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Standard Guide for Hospital Preparedness and Response¹

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1. Scope

1.1 This guide covers concepts, principles, and practices of an all-hazards comprehensive emergency management program for the planning, mitigation, response, recovery, and coordination of hospitals in response to a major incident.

1.2 This guide addresses the essential elements of the scope, planning, structure, application, and coordination of federal, state, local, voluntary, and nongovernmental resources necessary to the emergency operations plan for a hospital.

1.3 This guide establishes a common terminology for hospital emergency management and business continuity programs necessary to fulfill the basic service requirements of a hospital.

1.4 This guide provides hospital leaders with concepts of an emergency management plan, but an individual plan must be developed in synchrony with the community emergency operations plan and the National Incident Management System.

1.5 This guide does not address all of the necessary planning and response of hospitals to an incident that involves the near-total destruction of community services and systems.

1.6 For the purposes of this guide, the definition of hospital will be the current definition provided by the American Hospital Association for an acute care facility.

1.7 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.*

2. Referenced Documents

2.1 NFPA Standards:²

NFPA 1600 Standard for Disaster/Emergency Management and Business Continuity Programs

NFPA 1994 Standard on Protective Ensembles for Chemical/Biological Terrorism Incidents

¹ This guide is under the jurisdiction of ASTM Committee E54 on Homeland Security and is the direct responsibility of Subcommittee E54.02 on Emergency Preparedness, Training, and Procedures.

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² Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269-9101.

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *all-hazards, adj*—hazard is an inherent property of an event, product, or object that represents a threat to human life, property, or the environment. In this context, all-hazards refers to any incident or event that could pose such a threat.

3.1.1.1 *Discussion*—These may include special equipment and processes that are used less frequently on a daily basis and require routine training to be most effective during a major incident.

3.1.2 *basic societal functions, n*—those basic functions within a community that provide services for public health, health care, water/sanitation, shelter/clothing, food, energy supply, public works, environment, logistics/transportation, security, communications, economy, and education.

3.1.3 *business impact analysis (BIA), n*—management level analysis that identifies the impacts of losing the entity's resources by measuring the effect of the resource loss and escalating losses over time to provide the entity with reliable data upon which to base decisions concerning hazard mitigation, recovery strategies, and continuity planning.

3.1.4 *capacity, adj*—capability at a given time for a hospital to provide a given service that is distinct from capability, which defines an ability to provide a service under normal operating conditions.

3.1.4.1 *Discussion*—A facility may have the capability to treat acute major incident patients in a cath lab, but if a critical resource is missing at the time of a disaster (for example, personnel, equipment, space, or electricity), the facility would not have the capacity to care for such a patient at that time when there is a need.

3.1.5 *communications systems, n*—those processes and resources (physical, procedural, and personnel related) that provide information exchange during an identified major incident.

3.1.6 *community/region, n*—that area in which a hospital provides health services and basic societal functions.

3.1.7 *continuity of essential services, n*—services that hospitals provide as a vital daily function that must be maintained as long as possible and then restored at the earliest opportunity after managing the necessary elements of the emergency incident. This is a business continuity planning focus.

3.1.8 *damage assessment, n*—appraisal or determination of the effects of the disaster on human, structural, economic, and natural resources.

3.1.9 *disaster, n*—sudden calamity, with or without casualties, so defined by local, county, state, or federal guidelines; before a disaster declaration, a disaster is an event that exceeds (or might exceed) the resources for patient care at that time, for a community, a hospital, or both.

3.1.9.1 *Discussion*—The definition of casualty is expansive and could include acute injuries, illnesses, or deaths, exacerbation of chronic medical conditions as a result of poor access to primary care following the disaster (disaster-related acute major incident), and post-traumatic stress disorders. A disaster could also include sustained infrastructure incapacity and the inability to access necessary external resources and supplies.

3.1.10 *fatality management, n*—processes designated by existing plans or local officials overseeing fatalities from an incident (medical examiner or coroner) to organize, coordinate, manage, and direct manage incident fatalities and identify temporary morgue facilities.

3.1.10.1 *Discussion*—Fatalities that occur during the time of the incident are managed in uniform fashion, whether the deaths appear connected to the incident or not.

3.1.11 *hazard vulnerability analysis (HVA), n*—process by which a hospital’s personnel identify real or potential hazards that would affect hospital operations, particularly those with negative implications for health care, and identify internal capabilities and community preparedness to address those hazards and, in a region of health care providers, this may include a needs assessment as a preliminary survey of real or potential hazards to a specific group of hospitals.

3.1.11.1 *Discussion*—This will be accomplished with a systematic approach to the probability and consequence of hazards and events that threaten the continuity of a hospital’s business operations. This would normally consist of determination of the likely and potential hazards to the operations of the hospital, an evaluation of the vulnerability of the hospital to those hazards, and determination of the resources necessary to reduce those hazards and vulnerability. The analysis provides the basis for establishing relevant major incident management plans and should be coordinated with local or state authorities, or both, and regional health care facilities as appropriate.

3.1.12 *hospital, n*—health care institution with an organized medical and professional staff and inpatient beds available around the clock, whose primary function is to provide inpatient medical, nursing, and other health-related service to patients for both surgical and nonsurgical conditions and that usually provides some outpatient services, particularly emergency care, for licensure purposes.

3.1.12.1 *Discussion*—Each state has its own definition of hospital, which affects licensing under laws of that state.

3.1.13 *hospital emergency operations center (HEOC), n*—(also known as a command center) designated area of the hospital that serves as a meeting area, with strategic and tactical support for the incident command system/incident management system.

3.1.13.1 *Discussion*—Reference to the HEOC will avoid confusion with the community/county EOC. The EOC must

have adequate technical capability and personnel to support the operation of the incident and the hospital’s response.

