and to those at your own facility?

7. What security procedures have been established at your facility to screen incoming patients and visitors, to ensure that an event of this sort is prevented? In recognition of your facility's vulnerability, what should be done?

8. What is the relationship between your hospital staff and the hospital's security personnel? How much authority are security officers given in protecting your hospital from intrusion and possible targeting by a terrorist or dangerously imbalanced patient?

9. What assurances have been given your hospital's security personnel, and what procedures have been initiated, to ensure their safety and health while maintaining hospital security under conditions of epidemic, radiological contamination, chemical contamination, or long-term security needs during times of extreme casualty influx?

10. What kind of interaction exists between hospital security personnel and local law enforcement?

7 MASS CASUALTY EXERCISE
TOXIC INDUSTRIAL ACCIDENT

It is approximately 10:00 p.m. on a hot, humid, breezeless Saturday night in early September. At the _____ Printing Plant in _____, printing of the Sunday edition of the _____ newspaper is in full swing. During the course of the shift, an electrical short occurs in a motor controller for one of the printing presses, and an electrical fire breaks out. At that moment, the attention of the printing crew is on a printing error just discovered in an insert for the paper's September 11th Retrospective. With the noise of the printing operation and the crew's focus momentarily diverted, a small fire quickly becomes a large one. Within seconds, the electrical fire ignites the paint and accumulated dust on the wall.

By the time the fire is noticed, a large section of the wall and the electrical cabling on it are burning. As the insulation on the cabling melts, the electrical fire compounds and the wiring suddenly becomes a massive electrical short of fused cables, flying sparks and melting insulation. On the level above the fire, a piping system for the lubricant of the presses ruptures at a weakened joint and also ignites, sending enormous clouds of smoke into the workspace. The smoke emitted from the lubricant and the burning electrical insulation is instantly over-powering, and the printing crew—now attempting to fight the fire with portable carbon dioxide extinguishers—cannot get close enough to be effective.

Attempts are made to secure the electrical power and isolate the damaged cabling, but the heat generated from the fused electrical systems makes the fire self-sustaining. The printing crew begins to evacuate, as the fumes and intensity of the smoke increases. The upper sections of the printing presses themselves are soon engulfed in flames, fed now from the burning paper and lubricants in the presses. The automatic fire suppression system activates, but having been partially drained Friday for repairs that were to resume on Monday, the water is not sufficient for the size of the fire. What water there is merely raises a steam cloud making the smoke dense and impenetrable. The crew is overcome by the smell of the burning ink and chemicals, and is barely able to evacuate through the billowing smoke. Explosions are heard inside the building as chemical storage rooms begin to catch fire and burn.

Fire and rescue vehicles from the _____ Fire Department are already arriving. However, Saturday night traffic has come to a stop in the vicinity of the plant, due to the dense smoke clouds that have made transit through the area nearly impossible. Motorists, delivery vehicles, and night shift personnel attempting to evacuate from the area suffer from the acrid smoke and fumes that hover close to the ground and refuse to dissipate. By the time the fire teams are set up to do battle, the fire is out of control.

Within thirty minutes from its start, the printing plant _____ is engulfed in a fire that emits a dense cloud of smoke from the burning newsprint and vaporizing chemicals. Toxic fumes from the chemicals associated with the printing process are so thick that the fire crews are unable to approach the building without self-contained breathing apparatuses, thus making preparation and sustained fire-fighting difficult. Assist crews from area fire stations begin to arrive, but the fire has now grown to a conflagration. The heat, humidity and stillness of the air

add to the stress of the situation, and the safety of firefighters becomes a principal concern for the Incident Commander.

In addition, the danger posed to residents by the lingering smoke and fumes necessitates the immediate evacuation of the neighborhood surrounding the print plant. During the next four hours, area hospitals see a steady stream of motorists, residents and emergency personnel arriving for treatment of smoke inhalation, inflammation of the throat and lungs, and sustained irritation to the eyes. Many of those admitted, particularly elderly area residents, require ventilation. Some are unconscious upon arrival.

1. Once notified of the extent of this fire, at what point does your hospital activate its Incident Command System and begin making preparations for special emergency medical routines? Who makes that determination on late Saturday night? How quickly can additional emergency room personnel be obtained? What alternative routes to the hospital have been considered for hospital personnel in the event the main highway near the plant is closed?

2. Given the nature of the emergency posed by toxic reactions to this fire, what priority is to be given victims of smoke inhalation over other "routine" Saturday night emergency room patients? Are any special procedures or precautions necessary?

3. Your emergency room is quickly overwhelmed by the volume of people requiring specialized care and ventilation. What assistance is available that can be obtained on short notice at this time of night? Where do extra ventilators come from, and how quickly can they be obtained?

4. Will the requirements for supporting fire-fighting activities—like first aid and recovery for firefighters, police and emergency personnel—have any impact on your hospital's ability to maintain continuity of operations and standards of care in the emergency room?

8 MASS CASUALTY EXERCISE
CHEMICAL SPILL IN TRANSIT

With the first serious snowfall of the new year, the _____ area had been slowed to a crawl for four straight days. Most businesses had been on shortened work hours, and many had authorized permissive leave policies and tele-commuting. Most non-essential county and government services had been suspended. Highway crews and public works personnel, on the other hand, had been taxed severely. Road maintenance along snow emergency routes and interstate highways had kept highway crews busy, and several area power outages had been sustained as a result of storm damage to telephone poles and power lines.

Over the course of a week, 32 inches of snow had accumulated, with roadside snowbanks higher than seven feet in some areas. Most municipal thoroughfares had been reduced to a single lane each way. Highways around major towns had been kept open, though at considerable difficulty.

On Monday morning of the first reasonably clear weather day, business was beginning to resume a more normal pace. Having missed several days of regular work, commuters were determined to return to their normal work schedule. Despite heavy drifts on roadsides and recurrent patches of ice still on the highways, the morning rush hour was resuming its familiar, slow pace.

At 7:50 a.m. a tanker truck loaded with liquid chlorine is making its way carefully down Highway _____ toward _____. As it approaches the _____ intersection, an empty van hits a patch of ice ahead of the tanker truck, and begins to swerve across two lanes of traffic. The van collides with another car, and the two skid into a third. The driver of the tanker truck attempts to brake and swerves right to avoid the three cars ahead of him. The rear of his truck hits the same patch of ice that the van had hit, and the tanker begins to jack-knife across the highway. As its rear wheels hit the snow bank on the left side of the highway, the tanker overturns and rolls over. The tank ruptures with the force of the collision, and spills 22,000 gallons of liquid chlorine over the highway. Within seconds, over 20 vehicles either collide, come to rest in snow banks on either side of the highway, or find themselves stopped on the highway amid the chlorine spill.

As a consequence, nearly 40 motorists become stranded in the spill, many of whom sustain injuries from the collisions. Some begin to succumb to the fumes as they attempt to leave their abandoned vehicles. Traffic in both directions along the highway, and at the _____ intersection comes to a standstill and begins to back up. Cars that are able pull off the highway. However, because of the accumulated snow, access for emergency vehicles is soon completely blocked. As the chlorine gas begins to drift down wind, more and more motorists are affected. Soon a number of homes, businesses and buildings adjacent to the accident are engulfed in the fumes.

1. Your Emergency Room is alerted to this accident, and prepares to receive injured personnel once an evacuation can be effected. What steps should your hospital make now to prepare for the injured?

Over the course of four hours, emergency rescue personnel are able to remove or assist over 80 civilians. There are 8 deaths from injuries sustained in the collisions and another 20 directly attributable to asphyxiation. In addition, nearly 240 people in the _____ area are evacuated from their homes and businesses. Of those, 120 are brought into local hospital emergency rooms suffering from chlorine gas inhalation. Eight EMTs and rescue personnel are overcome by the chlorine fumes and require medical treatment.

2. What are the capabilities of your hospital to communicate with emergency management personnel at the scene of this accident? To communicate with County Emergency Operating Centers?

3. Who in your facility is responsible for maintaining that communication, and for coordinating the facility's efforts with other area medical facilities?

4. If such an incident as this occurred within a mile of your medical facility, how would you coordinate medical support to the relief efforts? What are the capabilities of your facility to decontaminate victims who are already suffering from exposure and injury? How would your facility handle an emergency evacuation in an incident such as this?

9 MASS CASUALTY EXERCISE
TERRORIST ATTACK USING A CHEMICAL AGENT

It is early Tuesday morning, the first day of the annual conference of the _____ Association, and for the first time in nearly a decade, _____ is hosting the event at the _____Conference Room in the _____ Hotel. The session opens at 9:00 a.m. with a keynote address by the state Lieutenant Governor on the topic of "Terrorism and Your Community: What it means to be an American in a Changed World."

Delegates from the state branches of the _____ Association begin arriving at the _____ Hotel at 7:30 a.m.; by 8:00 the hotel lobby, reception area and Conference Room are filling in anticipation of the 8:30 convening of the conference. Morning traffic along _____ Street is slower than normal, given the steady stream of cars and several buses that are beginning to back up traffic at the hotel parking lot.

At 8:15 a young man enters the hotel lobby from the elevators, carrying a guitar case and a backpack. He leans his gear against the wall in the corner of the lobby, and proceeds to the receptionist desk where he checks out of his room. After glancing at his wristwatch, he takes his car keys from his pocket and walks out to the parking lot, gets into a white car and drives away. Two minutes later, there is a terrific explosion in the hotel lobby, as a bomb inside the abandoned backpack detonates.

Dozens of people in the lobby are injured, and the exploding windows of the hotel front injure many more in the hotel entrance and parking lot. The hotel lobby, conference room, dining area and ground floor hallways are instantly filled with smoke, dust and flying debris.

Immediately, those not injured by the blast begin to stream out from the conference room, from ground floor rooms and from the stairwells from upper floors. Most of the guests and conference attendees attempt to find their way to exits, but many people converge on the lobby and hallways and attempt to help those immediately hurt by the blast. Many other uninjured people begin to stream into the hotel lobby from the parking lot to lend assistance. On the street, traffic has come to a standstill.

Within minutes, however, many of those uninjured by the detonation are suddenly overcome by the fumes, clutch at their throats and chests, and begin stumbling for the exits. Some men fall down unconscious; others begin convulsing. People farther from the lobby suddenly begin salivating, coughing and gagging. In the hotel lobby injured people are unable to move and begin to lapse into unconsciousness.

Amid the noise, smoke and confusion, police officers and local emergency management technicians begin to arrive. Fire and ambulance sirens can be heard approaching. All are immediately overcome by a sudden feeling of congestion in the chest, rapid, shallow breathing and an inability to go on. It is clear that the bomb contained a toxic chemical or gas, and people now begin to panic all along the station. The crowd spills out into the street just as fire and rescue officials begin to arrive. The word is passed along to the arriving responders that a bomb has detonated that contained a toxic gas. Rescue agents spend extra minutes ensuring their self-

contained breathing apparatuses and masks are securely fitted. Meanwhile, local police begin to move traffic from the streets surrounding the hotel.

1. You learn of this incident through the emergency room supervisor, who has been alerted by the _____ Fire Department. What are your immediate actions? Upon what indication will you activate the hospital's Incident Command System? Given the distance of your facility from the scene of the incident, does it make sense to act now, or to simply monitor reports until a clear decision can be made?

2. Your facility receives a call from the _____ Regional Hospital stating that people are beginning to flood the emergency room demanding immediate treatment for suspected exposure to a toxic gas or chemical weapon. They need to know how many patients an hour you can handle. What is your response?

Reports begin to arrive via waiting room television news—later confirmed by communications from the _____ County Emergency Operations Center—that nearly 30 persons were initially killed, either by the bomb or by the gas—and another 120 have suffered various degrees of injury. Initial reports are that the gas used was Sarin—identical to that used in the Tokyo subway attack in 1994.

3. What is the hospital treatment regime for this gas, and is it readily available? Does your facility have reference books, CD-ROMs and or Internet access to references at hand in the ER and hospital Operations Center? Does your facility have a point of contact at a poison control center or industrial emergency facility with specialized capabilities who can be called upon for chemical or biological incidents?

4. If your hospital were the nearest to this incident, what immediate actions would you take to prepare for managing this crisis?

5. How quickly could you establish a decontamination station for the victims? What would be the priority of care for those arriving? Who makes that decision?

6. What preparations have been made for dealing with the media?

10 MASS CASUALTY EXERCISE
BOTULISM OUTBREAK

It is early Saturday evening in mid-September, and several thousand people are attending the annual Barbecue (BBQ) and Baked Bean (BB) competition at the _____ County Fair. This is the 55th anniversary of the _____County BBQ&BB Competition, and this year's cook-off is being judged by the mayor, local celebrities from _____TV, Miss _____, a _____ High School graduate and the state's contestant in this year's Miss America Contest, and the "Flying Elvis's," direct from Las Vegas.

At 2:00 a.m. Sunday morning, a _____ County 9-1-1 operator receives an urgent call for an ambulance and emergency assistance for a middle-aged woman who is experiencing a constriction in her throat, difficulty breathing, and blurry vision. The operator dispatches an ambulance and notifies the _____ County Hospital emergency room.

Twenty minutes later, a husband and wife arrive at the _____ County Hospital emergency room both complaining of numbness in the shoulders and upper chest, difficulty breathing, and dry mouth and constricted throat. Neither individual exhibits fever or gastro-intestinal stress.

During the course of the night, there are four similar cases, of which one man suffers severe constriction to his breathing requiring the administering of a tracheotomy. He also displays progressive loss of motor skills in his hands and arms.

1. At what point in this scenario is it prudent to initiate special hospital procedures for dealing with a sequence of similar emergency diagnoses? What does hospital doctrine require of emergency room personnel and the late-night supervisory staff in making such a decision?

2. What resources are available to assist in diagnosing or confirming the diagnosis of an illness such as this?

3. At what point do you assess that these circumstances indicate the outbreak of an epidemic or widespread infection?

4. What threshold would determine the establishment of a hospital Emergency Operations Center and the initiation of the Incident Command System?

5. Which agencies exterior to the hospital, if any, should be notified of the current situation, and who is empowered to make that decision?

By the next morning the hospital has received fifteen patients, all of whom exhibit the same symptoms as indicated above. The local ambulance and EMT service is swamped with calls and is bringing a steady stream of patients into the emergency room. Other area hospitals are experiencing the same influx of patients; one patient in the nearby _____ Regional Hospital is on the verge of death, and the conditions of three others are critical.

6. How and from whom does that hospital request assistance in mounting a larger-scale response than is possible with current assets and local resources? Is it the hospital's responsibility to initiate such a request?

7. How is a diagnosis for this outbreak confirmed, and how certain can hospital staff be that the diagnosis is correct and that proper treatment is being administered? How will the hospital staff be protected from the range of potential problems that this outbreak could indicate, and what protective measures should they adopt? Are masks and respirators indicated and are they CURRENTLY available to protect the staff?

8. What resources does the hospital have to treat an outbreak of this magnitude? If hospital resources were insufficient, where are those resources available, and how long does it take to ascertain them?

9. What obligations does the hospital have for reporting this incident to higher/other authority, and when should those reports be initiated?

11 MASS CASUALTY EXERCISE
ANTHRAX OUTBREAK

It is late January. With the arrival of the New Year, and a peaceful holiday season recently ended, the nation has returned to its customary pace of life. Schools and universities are back in session, government and local service workers have resumed their normal schedules, and people have returned to their routines. With a successful—though somewhat subdued—holiday shopping season completed, the nation's business community is guardedly optimistic about economic prospects in the first quarter of the year. Though the weather was unusually warm throughout the holiday season, the first winter storms are beginning to form along the northern Rockies, and meteorologists are warning about the imminent arrival of real winter.

With the onset of winter weather, influenza is beginning to emerge, as well. Several schools in the area had already begun to report cases of the flu among younger children. As had been the experience in recent years, influenza vaccine had been in short supply nation-wide, and it was estimated that only about half of the "at-risk" population had been vaccinated. Medical officials reported that the "flu shots" administered earlier in the fall would probably be effective for only about 70% of those vaccinated.

By the first week of February, the flu season appeared to be gaining momentum. Area schools were reporting about 5% absentees attributable to the flu. Nursing homes and managed care facilities were likewise reporting an increasing number of sick among their residents. Absenteeism among workers was beginning to increase, and was expected to peak within three weeks if current trends continued. Medical facilities throughout the region were able, so far, to maintain routine treatment schedules, though surge capacity in beds had been reduced by 20% with the increasing number of elderly patients being admitted with flu-like symptoms.

On February 19th, CBS News reported that an elementary school child in Arlington, Virginia had died at home from what was suspected to be infection from anthrax. The child had been sent home from school six days earlier with what was thought to have been a case of the flu.

The next day, three other children in Arlington—two from the same school—are hospitalized with what is strongly believed to be anthrax infections. Authorities in Arlington, and several communities in the Washington, D.C. region, were considering screening the entire student population of five local schools.

On February 23rd, two teenagers in Annapolis, Maryland were diagnosed with anthrax after their cases of flu suddenly increased in severity and failed to respond to treatment. Representatives from the Governors' offices in both Virginia and Maryland requested assistance from the CDC to screen all school-age children in towns surrounding Washington, D.C., and the FBI was initiating an investigation to determine any similarities with these suspected incidents and the unsolved incidents of 2001's anthrax mail attacks.

On February 26th, national news reports indicate that anthrax has been diagnosed in seven other incidents involving children throughout the mid-Atlantic region, including three schools in Norfolk, Virginia and one in Dover, Delaware. In Aberdeen, Maryland, a fifth grade teacher has

tested positive for exposure to anthrax and has been hospitalized. In addition, a severe outbreak of influenza has been reported at both the United States Naval Academy and the U.S. Military Academy at West Point, where over 650 midshipmen and cadets have been hospitalized. A full-blown investigation by Department of Defense epidemiologists is currently being initiated, and an alert has been issued to all military medical clinics. Communities surrounding U.S. military bases are on alert.

On February 27th, a third-grader at the _____ Elementary School is sent home with the flu and dies late that night in bed. Public Health officials immediately request an autopsy. The morning news reports confirm that the child tested positive for exposure to anthrax.

1. What are your immediate concerns regarding your hospital's preparations and capabilities for dealing with the current situation?

2. What preparations does your hospital currently have in place, and what resources can it draw on now? What forms of assistance do you intend to request from outside agencies? When?

3. What actions do you recommend your hospital take to assist your area's school system in dealing with the current outbreak of flu? What actions can you take to reassure and inform concerned parents? What actions can/should be taken to alleviate potential overloading of area medical facilities?

At 7:20 a.m. on February 28th, your emergency room receives four children previously believed to be suffering from influenza, but whose conditions over the last 24 hours have significantly worsened. Two of the children are having difficulty breathing. While being processed in the emergency room, one of the children lapses into a coma.

4. What immediate actions should be taken to deal with the affected children?

5. What requirements and obligations does the hospital have to inform local authorities and the children's schools (define local authority)?

6. What immediate preparations should be made for hospital operations as a result of this incident (e.g., hospital capabilities to protect medical and non-medical staff)?

12 MASS CASUALTY EXERCISE
TULAREMIA OUTBREAK

It is 5:00 a.m. on a Thursday in March. The emergency room in your hospital receives a patient, a 23 year-old male, complaining of severe headache, chills, and low pain deep in his chest. He is coughing repeatedly, without sputum, and has a temperature of 100.2° F. He complains of sleeplessness and general malaise. Yesterday he felt fine. He had received a flu shot in late October.

While the first patient is seated in the waiting room awaiting examination, a second patient, a 28 year-old male, arrives complaining of similar symptoms. Within two hours, three other male patients arrive ranging in ages from 16 to 58. All five are otherwise healthy and have no history of medical problems or recent illnesses.

With the arrival of the regular morning staff, all five individuals are subjected to examination, including laboratory analysis. All five are tested and indicate preliminary positive results for exposure to tularemia. Specimens from each patient are forwarded to the State Public Health Lab for confirmatory tests. It is now 9:30 and the emergency room has received a total of 16 additional patients complaining of similar symptoms. Two are female and the rest are male.

1. What are your immediate actions in light of this situation?

2. What particular precautions are necessary for cases of tularemia admitted to your hospital?

3. What steps do you take to prepare your staff for the remainder of the day?

4. What additional information would you want to obtain from the patients?

5. Do you have available the treatment regime for this disease? How long will it take to obtain it?

By 2:00 p.m., your hospital receives another 16 cases, all testing positive for exposure to tularemia. Conversations with the patients indicate no similarities, except that all had attended the _____ basketball game at _____ (college/university) the previous Monday night.

6. Given the foregoing information, what additional steps are required of your hospital?

7. What do you now anticipate to happen over the next several days? For how long should you expect to receive patients who test positive for this disease?

8. What steps should you now take within your own hospital staff to prepare for the next several days? What preventative or mitigating actions do you recommend to local authorities?

Over the course of the next 72 hours, your hospital receives a total of 292 cases of tularemia. Other regional hospitals are similarly affected. In all, _____ area hospitals report

2,281 cases of tularemia; of those 702 are female, and the rest are male. _____ area hospitals report 833 cases, with a similar gender mix. Within 48 hours of the first cases, patients begin to die at a rate of about 30%.

9. What facilities does your hospital have to accommodate a patient influx of this magnitude, recognizing that other area hospitals are similarly taxed? What steps do you recommend your hospital take next?

10. What are your facility's capabilities to establish a morgue to handle hundreds of bodies? To support the coroner or medical examiner? What measures have been taken to address families' religious wishes with counselors, priests, and clergy of various faiths?

11. What national-level resources are available for your hospital to call on? How do you initiate that action?

13 MASS CASUALTY EXERCISE
SMALLPOX OUTBREAK

It is mid-July during one of the hottest summers on record. Midday temperatures have been consistently above 100°F for a period of ten days. In this region, in particular, hospitals and clinics have been swamped with heat-related illnesses and injuries. City-wide there have been four deaths from heat-related causes, all involving elderly persons. Precautions are being taken at all sporting events, youth programs, and group activities. Attendance at malls, in movie theaters—even art galleries and museums—is setting records. This pattern has been replicated in all metropolitan areas of the region, where the most popular activities generally include anything in proximity to water, whether the seashore, lakes or state parks along rivers.

On a Thursday morning, your hospital receives an urgent call from the physician's assistant at a local children's day school, reporting what is potentially a case of smallpox. The PA reports that she received a call from the young mother of a seven-year old who had been absent from school for two days with a case of chickenpox. This morning the child's mother called the PA urgently requesting advice on whether to take the child to an emergency room. During the night, the child began vomiting, and now has a temperature of 101.4°F. The "spots" from the chicken-pox have deepened and spread to all the limbs, and the child is in a great deal of discomfort.

1. What is your advice to the PA? What actions should you take based on this information? What actions are required? What requirements exist for higher notification?

2. The PA has instructed the mother to take the child immediately to your hospital's emergency room for an examination. What actions do you take in preparation to receive this patient?

Upon their arrival, the child is immediately cleared through the emergency room and is placed in an isolation ward. Initial examination indicates that the child is, in fact, suffering from smallpox.

3. What is needed in order to confirm this diagnosis? If confirmed, what actions are required of your hospital?

Over the next 48 hours, an investigation reveals that four other children at the day school have been infected with smallpox. Moreover, three other area hospitals report similar cases. In all, 11 cases of smallpox are reported among school-age children within the _____ area.

4. At what point do you expect to see County Health Department authorities jointly making uniform public service announcements about the outbreak of this disease? Should those measures be adopted early, or later after more information is gathered and a strategy worked out?

5. What recommendations would you make regarding your hospital's own involvement with local media? Does the hospital have any responsibilities to the public in this regard?

6. What do you expect to see as a result of public service announcements?

That evening, national network news carries stories about the outbreak of smallpox among _____ area children. By the end of the week, there have been reports of smallpox outbreaks in six other major metropolitan areas, including Boston, New York, Cleveland, Atlanta, District of Columbia, and Baltimore. By this time, the Centers for Disease Control and Prevention has been involved in diagnosis and in the implementation of appropriate preventive and treatment measures. The National Disaster Medical System (NDMS) has been activated in response to the threat of an outbreak.

7. What sort of support would you expect to receive from the CDC and the NDMS? How will your facility communicate with the County Operation Centers regarding federal level support? How will the support materials be transported, secured, and utilized at facilities?

8. If the National Strategic Stockpile were activated for distribution of appropriate medicines, how much would you expect to receive? How do you plan to distribute it and where would it be staged for distribution in your area? What is the level of urgency attached to this? How will your facility communicate with the County Operation Centers regarding federal level support?

9. What is the role of the federal and state Department of Homeland Security (DHS)? How will your organization interact with DHS personnel?

14 MASS CASUALTY EXERCISE
PLAGUE OUTBREAK

Over a period of several months, the U.S. domestic climate slowly returned to normal. By spring, the Dow-Jones average was once again solid, unemployment had begun to decline, and there was a general mood of optimism reflected in national opinion polls. When the anniversary of the September 11th attacks came and went—with quiet dedication ceremonies, the commencement of construction on the new World Trade Center and memorials in New York City, the Pentagon and Somerset County, Pennsylvania, and no further terrorist events—the nation breathed a collective sigh of relief and began traditional preparations for the winter holiday seasons.

Nevertheless, national events ensured that the concept of "homeland security" remained in the public spotlight. International terrorist groups continued to issue occasional calls for war against America and the West, and international focus remained fixed on America's active prosecution of the "war on terrorism." The ongoing impasse between the Israelis and Palestinians kept the Middle East situation in a state of constant tension, despite U.S. involvement in negotiation efforts. The Office of Homeland Security and the FBI continued to issue unspecified threat warnings, and local law enforcement authorities were directed to remain at a high level of alert.

On December 17th, the BBC reported that Israeli authorities had suddenly closed all borders to the Palestinian sectors of the West Bank following the discovery of a Palestinian youth dying on a main street of Jerusalem from what was strongly believed to be pneumonic plague. Within an hour, international media were reporting alternating scenes of near panic at Israeli medical facilities contrasting with virtual desertion in Israeli streets and marketplaces.

U.S. domestic news broadcasts that evening carried stories of several confirmed diagnoses of plague among Israeli citizens. Israeli authorities were setting up medical screening facilities in both Tel Aviv and Jerusalem. International air flights into and out of Tel Aviv airport had been grounded. A representative of Islamic Jihad issued a statement that "Israel and America would soon know the full extent of Islamic anger."

On the late afternoon of 18 December, CNN reported that two men of Middle Eastern descent had been taken into custody at the Mall of America near Minneapolis. Both men were shouting and harassing crowds of holiday shoppers. One of the men reportedly collapsed and had to be evacuated by ambulance. An hour later, CNN reported that both men had been diagnosed with pneumonic plague, and one was near death.

That evening, national news reports carried stories of similar events occurring at malls in San Francisco, Atlanta, St. Louis and Denver. In each case one or two men had been shouting in Arabic, and upon arrest were discovered to be extremely ill. All appeared to be from the Middle East and spoke English with an accent. In a follow-up story, the government had placed Atlanta's Centers for Disease Control and Prevention on alert for any indications of plague or other contagious diseases. Medical facilities in each of the affected cities were beginning to fill

with fearful citizens, some of whom exhibited sudden and acute fever, persistent coughing and respiratory distress.

At 6:35 p.m., a call is received at the _____ County 9-1-1 Center reporting the emergency evacuation of a man who has collapsed at the _____ Mall. The duty EMT at the Mall's first aid station reports that the man's symptoms include severe respiratory distress, coughing with bloody sputum and a body temperature of 102° F. He appears to be Arabic, and was shouting incoherently before he collapsed.

Regarding the immediate situation:

1. What steps should be immediately taken to receive the patient en route to your hospital?

2. What procedures are already in place for handling such a case, and are they adequate for this situation?

3. What would you expect to have happen within the next six hours of your shift? What do you need to do to prepare for it?

4. What additional measures should you direct to be taken by the staff on duty that evening?

5. What additional resources or personnel would you alert to this situation, and how soon would you alert them?

If you knew with certainty that such an event as described above would occur within one year:

1. What measures should your hospital institute now to prepare for it?

2. Are your current resources adequate? If not, which ones should receive priority attention?

3. What type of preparation would you insist be undertaken by organizations and agencies outside your own medical facility?

4. What type of state or federal assistance would you need, and what should you expect?

5. What is the state of smallpox inoculations among your hospital staff and regional emergency workers? What preparations should be initiated at this point?

15 MASS CASUALTY EXERCISE
EMERGENCE OF TUBERCULOSIS

In early December, an epidemiologist at your hospital receives a call from a friend, the university physician at _____ College. The physician is seeking advice and confirmation for a suspected case of tuberculosis at the college.