3.1.14 *hospital evacuation, n*—evacuation of a hospital refers to those actions by medical staff to remove inpatients, outpatients, and staff physically from the location of a hazard, thus interrupting the pathway of exposure and includes evacuation within the facility (horizontal or vertical) and away from the facility.

3.1.14.1 *Discussion*—Evacuation is a short-term or long-term protection strategy. An alternative short-term protection technique may be sheltering, but in some circumstances (earthquake-damaged hospital), it would need to be to another safe structure.

3.1.15 *hospital major incident, n*—major incident is any event that approaches or exceeds the capability of a hospital or health care organization to maintain operations or requires significant disruption to the routine operations of the facility to address.

3.1.15.1 *Discussion*—The definition may be institution-specific since hospitals on a daily basis operate with different resources and capabilities to respond to different crises.

3.1.16 *hospital management (group supervisors/leaders/managers), n*—qualified personnel who control a specific department, unit, area, or task assignment.

3.1.17 *hospital mutual aid, n*—coordination of resources, including but not limited to: facilities, personnel, vehicles, equipment, supplies, pharmaceuticals, and services, pursuant to an agreement between hospitals and other health care organizations, providing for such interchange on a reciprocal basis in responding to a major incident or disaster.

3.1.18 *hospital surge capacity, n*—ability of a hospital to expand rapidly and augment services in response to one or multiple incidents.

3.1.18.1 *Discussion*—This response is under the control of the facility’s emergency management plan and may include integration with regional authorities responsible for processes to manage and provide logistical and resource support to manage the patient influx.

3.1.19 *incident command system (ICS), n*—resource management system identified by a chain of command that adapts to an emergency event; the system adopted by the hospital should follow accepted ICS processes and be compatible with the National Incident Management System.

3.1.19.1 *Discussion*—ICS contains common terminology, individual ICS position responsibilities, integrated communications, modular composition of resources, unified command structure, manageable span of control, consolidated action plans and resource management, and plans for termination and restoration of business continuity. The system allows emergency responders from hospitals and other emergency response organizations to coordinate activities with familiar management concepts and request and implement mutual aid.

3.1.20 *incident commander, n*—individual responsible for the overall management and coordination of personnel and resources involved in a major incident.

3.1.20.1 *Discussion*—With a hospital event, the hospital incident commander is that official within an entity (for example, hospitals or group of hospitals) who serves as the

EOC executive and coordinates the assets of the entity in the response to an event. The hospital incident commander should be the best qualified depending on the nature of the incident. This may be the senior physician on site, a department head, a nursing or house supervisor, or a hospital administrator. If the scope of the incident involves more than the hospital alone, the community official responsible for community response may be the incident commander of record.

3.1.21 *incident management system (IMS)*, *n*—in emergency management applications, the combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure with responsibility to accomplish stated objectives pertinent to an incident effectively.

3.1.21.1 *Discussion*—The system identifies management responsibilities and establishes policies and procedures for coordinating emergency response, business continuity, and recovery activities across hospital departments, outside agencies, and jurisdictions and that maintains compliance with state or federal regulations. The incident command system is an integral component of the incident management system.

3.1.22 *major incident*, *n*—this is defined within the context of all-hazards preparedness as any event that approaches or exceeds the capacity of a hospital or health care organization to maintain operations or requires significant disruption to the routine operations of the facility.

3.1.22.1 *Discussion*—A major incident may be defined differently for an individual hospital, a system of hospitals operating as one entity, or a group of independent hospitals that have a regional responsibility for planning and response. It is essential that each hospital plan for incidents that could occur at any of these levels.

3.1.23 *major multiple casualty incident*, *n*—(also known as a mass casualty incident) incident producing large numbers of casualties approaching or beyond local health care capacities.

3.1.24 *medical disaster*, *n*—type of significant medical incident that exceeds the patient care capacity of local resources and routinely available regional or multi-jurisdictional medical mutual aid.

3.1.25 *mitigation*, *n*—structural and non-structural activities taken to eliminate or reduce the probability of the event or reduce its severity or consequences, either before or following a disaster or emergency.

3.1.26 *multiple casualty incident (MCI)*, *n*—type of significant medical incident for which local medical resources are available and adequate to provide for field medical triage and stabilization and for which appropriate local facilities are available and adequate for diagnosis and treatment.

3.1.27 *mutual aid*, *n*—prearranged agreement developed between two or more entities to render assistance to the parties of the agreement.

3.1.27.1 *Discussion*—Mutual aid agreements between entities are an effective means to obtain resources in emergency situations and augment surge capacity.

3.1.28 *mutual aid agreement*, *n*—cooperative assistance agreements, intergovernmental compacts, or other documents commonly used for the sharing of resources.

3.1.29 *personal protective equipment (PPE)*, *n*—ensembles and ensemble elements to protect health care workers from contact with dangerous agents, including chemicals, biologic agents, blood, and body fluids, when providing victim or patient care during emergency medical operations; levels of PPE are defined in NFPA 1994. Also refer to Centers for Disease Control HICPAC Isolation Guidelines.

3.1.29.1 *Discussion*—This equipment would meet minimum design, performance, testing, and certification requirements for use during emergency operations, as identified from the HVA.

3.1.30 *preparedness*, *adj*—encompasses those actions taken before an incident to improve the capability and capacity to respond to a major incident within the hospital, community, or region. Preparedness efforts include, but are not limited to: assessments of hazards, risks, response needs, and vulnerabilities; planning functions; interagency collaboration; education and training functions; exercise activities; attaining minimal capacities; and necessary engineering controls or structural changes to facilities and do not include mobilization of response resources under circumstances other than simulated events.