The physician explains that this morning he saw during sick call a student who had been complaining of persistent cough, intermittent fever, and general fatigue. The student, a 20-year old male, complained that he had felt this way for a period of several weeks, but had considered it to be nothing more than a cold, along with tiredness from his academic schedule and end-of-semester exam preparations. Several of his friends had complained of the same symptoms, and they considered it to be a "cold going around."

The physician explained that he had grown concerned when he learned that the student had been a member of an eight-week summer trip on a church-sponsored mission in Russia and the Caucasus. During that trip, the students had traveled around the Moscow area including trips to several small villages east of the city. They had then flown to Baku, Azerbaijan and had traveled overland to the Ngorno-Karabak region bordering Armenia. They had then continued to Tblisi, Georgia before returning home in late August. The eight students on the trip had stayed in a variety of hotels, hostels and private homes, and had visited several refugee camps in Ngorno-Karabak. Three of his closest friends had been with him on that trip; two of those were among the group that the student had said exhibited the same symptoms he did. He became concerned yesterday when he discovered bloody phlegm after a coughing spell.

The physician had examined the student and had also administered a Mantoux test, which he would read when he saw the student again at the end of the week. The doctor had also taken a throat culture, and his initial screening had turned up a strong possibility of TB infection. The doctor was now calling to confirm his suspicions and seek the advice of your epidemiologist.

1. In the event that the student tests positive for tuberculosis, what actions can your staff and hospital take to help deal with this situation?

2. What requirements are there for reporting this incident to the local Public Health Officer, and who should make that determination? When or how soon should such reports be made?

Over the course of the next several days, the college physician sees three more students referred by the original student, and confirms that there are, in fact, two active cases of tuberculosis among them, as well as two other exposures to the disease.

3. What are the differences between active cases and exposure to tuberculosis, and how are the cases to be treated? What procedures should the college follow in these cases?

4. In the event that these cases should prove to be multi-drug resistant—given their possible source of origin—what precautions should your hospital be considering to aid in diagnosing and controlling an outbreak of this disease in your area?

16 MASS CASUALTY EXERCISE
RESURGENCE OF INFLUENZA

In early Spring, the ProMED online newsletter (http://www.promedmail.org) reported that an unknown illness had afflicted a number of Singapore residents. The illness exhibited the classic symptoms of influenza, including persistent cough and congestion of the chest and throat; high fever and malaise; general aching of the muscles, and loss of appetite. However, of the thirteen verified cases, eight died within 48 hours of the first symptoms. The other five were in local hospitals and two were in critical condition. Singapore authorities had immediately initiated an emergency medical alert, and the victims and their families where placed in isolation for observation.

During the next three days, 22 other cases emerged among the Singaporean populace, and other similar cases had been reported in Tapei, Kuala Lumpur, Jakarta and Bangkok.

Within a week, worldwide news services had begun to focus attention on the mysterious illness, and public health officials of the World Health Organization and Pan American Health Organization had issued medical alerts. During the next two weeks, 67 new cases of the illness (unofficially dubbed the Singapore Flu) had been reported world-wide, including six cases in Russia and two in Sweden. Of those, there had been 19 reported fatalities, all within 72 hours of diagnosis. There was no specific demographic group or age affected, as victims of the illness included two school children, healthy working-age men and women, and several elderly patients.

In the United States there was a growing concern among the public health community. The Centers for Disease Control and Prevention issued a warning, and focused particular attention on the west coast and Hawaii. U.S. news reports had begun referring to the 1918 influenza epidemic and its affect on the U.S. society. Some reports raised the possibility that a bio-terrorism agent had been released, or had surpassed the control of its creators.

In your community, there has been front-page coverage of the disease in newspapers and on local television. Numerous queries had begun coming in to hospital emergency rooms and to local physicians.

1. At this point, what actions might your healthcare facility or clinic begin considering? At what point would you place those plans into action?

2. What actions might your facility take to reassure the public in your community, and how should that information be disseminated? Does your healthcare facility have a public relations specialist, spokesman or designated physician who is known throughout your community and who regularly speaks on behalf of your facility?

3. What concrete actions could your facility recommend that individual citizens take to reduce the likelihood of their being exposed to a contagious illness of this sort?

4. What are the vulnerable populations in your community, and what actions might be taken on their behalf?

Within six days the number of cases triples, with definite outbreaks of the illness identified in Rome, Hamburg, Moscow, Sydney, and Toronto. Diagnosed cases result in hospitalization 66% of the time, and the mortality rate remains consistent at 21%. Infants are the most susceptible and those above the age of 60, although one-third of the fatalities are healthy adults.

Five weeks after the emergence of the first cases, two positive diagnoses are made in Hawaii, and three others in Seattle. The nation's airlines, which had been monitoring Pacific-based passenger bases, issues an urgent travel notification, and begins to screen passengers for signs of flu or colds. Media attention, and concern on the part of the public, begins to rise.

5. What precautions should be taken at your facility to ensure positive identification and diagnosis of cases that might arise in your community?

6. What guidance and assistance can be provided from state and federal medical resources, and how should that assistance be sought?

7. What has your facility done to reassure your own staff, support personnel and their families?

8. What other agencies and organizations in your local community should be approached and included in planning for a medical emergency?

Twelve weeks after the first diagnosed case, your facility admits a patient who exhibits symptoms of the "Singapore Flu," a 36 year-old male who had recently returned from a business trip to Mexico City.

9. What actions should your facility take to diagnose this case, and which medical authorities should be notified of the details?

10. What procedures should your clinic initiate to notify local civic leadership? What role does the facility play in protecting the local community from potential spread of such an illness, and who specifically in your community is responsible?

11. What actions should your clinic initiate to isolate the patient? What steps should be placed in motion to protect your own staff and clinic personnel?

17 MASS CASUALTY EXERCISE
ACCIDENT AT A NUCLEAR POWER STATION

NOTE: This exercise focuses on an accident and contamination at a nuclear-powered generating station requiring the evacuation of a regional hospital. While most hospitals in the U.S. are not in the immediate evacuation zone of a nuclear power station, many are and many more would receive the evacuees from such facilities. Similar considerations exist for many industrial areas and manufacturing districts throughout the company. This exercise should be tailored as required to address those hazards.

At 12:07 p.m. on a midsummer afternoon, the Emergency Room supervisor at the _____ Memorial Medical Center receives a call from the Operations Officer at the _____ County Emergency Operations Center (EOC) alerting the hospital that there has been an accident at the _____ Nuclear Generating Station. Four workers have received serious burns from a steam leak. A _____ County EMS ambulance is evacuating the injured men to _____ Memorial, and they are expected to arrive within thirty minutes. According to _____ officials, it does not appear that the workers were exposed to any radiation, and decontamination should not be necessary.

Immediately after receiving this call, the Emergency Room supervisor receives a second call from the _____ Nuclear Generating Station Safety Officer, reiterating the report from the County EOC, but adding that there is a possibility that the victims were exposed to leaked radiation, and are currently undergoing on-site decontamination. They should be en route to the hospital within fifteen minutes.

Twenty minutes later, the _____ County EOC watch officer reports that there has been a loss of coolant accident at the _____ Station, and _____ Memorial should prepare for evacuation. At that moment the sirens of the Emergency Alert System begin to sound.

1. At this point, what actions should the Emergency Room supervisor take? Who is the individual at _____ Memorial responsible for ordering and executing an evacuation?

2. Given the serious nature of the injuries to the four nuclear plant workers, what actions should be taken to provide for their emergency medical care? Should they be immediately received at _____ Memorial's Emergency Room, or should they be diverted to another facility?

Ten minutes later, the Duty Officer at the _____ County EOC calls and says that there has been a series of accidents at _____ Nuclear Station, and there is now a significant possibility of a radiation release from the nuclear plant's containment building. Emergency evacuation of the hospital should be immediately initiated if it is not already in progress. He further states that a similar notification has gone to adjacent hospitals at _____ and _____, and also to _____ County Medical Center in _____, all of which lie within the possible contamination zone, given current wind and weather conditions.

This situation at _____ Station has the potential for significant danger, and all precautions should be taken.

3. Does the information provided by the EOC Duty Officer constitute authoritative guidance for an evacuation? If so, to what facility should your facility's patients be evacuated? Where would patients from other area hospitals go if they were directed to evacuate as well?

4. Assuming that the emergency at _____ Station progresses to a worst case scenario—a "severe accident" involving a melt-down of the reactor core or breach of the containment vessel with a significant release of radioactivity—what plans exist for evacuation of several area hospitals, and the treatment of a large number of contaminated or potentially contaminated civilians?

18 MASS CASUALTY EXERCISE
DETONATION OF A RADIOLOGICAL DEVICE IN THE ENVIRONMENT

It is 6:02 p.m. on Wednesday evening. Along Highway _____, the usual auto and truck traffic is snaking its way through the _____ intersection as commuters are heading home and truckers are beginning to exit the highway in search of a brief rest and the evening's dinner.

An eighteen-wheel tractor-trailer carrying a large Sea-Land container is approaching the intersection when suddenly there is a terrific explosion that rips the container apart. The tractor is blown completely clear of the trailer, and into the center of the intersection. A dozen cars adjacent to the trailer are hurled through the air in all directions, and several burst into flames. Traffic in all directions comes to an abrupt halt, and people erupt from stopped cars to escape the scene and its fires and destruction. Sheet metal and debris from the container, tractor and damaged cars is scattered in all directions, and smoke and dust fill the evening air.

Along the streets and at the intersection there is pandemonium. People are running everywhere, many in a state of confusion. From several diners and business establishments along the highway, people rush outside to see the commotion, and to render aid to the injured. Along the sides of the intersection, injured people lie about in a daze, some attempting to move, others lying perfectly still. Blood, human body parts and remnants of clothing are scattered around the roadways.

Within minutes, police cars, fire and rescue trucks and ambulances begin to arrive, and the shoulders of the roads in all four directions quickly fill with emergency vehicles. The police immediately begin clearing traffic and directing the evacuation of the area by those who can leave. Cordons are established and gathering crowds are kept at a distance. Traffic slowly begins to clear the area, as emergency vehicles and ambulances begin loading the dead and injured.

Reports of the explosion begin to arrive at your hospital from the 9-1-1 operator, and from local telephone calls. Within minutes, most area hospitals are alerted and begin preparations to assist with an influx of emergency patients. Immediate reports from the scene indicate that there may be as many as 10 dead, twice that many critically injured and immobile, and at least another 20 with injuries requiring immediate medical attention.

At about 7:15 p.m. hospitals in the area receive a follow-up call from the _____ County Sheriff's office alerting them that the _____ Police Department's Bomb Squad has determined that the explosion was caused by the detonation of a large bomb, and that the weapon contained a radiological contaminant, probably uranium in some form. Initial surveys indicate that a high level of radiation has been detected in the trailer's debris and the immediate vicinity, and it appears certain that the smoke and debris carried some level of radiation along the roadway and onto surrounding buildings and business establishments for some distance. Victims already received and those currently being evacuated to hospitals will need to go through radiological decontamination.

It is at this point that the first emergency evacuees begin arriving at your hospital.

1. What immediate steps should be taken to handle the arriving patients? What are the priorities for managing initial care seriously injured patients who may have been exposed to nuclear radiation?

2. How quickly can a decontamination station be established at your facility? Who is in charge of making this happen? Is that person available and if not, how can he be reached? If the decontamination station is not available for immediate use, what happens to the patients in the interim?

Within 30 minutes of the arrival of the first victims, people begin arriving at the hospital who have heard over local radio and television that a nuclear bomb was detonated along Highway _____. Most of the arriving patients had either been close enough to witness the explosion or had driven through the smoke and debris along the road. They fear they may have been contaminated by nuclear radiation.

3. What steps must now be taken in anticipation of an influx of non-injured persons who may require decontamination and monitoring? What priority are they given relative to the injured? Where are they kept while awaiting decontamination?

4. How are these persons identified, tracked, and recorded? What happens to their personal effects and clothing during decontamination? What is returned, and what is disposed of?

5. What is the hospital's legal liability to respond to an overwhelming demand for diagnostic testing like radioactive decontamination and monitoring?

6. What are the hospital's obligations to its staff, traffic control personnel, assisting police and security officers in ensuring they do not become contaminated? What is the hospital's plan that is activated in an event of this sort?

7. What resources are available external to the hospital to aid in dealing with a situation of this magnitude? How quickly can those resources be mustered, and who initiates that action?

19 MASS CASUALTY EXERCISE
DETONATION OF A RADIOLOGICAL DEVICE IN A PUBLIC SPACE

It is 8:38 on a Wednesday morning in late spring. At the _____ Regional Airport, a SAAB 340 twin-engine commuter airliner, is taxiing to its debarkation point adjacent to the American Eagle terminal.

Moments after the plane stops at the terminal, there is a massive explosion from the fuselage, the force of which is so great that it blows the tail section off the aircraft and shatters glass windows throughout the terminal. Passengers waiting in the departure gates are blown away; debris is flung along the entire extent of the terminal building. The glass doors at the bottom of the three nearest departure gates are blown in by the explosion, and smoke, debris and broken glass surge throughout the terminal. The air inside the terminal fills with smoke and dust, and the noise of the explosion and settling debris is replaced by the screams of injured and panicked passengers.

Within the airport there is instant pandemonium. People are running everywhere, and the noise is deafening. The exit doors are suddenly filled with people attempting to evacuate, while passengers who are able flood the central terminal attempting to reach the exits. At the same time, airport officials, security officers, first aid personnel and some passengers immediately begin running toward the wreckage to assist. Around the terminal, injured people lie in a daze. Some attempt to move, others remain perfectly still. Blood, human body parts and remnants of clothing are scattered along six adjacent boarding platforms.

Within minutes, security vehicles, fire and rescue trucks and ambulances begin to arrive, and the roadways on both access roads to the airport fill with departing buses, taxis and automobiles, at the same time that emergency vehicles begin to crowd the roadways. The police immediately begin clearing traffic and directing the evacuation of the station. Cordons are established and gathering crowds and media are kept at a distance. Incoming aircraft are immediately diverted, departing aircraft are held on the runways, and airport operations come to a halt.

Reports of the explosion begin to arrive at area hospitals via telephone calls, from e-mail communications and from news reports on waiting room televisions. By 9:00 p.m., most area hospitals are alerted officially and told to stand by to assist with an influx of emergency patients who are expected to overwhelm the capacities of the immediate region's emergency rooms. Immediate reports from the scene indicate that there may be as many as 50 dead, twice that many critically injured and immobile, and at least another 100 with injuries requiring immediate medical attention.

At 9:40 a.m. the initial calls to hospitals are followed up with a report from the _____ Police Department indicating that the Bomb Squad has determined that the explosion was caused by a bomb aboard the aircraft and that it appears to have contained a radiological contaminant. Initial surveys indicate that a high level of radiation has been detected in the immediate vicinity of the damaged aircraft, and throughout the airport terminal, and it appears certain that the smoke and debris carried some level of radiation into the central terminal and surrounding areas. Victims being evacuated to hospitals will need to go through radiological

decontamination, and screening for possible ingestion of contaminated smoke and debris. Those with open wounds will require additional screening.

Review the questions in the previous exercise. In addition to those, consider the following:

1. What assistance is your hospital prepared to provide to police, firemen, rescue personnel and officials during the search and rescue effort at the _____ Regional Airport?

2. What additional measures will be required, and what preparations should be initiated to support the long-term decontamination of the airport and surrounding area?

3. What support and specialized equipment for wide area decontamination can the hospital help provide? What assistance can the hospital give to assist in on-scene decontamination of victims, rescue personnel and security officials at the scene?

4. What federal, state and regional agencies can support these requirements? How long will it take before their arrival on the scene? What actions should be taken in the meantime?

20 MASS CASUALTY EXERCISE
NUCLEAR ATTACK ON A POPULATION CENTER

NOTE: This scenario is not intended as a mass casualty exercise, per se, but rather as a means for thinking about how to organize resources and muster professional and community strength of will when dealing with a situation that appears utterly hopeless. The first reaction to any scenario of this sort is either that "it can't happen here" or that "there is nothing that can be done about this." However, it is instructive to bear in mind that the cities of London, Dresden, Leningrad and Hiroshima were all fully restored after the horrific devastation of WWII. The same can be said of Atlanta after the Civil War, San Francisco after the 1906 earthquake and Philadelphia after the 1918 influenza epidemic. The first step is to overcome the mindset that such a situation is "unthinkable" and consider what measures, taken now, could serve to make such a desperate situation recoverable. Specifically, how could the medical community best serve the disaster recovery process, and what steps could be taken now to mitigate its effects?

In short, how would your medical facility react to an event such as this if it happened at an American city very distant from yours? What if it happened to the nearest large city in your area? What would be the effect on your operations during the immediate event? For the long term? What can your medical or healthcare facility do to contribute to the region's or nation's needs in the event of such a catastrophe?

On a moonless and foggy night 220 miles off _____ a lone foreign-flag tanker slows nearly to a stop. Crewmen open two large cargo hatches on the main deck. Below decks, men bathed in red light complete pre-launch assembly of four Scud-B missiles. Within thirty minutes a small, fast sport fishing boat arrives within five miles of the merchantman. Messages are exchanged between the two ships via a satellite internet link.

Suddenly, the surrounding water is lit by a brilliant white light followed by two more, as three of the missiles leave their launchers. Immediately, the fishing boat approaches the tanker as the crew of eleven men hurriedly depart the ship in rubber life rafts. They are quickly recovered by the fishing boat, which then speeds away for a rendezvous with a larger ship twenty miles farther out to sea.

Twelve minutes later—at exactly 12:43 a.m.—one of the missiles detonates five hundred feet above _____ three miles from _____. The 7-kiloton warhead raises a blinding fireball that lasts for ten seconds. Within a 1-mile radius of the hypocenter, all buildings and structures are either incinerated or flattened. Two miles away, structures other than those of reinforced concrete are demolished. Glass panels and windows as far as four miles away are shattered.

The _____ International Airport and its facilities are blown over, as are the hotels, businesses and service facilities that surround it. The _____ is instantly demolished; the _____ collapses; the roadbed sags. Fuel tanks and storage areas adjacent to the airport are ruptured, and massive petroleum fires erupt, engulfing more than a square mile, causing an enormous updraft of debris and smoke.

In an instant, the nearby _____ Electrical Power Generating Station is knocked off the line due to damage and the instantaneous load caused by massive short-circuits in the electrical grid. In turn, the _____ stations suffer similar surges and are stripped from the grid. Electrical power is lost throughout the city, and progressively throughout the state and subsequently to neighboring states.

Throughout _____ the streets are strewn with overturned automobiles, electrical wiring, fallen trees and debris from collapsed roofs and the walls of the weaker buildings. While the newer and taller buildings survive the blast, virtually no glass windows remain in tact on the southern exposure. Rail lines south of the main terminal are either demolished, or are so littered with debris they are declared unusable.

By sunrise, _____ is an inferno. Streets, roads and highways in _____ County are utterly impassable. In adjacent _____, the scene is the same, with fire, smoke and destruction visible in every direction. The _____ is aflame with ignited petroleum. Smoke from the fires rises to an altitude of 20,000 feet, and extends across _____ over an area of 400 square miles. Roads and highway systems leading to the north, south and west are grid-locked as citizens from unaffected areas attempt to evacuate to safety.

With the detonation, 20,000 people in _____ instantly perish from gamma radiation, from the pressure wave and intense radiant heat, and from collapsing buildings and flying debris. Before sunrise, an additional 15,000 people die from injuries and shock. Within the next 24 hours nearly 50,000 people in the _____ area will be made homeless, 10,000 will require immediate medical attention from traumas of every description, and another 12,000 will be seeking urgent care for a loved one or someone they are attempting to assist.

Firefighters, emergency medical technicians, police and city officials are overwhelmed. One main city street is established as the immediate firebreak, with the intention of containing the destruction and fires to the area south of that line. A secondary line is established along _____ Street. To the west, the railway line is established as the first line of defense, with the park areas defining the _____ as the secondary cordon.

Regarding a catastrophe of this magnitude:

1. What steps could be initiated now that could help prepare the area medical system—or that of the nearest large metropolitan area from your medical facility—for such an event one year from now?

2. Assuming that your medical facility was fully prepared for a “normal” mass casualty event, what extra preparations would be essential for dealing with a scenario where casualties could measure in the tens of thousands?

3. Which medical services, functions and wards would your hospital terminate or defer in order to provide staff, equipment and facilities to support more urgently needed medical care during a disaster of this sort?

4. How would your medical facility muster the professional staff required to sustain basic medical services for an extended period of time? Who would you consider "qualified" and how would you mobilize them?

5. What sort of medical positions and responsibilities could you delegate to civilian volunteers in a situation of this magnitude? What measures could you take now to prepare for such a mobilization of the community? To which civic organizations could you look for assistance in the event of full mobilization? What facilities in your community could be turned into emergency medical facilities and shelters?

6. Assuming that assistance could be expected from outside agencies (federal, state, international) which responsibilities or functions would you choose to delegate to those agencies? Which would be essential to reserve to your own local talent and knowledge? How would you organize and coordinate this effort?

7. Recognizing that no current or future resources are likely to be allocated to preparing for such a low-probability event as the foregoing, what long-term, low-cost organizational changes and conservation methods might be implemented that would nevertheless mitigate the effects of a disaster of this magnitude?

APPENDIX A

JCAHO STANDARDS FOR EMERGENCY MANAGEMENT

The following guidelines are the Emergency Management Standards established by the Joint Commission for Accreditation of Healthcare Organizations (JCAHO) outlined in section EC 1.4 of the Comprehensive Accreditation Manual for Hospitals.

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. At a minimum, the emergency management plan is developed with the involvement of the organization leaders, including the clinical leaders (medical staff for hospitals).

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

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[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" (PICE).

[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.

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. Cooperative planning among health care organizations that together provide services to a contiguous geographic area (for example, among hospitals serving a town or borough) 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 external authorities of emergencies, 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:

- Individual care-related activities (for example, scheduling, modifying, or discontinuing services; control of individual information; individual transportation).
- Staff support activities (for example, housing, transportation, incident stress debriefing).

- Family support activities.
- Logistics relating to critical supplies (for example, pharmaceuticals, medical supplies, food, linen, water).
- Security (for example, access, crowd control, traffic control).
- 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 individuals when the environment cannot support adequate individual care, and procedures that address, where applicable:

- Transportation of individuals, staff, and equipment to the alternative care site.
- The transfer of patient necessities (for example, medications, medical records) to and from the alternative care site.
- Individual tracking to and from the alternate care site.
- 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:

- Specific roles and responsibilities during emergencies.
- How to recognize specific types of emergencies (for example, the symptoms caused by agents that may be used in chemical or bioterrorist attacks).

- The information and skills required to perform assigned duties during emergencies.
- The backup communication system used during emergencies.
- 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 individuals, their family, 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 borough, to a town, city, or region.

APPENDIX B

PLANNING ASSUMPTIONS FOR MASS CASUALTY EXERCISES

Unless otherwise noted, the following conditions should be assumed for all scenarios contained in this manual. Variations to these conditions can be altered in accordance with Appendix C, either at the outset, or as an exercise progresses.

ENVIRONMENTAL

(1) Weather is clear with no precipitation.
(2) Temperature is mild (above freezing) and wind chill is not a factor.
(3) Visibility is good with no local or general restrictions.

INFRASTRUCTURE

(1) Area public and highway transportation systems are under no restrictions.
(2) Highway and street vehicular traffic are normal for the time of day.
(3) There are no restrictions to civil infrastructure systems, and local services and public utilities are being provided according to normal routines.

OCCUPATIONAL and STAFFING

(1) Normal staff, support and executive personnel are present or available according to routine schedules. Health conditions for immediate staff are unexceptional.
(2) Public interaction, client relationships and patient loading are all normal for the time of day and season of the year.
(3) Response times for emergency services such as police, fire emergency medical services, and airlift and helicopter flight operations are normal.
(4) Extraordinary conditions such as emergency declarations, National Guard deployments, police or security force reserve activations are achievable only within normal timeframes.

POLITICAL and GEO-STRATEGIC

(1) National, international and regional political conditions are in accordance with real-world events and press reports.
(2) Local media relations and presence is normal.
(3) There are no technologies or devices available that are not currently in production. Real-world prototype systems or uncertified medical procedures may be assumed available, but cannot be used without customary justifications and legal exceptions.

APPENDIX C

EXERCISE VARIABLES AND INJECTS

The following list includes planning factors that could alter the scenario and expected or required responses. These circumstances may precipitate a mass casualty incident, may exist during an incident, or may arise as the response to an incident progresses.

ENVIRONMENTAL

(1) Time.
   a. Time of day
   b. Day of the week
   c. Lunar/tidal cycles
   d. Season of the year
   e. National or local holiday

(2) Weather. Either directly causing or occurring during and compounding the difficulty of response to a mass casualty event
   a. Precipitation with heavy volume and accumulation
   b. Restricted visibility
   c. Temperature and wind chill
   d. Extraordinary phenomena:
      1. Flooding
      2. Earthquakes, tremors
      3. Thunderstorms, lightning strikes
      4. Tornadoes
      5. Hurricanes
      6. Winter storm with accumulation of ice and snow
      7. Extreme sustained heat and humidity
      8. Extreme sustained cold

INFRASTRUCTURE

(3) Transportation. Emergence of a situation that causes damage to, or restricts access or use of:
   a. Public transportation (aviation including helicopter flight; trains, subways, bus lines)
   b. Highway system (Interstate, State or County)
   c. City streets

(4) Utilities. Failure of public services that causes or is caused by an incident resulting in mass casualties:
   a. Water
   b. Sewage
   c. Electrical power
   d. Natural gas and home heating oil
   e. Gasoline, diesel fuel, aviation fuel

(5) Communications. Failure of communications systems or inability to establish communications via one or more of the following:
   a. Telephone—landline
   b. Telephone—cellular

c. Internet
d. Radio
e. Television

OCCUPATIONAL and STAFFING

(6) Events occur at a time of day/night when staffing—particularly specialists and executive management—is reduced or unavailable

(7) Events occur is such a fashion that staff is directly affected and therefore unavailable because of the following:
   a. Inability to arrive on scene at the medical facility
   b. Contamination or exposure requiring immediate prophylaxis, decontamination and/or treatment
   c. Absenteeism due to previous illness, travel, holiday or leave status, or death or injury as a casualty of the event involved
   d. Unresponsive or unable to gain notification through damage to communications or transportation systems

POLTICAL and GEO-STRATEGIC

(8) National or world events are such that preparedness for, or diagnosis of certain conditions might be prompted or anticipated:
   a. An outbreak of a disease or condition elsewhere in the nation or region
   b. Alerts or warnings issued by Federal, State or local officials
   c. Alerts or warnings issued by the Center for Disease Control or Public Health Service
   d. Alerts or warnings issued by the Department of Homeland Security or local law enforcement officials

APPENDIX D

GENERAL CONSIDERATIONS FOR MASS CASUALTY INCIDENTS

The following questions consolidate issues raised in the preceding scenarios, and should be considered during planning for the response to any mass casualty or catastrophic incident.

OPERATIONS AND INITIAL RESPONSE

1. Upon notification of a mass casualty incident, what immediate actions should be taken by the hospital staff? What should be their second and third priorities?

2. What is the role your hospital or medical facility should take in the response to the incident and the treatment of victims? How can your facility best aid the situation?

3. How much additional medical equipment and personnel will be required for the next 12 hours of support during the current crisis (ER, ICU, surgical, radiology, lab, pharmacy, respiratory, decontamination, facility, etc.)? What steps should be taken now to plan for the succeeding 12-hour shift?

4. What general medical support will be in the most urgent demand? What additional services of a specialized or exceptional nature will be required that your facility lacks?

5. At what point does your hospital stand up its Incident Command System and begin making preparations for special emergency medical routines?

6. What threshold would determine the establishment of a hospital Emergency Operations Center? Who makes that determination during the normal routine? during off-hours such as late-night shift or on holidays or weekends?

7. What assistance should be requested of nearby medical facilities and hospitals? Who should be notified and how should status reports and updates be provided?

8. In the event of a fire or other catastrophe in the near vicinity of your facility, how can you mitigate the effects of the smoke and fire? Is evacuation the only option?

9. What is the emergency evacuation plan for your facility, and how quickly could it be implemented? How would the arrival of a large number of firefighting and emergency response vehicles in your neighborhood affect your ability to manage this emergency?