3.1.31 *public health surge capacity*, *n*—ability of a defined community and its health care system to rapidly expand beyond normal services to meet the increased demand for medical care and public health that would be required to care for the casualties and fatalities resulting from a large-scale public health emergency or disaster; included are the resources for mass care, mass prophylaxis or vaccination, laboratory services, public information, mental health support, epidemiologic investigation, and law enforcement support.

3.1.31.1 *Discussion*—Initially, the response is coordinated by local public health/regional authorities. In some incidents, control will pass to regional, state, or federal authorities when outside assets begin arriving. This response facilitates actions to augment triage, treatment, isolation, fatality management, and resource flow to maximize the outcome of involved persons.

3.1.32 *public information officer (PIO)*, *n*—individual designated by the incident commander or the hospital incident commander for the preparation and dissemination of factual and timely reports to the community, usually through the news media.

3.1.32.1 *Discussion*—This individual will benefit from training and appropriate qualifications.

3.1.33 *response activities*, *n*—those actions necessary to minimize negative effects of an incident and lead to recovery and restoration of essential hospital services.

3.1.34 *safety management*, *n*—function that identifies real or potential hazards, unsafe environment or procedures, and appropriate workforce protective measures at the incident, and ensures the appropriate corrective or preventive actions under the authority of the incident commander or the hospital incident commander to ensure the safety of all hospital personnel and patients.

3.1.35 *shelter in place, n*—(also referred to as in-place protection) temporary short-term protection strategy in which the pathway from the hazard to the individual is interrupted by isolating the interior of a space from the exterior hazard.

3.1.35.1 *Discussion*—While evacuation can be maintained for days, sheltering typically becomes ineffective after a few hours. Once sheltering is implemented, a hazard assessment should be conducted to determine when any risks to occupants of the interior environment are expected to exceed those posed by exterior hazard(s).

3.1.36 *surge capability, n*—ability of a hospital or health care system to manage patients that require specialized health interventions as a result of one or multiple incidents, as may occur with contamination, irradiation, burn, chemical exposures, or injuries from natural, environmental, or terrorist-related events.

3.1.37 *surge capacity, n*—term defining the resources and processes to manage an influx of patients, from one or multiple incidents, that would present for health care evaluation and treatment.

3.1.38 *transportation section, n*—person or persons designated by the IC or the HIC responsible for the transportation of patients both within the facility and transfer external to the hospital.

3.1.39 *treatment section, n*—person or persons responsible for the definitive hospital medical treatment of patients in the hospital.

3.1.40 *triage, n*—process of sorting and prioritizing emergency medical care of the sick and injured on the basis of urgency and type of condition present and the number of patients and resources and the goal of triage shifts to “doing the most good for the most people” when patient care resources are exceeded.

3.1.40.1 *Discussion*—This differs from the day-to-day definition of triage in an emergency department, which is a fixed-site process for moving patients into the treatment area of the emergency department.

3.1.41 *triage section, n*—person or persons designated by competent authority that is responsible for triage and preliminary treatment of casualties.

3.2 Acronyms:

- 3.2.1 *ASR*—atmosphere supplying respirator
- 3.2.2 *BIA*—business impact analysis
- 3.2.3 *BT*—bioterrorism
- 3.2.4 *CBRNE*—chemical, biologic, radiologic, nuclear, or explosive events
- 3.2.5 *CDC*—Centers for Disease Control
- 3.2.6 *DHS*—Department of Homeland Security
- 3.2.7 *DMAT*—Disaster Medical Assistance Team
- 3.2.8 *DMORT*—Disaster Mortuary Operational Response Team
- 3.2.9 *DOD*—Department of Defense
- 3.2.10 *DVA*—Department of Veterans Affairs
- 3.2.11 *EC*—environment of care
- 3.2.12 *EMAP*—Emergency Management Accreditation Program
- 3.2.13 *EMS*—emergency medical services

3.2.14 *EMTALA*—Emergency Medical Treatment and Active Labor Act

3.2.15 *EOC*—Emergency Operations Center

3.2.16 *HEOC*—Hospital Emergency Operations Center

3.2.17 *HHS*—Department of Health and Human Services

3.2.18 *HIPAA*—Health Insurance Portability and Accountability Act of 1996

3.2.19 *HRSA*—Health Resources and Services Administration

3.2.20 *HVA*—hazard vulnerability analysis

3.2.21 *ICS*—Incident Command System

3.2.22 *IMS*—Incident Management System

3.2.23 *JCAHO*—Joint Commission on the Accreditation of Healthcare Organizations

3.2.24 *LEPC*—Local Emergency Planning Committee

3.2.25 *MaHIMS*—Medical and Health Incident Management System

3.2.26 *MCI*—multiple casualty incident

3.2.27 *MI*—major incident

3.2.28 *MIM*—major incident management

3.2.29 *MMRS*—Metropolitan Medical Response System

3.2.30 *NDMS*—National Disaster Medical System

3.2.31 *NFPA*—National Fire Protection Association

3.2.32 *NIMS*—National Incident Management System

3.2.33 *NMRT*—National Medical Response Team

3.2.34 *PAPR*—powered air-purifying respirator

3.2.35 *PIO*—Public Information Officer

3.2.36 *PPE*—personal protective equipment

3.2.37 *SAR*—supplied air respirator

3.2.38 *SCBA*—self-contained breathing apparatus

3.2.39 *SERT*—Secretary’s Emergency Response Team

3.2.40 *SNS*—Strategic National Stockpile

3.2.41 *SOP*—standard operating procedures

3.2.42 *VMAT*—Veterinary Medical Assistance Team

4. Summary of Guide

4.1 This guide is based upon a body of knowledge on the preparation of hospitals to manage major external community or internal hospital incidents from all causes.