10. Should a hospital in the vicinity of a fire or other catastrophe designate itself as the primary response facility for the emergency, or should that function be delegated to a facility elsewhere? Who decides?

COMMUNICATIONS AND DATA MANAGEMENT

11. What are the capabilities of your hospital to communicate with emergency management personnel at the scene of an accident? To communicate with County Emergency Operating Centers?

12. Who in your facility is responsible for maintaining that communication, and for coordinating the facility's efforts with other area medical facilities?

13. Via what medium does your facility receive initial reports and updates on a mass casualty incident? How do you send status reports regarding the immediate availability of assets such as burn treatment facilities available at your hospital? To whom do you send such reports?

14. If the medical facility nearest to a mass casualty incident becomes overwhelmed with the casualties, how can you learn of this situation and make known your ability to lend assistance and capability?

15. If another hospital in the region is evacuated, what is your hospital's role in assisting? How is that assistance coordinated?

16. What obligations does the hospital have for reporting a specific incident to higher/other authority, and when should those reports be initiated?

LOGISTICS AND RESOURCE ALLOCATION

17. Where does specialized medical equipment—such as extra ventilators—come from, and how quickly can they be obtained? Are there any potential conflicts over availability of supplies for specialized equipment between your facility and other local medical facilities?

18. Are current hospital resources adequate for a mass casualty incident involving tens or hundreds of patients? If not, which ones should receive priority attention?

19. If the National Pharmaceutical Stockpile were activated for distribution of emergency medicines, where would it be staged in your area, and who is responsible for distribution? What is your hospital's role in this undertaking? What training in logistics and coordination has been held?

PUBLIC RELATIONS AND PUBLIC INFORMATION

20. What actions do you recommend your hospital take to assist the school system, individual businesses and the local community in preparing for or dealing with routine medical problems such as an outbreak of flu? What actions could be taken to alleviate potential overloading of area medical facilities? What similar activities would assist the public in preparing for mass casualty emergencies or epidemics?

21. At what point do you expect to see County Health Department authorities jointly making public service announcements about the outbreak of a disease identified in your region? What do you expect to occur as a result of public service announcements?

22. What requirements are there for reporting medical emergencies to the Public Health Service, and who should make that determination? When or how soon should such reports be made?

23. What recommendation would you make regarding your hospital's involvement with local media? Does the hospital have any responsibilities to the public in this regard?

LONG RANGE PLANNING AND LIAISON

24. Which medical services, functions and wards would your hospital terminate or defer in order to provide staff, equipment and facilities to support more urgently needed medical care?

25. What type of preparation would you insist be undertaken by organizations and agencies outside your own medical facility?

26. For very large-scale mass casualty incidents, what type of state or federal assistance might you need, and how and at what point do you request it?

27. Will the requirements for supporting fire-fighting activities—like first aid and recovery for firefighters, police and emergency personnel—have any impact on your hospital's ability to maintain continuity of operations and standards of care in the emergency room?

28. Which agencies exterior to the hospital, if any, should be notified of a given medical emergency, or of the hospital's need for assistance? Who is empowered to make those sorts of decisions?

29. How does your facility involve the American Red Cross in rapidly activating emergency blood supplies?

30. How quickly can a decontamination station be established at your facility? Who is in charge of making this happen? Is that person available and if not, how can he be reached? If the decon station is not available for immediate use, what happens to the patients in the interim?

31. What are the capabilities of your facility to decontaminate victims who are suffering from exposure and injury?

32. What steps should be taken in anticipation of an influx of non-injured persons who may require decontamination and monitoring? What priority are they given relative to the injured? Where are they kept while awaiting decontamination or medical screening?

33. How are these persons identified, tracked, and recorded? What happens to their personal effects and clothing during decontamination? What is returned, and what is disposed of?

34. What is the hospital's legal liability to respond to an overwhelming demand for diagnostic testing like radioactive decontamination and monitoring?

35. What are the hospital's obligations to its staff, traffic control personnel, assisting police and security officers in ensuring they do not become contaminated?

36. What is your facility's plan for managing the arrival of relatives and loved ones of the injured and killed? What special services can you call on to assist in controlling this problem?

37. What is your facility's plan for managing an influx of volunteers? How would you maintain control of potential blood donors and other volunteers? Who at you facility is charged with this responsibility?

38. What sort of medical positions and responsibilities could you delegate to civilian volunteers in a mass casualty situation? What measures could you take now to prepare for such a mobilization of the community? What civic organizations could you look to for assistance in the event of a full mobilization? What facilities in your community could be turned into emergency medical facilities and shelters?

39. Assuming that assistance could be expected from outside agencies (federal, state, international) which responsibilities or functions would you choose to delegate to those agencies? Which would be essential to reserve to your own local talent and knowledge? How would you organize and coordinate this effort?

40. What special precautions must be taken to preserve the value of crime evidence? Specifically, what becomes of the personal effects of victims arriving at your facility to ensure that their value as evidence is not lost? What advanced planning and training has been undertaken to educate medical personnel of this dimension of a terrorist attack?

41. What procedures or protocols exist for handling of injured victims who may be suffering from prior medical conditions or diseases such as hepatitis or HIV/AIDS? How are large quantities of contaminated tissues, fluids or body parts from mass casualty sites to be handled? What facilities or capabilities exist for the treatment/assistance of first responders who may have been exposed to the suspected agent?

42. What facilities does your hospital maintain for aiding in forensic identification of remains?

43. What agreements or protocols exist between your area's hospitals and those of adjacent states to assist in managing emergency situations that cross state boundaries? Are there any additional or extraordinary conditions that must be met for bi-lateral medical support between your hospital and that in a nearby state?

44. Assuming that your medical facility was fully prepared for a "normal" mass casualty event, what extra preparations would be essential for dealing with a scenario where casualties could measure in the tens of thousands?

45. How would your medical facility muster the professional staff required to sustain basic medical services for an extended period of time (weeks or months)? Who would you consider "qualified" and how would you mobilize them?

46. Recognizing that no current or future resources are likely to be allocated to preparing for low-probability events such as epidemic outbreaks of an exotic disease, or terrorism involving weapons of mass destruction, what long-term, low-cost organizational changes and conservation methods might be implemented that could mitigate the effects of disasters of this magnitude?

47. If you knew with certainty that a mass casualty incident would occur in your neighborhood or region within one year what measures should your hospital institute now to prepare for it?

SECURITY

48. What security procedures have been established at your facility to screen incoming patients and visitors, to ensure that an event of this sort is prevented? In recognition of your facility's vulnerability, what should be done?

49. What is the relationship between your hospital staff and the hospital's security personnel? How much authority are security officers given in protecting your hospital from intrusion and possible targeting by a terrorist or dangerously imbalanced patient?

50. What assurances have been given your hospital's security personnel, and what procedures have been initiated, to ensure that their safety and health is assured in maintaining hospital security under conditions of epidemic, radiological contamination, chemical contamination, or long-term security needs during times of extreme casualty influx?

APPENDIX E

FEMA GUIDELINES FOR DISASTER RESPONSE PREPAREDNESS AND PLANNING

The following are excerpts from two documents published by the Federal Emergency Management Agency (FEMA). The first is the Health and Medical Annex (Attachment G) to the FEMA Guide for All-Hazard Operations Planning. The second contains the Emergency Management Considerations (Section 2) of FEMA's Emergency Management Guide for Business and Industry.

The documents are written as guidance for local community medical facilities and business establishment, and are general in nature. Nevertheless, the information provides a valuable perspective on the advantages to be gained from rigorous planning and regular liaison with the local community and civic leadership, and some considerations that address the necessity to think through potential problems well before emergence of a "worst case scenario."

NOTE: Similar guidance is likely available from most state and many county Emergency Management Agencies. The Internet provides a ready source of these and other available guidelines, and should be thoroughly researched. Likewise, the Federal Emergency Management Agency (www.fema.gov) and the Centers for Disease Control and Prevention (www.cdc.gov) offer a wealth of information for local healthcare and emergency response organizations, for communities, and for private citizens.

FEDERAL EMERGENCY MANAGEMENT AGENCY

Guide for All-Hazard Emergency Operations Planning

http://www.fema.gov/rrr/gaheop.shtm

Annex G: Health and Medical

Introduction
This function deals with the activities associated with the provision of health and medical services in emergencies and disasters. For the purpose of this Guide, health and medical services include: emergency medical (EMS), hospital, public health, environmental health, mental health, and mortuary services. The activities associated with these services include treatment, transport, and evacuation of the injured; disposition of the dead; and disease control activities related to sanitation, preventing contamination of water and food supplies, etc., during response operations and in the aftermath of a disaster. Depending on needs and resources, jurisdictions may want to prepare separate annexes for one or more of these health and medical services.

Developing a Health and Medical Annex

Purpose
A health and medical annex describes policies and procedures for mobilizing and managing health and medical services under emergency or disaster conditions.

Situation and Assumptions
This section provides a general assessment and overview of the jurisdiction's existing health and medical capabilities. It focuses on the jurisdiction's capability to provide medical care, treatment, and support to victims, response personnel, and the general public during the response and post-disaster phases. This section also addresses limitations that may degrade health and medical operations. Assumptions addressed might include the following:

- The annex applies primarily to large-scale emergency and disaster events that would cause sufficient casualties and/or fatalities to overwhelm local medical, health, and mortuary services capabilities, thus requiring maximum coordination and efficient use of these resources.
- Public and private medical, health, and mortuary services resources located in the jurisdiction will be available for use during disaster situations.
- Large-scale emergencies and disaster threat situations (earthquakes, hurricanes, nuclear power plant accidents, floods, etc.) may affect large areas of the jurisdiction, the State, or other States, requiring the use of mutual aid.
- Public and private health and medical resources located in the jurisdiction generally will be available for use during disaster situations, but many of these resources, including human resources,will themselves be impacted by the disaster.
- Emergency measures to protect life and health during the first 12 to 24 hours after the disaster in all likelihood will be exclusively dependent upon local and area resources.
- Resources available through area and regional medical, health, and mortuary services mutual aid agreements will be provided for use during the disaster situation.

- It may be necessary to relocate hospital facilities under austere conditions to contingency field hospitals, or to permanent or temporary buildings that will provide patients and medical staff adequate protection from the effects of the disaster.
- Volunteers will come forward to help perform essential tasks; their efforts must be anticipated and coordinated.

Concept of Operations

This section describes how health and medical operations will be conducted in the jurisdiction and in cooperation with other jurisdictions, other services, and the State and Federal governments.

General

This section details the provisions for mobilizing and managing health and medical services. It addresses pre-disaster, disaster, and post-disaster considerations. It identifies who will be in charge of directing health and medical operations and provides a general overview on how health and medical activities will be accomplished. Because health and medical services include so many different activities, it is essential to establish a framework for these services to work together. To ensure that the necessary planning and coordination are accomplished prior to the occurrence of a disaster and to facilitate the management of health and medical services during disasters, it is essential to vest this planning and coordination responsibility in one position. An appropriate title for this position is "Health and Medical Coordinator." The individual that fills this position is responsible for coordinating EMS, hospital, public health, environmental health, mental health, and mortuary services disaster planning and response actions. The concept of operations should include provisions for:

- Establishment of medical command post at the disaster site(s).
- Coordinating health and medical response team efforts.
- Triage of the injured, if appropriate.
- Medical care and transport for the injured.
- Identification, transportation, and disposition of the deceased.
- Holding and treatment areas for the injured.
- Isolating, decontaminating, and treating victims of hazardous chemical or infectious diseases, as needed.
- Identifying hazardous chemicals or infectious diseases, controlling their spread, and reporting their presence to appropriate State and Federal health or environmental authorities.
- Issuing health and medical advisories to the public on such matters as emergency water supplies, waste disposal, mass feeding services, vectors, immunizations, disinfection, and others.

Interjurisdictional Relationships

This section describes the mutual aid arrangements for health and medical assistance to or from neighboring jurisdictions, the State, or jurisdictions outside of the State, when required. Further discussion is under the heading "Administration and Logistics," below.

Organization and Assignment of Responsibilities

This section describes tasked individuals' and organizations' responsibilities for providing emergency health and medical services in the jurisdiction. The following types of tasking may be assigned to the agencies and individuals listed in the left margin below:

Chief Executive Official ("CEO")
Requires the Health and Medical Coordinator to send a representative to the EOC when notified of an emergency situation.

Health and Medical Coordinator
Upon activation, or upon declaration or imminent declaration of an emergency or disaster:

- Reports to the EOC or other designated location as deemed appropriate; sends a representative to the EOC if unable to report in person.
- Rapidly assesses health and medical needs.
- Oversees and coordinates the activated health and medical organizations to assess their needs, helps them obtain resources, and ensures that necessary services are provided.
- Ensures that emergency medical teams responding to a disaster site establish a medical command post.
- Coordinates with neighboring community health and medical organizations and with State and Federal officials on matters related to assistance from other jurisdictions, including Federal assistance.
- Screens and coordinates with incoming groups such as Disaster Medical Assistance Teams (DMAT) as well as individual health and medical volunteers; ensures that positive identification and proof of licensure is made for all volunteers. Maintains a patient/ casualty tracking system.
- Coordinates the location, procurement, screening, and allocation of health and medical supplies and resources, including human resources, required to support health and medical operations.
- Provides information through the PIO to the news media on the number of injuries, deaths, etc.
- Ensures appropriate health and medical services information is made available to the information processing section in the EOC.
- Coordinates support to the jurisdiction's efforts to respond to inquiries from family members concerned about loved ones.

EmergencyMedicalServices (EMS)

- Respond to the disaster scene with emergency medical personnel and equipment.
- Upon arrival at the scene, assume appropriate role in the ICS. If ICS has not been established, initiate in accordance with the jurisdiction's emergency management system and report implementation to the EOC.
- Triage, stabilize, treat, and transport the injured. Coordinate with local and regional hospitals to ensure casualties are transported to the appropriate facilities.
- Establish and maintain field communications and coordination with other responding emergency teams (medical, fire, police, public works, etc.), and radio or telephone communications with hospitals, as appropriate.
- Direct the activities of private, volunteer, and other emergency medical units, and of bystander volunteers as needed. Evacuate patients from affected hospitals and nursing homes if necessary.

Hospitals

- Implement internal and/or external hospital disaster plan.
- Advise the Health and Medical Coordinator or appropriate representative in the EOC of conditions of the hospital and number and type of available beds.
- Establish and maintain field and interhospital medical communications.
- Provide medical guidance as needed to EMS.

- Coordinate with EMS, other hospitals, and any medical response personnel at scene to ensure that casualties are transported to the appropriate medical facility.
- Distribute patients to and among hospitals both inside and outside the area based on severity and types of injuries, time and mode of transport, capability to treat, and bed capacity.
- Take into account special designations such as trauma centers and burn centers.
- Consider the use of clinics to treat less than acute illnesses and injuries.
- Coordinate with local emergency responders to isolate and decontaminate incoming patients, if needed, to avoid the spread of chemical or bacterial agents to other patients and staff.
- Coordinate with other hospitals and with EMS on the evacuation of patients from affected hospitals, if necessary.
- Evacuation provisions should specify where the patients are to be taken.
- Depending on the situation, deploy medical personnel, supplies, and equipment to the disaster site(s) or retain them at the hospital for incoming patients.
- Establish and staff a reception and support center at each hospital for the relatives and friends of disaster victims who may converge there in search of their loved ones.
- Provide patient identification information to the ARC upon request.

Public Health Officer

- Coordinates all public health services in the jurisdiction.
- Inspects for purity and usability all foodstuffs, water, drugs, and other consumables that were exposed to the hazard.
- Provides epidemiological surveillance, case investigating, and follow-up.
- Provides laboratory services for identification required to support emergency health and medical services.
- Coordinates operations for immunizations or quarantine procedures, if required.
- Establishes preventive health services, including the control of communicable diseases such as influenza, particularly in shelters.
- Monitors food handling and mass feeding sanitation service in emergency facilities, including increased attention to sanitation in commercial feeding and facilities that are used to feed disaster victims.

Environmental Health Officer

- Provides for the monitoring and evaluation of environmental health risks or hazards as needed and ensures the appropriate actions are taken to protect the health and safety of disaster victims, responders, and the general public.
- Implements actions to prevent or control vectors such as flies, mosquitoes, and rodents.
- Detects and inspects sources of contamination. Inspects damaged buildings for health hazards.
- Coordinates with the water, public works, or sanitation departments to ensure the availability of potable water, an effective sewage system, and sanitary garbage disposal.
- Coordinates with the animal care and control agency to dispose of dead animals.
- Ensures that adequate sanitary facilities are provided in emergency shelters and for response personnel.

Mental Health Agencies

- Ensure that appropriate mental health services are available for disaster victims, survivors, bystanders, responders and their families, and other community care-givers

during response and recovery. Services may include crisis counseling, critical incident stress debriefings, information and referral to other resources, and education about normal, predictable reactions to a disaster experience and how to cope with them. There should be a capacity to provide specialized assistance for those affected by a traumatic event or who become traumatized by cumulative stress related to the disaster experience.

- Provide outreach to identify and serve those in need of mental health support:
  - Coordinate with the PIO to arrange for dissemination of information to the public.
  - Coordinate with the Mass Care Coordinator to identify shelter occupants that may require assistance.
- Have inpatient psychiatric facilities take the following actions:
  - Implement the facility's appropriate disaster plan.
  - Provide for the care, safety, and continued treatment of hospital residents.
  - Coordinate with appropriate authorities for the safe evacuation of residents.
  - Provide resources and support to the community-based mental health system in responding to the disaster mental health needs of impacted communities.

Mortuary Services

- Provide for the collection, identification, and care of human remains, determining the cause of death, inventorying and protecting deceased's personal effects, and locating and notifying the next of kin.
- Establish temporary morgue sites.
- Establish and maintain a comprehensive record-keeping system for continuous updating and recording of fatality numbers.
- Coordinate with:
  - Search and rescue teams, hospitals, EMS, and other emergency responders.
  - Funeral directors, morticians, and assets for transportation of deceased persons.
  - Other pathologists.
  - The ARC for location and notification of relatives.
  - Dentists and x-ray technicians for purposes of identification.
  - Law enforcement agencies for security, property protection, and evidence collection.

American Red Cross

- Provides food for emergency medical workers, volunteers, and patients, if requested.
- Maintains a DWI system in coordination with hospitals, aid stations, and field triage units to collect, receive, and report information about the status of victims.
- Assists in the notification of the next of kin of the injured and deceased.
- Assists with the reunification of the injured with their families.
- Provides blood, blood substitutes, and blood byproducts, and/or implementing reciprocal agreements for replacement of blood items.
- Provides first aid and other related medical support at temporary treatment centers, as requested, and within capability.
- Provides supplementary medical, nursing aid, and other health services upon request, and within capability.
- Provides assistance for the special needs of the handicapped, elderly, and those children separated from their parents, within capability.

Social Service Agencies
Assist in providing for the special needs of the handicapped, elderly, and children separated from their parents; also provide for special needs of orphaned children.

Animal Care and Control Agency
- Coordinates with veterinarians and animal hospitals to arrange for services for animals as needed. These might include service, companion, or farm animals, wildlife, etc.
- Coordinates with the Environmental Health Officer on the location, collection, and disposal of dead animals.

Police/Corrections Department (as appropriate)
- Maintains emergency health services at juvenile and adult correctional facilities.
- Assists Mortuary Services in the identification of fatalities.
- Provides security assistance to medical facilities and to health and medical field personnel upon request.

Military Department
Provides personnel and equipment to support medical operations during disaster situations (at the direction of the Governor).

All Tasked Organizations
- Adhere to all professional and legal standards in the performance of duties.
- Provide ongoing status reports to the Health and Medical Coordinator, including number of deaths, injuries, etc.
- Provide and/or receive mutual aid in coordination with the Health and Medical Coordinator.
- Provide information to the Health and Medical Coordinator for dissemination of public advisories as needed.
- As needed, coordinate with other emergency health and medical services; with emergency services such as fire, police, and public works; and with the Health and Medical Coordinator.
- Refer all media requests for information to the Health and Medical Coordinator.
- Maintain updated resource inventories of emergency medical supplies, equipment, and personnel resources, including possible sources of replacements.
- Arrange for security to protect vulnerable work sites such as remote aid stations, temporary morgues, etc.
- Develop plans to evacuate and/or shelter, as appropriate, patients, staff, equipment, supplies, and vehicles before, during, and after disasters.
- Prepare detailed SOPs that include: call-down rosters for notifying personnel; step-by-step procedures for performing assigned tasks; telephone numbers and addresses/locations of similar services in other jurisdictions; area and local stores (grocery and drug), and medical warehouses that will provide pharmaceutical and medical supplies; telephone numbers, addresses, type, quantity, location, and procedures for obtaining transportation resources from Federal, State, local, and private organizations; and a listing of the radio communications call signs and frequencies that each responding organization uses.
- Designate staff to perform disaster duties.

Administration and Logistics
This section describes administrative and general support requirements for accomplishment of emergency health and medical tasks.

Administration
This section focuses on the administrative management of health and medical resources. It addresses the general support requirements and identifies sources that will be relied upon to obtain personnel, equipment, and supplies, transportation, facilities, services, and other resources required to support disaster response and recovery operations. Specific requirements include:

- *Medical Response Teams*.
  This section should first identify pre-organized medical teams within the jurisdiction. It should then sketch arrangements for requesting mutual aid teams from neighboring jurisdictions, from State sources, such as State Guard or militia units, and from Federal sources, such as military, Centers for Disease Control and Prevention (CDC), and National Disaster Medical System (NDMS) sources.
- *Augmentation Personnel*. This section describes the sources of health and medical personnel and the provisions (e.g., verifying adequacy of credentials for those who do not practice in the jurisdiction) that have been made to call upon them to augment disaster medical teams. They include:
  - Local emergency medical services personnel from medical and public health agencies and fire, police, public work, and other emergency services departments. Among these would be general physicians, specialists (qualifications should include hospital experience in trauma/disaster medicine), nurses, laboratory and x-ray technicians, emergency ambulance crews, etc.
  - State-employed general physicians, specialists (qualifications should include hospital experience in trauma/disaster medicine), nurses, laboratory and x-ray technicians, emergency ambulance crews, etc.
  - Volunteer/bystander health professionals including general physicians, specialists (qualifications should include hospital experience in trauma/disaster medicine), nurses, laboratory and x-ray technicians, emergency ambulance crews, etc.
  - Medical school residents and teaching staff from throughout the State.
  - Public Health Service (to include Federally sponsored DMATs and Veterinary Medical Assistance Teams).
  - Other volunteer medical personnel from throughout the State.
  - Armed Forces and the U.S. Coast Guard.
  - The Indian Health Service.
  - Department of Veterans Affairs personnel.
  - Volunteer medical personnel from other States.
  - Business and industry medical departments.

Logistics
This section addresses the arrangements that have been made to provide for the support needs of the organizations performing health and medical functions. Specific matters needing attention include:

- Sources of medical supplies and equipment:
  - Local stores (hospitals, pharmacies, emergency vehicles, local government resources, et cetera).
  - As appropriate, arrange for pharmacies to stay open 24 hours a day during specific periods for victims, evacuees, and responders.

    - County-stored emergency aid stations, where available and usable.
    - Mutual aid from jurisdictions not affected by the disaster.
    - Private sector suppliers in the State.
    - Private sector health care organizations that maintain a supply system for medical supplies and equipment.
    - NDMS (Includes U.S. Department of Defense, Department of Health and Human Services, Department of Veterans Affairs, and FEMA.) Note: Local jurisdictions should work through their State emergency management agency and FEMA to obtain resources under the control of the Federal Government.
- Acquisition of medical/health equipment and supplies including:
    - Initial supply and resupply for field medical operations.
    - Initial supply and resupply for health and mortuary services.
    - Resupply of functioning hospitals in the affected areas.
    - Resupply of hospitals and other facilities outside the disaster areas receiving casualties.
- Transportation of medical/health supplies, personnel, and equipment:
    - Local government-owned and commercial fixed-wing aircraft, trucks, and buses.
    - Armed Forces fixed-wing aircraft, helicopters, and trucks.
    - Private and public ambulance companies.
    - Water transport.
    - Limousine and taxi companies.
    - Mortuaries (for hearses).
    - Four-wheel drive and high-centered vehicles for medical evacuations under bad weather or terrain conditions.
- Shelter and feeding of field, health, and medical personnel and patients.
- Identification and selection of suitable facilities to serve as temporary morgue.
- Acquisition of embalming supplies, body bags, and necessary heavy equipment suitable for dealing with a mass fatality situation.

Plan Development and Maintenance

This section should identify who is responsible for coordinating revisions of the jurisdiction's Health and Medical Annex, keeping its attachments current, and ensuring that SOPs and other necessary implementing documents are developed.

Authorities and References

This section should highlight those statutes, regulations, administrative orders, etc., which provide authority for the preparation of medical and health services disaster plans and for designating the name of the agency and/or title of the officials responsible for management of medical and health services during disaster response and recovery operations. It should also cite:

- Authorities as applicable to coroner/medical examiner and mortuary services during disaster response and recovery operations.
- Authorities that provide for access to, use of, and reimbursement for private sector resources in an emergency, and for emergency procurement procedures.
- Authorities that provide for emergency powers under which emergency medical and public health activities are authorized.
- Also, the extent of liability and/or immunity status of emergency medical, public health, and mortuary services workers.
- References that were used to prepare the jurisdiction's Health and Medical Annex.

FEDERAL EMERGENCY MANAGEMENT AGENCY

Emergency Management Guide For Business & Industry

http://www.fema.gov/library/bizindex.shtm

A step-by-step approach to emergency planning, response and recovery for companies of all sizes. Sponsored by a Public-Private Partnership with the Federal Emergency Management Agency. Special thanks to the following organizations for supporting the development, promotion and distribution of the Emergency Management Guide for Business & Industry:

American Red Cross
American Insurance Association
American Textile Manufacturers Institute
Building Owners and Managers Association International
Chemical Manufacturers Association
Fertilizer Institute
National Association of Manufacturers
National Commercial Builders Council of the National Association of Home Builders
National Coordinating Council on Emergency Management
National Emergency Management Association
National Industrial Council -- State Associations Group
New Jersey Business & Industry Association
Pacific Bell
Pennsylvania Emergency Management Agency

PREFACE

The Emergency Management Guide for Business & Industry was produced by the Federal Emergency Management Agency (FEMA) and supported by a number of private companies and associations representing business and industry.

The approaches described in this guide are recommendations, not regulations. There are no reporting requirements, nor will following these principles ensure compliance with any Federal, State or local codes or regulations that may apply to your facility.

FEMA is not a regulatory agency. Specific regulatory issues should be addressed with the appropriate agencies such as the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA).

SECTION 2 -- EMERGENCY MANAGEMENT CONSIDERATIONS

This section describes the core operational considerations of emergency management:

Direction and Control
Communications
Life Safety
Property Protection
Community Outreach
Recovery and Restoration
Administration and Logistics

DIRECTION AND CONTROL

Someone must be in charge in an emergency. The system for managing resources, analyzing information and making decisions in an emergency is called direction and control.

The direction and control system described below assumes a facility of sufficient size. Your facility may require a less sophisticated system, though the principles described here will still apply.

The configuration of your system will depend on many factors. Larger industries may have their own fire team, emergency medical technicians or hazardous materials team, while smaller organizations may need to rely on mutual aid agreements. They may also be able to consolidate positions or combine responsibilities. Tenants of office buildings or industrial parks may be part of an emergency management program for the entire facility.

1. Emergency Management Group (EMG)

The EMG is the team responsible for the big picture. It controls all incident-related activities. The Incident Commander (IC) oversees the technical aspects of the response.

The EMG supports the IC by allocating resources and by interfacing with the community, the media, outside response organizations and regulatory agencies.

The EMG is headed by the Emergency Director (ED), who should be the facility manager. The ED is in command and control of all aspects of the emergency. Other EMG members should be senior managers who have the authority to:

a. Determine the short- and long- term effects of an emergency

b. Order the evacuation or shutdown of the facility

c. Interface with outside organizations and the media

d. Issue press releases

2. Incident Command System (ICS)

The ICS was developed specifically for the fire service, but its principles can be applied to all emergencies. The ICS provides for coordinated response and a clear chain of command and safe operations.

The Incident Commander (IC) is responsible for front-line management of the incident, for tactical planning and execution, for determining whether outside assistance is needed and for relaying requests for internal resources or outside assistance through the Emergency Operations Center (EOC).

The IC can be any employee, but a member of management with the authority to make decisions is usually the best choice.