4.2 The body of knowledge on which this guide is based was drawn from a wide variety of sources, including federal, state, regional, and local organizations. Hospital organizations were major participants in the process.

4.3 The planning process includes all-hazards preparedness, based on a comprehensive hazard vulnerability analysis, in the response to an internal or external event. The hospital plan is intended to enhance the ability of a hospital to implement mitigation and business continuity activities.

4.4 The hospital incident management plan should provide for the establishment of a hospital incident command system with position descriptions that identify mission, functions, and responsibilities within the incident response organizational structure.

4.5 The hospital planning process should be directed at reducing morbidity and mortality, while preserving basic community service. The hospital’s function in basic community service will be fulfilled by protecting the patients, visitors,

staff, and facility while maintaining services, providing care to victims, and providing coordination and control with other agencies.

5. Significance and Use

5.1 This guide is intended to assist the leaders of hospitals in the design, planning, and response to be undertaken by hospitals and health care organizations to an event that necessitates the activation of an emergency operations plan.

5.2 This guide provides procedures to coordinate and provide a systematic and structured response to manage an incident.

5.3 This guide provides management tools that can assist in providing essential training objectives and decision-making models for hospital leadership and hospital regulatory agencies.

5.4 This guide will be as consistent as possible with the following existing industry standards: Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) Environment of Care (EC) standards, NFPA 1600, the National Incident Management System (NIMS), and the Health Resources and Services Administration (HRSA) Hospital Bioterrorism (BT) Preparedness Program.

5.5 Compliance with the JCAHO standards is of paramount concern to health care organizations. JCAHO's EC standards include safety, security, hazardous materials and wastes, emergency management, fire safety, medical equipment, and utilities management. The EC chapter addresses planning and implementation and measuring and improving activities, with education and training activities addressed in standards relating to human resources.

5.6 NFPA 1600 is highly regarded as a national preparedness standard. NFPA 1600 serves as the basis for the standard used by the Emergency Management Accreditation Program (EMAP) for state, local, and tribal governments.

5.7 The National Incident Management System (NIMS) was required for all federal departments and agencies as a part of Homeland Security Presidential Directive #5.³ NIMS is also required for state and local government entities who receive federal grant funds. This impacts hospitals (public and private sector) through participation in the HRSA Hospital BT Program as well as the JCAHO Incident Command System/ Incident Management System requirement.

5.8 The HRSA BT program is important because one of its objectives is to set national levels of readiness for hospitals. These minimum levels of readiness, articulated for each of the critical surge capacity benchmarks, are achieved through coalitions of individual hospitals (districts). The HRSA BT program is based on creating effective linkages between the levels and entities within the Medical and Health Incident Management System (MaHIMS) to include individual facilities, coalitions, jurisdictions, intrastate, interstate, and federal support.

6. Comprehensive Emergency Management

6.1 The hospital must develop an Emergency Operations Plan (EOP) that addresses a variety of predictable and unpredictable events. The process of planning is a key element and assembling hospital and hospital system leaders is beneficial in itself. The next level of planning includes interface with local and regional emergency planning leaders. One element of an emergency management program is an EOP. It includes four elements: preparedness, mitigation, response, and recovery.

6.2 *The Planning Documents:*

6.2.1 *Purpose*—The Hospital Emergency Management Plan (the Plan) should be written to prepare hospital personnel to manage a major incident inside or outside of the hospital, or both, whether the facility is compromised by the incident or not. The Plan should be written to establish and facilitate the hospital's contribution to emergency organizations within the community, as well as its internal organization. This would include basic policies, responsibilities, and actions required for incident mitigation within the hospital, health care organization, community, or region. Plans should ensure that rapid medical assistance can be provided to persons requiring emergency care. Plans should describe an incident command structure for medical operations that coordinates medical care and uses of medical personnel and resources. The plan should be designed to be an extension of day-to-day service, facilities, and resources. Hospitals and health care providers (including community medical practitioners) must also be prepared to address other kinds of incidents likely in their communities, including those involving infectious diseases, that may be slower in onset but if uncontrolled could make the hospital a casualty of the event. The plan should address lengthy incidents that present management challenges in sustaining a response over a prolonged period of time and how resources will be directed in support of the health care system.

6.3 *Goal*—The Plan will result in a process that effectively manages an emergency, provides continuity of basic societal functions, and will minimize the following: physical damage to a hospital, loss of life, injury or illness of hospital personnel, and human suffering by persons affected.

6.4 Planning for major incident response should be a cooperative effort between hospitals and the community/region in which they deliver basic community services, including other health care organizations.

6.5 *Planning for Public Health Surge Capacity*—The hospital should cooperate with regional health planners to address surge capacity and capabilities. The priority areas in this process are:

6.5.1 Ensure availability of medical equipment, pharmaceuticals, and supplies matched to the sites where care is being provided. The HRSA is requiring the states to develop antibiotic caches at each hospital to provide 72-h supplies for all hospital employees and their families. This and other regulatory elements of preparedness should be addressed.

6.5.2 Identify ways to augment hospital and other health care facility patient care capacity.

6.5.3 Ensure sufficient numbers of trained medical personnel to support victim management operations.

³ Office of the President, Homeland Security Presidential Directive #5, <http://www.dhs.gov>.

6.5.4 Ensure availability of pharmaceutical supplies, including the potential use of a regional CHEMPACK or the Federal Strategic National Stockpile (SNS), both federal assets managed through the CDC. Each state has a responsible SNS coordinator, who maintains information on pharmaceuticals and medical equipment in the SNS formulary. Access to this asset must be requested through the appropriate state emergency agency, typically through the regional public health body. This local public health body, and the hospital administrators, should maintain updated contact information for the state's SNS coordinator.

6.5.5 CHEMPACK is the forward placement of nerve agent antidotes in communities across the United States. The CHEMPACK materiel may be placed in hospitals or emergency management facilities. The decision to activate CHEMPACK assets will be a local one. Hospitals that house CHEMPACK assets should have staff trained in the use of nerve agent antidotes and should also have plans for the release and transport of CHEMPACK assets to other local hospitals and emergency responders in the event of a nerve agent attack.

6.5.6 Possess the tools to evaluate and expand capacities using community resources, state assets where available, industry, and private individuals appropriately trained to fulfill specific functions and federal resources that may be allocated to assist in incident management.

6.5.7 The hazard vulnerability analysis should indicate where hospitals must create surge capacity and expand capability to address likely events. This may involve the use of reasonable models.

6.6 *Objectives*—The essentials of an EOP include a concept of operations and a response plan:

6.6.1 Each hospital and health care organization should have a plan to provide for its own initial response for the surge of victims from an event and be an integral component in the community's response plan.

6.6.2 It is imperative that hospitals collaborate with other healthcare delivery entities in the development of additional surge capacity. These can include, but not be limited to, skilled nursing facilities, community health centers, clinics, urgent care centers, home care agencies, poison control centers, community medical practitioners, and other specialty care centers.

6.6.3 The Plan would outline the responsibility for the management of the disaster response while maintaining business continuity. There should be written criteria to assess current programs and develop, implement, and maintain measures to mitigate, prepare for, respond to, and recover from disasters and emergencies.

6.6.4 The hospital will manage the emergency and then restore essential services. As appropriate, the operations plan will provide for continuity of basic societal functions essential to sustaining the lives of the patients and staff.

6.6.5 Plans and procedures should be reviewed and revised regularly on the basis of actual events that occur in hospital operations, tabletop exercises, drills, simulated incidents, functional exercises, and full-scale community drills. An annual

assessment of the overall EOP should be conducted at a minimum. This may include critiques of actual events in lieu of exercises.

7. Preparedness

7.1 Activities, programs, and systems are developed and implemented before a disaster/emergency and are used to support and enhance mitigation of, response to, and recovery from disasters and emergencies.

7.2 *Organizational Structure for Response:*

7.2.1 The Plan should address the role of the hospital, the relationship of the hospital to other response organizations in the community, and the necessary resources for each level of event and prepare for availability and updating of those resources. The plan should lead to a program of training for hospital personnel, both within their facility and jointly with other agencies in the community.

7.2.2 The Plan should define an overall incident organization based on a strategy of efficient and effective utilization of resources.

7.2.3 The Plan should address chain of command and its conversion to an Incident Command Structure (ICS), including transfer of authority of any officer or position, as well as the relationship of the hospital to the community response system.

7.2.4 The Plan should encompass the treatment of casualties and the continued operation of the hospital during the incident.

7.2.5 The concept should be to develop plans that facilitate an all-hazards approach and maintain equipment, supplies, pharmaceuticals, and personnel readiness for the more likely events based on a comprehensive HVA and to develop specific protocols and annexes to address the worst case incidents caused by chemical, biologic, radiologic, nuclear, or explosive events (CBRNE).

7.3 *Organization of Personnel Necessary for Response:*

7.3.1 The Plan should provide for delineation of responsibilities and authority for all involved response personnel and agencies.

7.3.2 The planning stage will include those efforts to define how hospital personnel are to respond to the incident and when staff are to report to the hospital.

7.3.3 If the hospital plan will use community resource personnel, the planning stage will include hospitals, health care organizations, emergency response resources, community public health resources, and volunteer organizations to mitigate potential problems.

7.3.4 The Plan will identify credential issues to resolve them before the event.

7.3.5 There will be a process to track incoming mutual aid resources and, if necessary, to account for the credentials of responding personnel and their dedicated time.

7.3.6 Establish protocols for directing volunteer services that are necessary.

7.4 *Plan for Effective Response*—The Plan should provide for organization and implementation of the following during major incidents:

7.4.1 ICS;

7.4.2 Patient triage, treatment, and transportation areas, including the handling of special or sensitive populations;

7.4.3 Facility management, including utility systems affecting power, water, and air quality and availability;

7.4.4 Coordination with other hospitals, local/regional public health, and other responding agencies;

7.4.5 Coordination with any medical teams that will be operating outside the hospital;

7.4.6 Communications plan, including consideration of multilingual communications requirements;

7.4.7 Coordination with providers of psychosocial services; and

7.4.8 Development of appropriate patient care records.

7.5 *Preparedness Plans for Essential Materials*—The planning group will develop resource inventory lists of equipment, services, and personnel in the hospital, available through mutual aid hospitals, and within the community.

7.5.1 This includes pharmaceuticals, medical supplies, nutrition, linen, and industrial and potable water, including alternate sources. These would be outlined in the HVA.

7.5.2 This agreement should include necessary equipment loss replacement procedures, reimbursement for recoverable costs, and liability for damage or loss of equipment and injury to shared staff.

7.6 *Mutual Aid*—Mutual aid between hospitals and related organizations are an effective means to obtain resources in emergency situations and augment surge capacity.

7.6.1 Each hospital and health care organization should enter into mutual aid agreements with other local or regional providers of essential health care services, which may include other healthcare organizations, long-term care facilities, and clinics.

7.6.2 Mutual aid agreements should be in writing; reviewed by legal counsel; signed by a responsible official; define liability; and detail funding and cost arrangements for sharing equipment, services, and paid staff.

7.6.3 A hospital mutual aid agreement should also include the extent and limit of participation from other hospitals and related organizations, equipment and service providers, and other special resources.

7.6.4 A Plan for utilization of mutual aid should facilitate the access and utilization of local, state, and federal resources.

7.6.5 Mutual aid agreements can be invoked when an organization's capability to manage a situation has been exceeded. The hospital will have an activation plan for mutual aid. It should include plans to communicate the need to response organizations, and how to begin implementation of the aid.

7.6.6 *Termination and Documentation*—The Plan will define the method for ending the use of mutual aid resources and document the appropriate elements of utilization.

7.7 *Coordination of Community Resources*:

7.7.1 *Coordination*—Each hospital should have plans and procedures that facilitate interaction with other providers of basic community services. Communications with these organizations should be established on a regular basis to ensure an effective emergency response. This includes advance agreement on common terminology, codes, and processes to facilitate effective communication and coordination during an emer-

gency. The hospital should effectively interact with the following organizations:

7.7.1.1 Other hospitals, healthcare organizations, skilled nursing facilities, community health centers, urgent care centers, home care agencies, clinics, community medical practitioners, poison control centers, and other specialty care centers;

7.7.1.2 Health department and mental health agencies;

7.7.1.3 Law enforcement agencies (local, state, and federal);

7.7.1.4 Fire services;

7.7.1.5 EMS agencies;

7.7.1.6 Local companies and businesses, especially those involved in the Local Emergency Planning Committee (LEPC) (the LEPC, organized under SARA Title III,⁴ is one established method of interfacing with businesses, agencies, and organizations involved in hazardous materials preparedness);

7.7.1.7 Local suppliers of medical products;

7.7.1.8 Local pharmacies and pharmaceutical supply facilities;

7.7.1.9 Regional and federal care resources, including MMRS resources, CHEMPACKs, SNS, and other strategic health care delivery supplies;

7.7.1.10 Commercial and state laboratories;

7.7.1.11 Media;

7.7.1.12 Emergency management agencies of the local jurisdiction;

7.7.1.13 Specialty services such as CHEMTREC, HAZMAT teams (medical and mitigation), mine rescue teams, search teams, and other special emergency teams;

7.7.1.14 Social service agencies such as the American Red Cross, Salvation Army, churches, and religious and community service groups; and

7.7.1.15 City or county governments, including school districts.

7.8 *Governmental Relations*—The hospital and health care organizations' plans should conform to appropriate regional and state plans. This requires coordinated planning with basic societal functions within the community or region, or both. The hospital must take responsibility for protecting and managing its internal operations, but equally critical is the hospital's ability to develop and maintain contacts and coordinated plans with other organizations in the community or region, or both, so that the hospital can survive the incident and effectively serve the region. A well-done HVA will help a hospital to determine the types of organizations within the community or region, or both with which it should develop and maintain coordinated plans and processes (ambulatory surgery centers, long-term care facilities, mental health providers, public health departments, and so forth).

7.9 *State Government*—Each state has a unique chain of command and process for accessing state resources. Most states require state activation before federal resources can be accessed. Procedures for obtaining assistance from state resources are available, including resources of the National Guard.

⁴ SARA Title III Compliance Guidebook, 1988, Government Institutes, Inc., ISBN: 0-86587-749-1.

7.9.1 *State Response Resources*—These teams are activated when calls are made to designated provider agencies and hospitals. The state office responsible for public health should be contacted regarding state resources.

7.10 *Federal Government*—Procedures are available for obtaining assistance from local installations of these agencies, including military resources, U.S. Weather Service, or National Park Service, and procedures for obtaining assistance through the state from federal agencies such as the Department of Health and Human Services (HHS), Department of Homeland Security (DHS), or the Environmental Protection Agency (EPA). Federal assistance will require the provision of a unified command system, so hospital planners should develop contingencies for that function.

7.11 *Federal*—The National Disaster Medical System (NDMS) is a federally coordinated system that will supplement responses when the incident overwhelms local and state capacity to respond. There are four NDMS partners, DHS, HHS, DOD, and Department of Veterans Affairs (DVA). NDMS may arrange for the transportation of patients to healthcare facilities outside the area affected by the event. Hospitals with NDMS contracts will maintain essential information on contacts, responsibilities, and coordinating relationships.

7.11.1 National Medical Response Teams (NMRTs) are large medical teams assigned to specific regions of the country and designed to be “wheels up” in 2 h to assist local communities in dealing with large casualties.

7.11.2 Disaster Medical Assistance Teams (DMATs) can be activated by the federal government during a disaster. DMATs are a federal resource and can only be activated through a request from the state government.

7.11.3 Other units of the NDMS that may be deployed to assist local medical community resources include Disaster Mortuary Operational Response Teams (DMORTs), Management Support Units (MSUs), and Veterinary Medical Assistance Teams (VMATS).

7.11.4 DMORTs assist in fatality management while VMATs assist in animal care. The National Foundation for Mortuary Care has recommended practices for mass casualty events.

7.11.5 MSUs support the NDMS units in the field. All federal public health assets will be managed by the Secretary’s Emergency Response Team (SERT) deployed by HHS.

7.11.6 For further information on specifics related to their community, hospital planners should contact the HHS regional health administrators.⁵

8. Mitigation

8.1 The mitigation plan shall establish interim and long-term actions to eliminate hazards that impact the entity or reduce the impact of those hazards that cannot be eliminated. The hospital shall develop and implement a strategy to eliminate hazards or mitigate the effects of hazards that cannot be eliminated by:

- 8.1.1 The use of applicable building construction standards;
- 8.1.2 Relocation, retrofitting, or removal of structures at risk;
- 8.1.3 Removal or elimination of the hazard;
- 8.1.4 Reduction or limitation of the amount or size of the hazard;
- 8.1.5 Segregation of the hazard from that which is to be protected;
- 8.1.6 Modification of the basic characteristics of the hazard;
- 8.1.7 Control of the rate of release of the hazard;
- 8.1.8 Provision of protective systems, hardening, or equipment for both cyber or physical risks;
- 8.1.9 Establishment of hazard warning and communication procedures; and
- 8.1.10 Redundancy or duplication of essential personnel, critical systems, equipment, supplies, pharmaceuticals, information systems, operations, or materials.

8.2 *Mitigation of Essential Building Systems*—These services will include electricity, water, ventilation, fire protection systems, communications systems, fuel sources, medical gas and vacuum systems, and nutrition systems. Essential systems also include electronic systems for patient identification, treatment, imaging, disposition, and recordkeeping. Business continuity plans must be established that include appropriate redundancies.

8.3 Procedures should include, but not be limited to, the following:

- 8.3.1 Measures that are taken to disperse resources and personnel in a manner that will provide redundancy to ensure the entity can continue to function during emergency conditions;
- 8.3.2 Plans to address deployment procedures to relocate/replicate resources or facilities, increase protection of facilities, and inform and train personnel in protective measures;
- 8.3.3 Preparedness increased, based on the broadcast national or regional threat level;
- 8.3.4 Control of access to the area affected by the disaster/emergency;
- 8.3.5 Identification and credentialing of personnel engaged in activities in support of or at the incident;
- 8.3.6 Accounting for personnel engaged in incident activities;
- 8.3.7 Accounting for persons affected, displaced, or injured by the disaster/emergency;
- 8.3.8 Safe mobilization and demobilization of resources; and
- 8.3.9 Provision of temporary, short-term, or long-term housing, feeding, and care of populations displaced by the incident, including staff and staff families.

8.4 Investigate and document accidents and injuries to healthcare workers and other events that have occurred within departments, units, or areas of the hospital and recommend appropriate actions to eliminate or minimize risks.

8.5 *Safety*—The safety function monitors and assesses hazards and unsafe situations and develops measures to ensure personnel safety. Plans and procedures must ensure the protection of personnel, facilities, and resources so the entity(s) can operate effectively.

⁵ The contact methods are specified on the internet at directory.psc.gov/os/80.html.

8.5.1 The Safety Officer is authorized to modify, alter, or terminate any unsafe actions and develop and maintain plans, policies, and procedures to ensure protection of resources, facilities, and personnel.

8.5.2 Advise incident command of special equipment, procedures, or teams needed to handle specific hazards. To the extent possible, these needs should be anticipated through the HVA.

8.5.3 Provide the safety portion of the EOP.

8.5.4 The safety function reports to the Incident Commander.

8.6 *Security Functions:*

8.6.1 The Plan will identify facility and local security resources that could function in the hospital environment and integrate with law enforcement functions.

8.6.2 Security forces must be able to secure the hospital facilities, or critical areas of those facilities, to facilitate incident management and patient care.

8.6.3 Develop and implement ingress and egress functions, including the appropriate use of signage.

8.6.4 Plan for safe movement of necessary supplies and other hospital resources.

8.7 *Surveillance Systems for Hospital Operations:*

8.7.1 This process may be used by local, state, or federal agencies to improve reporting of diseases, illnesses, and threats and the timeliness and accuracy of that reporting.

8.7.2 A portion of the mitigation plan includes the process of using epidemiologic methods to identify threats and to develop capacity.

8.7.3 Detection systems for surveillance monitoring are in investigational use, and hospital plans should consider future technology applications. Some hospitals may have an automated surveillance system as part of their information systems (demographics, laboratory, and so forth). Hospitals that have an automated concurrent surveillance monitoring system should use this function for timely assessment, evaluation, and reporting.

9. Implementation

9.1 Notification of a hospital and the sharing of detailed information regarding a major incident may initially be minimal. Once notified, an assessment of the validity of the information and current resource capacity should be conducted.

9.2 A decision must be made as to the level of response the hospital should activate. There may be multiple levels of activation, including standby or alert, full activation, and partial activation, including stages of response/management, termination, and recovery.

9.3 Patients from major incidents will self-transport, when able, to the closest hospital or to the hospital best known in the community for emergency care.

9.4 Ambulatory persons with “medically unexplained physical or behavioral symptoms” will likely comprise a significant portion patient load resulting from an event. This may include those persons with some symptoms and a perceived or actual exposure to a dangerous agent (chemical, biological, radiologic, or nuclear), but do not have (at that time) any objective illness or injury.

9.5 *Activation of the Hospital Plan:*

9.5.1 The Plan should provide for the levels of response and activation. There may be multiple levels of activation, including standby or alert, partial activation, and full activation.

9.5.2 The Plan will define who within the hospital has authority to activate using appropriate criteria.

9.5.3 Define what local authorities, if any, have the ability to cause the hospital plan to be activated.

9.5.4 Define conditions that will merit the upgrade to the EOP and the establishment of the hospital ICS. This will be done by refining the initial response to daily incidents, serving as a basis for managing larger incidents.

9.5.5 Define initial recognition of an unusual incident and early management priorities.

9.5.6 Define initial communications of a hospital major incident.

9.6 The decision to terminate the Plan shall be made by hospital leadership in coordination with the regional authority, where a regional plan has been in place.

9.7 In sustained events, there may be multiple levels of activation that occur over time, including standby or alert, termination, and recovery.

9.8 *Incident Command System:*

9.8.1 The Incident Command System (ICS) defines fundamental practices of hospital management and control of personnel and resources and should be compatible with NIMS.

9.8.2 This guide does not specify any individual or specific system of ICS, only one that conforms to regional planning, fulfills the requirements of DHS and NIMS, and most effectively manages a hospital’s resources.

9.8.3 The ICS is a system designed to optimize the use of human and physical resources to manage an incident. It is not intended to replace an existing hospital operations plan as it relates to the day-to-day job functions/descriptions of the hospital.

9.8.4 In emergency situations, ICS personnel may organize an EOC. Not all incidents require an EOC. The EOC will be most useful when an incident requires a central location for information collection, display, coordination, documentation, and dissemination. Command communications are best performed face to face.

9.8.5 Hospital ICS training should address the organization of hospital resources. Some hospitals and groups of hospitals have developed a uniform version of hospital incident command.

9.8.6 ICS is integrated into sections including Operations, Planning, Logistics, and Finance/Administration.

9.8.7 *Operations*—The Operations section is in charge of the deployment of hospital personnel and resources and medical care of victims to deal with the issues and problems as they arise in the event.

9.8.7.1 Some incidents involving victim management or hospital evacuation, or both, shall require the Operations section to perform triage, treatment, and transportation functions.

9.8.8 *Planning*—The Planning section is responsible for future operations of the hospital during the event. If Operations is reacting to the event, then Planning is proactively developing

tools for those reactions and anticipating problems that are not yet apparent. Planning shall prepare short/long-term objectives and strategic decisions for incident command, addressing staffing, patient information, patient tracking, developing the incident action plan, monitoring situation status, documenting the operation, managing, and interpreting incident-specific information. The Planning section is responsible for providing Operations with the information it needs to provide the best care possible and Logistics with the expected needs they will have to fulfill. This function is fulfilled through the following activities:

9.8.8.1 While Operations is dealing with the patient load as it arrives, Planning should be accessing information resources (for example, databases, field response assessments, consultation with subject matter experts, and so forth) to identify the expected number of patients based on that information.

9.8.8.2 When the event involves unusual circumstances, Planning should be conducting literature reviews and tests to develop the best management techniques for the peculiar circumstances of the event.

9.8.8.3 As part of the effort of developing the information on management techniques and patient loads, Planning should also be evaluating the quality of the data being used to produce their predictions. This quality assessment function may range from consideration of the agenda by the sources of information that could lead to bias in their recommendations to processing information from multiple sources to critical reviews of underlying studies to technical limitations of the equipment and staff providing the information.

9.8.8.4 As patients are moving through the hospital setting, Planning should be monitoring data on the status of these patients to estimate the outcome of the treatment received during the incident to modify the treatment of future patients.

9.8.8.5 As necessary, contact with subject matter experts (for example, poison control centers, specialists, and so forth) should be established and maintained throughout the event.

9.8.8.6 Planning should anticipate the impact of human behavior on hospital staff. Based on behavior in real events to date, there should be consideration of hospital staff leaving the facility or not returning to the facility due to concerns about their own safety, or that of their families or homes, during an emergency. Hospitals should proactively develop communication and coordination channels through the community planning process to heighten awareness of the community's level of preparedness, provide direct support and information to staff as possible during the event, set up breaks or furloughs for staff during prolonged events, and have a back-up staffing strategy to deal with the risk of staff attrition during an emergency.

9.8.8.7 As the hospital response progresses, Planning, in conjunction with logistics, should be anticipating skill sets and other resources that will be necessary to relieve or replace existing staff resources and identifying potential sources for those assets. This function of planning would result in a recommendation to the hospital command to activate mutual aid agreements or request state and federal assets to relieve or support operations.

9.8.9 *Logistics*—The Logistics section is in charge of securing resources and supplies, ensuring facility integrity, and

maintaining infrastructure, utilities, communications, nutrition, and transportation. Incident Command shall establish logistical capability and procedures to locate, acquire, store, distribute, maintain, test, and account for services, personnel, resources, materials, and facilities procured or donated to support the program by:

9.8.9.1 Establishing supply resource area and relationships with necessary suppliers;

9.8.9.2 Conducting inventory of equipment and supplies on the scene and anticipating requirements of additional equipment and supplies;

9.8.9.3 Coordinating requests from the incident commander for equipment, supplies, pharmaceuticals, and resources that must be obtained from outside the hospital and then finding and procuring those assets;

9.8.9.4 Directing additional equipment and supplies as they arrive at the hospital and notifying incident command, if appropriate, as to their assignment;

9.8.9.5 Maintaining inventory of arriving equipment and supplies;

9.8.9.6 Making provisions for service, repair, and fuel for all apparatus and equipment;

9.8.9.7 Providing photo identification of necessary personal, hospital, mutual aid, emergency response, or volunteers;

9.8.9.8 Developing methods for facility control, crowd management, and way-finding;

9.8.9.9 Posting signage to identify key locations for staff and visitors and traffic control; and

9.8.9.10 Developing processes for voluntary donations, solicited and unsolicited, and the management thereof.

9.8.10 *Finance/Administration Section*—This section will develop financial and administrative procedures to support the program before, during, and after an incident. It is fully defined in 10.1.2.

9.8.11 Subsections are identified in many hospital ICS plans and are activated as needed in managing an incident: facilities, damage assessment, sanitations systems, communications, transportation, materials supply, and nutritional supply.

9.9 *Essential Elements of the EOP:*

9.9.1 *Patient Care:*

9.9.1.1 On a day-to-day basis, the hospital care system provides lifesaving care. In shifting to Major Incident Management (MIM) mode, it is necessary to use surge capacity to provide emergency care and appropriate definitive management of patients. Bed counts alone do not determine surge capacity or the ability to care for patients.

9.9.1.2 *Patient Triage in a Multiple Casualty Incident*—When the EOP is activated, the goal is to provide the most effective care for the greatest number of persons and include existing patients, incident patients, and those patients who need hospital care for routine community emergencies. The surge capacity assessment must be reported to the authority that is managing the flow of transportation of ill or injured patients to hospitals. The communication of this patient care capacity inventory should be reported in categories:

(1) *Red Category (ED Acuity Level I)*—The patients requiring medical care in the next hour. These victims have