The IC must have the capability and authority to:

a. Assume command

b. Assess the situation

c. Implement the emergency management plan

d. Determine response strategies

e. Activate resources

f. Order an evacuation

g. Oversee all incident response activities

h. Declare that the incident is "over"

3. Emergency Operations Center (EOC)

The EOC serves as a centralized management center for emergency operations. Here, decisions are made by the EMG based upon information provided by the IC and other personnel. Regardless of size or process, every facility should designate an area where decision makers can gather during an emergency.

The EOC should be located in an area of the facility not likely to be involved in an incident, perhaps the security department, the manager's office, a conference room or the training center. An alternate EOC should be designated in the event that the primary location is not usable.

Each facility must determine its requirements for an EOC based upon the functions to be performed and the number of people involved. Ideally, the EOC is a dedicated area equipped with communications equipment, reference materials, activity logs and all the tools necessary to respond quickly and appropriately to an emergency.

EOC RESOURCES:

Communications equipment
A copy of the emergency management plan and EOC procedures
Blueprints, maps, status boards
A list of EOC personnel and descriptions of their duties
Technical information and data for advising responders
Building security system information
Information and data management capabilities
Telephone directories
Backup power, communications and lighting
Emergency supplies

4. Planning Considerations

To develop a direction and control system:

a. Define the duties of personnel with an assigned role. Establish procedures for each position. Prepare checklists for all procedures.

b. Define procedures and responsibilities for fire fighting, medical and health, and engineering.

c. Determine lines of succession to ensure continuous leadership, authority and responsibility in key positions.

d. Determine equipment and supply needs for each response function.

At a minimum, assign all personnel responsibility for:

e. Recognizing and reporting an emergency

f. Warning other employees in the area

g. Taking security and safety measures

h. Evacuating safely

i. Provide training.

5. Security

Isolation of the incident scene must begin when the emergency is discovered. If possible, the discoverer should attempt to secure the scene and control access, but no one should be placed in physical danger to perform these functions. Basic security measures include:

Closing doors or windows
Establishing temporary barriers with furniture after people have safely evacuated
Dropping containment materials (sorbent pads, etc.) in the path of leaking materials
Closing file cabinets or desk drawers

Only trained personnel should be allowed to perform advanced security measures. Access to the facility, the EOC and the incident scene should be limited to persons directly involved in the response.

6. Coordination of Outside Response

In some cases, laws, codes, prior agreements or the very nature of the emergency require the IC to turn operations over to an outside response organization. When this happens, the protocols established between the facility and outside response organizations are implemented. The facility's IC provides the community's IC a complete report on the situation.

The facility IC keeps track of which organizations are on-site and how the response is being coordinated. This helps increase personnel safety and accountability, and prevents duplication of effort.

Keep detailed logs of actions taken during an emergency. Describe what happened, decisions made and any deviations from policy. Log the time for each event.

COMMUNICATIONS

Communications are essential to any business operation. A communications failure can be a disaster in itself, cutting off vital business activities.

Communications are needed to report emergencies, to warn personnel of the danger, to keep families and off-duty employees informed about what's happening at the facility to coordinate response actions and to keep in contact with customers and suppliers.

- **Contingency Planning**

  Plan for all possible contingencies from a temporary or short- term disruption to a total communications failure.

  Consider the everyday functions performed by your facility and the communications, both voice and data, used to support them.

  Consider the business impact if your communications were inoperable. How would this impact your emergency operations?

  Prioritize all facility communications. Determine which should be restored first in an emergency.

  Establish procedures for restoring communications systems.

  Talk to your communications vendors about their emergency response capabilities. Establish procedures for restoring services.

  Determine needs for backup communications for each business function. Options include messengers, telephones, portable microwave, amateur radios, point-to-point private lines, satellite, high-frequency radio.

- **Emergency Communications**

  Consider the functions your facility might need to perform in an emergency and the communications systems needed to support them. Consider communications between:

  a. Emergency responders

  b. Responders and the Incident Commander (IC)

  c. The IC and the Emergency Operations Center (EOC)

  d. The IC and employees

  e. The EOC and outside response organizations

  f. The EOC and neighboring businesses

  g. The EOC and employees' families

  h. The EOC and customers

  i. The EOC and media methods of communication include:

     a. Messenger

     b. Telephone

     c. Two-way radio

d. FAX machine

e. Microwave

f. Satellite

g. Dial-up modems

h. Local area networks

i. Hand signals

- **Family Communications**

  In an emergency, personnel will need to know whether their families are okay. Taking care of one's loved ones is always a first priority.

  Make plans for communicating with employees' families in an emergency.

  Also, encourage employees to:

  Consider how they would communicate with their families in case they are separated from one another or injured in an emergency.

  Arrange for an out-of-town contact for all family members to call in an emergency.

  Designate a place to meet family members in case they cannot get home in an emergency.

- **Notification**

  Establish procedures for employees to report an emergency. Inform employees of procedures. Train personnel assigned specific notification tasks.

  Post emergency telephone numbers near each telephone, on employee bulletin boards and in other prominent locations.

  Maintain an updated list of addresses and telephone and pager numbers of key emergency response personnel (from within and outside the facility).

  Listen for tornado, hurricane and other severe weather warnings issued by the National Weather Service.

  Determine government agencies' notification requirements in advance. Notification must be made immediately to local government agencies when an emergency has the potential to affect public health and safety.

  Prepare announcements that could be made over public address systems.

- **Warning**

  Establish a system for warning personnel of an emergency. The system should:

  a. Be audible or within view by all people in the facility

b. Have an auxiliary power supply

c. Have a distinct and recognizable signal

Make plans for warning persons with disabilities. For instance, a flashing strobe light can be used to warn hearing-impaired people.

Familiarize personnel with procedures for responding when the warning system is activated.

Establish procedures for warning customers, contractors, visitors and others who may not be familiar with the facility's warning system.

Test your facility's warning system at least monthly.

Test communications often. A research firm discovered in a drill that its two-way radio system did not work, limiting communications between the Emergency Operating Center (EOC) and the Incident Commander (IC) to a single telephone line. The Emergency Management Group had failed to provide a backup radio for the EOC. Fortunately, this was discovered during training.

Test alarm systems monthly. One company conducted its first test of a sophisticated alarm system 21 years after the system was installed. Rather than alarm bells, the system played Christmas music.

LIFE SAFETY

Protecting the health and safety of everyone in the facility is the first priority during an emergency.

1. **Evacuation Planning**

   One common means of protection is evacuation. In the case of fire, an immediate evacuation to a predetermined area away from the facility may be necessary. In a hurricane, evacuation could involve the entire community and take place over a period of days.

   To develop an evacuation policy and procedure:

   a. Determine the conditions under which an evacuation would be necessary.

   b. Establish a clear chain of command. Identify personnel with the authority to order an evacuation. Designate "evacuation wardens" to assist others in an evacuation and to account for personnel.

   c. Establish specific evacuation procedures. Establish a system for accounting for personnel. Consider employees' transportation needs for community-wide evacuations.

   d. Establish procedures for assisting persons with disabilities and those who do not speak English.

e. Post evacuation procedures.

f. Designate personnel to continue or shut down critical operations while an evacuation is underway. They must be capable of recognizing when to abandon the operation and evacuate themselves.

g. Coordinate plans with the local emergency management office.

2. **Evacuation Routes and Exits**

Designate primary and secondary evacuation routes and exits. Have them clearly marked and well lit. Post signs.

Install emergency lighting in case a power outage occurs during an evacuation.

Ensure that evacuation routes and emergency exits are:

a. Wide enough to accommodate the number of evacuating personnel

b. Clear and unobstructed at all times

c. Unlikely to expose evacuating personnel to additional hazards

d. Have evacuation routes evaluated by someone not in your organization.

Consider how you would access important personal information about employees (home phone, next-of-kin, medical) in an emergency. Storing information on computer disks or in sealed envelopes are two options.

3. **Assembly Areas and Accountability**

Obtaining an accurate account of personnel after a site evacuation requires planning and practice.

Designate assembly areas where personnel should gather after evacuating.

Take a head count after the evacuation. The names and last known locations of personnel not accounted for should be determined and given to the EOC. (Confusion in the assembly areas can lead to unnecessary and dangerous search and rescue operations.)

Establish a method for accounting for non-employees such as suppliers and customers.

Establish procedures for further evacuation in case the incident expands. This may consist of sending employees home by normal means or providing them with transportation to an off-site location.

4. **Shelter**

In some emergencies, the best means of protection is to take shelter either within the facility or away from the facility in a public building.

Consider the conditions for taking shelter, e.g., tornado warning.

Identify shelter space in the facility and in the community. Establish procedures for sending personnel to shelter.

Determine needs for emergency supplies such as water, food and medical supplies.

Designate shelter managers, if appropriate.

Coordinate plans with local authorities.

5. **Training and Information**

   Train employees in evacuation, shelter and other safety procedures. Conduct sessions at least annually or when:

   a. Employees are hired

   b. Evacuation wardens, shelter managers and others with special assignments are designated

   c. New equipment, materials or processes are introduced

   d. Procedures are updated or revised

   e. Exercises show that employee performance must be improved

   Provide emergency information such as checklists and evacuation maps.

   Post evacuation maps in strategic locations.

   Consider the information needs of customers and others who visit the facility.

6. **Family Preparedness**

   Consider ways to help employees prepare their families for emergencies. This will increase their personal safety and help the facility get back up and running. Those who are prepared at home will be better able to carry out their responsibilities at work.

   A gas explosion and fire in a nursing home caused the evacuation of all patients, most of whom were disabled. Because the staff had trained for this scenario, all patients were evacuated safely.

   Search and rescue should be conducted only by properly trained and equipped professionals. Death or serious injury can occur when untrained employees reenter a damaged or contaminated facility.

PROPERTY PROTECTION

Protecting facilities, equipment and vital records is essential to restoring operations once an emergency has occurred.

1. **Planning Considerations.** Establish procedures for:

    a. Fighting fires

    b. Containing material spills

    c. Closing or barricading doors and windows

    d. Shutting down equipment

    e. Covering or securing equipment

    f. Moving equipment to a safe location

    Identify sources of backup equipment, parts and supplies.

    Designate personnel to authorize, supervise and perform a facility shutdown. Train them to recognize when to abandon the effort.

    Obtain materials to carry out protection procedures and keep them on hand for use only in emergencies.

2. Protection Systems

Determine needs for systems to detect abnormal situations, provide warning and protect property. Consider:

a. Fire protection systems

b. Lightning protection systems

c. Water-level monitoring systems

d. Overflow detection devices

e. Automatic shutoffs

f. Emergency power generation systems

Consult your property insurer about special protective systems.

3. Mitigation

Consider ways to reduce the effects of emergencies, such as moving or constructing facilities away from flood plains and fault zones. Also consider ways to reduce the chances of emergencies from occurring, such as changing processes or materials used to run the business.

Consider physical retrofitting measures such as:

a. Upgrading facilities to withstand the shaking of an earthquake or high winds

b. "Floodproofing" facilities by constructing flood walls or other flood protection devices (see Section 3 for additional information)

c. Installing fire sprinkler systems

d. Installing fire-resistant materials and furnishing

e. Installing storm shutters for all exterior windows and doors

There are also non-structural mitigation measures to consider, including:

f. Installing fire-resistant materials and furnishing

g. Securing light fixtures and other items that could fall or shake loose in an emergency

h. Moving heavy or breakable objects to low shelves

i. Attaching cabinets and files to low walls or bolting them together

j. Placing Velcro strips under typewriters, tabletop computers and television monitors

k. Moving work stations away from large windows

l. Installing curtains or blinds that can be drawn over windows to prevent glass from shattering onto employees

m. Anchoring water heaters and bolting them to wall studs

Consult a structural engineer or architect and your community's building and zoning offices for additional information.

4. Facility Shutdown

Facility shutdown is generally a last resort but always a possibility. Improper or disorganized shutdown can result in confusion, injury and property damage.

Some facilities require only simple actions such as turning off equipment, locking doors and activating alarms. Others require complex shutdown procedures.

Work with department heads to establish shutdown procedures. Include information about when and how to shut off utilities. Identify:

a. The conditions that could necessitate a shutdown

b. Who can order a shutdown

c. Who will carry out shutdown procedures

d. How a partial shutdown would affect other facility operations

e. The length of time required for shutdown and restarting

Train personnel in shutdown procedures. Post procedures.

5. **Records Preservation** Vital records may include:

a. Financial and insurance information

b. Engineering plans and drawings

c. Product lists and specifications

d. Employee, customer and supplier databases

e. Formulas and trade secrets

f. Personnel files

Preserving vital records is essential to the quick restoration of operations. Analyzing vital records involves:

g. Classifying operations into functional categories, e.g., finance, production, sales, administration

h. Determining essential functions for keeping the business up and running, such as finance, production, sales, etc.

i. Identifying the minimum information that must be readily accessible to perform essential functions, e.g., maintaining customer collections may require access to account statements

j. Identifying the records that contain the essential information and where they are located

k. Identifying the equipment and materials needed to access and use the information.

Next, establish procedures for protecting and accessing vital records. Among the many approaches to consider are:

l. Labeling vital records

m. Backing up computer systems

n. Making copies of records

o. Storing tapes and disks in insulated containers

p. Storing data off-site where they would not likely be damaged by an event affecting your facility

q. Increasing security of computer facilities

r. Arranging for evacuation of records to backup facilities

s. Backing up systems handled by service bureaus

t. Arranging for backup power

COMMUNITY OUTREACH

Your facility's relationship with the community will influence your ability to protect personnel and property and return to normal operations.

This section describes ways to involve outside organizations in the emergency management plan.

1. Involving the Community

Maintain a dialogue with community leaders, first responders, government agencies, community organizations and utilities, including:

a) Appointed and elected leaders

b) Fire, police and emergency medical services personnel

c) Local Emergency Planning Committee (LEPC) members

d) Emergency management director

e) Public Works Department

f) American Red Cross

g) Hospitals

h) Telephone company

i) Electric utility

j) Neighborhood groups

Have regular meetings with community emergency personnel to review emergency plans and procedures. Talk about what you're doing to prepare for and prevent emergencies. Explain your concern for the community's welfare.

Identify ways your facility could help the community in a community-wide emergency.

Look for common interests and concerns. Identify opportunities for sharing resources and information.

Conduct confidence-building activities such as facility tours. Do a facility walk-through with community response groups.

Involve community fire, police and emergency management personnel in drills and exercises.

Meet with your neighbors to determine how you could assist each other in an emergency.

2. Mutual Aid Agreements

To avoid confusion and conflict in an emergency, establish mutual aid agreements with local response agencies and businesses. These agreements should:

a) Define the type of assistance

b) Identify the chain of command for activating the agreement

c) Define communications procedures

Include these agencies in facility training exercises whenever possible.

Mutual aid agreements can address any number of activities or resources that might be needed in an emergency. For example:

a) *Providing for firefighting and HAZMAT response.*

b) *Providing shelter space, emergency storage, emergency supplies, medical support.*

c) *Businesses allowing neighbors to use their property to account for personnel after an evacuation.*

3. Community Service

In community-wide emergencies, business and industry are often needed to assist the community with:

a. Personnel

b. Equipment

c. Shelter

d. Training

e. Storage

f. Feeding facilities

g. EOC facilities

h. Food, clothing, building materials

i. Funding

j. Transportation

While there is no way to predict what demands will be placed on your company's resources, give some thought to how the community's needs might influence your corporate responsibilities in an emergency. Also, consider the opportunities for community service before an emergency occurs.

4. Public Information

When site emergencies expand beyond the facility, the community will want to know the nature of the incident, whether the public's safety or health is in danger, what is being done to resolve the problem and what was done to prevent the situation from happening.

Determine the audiences that may be affected by an emergency and identify their information needs. Include:

a. The public

b. The media

c. Employees and retirees

d. Unions

e. Contractors and suppliers

f. Customers

g. Shareholders

h. Emergency response organizations

i. Regulatory agencies

j. Appointed and elected officials

k. Special interest groups

l. Neighbors

The community wants to know:

1. *What does the facility do?*
2. *What are the hazards?*
3. *What programs are in place to respond to emergencies?*
4. *How could a site emergency affect the community?*
5. *What assistance will be required from the community?*

5. Media Relations

In an emergency, the media are the most important link to the public. Try to develop and maintain positive relations with media outlets in your area. Determine their particular needs and interests. Explain your plan for protecting personnel and preventing emergencies.

Determine how you would communicate important public information through the media in an emergency. Designate a trained spokesperson and an alternate spokesperson. Set up a media briefing area. Establish security procedures. Establish procedures for

ensuring that information is complete, accurate and approved for public release. Determine an appropriate and useful way of communicating technical information. Prepare background information about the facility.

When providing information to the media during an emergency:

Do's

a. Give all media equal access to information.

b. When appropriate, conduct press briefings and interviews. Give local and national media equal time.

c. Try to observe media deadlines.

d. Escort media representatives to ensure safety.

e. Keep records of information released.

f. Provide press releases when possible.

Don'ts

a. Do not speculate about the incident.

b. Do not permit unauthorized personnel to release information.

c. Do not cover up facts or mislead the media. ‘

d. Do not place blame for the incident.

Press releases about facility-generated emergencies should describe who is involved in the incident and what happened, including when, where, why and how.

RECOVERY AND RESTORATION

Business recovery and restoration, or business resumption, goes right to a facility's bottom line: keeping people employed and the business running.

- **Planning Considerations**

  Consider making contractual arrangements with vendors for such post-emergency services as records preservation, equipment repair, earthmoving or engineering

  Meet with your insurance carriers to discuss your property and business resumptions policies (see the next page for guidelines).

  Determine critical operations and make plans for bringing those systems back on-line. The process may entail:

  a. Repairing or replacing equipment

  b. Relocating operations to an alternate location

c. Contracting operations on a temporary basis

Take photographs or videotape the facility to document company assets. Update these records regularly.

- **Continuity of Management**

  You can assume that not every key person will be readily available or physically at the facility after an emergency. Ensure that recovery decisions can be made without undue delay. Consult your legal department regarding laws and corporate bylaws governing continuity of management.

  Establish procedures for:

  a. Assuring the chain of command

  b. Maintaining lines of succession for key personnel

  c. Moving to alternate headquarters

  Include these considerations in all exercise scenarios.

- **Insurance**

  Most companies discover that they are not properly insured only after they have suffered a loss. Lack of appropriate insurance can be financially devastating. Discuss the following topics with your insurance advisor to determine your individual needs.

  a. How will my property be valued?

  b. Does my policy cover the cost of required upgrades to code?

  c. How much insurance am I required to carry to avoid becoming a co-insurer?

  d. What perils or causes of loss does my policy cover?

  e. What are my deductibles?

  f. What does my policy require me to do in the event of a loss?

  g. What types of records and documentation will my insurance company want to see? Are records in a safe place where they can be obtained after an emergency?

  h. To what extent am I covered for loss due to interruption of power? Is coverage provided for both on- and off-premises power interruption?

  i. Am I covered for lost income in the event of business interruption because of a loss? Do I have enough coverage? For how long is coverage provided? How long is my coverage for lost income if my business is closed by order of a civil authority?

  j. To what extent am I covered for reduced income due to customers' not all immediately coming back once the business reopens?

k. How will my emergency management program affect my rates?

- **Employee Support**

  Since employees who will rely on you for support after an emergency are your most valuable asset, consider the range of services that you could provide or arrange for, including:

  a. Cash advances

  b. Salary continuation

  c. Flexible work hours

  d. Reduced work hours

  e. Crisis counseling

  f. Care packages

  g. Day care

  After a site emergency, assess the impact of the event on business neighbors and the community and take appropriate action. How you handle this issue will have long-lasting consequences.

- **Resuming Operations**

  Immediately after an emergency, take steps to resume operations.

  Establish a recovery team, if necessary. Establish priorities for resuming operations.

  Continue to ensure the safety of personnel on the property. Assess remaining hazards. Maintain security at the incident scene.

  Conduct an employee briefing.

  Keep detailed records. Consider audio recording all decisions. Take photographs of or videotape the damage.

  Account for all damage-related costs. Establish special job order numbers and charge codes for purchases and repair work.

  Follow notification procedures. Notify employees' families about the status of personnel on the property. Notify off-duty personnel about work status. Notify insurance carriers and appropriate government agencies.

  Protect undamaged property. Close up building openings. Remove smoke, water and debris. Protect equipment against moisture. Restore sprinkler systems. Physically secure the property. Restore power.

  Conduct an investigation. Coordinate actions with appropriate government agencies.

  Conduct salvage operations. Segregate damaged from undamaged property. Keep damaged goods on hand until an insurance adjuster has visited the premises, but you

can move material outside if it's seriously in the way and exposure to the elements won't make matters worse.

Take an inventory of damaged goods. This is usually done with the adjuster, or the adjuster's salvor if there is any appreciable amount of goods or value. If you release goods to the salvor, obtain a signed inventory stating the quantity and type of goods being removed.

Restore equipment and property. For major repair work, review restoration plans with the insurance adjuster and appropriate government agencies.

Assess the value of damaged property. Assess the impact of business interruption.

Maintain contact with customers and suppliers.

ADMINISTRATION AND LOGISTICS

Maintain complete and accurate records at all times to ensure a more efficient emergency response and recovery. Certain records may also be required by regulation or by your insurance carriers or prove invaluable in the case of legal action after an incident.

- **Administrative Actions**

  Administrative actions prior to an emergency include:

  a. Establishing a written emergency management plan

  b. Maintaining training records

  c. Maintaining all written communications

  d. Documenting drills and exercises and their critiques

  e. Involving community emergency response organizations in planning activities

  Administrative actions during and after an emergency include:

  f. Maintaining telephone logs

  g. Keeping a detailed record of events

  h. Maintaining a record of injuries and follow-up actions

  i. Accounting for personnel

  j. Coordinating notification of family members

  k. Issuing press releases

  l. Maintaining sampling records

  m. Managing finances

n. Coordinating personnel services

o. Documenting incident investigations and recovery operations

- **Logistics**

  Before an emergency, logistics may entail:

  a. Acquiring equipment

  b. Stockpiling supplies

  c. Designating emergency facilities

  d. Establishing training facilities

  e. Establishing mutual aid agreements

  f. Preparing a resource inventory

  During an emergency, logistics may entail the provision of:

  g. Providing utility maps to emergency responders

  h. Providing material safety data sheets to employees

  i. Moving backup equipment in place

  j. Repairing parts

  k. Arranging for medical support, food and transportation

  l. Arranging for shelter facilities

  m. Providing for backup power

  n. Providing for backup communications

Emergency funding can be critical immediately following an emergency. Consider the need for pre-approved purchase requisitions and whether special funding authorities may be necessary.

APPENDIX F

MASS CASUALTY EXERCISE EVALUATION

Date:

Title of Exercise:

Date of Exercise:

Participants (clinic, unit, division, facility, etc.)

Name and position of evaluator(s)

In general, there are two ways to evaluate an exercise, both of which are important.

- **First, how did the players do, and did they learn from the experience?**
- **Secondly, how did the exercise go, and did it accomplish worthwhile objectives?**

The first of these questions deals with the immediate exercise and its value to the facility or organization in assessing emergency preparedness, compliance with standard procedures or routines, and general abilities and level of knowledge among staff or support personnel.

The second question is an assessment of the exercise itself, and whether it accomplished the intended objectives—or valuable objectives, even if not the intended ones. It looks toward improving the process in order to better conduct training and thus enhance preparedness.

The following questions highlight considerations that should enter into a medical facility's response to a mass casualty or disaster response exercise. It is recommended that facilities tailor this list to reflect local capabilities and community needs, as well as current JCAHO standard—such as those contained in Appendix A, and other specialized or regional requirements.

INITIAL RESPONSE

1. **Did the staff correctly evaluate the nature of the situation and take appropriate immediate action?**

2. **Were the immediate actions in compliance with standard procedures and best medical practices?**

3. **Were the needs of the emergency situation correctly prioritized in consideration with medical procedures, appointments or routines in progress at the time?**

4. **Was the Incident Command System (ICS) initiated and the hospital Emergency Operations Center established? If so, did it correctly take control of the situation and coordinate internal and external medical support?**

5. **Were appropriate individuals in the chain of command informed of the situation and brought into the decision-making process?**

6. **Were supporting hospital units, clinics and facilities alerted to provide essential support? Was the coordination between floors and units of the hospital effective?**

7. **Were involved medical and support personnel familiar with existing hospital plans and standard operating procedures for emergency response during disaster incidents? Did they have available the appropriate checklists, guidebooks and reference materials?**

8. **Were communications between the hospital's ER and Emergency Medical Services personnel at or en route from the scene of the incident sufficient to ensure effective medical support and turnover for arriving cases?**

SUSTAINED MEDICAL RESPONSE

9. **Did the initial response provide for the transition to a sustainable response, to include the conservation of on-site medical supplies and the coordination of succeeding shifts for ER, ICU, surgery, radiology, pharmacy, etc?**

10. **Were effective communications and liaison established and maintained between the hospital and supporting medical facilities in the region?**

11. **Were requirements for extraordinary medical support such as medical specialists, equipment, non-stocked pharmaceuticals and medicines anticipated and coordinated?**

12. **Were adequate steps taken to provide support and assistance to the following:**
    Injured or exhausted first responders and emergency personnel?

    Walk-in cases and self-referrals?

    Arriving family members and loved ones of victims?

13. **Were adequate steps taken to provide information and guidance to the following:**
    Individual volunteers and civic organizations involved in disaster response?

    Civic leaders and government and agency officials?

    NGOs and PVOs, in particular the American Red Cross?

    The news media?

14. Was effective liaison established between the hospital or medical facility and the following:

Emergency Management Agencies?

State authorities and agencies?

Federal authorities and agencies?

Police and law enforcement agencies?

Public health services, the CDC and USPHS?

15. Were there problems noted in the conduct of the exercise that, if corrected, would improve the training and its value to the staff and personnel?

16. Additional comments and observations:

APPENDIX G

MASS CASUALTY EXERCISE AFTER-ACTION REVIEW AND LESSONS LEARNED

Date:

Title of Exercise:

Date of Exercise:

Participants (clinic, unit, division, facility, etc.)

Name and position of submitter (optional)

After the completion of any mass casualty or disaster response exercise (or of an actual event, if at all possible) it is crucially important to capture the observations and recommendations of each participant, from the lowest to the highest positions in the chain of command.

The most effective process is to conduct an After Action Review (AAR). The AAR is a professional discussion of an event—focused on recognized performance standards—that permits participants to determine for themselves what happened, why it happened, and what they learned through the process. The AAR is customarily led by the leader of the exercise implementation team, by the senior participant or unit director, or by both acting as a team.

By contrast, the Lesson Learned is a change in policy or procedure that is incorporated into a standard routine based on experience, gained through an exercise or an actual event. A Lesson Learned (L/L) can be a change made as a result of a formal or informal AAR, or as a result of an obvious need for revision or improvement to an existing procedure or policy.

The following questions are intended to serve as a guide to conducting the AAR, and for formulating Lessons Learned. Standards for assessing performance and for generating discussion among the participants are found in Appendices A, D and F.

PART I: AFTER ACTION REVIEW

1. **Review the exercise scenario and the sequence of events from the perspective of all participants.**
   a. **Is there general agreement on what happened and when?**
   b. **If not, does the variation indicate a disconnect in communication, a lack of familiarity with standard procedures, or a diversion in focus or attention?**

2. **Were the priorities for response uniform—i.e., mutually supportive—among the participating units and their staffs? If discords emerged, what were the causes?**

3. **Were the directives of the Incident Commander correctly understood by each level within the organization, and were they effectively carried out?**

4. **Were resource requirements (medical supplies, equipment, staffing levels) adequately met, or were there unanticipated or unanswered shortfalls?**

5. **What are the key problems identified by each unit or level of the response team? Did those problems arise from conditions inside the hospital/facility, or from conditions external to the hospital/facility? What improvements or changes are needed to resolve those problems?**

6. **What is the single most important improvement in procedure or policy that could be implemented to make medical support in this situation better or more effective?**

7. **What situations or problems emerged in this incident that were not addressed by existing plans, policies or procedures?**

8. **What problems or artificialities arose during the exercise that should be corrected before this or a similar exercise is attempted?**

PART II: LESSONS LEARNED

1. As a result of the After Action Review, the following change or modification to current hospital procedures is recommended during a mass casualty or disaster response situation:

2. The following materiel or equipment shortfalls require immediate attention in order for this hospital/facility to be prepared for a mass casualty incident of the sort encountered:

3. The following change or modification to the JCAHO Standards for Emergency Management is recommended: