



Emergency Management Principles and Practices for Health Care Systems

Unit 1:
The Emergency Management
Program

Emergency Management Principles and Practices for Healthcare Systems

This educational curriculum was developed by The Institute for Crisis, Disaster and Risk Management (ICDRM) at The George Washington University (GWU) under contract to the Veterans Health Administration (VHA).

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Table of Contents

Preface ix

Unit 1. The Emergency Management Program

Module 1.1 Introduction to Emergency Management for Healthcare Systems

Lesson 1.1.1 Medical Surge and Medical System Resiliency	1 - 1
Lesson 1.1.2 Emergency Management Overview	1 - 18
Lesson 1.1.3 Emergency Management Core Concepts and Principles	1 - 32

Module 1.2: The Emergency Management Program for Healthcare Systems

Lesson 1.2.1 Overview, Concepts, and Principles	1- 79
Lesson 1.2.2 Leadership and Direction	1 - 89
Lesson 1.2.3 Managerial Strategies for Achieving Effectiveness	1 - 103

Module 1.3 The Hazard Vulnerability Analysis

Lesson 1.3.1 Overview, Concepts, and Principles	1 - 123
Lesson 1.3.2 The Hazard Vulnerability Analysis Process	1 - 132
Lesson 1.3.3 Continuity Planning and Organizational Resiliency	1 - 157

Module 1.4 Mitigation Planning for Healthcare Systems

Lesson 1.4.1 Overview, Concepts, and Principles	1 - 171
Lesson 1.4.2 Mitigation Planning and Documentation	1 - 184

Module 1.5 Preparedness Planning for Health Care Systems

Lesson 1.5.1 Overview, Concepts, and Principles	1 - 195
Lesson 1.5.2 Emergency Operations Plan Documentation	1 - 204
Lesson 1.5.3 Resource Management	1 - 212
Lesson 1.5.4 Personal and Family Preparedness	1 - 227

Unit 2. Incident Command System (ICS) and the Application of Strategic ICS Principles

Module 2.1 Introduction to the Incident Command System

Lesson 2.1.1 Overview, Concepts, and Principles: ICS System Description	2 - 1
Lesson 2.1.2 ICS Concept of Operations	2 - 30

Module 2.2 Strategic Application of ICS Concepts and Principles

Lesson 2.2.1 Overview, Concepts, and Principles	2 - 63
Lesson 2.2.2 Medical Surge Capacity and Capability: A Tiered System Description	2 - 70
Lesson 2.2.3 Concept of Operations for Management Coordination	2 - 94

Unit 3. Healthcare System Emergency Response and Recovery

Module 3.1 Introduction to the Healthcare System Emergency Operations Plan

Lesson 3.1.1 Overview, Concepts, and Principles	3 - 1
---	-------

Lesson 3.1.2 Using the Healthcare System Emergency Operations Plan	3 - 7
--	-------

Module 3.2 Healthcare Emergency Operations Plan: The Systems Description

Lesson 3.2.1 Response and Recovery: Overview and Command Function	3 - 23
---	--------

Lesson 3.2.2 Response and Recovery: Operations and Plans Sections	3 - 35
---	--------

Lesson 3.2.3 Response and Recovery: Logistics and Finance/Administration Sections	3 - 48
--	--------

Module 3.3 Healthcare System Emergency Operations Plan: The Concept of Operations

Lesson 3.3.1 Response and Recovery: Overview and Incident Recognition Stage	3 - 61
--	--------

Lesson 3.3.2 Response and Recovery: Notification/Activation Stage	3 - 69
---	--------

Lesson 3.3.3 Response and Recovery: Mobilization Stage	3 - 86
--	--------

Lesson 3.3.4 Response and Recovery: Incident Operations Stage – Command Staff Actions	3 - 96
--	--------

Lesson 3.3.5 Response and Recovery: Incident Operations Stage – Operations Section Actions	3 - 116
---	---------

Lesson 3.3.6 Response and Recovery: Incident Operations Stage – Plans Section Actions	3 - 136
--	---------

Lesson 3.3.7 Response and Recovery: Incident Operations Stage – Logistics Section & Finance/Administration Section Actions	3 - 149
---	---------

Lesson 3.3.8 Response and Recovery: Demobilization Stage and Transition to Recovery	3 - 161
--	---------

Lesson 3.3.9 Response and Recovery: Recovery Activities	3 - 167
---	---------

Module 3.4: Support and Incident Annexes

Lesson 3.4.1 Support Annexes	3 - 177
------------------------------	---------

Lesson 3.4.2 Incident Annexes	3-189
-------------------------------	-------

Unit 4. Emergency Management Instruction, System Evaluation, and Organizational Learning for Healthcare Systems

Module 4.1 Introduction and Overview

Lesson 4.1.1 Instruction, System Evaluation, and Organizational Learning: An Overview	4 - 1
--	-------

Module 4.2 Education, Training, Drills, and Exercises

Lesson 4.2.1 Establishing and Maintaining the Healthcare Emergency Operations Plan: Education, Training, Drills, and Exercises	4 - 11
Lesson 4.2.2 Developing and Conducting Education, Training, and Drills	4 - 23
Lesson 4.2.3 Developing and Conducting Exercises	4 - 51

Module 4.3 Systems-based Evaluation

Lesson 4.3.1 Overview, Concepts, and Principles: Emergency Management Program Evaluation	4 - 81
Lesson 4.3.2 Evaluation Using Performance Measures in Emergency Management	4 - 97
Lesson 4.3.3 Performance-based Evaluation of the Healthcare System Emergency Management Program	4 - 109
Lesson 4.3.4 Performance-based Evaluation of the Healthcare System Emergency Operations Plan	4 - 127

Module 4.4 Organizational Learning: Incorporating Improvement into the Emergency Management Program

Lesson 4.4.1 Overview, Concepts, and Principles	4 - 157
Lesson 4.4.2 Organizational Learning in the Emergency Management Program	4 - 164

Unit 5. Appendices

Emergency Management Glossary of Terms	5 - 1
Emergency Management Acronyms	5 - 67
VHA-EMA Emergency Response and Recovery Competencies: Competency Survey, Analysis, and Report	5 - 73
VHA-EMA Emergency Response and Recovery Competencies: Response and Recovery Competencies	5 - 101

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Preface

This text, *Emergency Management Principles and Practices for Healthcare Systems*, was developed by the Institute for Crisis, Disaster and Risk Management (ICDRM) at The George Washington University, under contract to the Veterans Health Administration (VHA).¹ The contract requested the identification and validation of emergency response and recovery competencies for four job groups within health care organizations and the development of a curriculum that included emergency management programs, incident management systems and processes, and organizational learning strategies. While developed for the U.S. Department of Veterans Affairs, the content is generic to all healthcare systems.

The curriculum provides a **comprehensive approach to emergency management for all healthcare systems**. The authors recognize that the healthcare facilities operated by the Veterans Health Administration are components of a national, integrated healthcare system with operational and management realities that differ from the average healthcare organization. Facilities operated by hospital chains, consortium facilities, for-profit organizations, and many other types of healthcare organizations also exist in the U.S. The authors believe that any uniqueness in any of these configurations is far surpassed by the many elements common to all healthcare systems, and that the concepts of comprehensive emergency management and the incident command system are important across all healthcare system settings. This curriculum, therefore, should be useful to any agency or organization involved with health care

A central focus for the curriculum is the “management” aspects of emergency management, necessary for the adequate organizational resiliency to continue healthcare services despite hazard impact and to achieve the needed medical surge for incident victims. This management expertise must be accomplished by healthcare organizations both as **individual resources** and as **integrated participants** in the larger emergency response community. To meet these needs and make the text nationally applicable, it is based upon foundational principles and practices of emergency management (EM). It also maintains a consistency with the major tenets of the National Incident Management System (NIMS), which includes the widely accepted principles of the Incident Command System (ICS).

Many healthcare personnel have learned about the Incident Command System through use of the Hospital Emergency Incident Command System (HEICS). As the HEICS successor, the revised Hospital Incident Command System (HICS), is released, users will notice its consistency with the National Incident Management System (NIMS). The competencies and curriculum developed in this project will contribute to understanding the **process of incident management** by those using HICS, as well as provide the **context** for incorporating HICS/ICS

¹ The formal title of the contract is: “Emergency Management Academy: Development of a National Peer-Reviewed Competency Framework for Selected Target Audiences; Instructional Outlines and Core Content for the National Incident Management System for Health Care Systems and Organizational Learning Units,” RFQ 613-50-04, Department of Veterans Affairs, Medical Center – A&MMS (613/90C), Martinsburg, W.V.

into an Emergency Operations Plan. It extends beyond the incident response focus to describe an effective, comprehensive emergency management program for individual healthcare organizations.

The curriculum is framed by the concepts of Comprehensive Emergency Management^{2,3} and its four phases: mitigation, preparedness, response and recovery. The inter-relationship between activities in these phases is demonstrated throughout the text, using systems-based principles from the science and practice of EM. The authors recognize that in the United States, the terrorist attacks of 9-11 prompted a revitalized focus of attention on EM at all levels of government and across the public and private sectors. Much forward progress has been accomplished. Some of the resulting efforts, however, involve new EM interpretations and extrapolations to fit the scenarios of mass terrorism and the needs of new departments, agencies, and nongovernmental enterprises. This has created novel “industry applications” of EM, with inconsistent terminology and concepts that vary significantly from EM’s foundational concepts. In developing this text, the authors have adhered to longstanding, validated EM concepts, principles, and terminology. An extensive glossary is included for this purpose. Variations that have been prominently promulgated by governmental agencies and others as authoritative standards, as research products, or as prominent publications are noted and explained where appropriate.

ICS has been the accepted method for managing response and recovery activities within VHA and a growing number of other healthcare organizations over the past decade. Recent Presidential Directives⁴ have reinforced this practice, mandating that the ICS presented in the NIMS be adapted as the management operating system for all governmental and non-governmental entities who may become involved in emergency response. NIMS/ICS is therefore the conceptual basis for the emergency response and recovery competencies in this curriculum, and heavily influences the overall EM Program as well. The authors strongly believe that an operational understanding of both the organizational structure of ICS and its functioning processes is critically important for healthcare system personnel, since ICS is the compelling platform upon which healthcare organizations can integrate as a full partner with community emergency response resources:

“NIMS provides a consistent, flexible and adjustable national framework within which government and private entities at all levels can work together to manage domestic incidents, regardless of their cause, size, location, or complexity.”⁵

² National Governor’s Association. *Comprehensive Emergency Management: A Governor’s Guide*. Center for Policy Research (NGA). Washington DC, 1979.

³ Drabek TE, Hoetmer GJ (ed). *Emergency Management: Principles and Practice for Local Government*, (1991). International City Management Association, Washington DC; pp. 18, 134-137.

⁴ Homeland Security Presidential Decision-5 (HSPD-5) *Management of Domestic Incidents* and HSPD-8 *National Preparedness* are available at <http://www.whitehouse.gov/news/releases/2003/12/20031217-6.html>, accessed May 30, 2006.

⁵ National Incident Management System (NIMS) Introduction and Overview, p 2, available at: <http://www.dhs.gov/interweb/assetlibrary/NIMS-90-web.pdf>, accessed May 30, 2006.

The widely disseminated versions of ICS currently available in the U.S., including that presented in NIMS, are based upon the wildland fire model from FIRESCOPE⁶ and NIIMS.⁷ Understanding and acceptance by the healthcare community of ICS concepts presented from wildland fire resources has historically been problematic. It is important to recognize, however, that NIMS intends ICS to be flexibly applied, as made clear in the following NIMS excerpt:

“.....Incident Commanders generally retain the flexibility to modify procedures or organizational structure to align as necessary with the operating characteristics of their specific jurisdictions or to accomplish the mission in the context of a particular hazard scenario.”⁸

This document is an example of the flexible application of NIMS/ICS, with the adaptation intended to ease understanding and therefore promote full use of ICS by healthcare personnel. This includes conforming to the “management rather than command” tradition in healthcare systems. At the same time, care has been taken to adhere closely to NIMS terminology and process descriptions when presenting the healthcare system ICS. Where deviations occur, the authors demonstrate these as flexible interpretations that remain consistent with NIMS/ICS concepts and principles.

As requested by the VHA during project development, the authors have incorporated concepts of applied incident management from their past research and publication efforts, including Medical and Health Incident Management (MaHIM) System,⁹ Medical Surge Capacity and Capability (MSCC)¹⁰ and a hospital emergency management handbook.¹¹ The ICS-based tiered strategy in MSCC that can coordinate the local, State, regional, Federal, and non-governmental healthcare resources during emergency response and recovery has now been adopted into the HHS Health Resources Services Administration (HRSA) 2006 guidance for the National Bioterrorism Preparedness program¹². In addition, VHA’s internal *Emergency*

⁶ FIRESCOPE (**F**irefighting **RES**ources of **C**alifornia **O**rganized for **P**otential **E**mergencies) is a cooperative effort involving all agencies with fire fighting responsibilities in California. This organization developed ICS and defined its initial applications. Information is available at: <http://www.firescope.org/>, accessed May 30, 2006.

⁷ National Interagency Incident Management System (NIIMS), under the U.S. Department of Agriculture/ Forest Service, is “a system for responding to a wide range of emergencies... NIIMS includes five major subsystems, which together provide a comprehensive approach to incident management. The subsystems and their functions include: 1) **Incident Command System (ICS)**: an on-scene structure of management-level positions suitable for managing any incident....” Information is available at: <http://www.fs.fed.us/fire/operations/niims.shtml>, accessed May 30, 2006.

⁸ *National Incident Management System (NIMS) Chapter II: Command and Management*, pp. 8-10, available at: <http://www.dhs.gov/interweb/assetlibrary/NIMS-90-web.pdf>, accessed May 30, 2006.

⁹ *Medical and Health Incident Management (MaHIM) System* is available under the “2002” heading at: <http://www.gwu.edu/~icdrm/publications/index.html>, accessed December 21, 2006.

¹⁰ *Medical Surge Capacity and Capability (MSCC): A Management Handbook for Integrating Medical and Health Resources During Large-Scale Emergencies*, available at http://www.hhs.gov/ophep/mscc_sept2004.pdf, accessed May 30, 2006.

¹¹ Barbera JA, Macintyre AG. *Jane’s hospital mass casualty handbook: hospital emergency preparedness and response*. Jane’s Information Group www.janes.com

¹² HHS Health Resources Services Administration (HRSA) National Bioterrorism Preparedness program, information available at: <http://www.hrsa.gov/>, accessed June 8, 2006.

Management Program Guidebook,¹³ an extensive compendium of emergency management tools, guides and processes, is cited as examples of applied EM practices throughout the text. The authors have endeavored to present concepts and principles from the user perspective: describing the organizational structure, management processes, and relevant knowledge, skills and abilities necessary for effective response and recovery. The use of the ICS construct, principles, and processes is extended beyond the tactical 'scene' management described in NIMS, and presented as methodology to coordinate strategically across disciplines, jurisdictions, levels of government, and the public-private interface.

As noted above, a critical concept presented in this text is the use of competencies, or the description of skills, knowledge, and abilities that are measurable and demonstrable on the job and needed by personnel to respond effectively and efficiently. Initial work by ICDRM for this project established response and recovery competencies for specific job groups within a healthcare system. The categories are "all employees" or core competencies, "patient care providers," "facility leaders," and "emergency program managers".¹⁴ These are presented in an appendix to this compendium. Competency-based instructional materials are increasingly recognized as relevant and important to EM, as they provide a formal approach to establishing adequate preparedness of an organization's personnel. In fact, in well run EM systems, "certification" is increasingly used to indicate qualification for a specific response position, demonstrating that an individual possesses the defined competencies for that position. The competency products provided in this compendium serve as groundwork for certification in healthcare emergency response and recovery.

The text is not intended to be directly applied as educational or training material for every worker in a healthcare system. Its length and level of detail prohibit this. Instead, it serves as an educational and reference manual for emergency program managers that are developing and conducting their organization's EM program. In this manner, the text may be used as a reference for developing and implementing the program itself, for developing education and training, for planning and conducting exercises, for program evaluation, for after-action performance-based assessment of the healthcare system EOP during exercises or actual emergencies and disasters, and for achieving lasting program improvement through organizational learning.

The text is organized into four units with subsections entitled modules. Each module is composed of specific lessons with accompanying objectives. A fifth volume contains the appendices, which include the extensive glossary of emergency management terms, a list of acronyms, and the competency material described above. A summary of the units follows:

¹³ VHA Emergency Management Program Guidebook, 2005, available at: <http://www1.va.gov/emshg/page.cfm?pg=114>, accessed June 6, 2006.

¹⁴ Barbera JA, Macintyre AG, Shaw G, Seefried S, Westerman L, DeCosmo S. *VHA-EMA Emergency Response and Recovery Competencies: Competency Survey, Analysis, and Report* available at: <http://www.gwu.edu/~icdrm/publications/index.html>, accessed June 6, 2006, and provided in Unit 5 of this compendium.

- Unit 1, “The Emergency Management Program” outlines the broad scope of successful emergency management (EM) for healthcare facilities. The foundational concepts, long-standing EM principles, and guiding documents for emergency management and incident management are reviewed and their application to healthcare systems presented. Healthcare personnel, particularly clinicians, have commonly thought of their primary goal in emergencies and disasters as the ability to provide “surge” (used in the traditional sense, this refers to the ability to care for increased numbers of patients). In this Unit, this EM goal for healthcare systems is balanced with the goal of organizational resiliency. Resiliency is a term more often used in business communities and refers to the abilities of an organization to maintain its usual output of products and services. In this curriculum, resiliency refers to ensuring continuity of patient care services and certain business operations necessary to adequately provide for the safety of patients, visitors and staff and for medical surge. Surge is further delineated in this text as both surge capacity (increased numbers of patients) and surge capability (caring for patients with unique requirements such as infected and contagious patients).

Unit 1 goes on to outline the specific attributes of a successful healthcare system EM program. The construct of an emergency management committee as well as the characteristics of an emergency program manager are discussed. Relevant material is presented on how this EM program addresses organizational goals and missions as well as how it interfaces with the day-to-day management of the organization. The program’s activities are discussed in relation to the four phases of Comprehensive Emergency Management (mitigation, preparedness, response, and recovery). The central activity of conducting a Hazards Vulnerability Analysis (HVA) is discussed in detail. The text provides an HVA methodology that develops hazard and vulnerability information that can be applied with tangible benefits across the entire EM program. Mitigation and preparedness actions based upon the HVA are described in ensuing lessons. A suggested format is presented for the Emergency Operations Plan (EOP). The EOP provides organization-wide guidance for response and recovery actions, as well as serving as the guiding document for addressing the full range of critical preparedness activities.

- Unit 2, “Incident Command System (ICS) and the Application of Strategic ICS Principles,” lays the management foundation for healthcare system emergency response and recovery. The traditional concepts and principles of ICS are outlined in a manner that directly relates to healthcare systems. The organizational structure presented by ICS (and consistent with NIMS) is explained. The inherent flexibility emphasized by the original designers of ICS has been incorporated, differentiating this text from many other educational materials that present ICS in a rigid format. Important ICS methodologies, procedures, and processes are presented, including management by objective. The critical role of incident action planning, how it is performed and what it entails is discussed. Finally, this unit presents ICS principles applied in a context that guides effective integration of an individual healthcare organization into the overall response: within a local community, a State, an inter-state region, and the Federal government response.

- Unit 3, “Healthcare System Emergency Response and Recovery,” provides more specific and tailored instruction on the use of the EOP. This Unit demonstrates how ICS becomes incorporated into the organization-specific EOP tool that guides preparedness for, response to, and recovery from all hazards. Included in this discussion are the types of tools that the system may wish to develop to further enhance response and recovery performance (e.g., ICS forms adapted for healthcare systems). Specific ICS functions are also detailed, but with the necessary adaptations for healthcare organizations. An extensive Concept of Operations (CONOPS) is presented that highlights important considerations that must be addressed through the successive stages of an incident. These stages range from initial event recognition to demobilization and transition to recovery. Important considerations for managing the recovery of the organization are presented, utilizing ICS principles within the EOP. Finally, how to address and incorporate hazard-specific issues into response and recovery actions are outlined.
- Unit 4, “Emergency Management Instruction, System Evaluation, and Organizational Learning for Healthcare Systems,” completes the overall EM program with an in-depth examination of important activities related to system implementation, evaluation, and improvement. EM program instructional considerations are discussed, and distinctions are made between related but different terms: education, training, drills, and exercises. Concepts important to exercising the EOP and evaluating the EM program are extensively developed. The text then emphasizes a process that establishes lasting improvement to the EOP or the EM program itself, based upon the evaluation findings. This “organizational learning” process, where the organization is the focus of the “learning,” is differentiated from the usual “lessons learned” directed primarily at individual participants in emergency response or recovery activities.

Where possible, the complex material in this text is presented with outlines, template steps, and examples to assist with understanding and incorporating the valid EM concepts into the EM practices of healthcare organizations.

Unit 1.

The Emergency Management Program

Unit Summary

This unit presents the concepts of medical system resiliency, medical surge capacity, medical surge capability, and the necessary management components to achieve them. The unit presents an overview of the importance of emergency management, the foundational concepts and principles that must be recognized, and the development and conduct of a comprehensive emergency management program.

Module 1.1

Introduction to Emergency Management for Healthcare Systems

Lesson 1.1.1 Medical Surge and Medical System Resiliency

Lesson objectives

- *List the general characteristics of mass casualty and mass effect events.*
- *Describe the issues associated with continuity of operations and medical surge capacity and capability.*
- *Explain the importance of an established management process for managing resiliency, surge capacity, and surge capability.*
- *Describe how NIMS creates a management template for emergency response based on ICS principles.*

Introduction

The attacks of September 11th, followed shortly by the anthrax dissemination event in Florida, the National Capital Region (NCR), and the New York metropolitan area, confirmed that the United States faces a true threat of intentional mass casualty¹⁵ incidents caused by terrorism. These events of 2001, coupled with the results of recent exercises (TOPOFF exercises of 2000, 2003, and 2005, Dark Winter, and others), and the very recent large-scale impact of Hurricane Katrina, have also demonstrated that as a system, U.S. medical response is not adequately prepared, resourced, or organized to efficiently manage mass casualty incidents while approximating the usual standard of medical care. Severe Acute Respiratory Syndrome (SARS),¹⁶ a re-examination of the 1918 Spanish Flu,¹⁷ and the current threat of emerging avian influenza developing into a very contagious human disease all emphasize the equally concerning threat from naturally occurring contagion.

¹⁵ “Casualty” refers to **any human accessing health or medical services, including mental health** services and medical forensics/mortuary care (for fatalities), as a result of a hazard impact.

¹⁶ Centers for Disease Control and Prevention. *Severe Acute Respiratory Syndrome (SARS): Basic Information about SARS* (2005), available at: <http://www.cdc.gov/ncidod/sars/factsheet.htm>, accessed May 16, 2006.

¹⁷ Tumpey T.M., Basler C.F., Aguilar P.V. *Characterization of the Reconstructed 1918 Spanish Influenza Pandemic Virus*. *Science* (October 7, 2005), Vol. 310. no. 5745, pp. 77 – 80.

Specific terminology is very important. The acronym “MCI” has different meanings, including Mass Casualty Incident and Multiple Casualty Incident, which are very different types of events.

Terminology alert!

Mass casualty incident: A casualty-creating hazard impact in which the available organizational and medical resources, or their management systems, are severely challenged or become insufficient to adequately meet the medical needs of the affected population. Insufficient management, response, or support capability or capacity can result in increased morbidity and mortality among the impacted population. “Mass casualty” equates to a “disaster,” whereas “multiple casualty incident” equates to an “emergency.”

Hurricane Katrina¹⁸ and other recent weather events (Houston floods of 2001,¹⁹ severe ice storms, and others) have demonstrated the “mass effect” of hazards that can catastrophically disrupt the usual healthcare system operations. Borrowing from contemporary terminology, these may be described as “mass effect incidents” (see terminology textbox) to differentiate them from the mass casualty incident.

Terminology alert!

Mass effect incident: A hazard impact that primarily affects the ability of the organization to continue its usual operations (in contrast to a mass casualty incident). For healthcare systems, the usual medical care capability and capacity can be compromised.

Examination of healthcare system response during mass casualty and mass effect incidents in the United States demonstrate multiple recurrent findings:

- Local response is primary: The initial response to any medical event

¹⁸ *The Federal Response to Hurricane Katrina: Lessons Learned* (2006); available at: <http://www.whitehouse.gov/reports/katrina-lessons-learned/letter.html>, accessed May 16, 2006.

¹⁹ Chron.com (Houston Chronicle). *The Great Flood of 2001*, available at: <http://www.chron.com/content/chronicle/special/01/flood/index17.html>, accessed May 17, 2006.

will be almost entirely based upon locally available health and medical organizations.

- Medical response is complex: The response to a mass casualty incident impacts an entire community and involves numerous diverse medical and public health entities, including healthcare systems and facilities, public health departments, emergency medical services, medical laboratories, individual healthcare practitioners, and medical support services.
- Coordinated response is essential: Effective healthcare system response to major events usually requires support from public safety agencies and other community response entities that aren't normally partnered with the community healthcare systems during everyday operations.
- Bridging the "public-private divide": Healthcare organizations have traditionally planned and responded to emergencies as individual entities. This has occurred in part because of legal, financial, and logistical issues in planning and coordination between public agencies and primarily private healthcare entities: the public-private divide. Healthcare organizations have only recently begun to view themselves as an integrated component of a larger response system.
- Public health as an essential partner: Public health departments are not traditionally integrated with other community emergency response operations, including the acute care medical and mental health communities. They are an essential partner in any successful mass casualty or mass effect healthcare response.
- The need for robust information processing: Medical issues in large-scale incidents are rarely immediately clear, and complex information must be collected from disparate sources, processed and analyzed rapidly in order to determine the most appropriate course of action. This requires a robust information management process that may differ markedly from any used in healthcare systems everyday.
- The need for effective overall management: Medical response to mass casualty incidents can be exceedingly complex, with many seemingly diverse tasks. Responsibility for each of these actions can vary significantly among organizations in different communities. Even within a single healthcare system, actions must be accomplished that require coordination between disparate operating units that don't work together on a regular basis or under the stress of response. Despite these challenges, all necessary functions must be adequately addressed for a successful mass casualty or mass effect response.

The integration of the Healthcare Systems with the larger response community has been and remains a significant challenge.

Traditional approaches to Healthcare System preparedness have focused upon specific (usually tactical) issues as opposed to broader management challenges.

Few management systems have been described for integrating the various health and medical resources during emergency response and recovery.

- Medical system resiliency: A major hazard impact that creates the need for medical surge capacity and capability also is likely to impact the normal functions of the everyday healthcare systems (i.e., some degree of mass effect). Medical system resiliency is necessary for the system to maintain its usual effectiveness and, at the same time, to provide a reliably functioning platform upon which medical surge may occur. Medical system resiliency is achieved by a combination of mitigation measures and adequate emergency preparedness, assuring continuity of healthcare system operations despite the hazard impact.

The traditional approach to mass casualty incident preparedness has focused primarily upon individual issues and problems. This approach must be carefully re-examined and revised.

- Individual and isolated planning is common: Disease surveillance, patient tracking, rapid laboratory diagnostics, availability of medications and immunizations, and many other identified issues are being addressed individually in an effort to achieve adequate preparedness for future mass casualty or unusual casualty events.
- Anticipating future needs: A common focus for medical planners has been on individual resource deficiencies that are anticipated in future mass casualty incidents. Many of these efforts, however, do not start by developing a valid understanding of the context, or environment, of incident response. This context can be accomplished with careful attention to the planning assumptions, and then incorporating the assumptions into preparedness planning. For example, the resources must function under hectic conditions, sketchy information, unreliable communications, and other realities of extreme events. The individual resource deficiencies are better understood when examined in relationship to this emergency response environment.
- Collective versus isolated planning: Careful examination of the vexing issues in incident response suggests that they may be more effectively solved through **processes that involve many diverse organizations**, rather than addressing them in isolation by individual enterprises. This can only be accomplished through a comprehensive management structure and function.
- Models for conducting comprehensive incident management: Understanding a comprehensive health and medical management system for major emergencies is problematic, since few published mass casualty response plans, or response standards, exist as examples of **how to organize all health and medical response**

within a given jurisdiction. Additionally, few published medical and health plans provide uniform management of response, including integration across jurisdictional lines, levels of government, and between the public and private sector. Other than the Medical and Health Incident Management (MaHIM) System,²⁰ and Medical Surge Capacity and Capability (MSCC),²¹ few conceptual models exist that describe:

- A comprehensive approach to managing the full range of health and medical assets during mass casualty or other medical incidents,
- Coordinating across intergovernmental, inter-jurisdictional, and public-private boundaries.

The Veterans Health Administration (VHA) operates hospitals and outpatient clinics across the country which are integral parts of their community response systems as well as resources that are called upon to support national response requirements. VHA recognized the importance of an educational curriculum that explained the principles and practices behind developing and implementing emergency management programs for health and medical service delivery systems.

With few exceptions the majority of Federal, State, and local preparedness programs have only recently begun to place visible priority on establishing these comprehensive health and medical service delivery emergency management systems.

The effects of this void are exacerbated by the negative impact of the economic and political decisions that influence everyday capacity and capabilities in existing healthcare systems.^{22,23} Hospital and emergency

In many instances, medical resources that are currently available for response are being reduced in both size and number. This argues for a more efficient means of integrating what is available at the time of a response.

²⁰ Barbera J.A., Macintyre A.G. *Medical and Health Incident Management System: A Comprehensive Functional System Description for Mass Casualty Medical Incident Management*. A report for the Alfred P Sloan Foundation (December 2002), available at <http://www.gwu.edu/~icdrm/>, accessed January 11, 2006.

²¹ Barbera J.A., Macintyre A.G. *Medical Surge Capacity and Capability: A Management System for Integrating Medical and Health Resources during Large-Scale Emergencies*. CNA Corporation under contract to the U.S. Department of Health and Human Services, August 2004. Available at: http://www.hhs.gov/ophep/mscc_handbook.html, accessed November 10, 2005.

²² Barbera, J. A., Macintyre, A.G., DeAtley, C.A. *Ambulances to Nowhere: America's Critical Shortfall in Medical Preparedness for Catastrophic Terrorism* (October 2001). BCSIA Discussion Paper 2001-15, ESDP Discussion Paper ESDP-2001-07, John F. Kennedy School of Government, Harvard University. Available at <http://ksgnotes1.harvard.edu/BCSIA/ESDP.nsf/www/Research>, accessed January 15, 2006.

department closures, a shrinking base of community-based health centers, and workforce problems, such as the national nursing shortage are troublesome signs at a time when the perceived mass casualty risk is increasing.

At the same time, it must be recognized that many high-quality, relatively independent medical and health resources continue to exist in communities across the U.S. History has demonstrated that in mass casualty or other healthcare crises, medical personnel will generally respond and earnestly try to address the perceived medical needs.

To overcome these deficiencies and maximize the positive interventions of the disparate medical assets in a rapid, effective, and community-wide manner, a well-defined and developed mass casualty response system must be established. Within this response system, the otherwise independent components: healthcare facilities, healthcare systems, individual practitioners, clinical laboratories, and others, must be prepared with a management ability to optimally respond individually and at the same time participate effectively in the organized community-wide response. This text presents the nationally accepted methods for achieving this management target – the Incident Command System (ICS) – and how its structure and processes are applied in the healthcare system setting and to the larger response. It also presents a comprehensive discussion of emergency management for healthcare systems with the goal of establishing the prerequisites for optimal performance during emergencies and disasters.

The myriad issues that a healthcare system faces during a major emergency may be grouped into two broad categories: **continuity of operations** (usual patient care services and business practices) and **medical surge capacity and capability** to address the incident-specific medical and psychological needs of the affected population.

Continuity of Operations and Medical System Resiliency

The effects of any hazard may severely impact the healthcare system itself, creating the “mass effect” discussed earlier. This creates the potential to disrupt normal medical care operations, at the same time that

The two major emergency response issues confronting Healthcare Systems are continuity of regular operations (Resiliency) and caring for new, incident-related patients (Medical Surge).

²³ American College of Emergency Physicians (ACEP). *The National Report Card on the State of Emergency Medicine: Evaluating the Environment of Emergency Care Systems State by State* (January 2006), available at <http://my.acep.org/site/DocServer/2006-NationalReportCard.pdf?docID=221>, accessed May 17, 2006.

an increase in general or specialized services is urgently needed.

- Primary business operations impact: Some hazard impacts may generate very few actual casualties but may still have a very disruptive impact to the healthcare system's normal function.²⁴
- Organizational resiliency: The ability for the organization to optimally survive an incident of mass effect is best described by the concept of "organizational resiliency" (see terminology textbox).

Terminology alert!

Resiliency refers to the ability of an individual human or an organization to quickly recover from change or misfortune. It is commonly thought of as a "buoyancy" and an ability to "bounce back."²⁵

- Importance of maintaining medical system operations: While some elective and less-than-urgent medical services can be postponed or transferred to alternate locations, the majority of everyday patient care services must continue uninterrupted to avoid a significantly adverse impact on the normal patient population. Examples of the range of services that have severe consequences if disrupted include:
 - Inpatient and outpatient dialysis.
 - Urgent and emergent cardiac evaluations (stress tests, cardiac catheterizations, and interventional services, such as bypass or angioplasty and stent placement).
 - Inpatient care for the severely infected (with regular community acquired infections).
 - Trauma resuscitation and care (non-incident related).
 - Clinic and office visits (medical and psychiatric) as follow-up to recent hospital discharge.

The regular day-to-day services that Healthcare Systems provide to communities are critical and it is imperative to try to maintain these during emergency response and recovery.

²⁴ Associated Press. L.A. *Hospital Computer System Breaks Down* (4/22/03), available at: <http://www.nytimes.com/aponline/national/AP-Hospital-Computer.html?ex=1052031482&ei=1&en=81912bc2fb1d6ef1>, accessed April 25, 2003.

²⁵ Adapted from Conner, Daryl R. *Managing at the Speed of Change: How Resilient Managers Succeed and Prosper Where Others Fail* (1995). New York: Villard Books.

- Access to and/or distribution of pharmaceuticals.
- **Continuity of operations planning:** To address this need to maintain service, the healthcare system's EM program must include effective continuity planning (see terminology textbox), for both business and service/product operations, across the four phases of emergency management. This will both "harden" the organization against hazard impact and prepare the organization to manage any impact as it occurs.

Terminology alert!

Continuity Planning: An internal effort within an organization to assure that the capability exists to continue essential business and service functions across a wide range of potential emergencies, including localized acts of nature, accidents, and technological and/or attack/terrorist-related emergencies. Accordingly, an effective Emergency Management Program for healthcare systems not only addresses the four phases of mitigation, preparedness, response, and recovery, but also includes continuity planning activities to ensure that critical patient care, ancillary; and support functions would continue with little or no interruption. (Adapted from VHA Guidebook)²⁶

Incidents that generate patients may challenge Healthcare Systems through an increase in volume (capacity) or through the presentation of patients with unusual or specific care requirements (capability).

Medical surge

- The concept of **medical surge** is the second underlying preparedness premise for medical incidents with mass casualties and/or casualties with unusual medical conditions. It is important, therefore, to define this term before analyzing solutions for the overall needs of mass casualty or complex incidents.
- **Medical surge** describes the ability to provide adequate²⁷ medical

²⁶ U.S. Department of Veterans Affairs. *Emergency Management Program Guidebook*. 2005, Washington, D.C. Available at <http://www1.va.gov/emshg/page.cfm?pg=114>. accessed June 6, 2006.

²⁷ In this text, the term "adequate" means: An adjective that denotes the quality or quantity of a system, process, procedure, or resource that will achieve the relevant incident response objective.

evaluation and care during events that exceed the limits of the normal medical infrastructure in an affected community.²⁸ Despite this simple explanation, medical surge is an extraordinarily complex topic that is important to understand in order to prepare. The first step in doing so is to distinguish surge capacity from surge capability (see terminology textbox). An example of surge capability is provided in Textbox 2.1.1.1.

Terminology alert!

Medical Surge Capacity: The ability to evaluate and care for a markedly increased volume of patients—one that challenges or exceeds normal operating capacity. The surge requirements may extend beyond direct patient care to include such tasks as extensive laboratory studies or epidemiological investigations.

Medical Surge Capability: The ability to manage patients requiring unusual or very specialized medical evaluation and care. Surge requirements span the range of specialized medical and health services (expertise, information, procedures, equipment, or personnel) that are not normally available at the location where they are needed (e.g., pediatric care provided at non-pediatric facilities or burn care services at a non-burn center). Surge capability also includes patient problems that require special intervention to protect medical providers, other patients, and the integrity of the medical care facility.

²⁸ Barbera J.A., Macintyre A.G. *Medical Surge Capacity and Capability: A management system for integrating medical and health resources during large-scale emergencies*. CNA Corporation under contract to the U.S. Department of Health and Human Services (August 2004). Available at: http://www.hhs.gov/ophep/mscc_handbook.html, accessed November 10, 2005.

Textbox 2.1.1.1

Medical Surge Capability: An Example

Many healthcare facilities encountered difficulties with the arrival of patients with symptoms of severe acute respiratory syndrome (SARS). The challenge was not presented by a high volume of patients, but rather by the specialty requirements of caring for a few patients with a highly contagious illness that demonstrated particular transmissibility in the healthcare setting. Protection of staff and other patients was a high priority, as was screening incoming patients for illness, preventing undue concerns among staff, and avoiding publicity that could adversely affect the hospital's business. Coordination with public health, emergency management, and other response assets was critical. Pre-established incident management processes are designed to facilitate this type of problem-solving experience.

Management Strategies to Achieve Medical Surge

To maintain operations and achieve the needed medical surge, an ability to direct the entire organizational focus to addressing critical needs must be immediately available within the healthcare system.

- Maintaining quality and adequacy of services in the face of stress: To achieve this, the organization must be capable of coordinating the re-distribution of authority and responsibility throughout the organization, so that tasks can still be performed within the quality parameters set by the organization, but in greater quantity. This is in reality a relatively simple concept if personnel across the system understand and buy into it. Examples include:
 - To meet patient surge capacity for a large number of victims arriving at a healthcare facility for care, the best site to provide standard quality emergency evaluation and treatment is in the Emergency Department (ED). Other patient treatment wards can participate in meeting surge capacity needs by rapidly accepting partially evaluated patients already in the ED, particularly patients who are considered stable but awaiting completion of their evaluation. The inpatient services can complete this evaluation and follow-on treatment without change in quality of care and allow the ED to focus upon the large number of incoming casualties.

- To meet patient surge capability for many critical care patients, staff and equipment may be brought from the critical care units, with mobilization of off-duty critical care staff, to provide critical care services in the ED and in patient care overflow sites.
- Managing degradation of services: An important strategy concept in truly overwhelming incidents is **engineered or managed degradation of services** (see terminology textbox).

Terminology alert!

Engineered (managed) degradation: In a system under extreme stress, the identification and selection of priority activities that should be preserved, while allowing less critical services to degrade. This management strategy is designed to avoid catastrophic or random failure of emergency response systems when system capacity or capability is exceeded. The guiding principle is the preservation of the functions most important to achieving organizational goals. It may also be referred to as “engineered system failure” or “managed degradation of incident response.”

“Engineered (or managed) degradation” assists the organization in averting catastrophic system failure when the total needs overwhelm available resources.

- Deliberate selection of functional priorities: This concept entails the strategy of deliberately (i.e., through incident action planning) maintaining critical activities at the expense of others in the face of severe response system challenge. This is accomplished by selectively applying scarce resources to the priority activities and even withdrawing resources (usually staffing) or staff attention from one activity to maintain services in another. This deliberative and objective methodology differentiates “managed degradation” from recently promulgated “altered standards of care” (see textbox 2.1.1.2). For example, an activity that commonly receives less attention during a surge in patient volume is documentation. Certain portions of patient documentation, however, are critical in maintaining quality care for the patient (medications given, vital signs, etc.). Other portions of patient documentation are primarily performed to meet regulatory and reimbursement requirements. This latter type of documentation may be suspended during the initial stages of incident operations when large numbers of patients arrive simultaneously. After the initial surge, these documentation gaps may potentially be reconstructed. Another example is the suspension of elective surgical procedures during incident response. Engineered degradation may also have to be applied in

selecting between direct response activities.

- Preventing random and catastrophic failures: Careful attention to managing system degradation can prevent random service deficiency or catastrophic failure of the overall response system.

Textbox 2.1.1.2

“Engineered Degradation” Versus “Altered Standards of Care”

The broad concept of engineered degradation should be distinguished from recently published reports discussing alterations in standards of care.²⁹ Engineered degradation involves the selection of certain procedures or processes over others that are considered essential for preservation of overall organizational function. Some of these processes may have little to do with patient care and those that do are applied equitably across all patient populations (i.e., there are no distinctions made between patients). An example is the clinical decision to rapidly clean wounds and apply wet sterile dressings, deferring primary wound closure until all victims are assessed and more serious injuries have been treated.

“Altered standards of care” may be a concept within managed degradation, but even the approach to the described “altered care” is procedurally different. As presented in the reference, the altered level of care is structured by cross-the-board alteration in standards. In managed degradation, it is altered through change in specific procedures or individual assets, with the ability to be more selective, to be more objective, and to change rapidly as additional assets come on-line.

Altered standards of care “generally is assumed to mean a shift to providing care and allocating scarce equipment, supplies, and personnel in a way that saves the largest number of lives in contrast to the traditional focus on saving individuals.”³⁰ This therefore involves some of the same concepts involved in engineered degradation but is more expansive and can translate into more dramatic steps, such as the rationing of treatments or supplies or the selection of certain populations for treatment over others. As these are more dramatic steps, it is preferable to focus on

²⁹ *Altered Standards of Care in Mass Casualty Events* (April 2005). Prepared by Health Systems Research Inc. under Contract No. 290-04-0010. AHRQ Publication No. 05-0043. Rockville, Maryland: Agency for Healthcare Research and Quality.

³⁰ *ibid*

engineered degradation first, leaving the altered standards of care option as a last resort. In managing “failure” of the medical care system, the care of patients should be a priority over most other system activities, except for safety of staff and current patients.

The Case for a Formal System to Manage System Resiliency and Medical Surge

Many current initiatives to address “Medical Surge” focus almost exclusively upon identifying and establishing specific standby resource capacities. These include adequate numbers and specialty types of hospital beds, personnel, pharmaceuticals, supplies, and equipment. This type of focused approach creates problems with:

- Controlling costs associated with standby assets: High cost is associated with many of the resources: Medical equipment and supplies, the limited “shelf-life” of medications, the rapid out-dating of equipment, and the costly biomedical servicing necessary to maintain the assets in a readiness state are all very expensive. This cannot be supported through income from clinical operations, and outside funding streams are commonly **inadequate and non-sustained** for most healthcare systems.
- Minimizing “exclusive use” caches of equipment and supplies: Developing equipment and supplies that are exclusively for rare events creates a conflict with normal business practice:
 - Revenue return: With the modern business practices of “just-in-time” inventory and “just-enough” staffing, having an expensive investment that provides no return makes little business sense. This cost item will be adversely perceived every time the healthcare system’s operating budget is reviewed for cost containment purposes.
 - Narrow use: Maintaining large equipment and supply caches strictly for the rare major event conflicts with the “dual-use”³¹ (or multi-use) strategy espoused by most experts. To complicate the issue further, response personnel will rarely be familiar with the storage, mobilization, and use of materiel that is not part of regular

An exclusive focus on identifying additional people, places, and things is not cost effective or efficient and will not address important response issues such as the mobilizing and managing these resources.

³¹Natural Disasters Roundtable. *A Summary Of The Forum On Countering Terrorism: Lessons Learned from Natural and Technological Disasters* (2002). Available at: <http://www.nap.edu/books/N1000412/html/1.html>, accessed February 10, 2006.

Effective management systems provide a more efficient alternative to an approach that focuses narrowly on resources alone.

Effective management systems have additional benefits such as the coordination between and within organizations so that the need for total resources may be less.

duties.

- Determining the quantity of necessary standby assets: Developing this determination is not a simple process, and focusing upon the development of an otherwise unused reserve to address adequate resource numbers may be an expensive and unsustainable approach. Determining whether adequate surge resources are available in the surrounding region, in a time-frame that meets medical necessity, is equally important. It must be recognized, therefore, that **the necessary standby quantity of each critical asset depends upon the response systems and processes** that:
 - Identify medical needs as emergency circumstances evolve.
 - Identify the resources to address the needs in a timely manner.
 - Move the resources expeditiously to locations of need (as applicable).
 - Manage and support the resources to their absolute maximum capacity.
- Addressing surge and operational impact simultaneously: The need for medical surge may occur in the face of a hazard that actually compromises the delivery of medical services as noted above. Structural damage or contamination, utility loss, illness and injury among healthcare workers, and many other consequences of hazard impacts may have to be managed at the same time as the patient load. Ideally, the same management system should be used to manage both medical surge and the organizational resiliency necessary to continue medical care operations for the non-incident patient population.

To address these critical issues, a broader approach to achieving and maintaining medical surge is required. It must include an effective management system to counter the need for a very large inventory of staff, equipment and supplies, and to be prepared to respond effectively to all aspects of an incident. **Attention to effective management systems allows organizations to not only maintain continuity of operations and accomplish medical surge capacity and capability throughout an incident, but also to optimize recovery and return to readiness.**

The emergency response system's processes must:

- Determine, in a timely fashion, the specific asset quantities needed.

- Acquire them pre-incident or rapidly during response.
- Manage the assets effectively during response.
- Demobilize assets and accomplish return-to-readiness actions as efficiently as possible.

Additional benefits of this type of effective management system are:

- Enhanced internal coordination within the individual organization to maintain services and build surge.
- Fewer necessary standby resources, if systems are in place to maximize the abilities of existing operational resources.
- Optimal integration of “outside” resources, whether standby, mutual aid, State or Federal assistance, when necessary to address incident needs.

The Use of NIMS and NIMS-Consistent ICS for Managing Medical Surge and Other Aspects of Healthcare System Incident Response

In March 2004, the National Incident Management System (NIMS) was released by the U.S. Department of Homeland Security (see Unit 2). NIMS was declared (through HSPD 5) to be the guidelines for all emergency preparedness and response in the U.S.³² **In effect, through its efforts to implement NIMS, the Federal government is drawing attention to the critical importance of effective emergency management systems.** Its adoption was mandated for all Federal response resources, and its adoption by State and local organizations was made “a condition for Federal preparedness assistance (through grants, contracts, and other activities)...”³³ The justification for this is that “NIMS provides a consistent, flexible, and adjustable national framework within which government and private entities at all levels can work together to manage domestic incidents, regardless of their cause, size, location, or complexity.”³⁴

The National Incident Management System (NIMS) provides a management template for all disciplines to prepare for and respond to emergencies or disasters in the United States.

³² HSPD-5 Homeland Security Presidential Directive – 5, available at www.dhs.gov

³³ NIMS Preface p. ix, available at http://www.fema.gov/pdf/nims/nims_doc.pdf, accessed October 19, 2005.

³⁴ NIMS Introduction and Overview, p. 2. available at http://www.fema.gov/pdf/nims/nims_doc.pdf, accessed October 19, 2005

The Incident Command System is designated in NIMS as the operating system for emergency response.

NIMS/ICS (as stated within the document itself) can be flexibly applied to meet the needs of different response disciplines.

In addition to other guidance, NIMS provides a description of the Incident Command System (ICS) to be used for managing incident response in the U.S. It is not a proscriptive document. Rather, it emphasizes that response management be consistent with NIMS-ICS while flexibly applied so that it is maximally effective for the organizations and the professional disciplines that are using it during incident response: “The NIMS requires that Field Command and Management be performed in accordance with a standard set of ICS organizations, doctrine, and procedures. However, Incident Commanders generally retain the flexibility to modify...”³⁵

NIMS Chapter II, Command and Management, Concepts and Principles of NIMS, further states, “The implementation of ICS should have the least possible disruption on existing systems and processes.”³⁶ It is therefore incumbent among emergency response disciplines **to develop an ICS-consistent management that best addresses the discipline’s requirements during emergency response and recovery. The underlying assumption is that, by being “consistent with” ICS, organizations will integrate more effectively into the larger ICS management of any event.**

Effective Emergency Management

To maximize emergency response that achieves adequate system resiliency and medical surge capacity and capability, the response system and processes must be developed and maintained within a larger, more comprehensive initiative, which has been defined as “emergency management” (see terminology textbox for a traditional definition).

³⁵ NIMS Chapter II, Command and Management, Concepts and Principles. available at http://www.fema.gov/pdf/nims/nims_doc.pdf, accessed June 3, 2006.

³⁶ NIMS Chapter II, Command and Management, Concepts and Principles. available at http://www.fema.gov/pdf/nims/nims_doc.pdf, accessed June 3, 2006

Terminology alert!

Emergency Management. Organized analysis, planning, decision making, and assignment of available resources to mitigate (lessen the effect of or prevent) prepare for, respond to, and recover from the effects of all hazards. The goal of emergency management is to save lives, prevent injuries, and protect property and the environment if an emergency occurs (*FEMA 1995*).³⁷

The remainder of this unit presents the foundational concepts of emergency management (EM) and presents an organized approach to establishing and conducting an emergency management program for healthcare systems. Emergency management extends across mitigation, preparedness, response and recovery while incident management focuses upon directly managing response and recovery. Even during response and recovery, emergency management remains strategic in nature and supports tactical incident management (or incident command) operations.

³⁷ FEMA. *Introduction to Emergency Management* (1995). Emergency Management Institute, Emmitsburg, Maryland.

Lesson 1.1.2 Emergency Management Overview

Lesson Objectives

- *Identify and explain key concepts, principles, and terminology that support emergency management programs and incident management.*
- *Describe the “systems approach” for developing and managing an Emergency Management Program for healthcare systems and organizations.*
- *Describe the key elements of an Emergency Management Program.*

Introduction

Emergency Management is a relatively new discipline, with a broad scope. It evolved from more narrowly defined disciplines such as Civil Defense.³⁸ One of the earliest texts to describe emergency management concepts in detail succinctly summarized its purpose in the following statement:

“The goal of emergency management is the rapid restoration of normal routines.”³⁹

Emergency management is a recognized discipline. This important point is often lost on healthcare systems as they develop their programs to manage resiliency and medical surge.

While this simple statement presents an accurate superficial summary, Emergency Management (EM) is, in fact, quite complex. EM represents a true discipline and **an evolving management science**. As the practice of emergency management is increasingly recognized as a profession, it has become less acceptable to assign just anyone who “knows something about disasters” to be primarily responsible for development, implementation, or maintenance of an emergency management program in major organizations.

A traditional FEMA definition of emergency management was provided in the preceding lesson. The authors present their definition of EM that reflects modern emergency management complexity and a **management focus** (see terminology textbox).

³⁸ Civil Defense dominated emergency and disaster preparedness during much of the 20th century and was primarily focused on one hazard category: foreign attack, particularly nuclear, on domestic US civilian populations.

³⁹ Drabek T.E., Hoetmer GJ. (ed). *Emergency Management: Principles and Practice for Local Government*. International City Management Association (1991); Washington DC: 33.

Terminology alert!

Emergency Management (management focus): The science of managing complex systems and multidisciplinary personnel to address emergencies and disasters, across all hazards and through the phases of mitigation, preparedness, response, and recovery.

Emergency management, as practiced in the U.S., is based upon established concepts and principles that should also be recognized by healthcare systems as they develop their programs.

Emergency management, as a professional discipline, is comprised of foundational concepts, key principles, guiding standards and common practice.

Healthcare system personnel commonly recognize emergency management activities as those formerly conducted by a healthcare organization's "Disaster Committee" which was focused almost exclusively on a traditional "disaster plan."⁴⁰ To better reflect the scope of work that must be addressed, Joint Commission on Accreditation of Healthcare Organizations (JCAHO)⁴¹ and others have recommended a name change away from "disaster," using "emergency management"^{42,43} in its place.

Emergency Management as a Program

- **EM program complexity:** The development and implementation of an Emergency Management (EM) program (see terminology textbox) provides an avenue for coordinating the many activities that must be

⁴⁰ *Clinic Disaster Plan Guidance* (June 2002). California Governor's Office of Emergency Services;

[http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/ClinicDisasGuide/\\$file/ClinicDisasGuide.pdf](http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/ClinicDisasGuide/$file/ClinicDisasGuide.pdf) accessed August 9, 2005.

⁴¹ The Joint Commission on Accreditation of Healthcare Organizations surveys hospitals and accredits them for adherence to standards set by the organization, and has been, for many years, evolving standards related to emergency management for healthcare systems.

⁴² Information is available on JCAHO and its programs at: <http://www.jointcommission.org/AccreditationPrograms/>, accessed March 29, 2006.

⁴³ Barbera JA, Macintyre AG. *Medical Surge Capacity and Capability: A management system for integrating medical and health resources during large-scale emergencies* (2004). CNA Corporation for the U.S. Department of Health and Human Services. Available at: http://www.hhs.gov/ophep/mscc_handbook.html, accessed April 24, 2006.

addressed. A comprehensive EM program is extraordinarily complex for any organization, and perhaps even more so when accomplished within a healthcare system.⁴⁴ As the EM profession evolved, standard methods and program approaches have been validated as effective, and an increasingly consistent body of knowledge has emerged from research and practice. Relevant research, strategic concepts, tactical methods and examples are presented in this module and throughout the text, and explained in the context of Emergency Management for Healthcare Systems.

Terminology alert!

Emergency Management Program: A program that implements the mission, vision, and strategic goals and objectives as well as the management framework of the program and organization. It uses a comprehensive approach to emergency management as a conceptual framework, combining mitigation, preparedness, response and recovery into a fully integrated set of activities. The “program” applies to all departments and organizational units within the organization that have roles in responding to a potential emergency. (Adapted from NFPA 1600, 2004 and the VHA Guidebook, 2004)

“Systems-Based Methodology” in Emergency Management Programs

Emergency management is an inter-disciplinary, trans-organizational, inter-agency and inter-governmental function. The EM program, therefore, must address multiple important management issues that are inherent to emergency management.

- Coordination and integration: A primary task of emergency management is the coordination and integration of various disciplines and agencies that are not always accustomed to collaborating on a day-to-day basis.
- Bridging multiple boundaries: Emergency management in the United

⁴⁴ Few other disciplines are as constrained as medicine, in terms of financial limitations, regulatory requirements, and complexity of operations.

States exist at the Federal (national), State and local (counties and cities) levels, as well as within each response entity at the organizational level. To manage large and/or complex incidents, it must have methods to effectively bridge the multiple levels and jurisdictional boundaries, and the public-private interface.

- Emergency management “system” orientation: The desired end-state for preparedness is the creation of a response **system** (see terminology textbox) that is organized by functions. A primary challenge confronting Emergency Management is the coordination and integration of disparate groups that are not always accustomed to collaborating on a day-to-day basis. Emergency Management is the focused activity that acts as the hub to coordinate all of these entities, so that they can work collaboratively toward the common EM goals.

One of the goals of any emergency management program is the creation of a response system that is organized by functions.

Terminology alert!

System: A clearly defined functional structure, with defined processes, that coordinates disparate parts to accomplish a common goal.⁴⁵

- Organizational disparity within healthcare systems: Even within a single organization, components may not easily interface for the purpose of emergency response. In emergency management for healthcare systems, for example, these disparate components include:
 - The multiple departments (or key operating units) within a hospital.
 - Multiple facilities within a single healthcare organization.
 - Multiple very different response agencies within a jurisdiction that must coordinate closely with the hospital response (public health, emergency medical services, nursing homes, medical clinics, pharmacies, independent laboratories and others).
- System of systems: It may be more appropriate to describe the

⁴⁵ Barbera, J.A., Macintyre A.G. *Medical and Health Incident Management (MaHIM) System: a comprehensive functional system description for mass casualty medical and health incident management* (2002). Available at: www.gwu.edu/~icdrn.

Organizations often have a difficult time defining the end point for “adequate preparedness.” A better end point might be defining an appropriate response system for implementation.

desired EM end-state as an established “**system of systems**”⁴⁶ that will optimally support medical care resiliency and medical surge capacity and capability for mitigation, preparedness, response and recovery.

Defining “Prepared” Against an Effective Response Model

A recurring issue in emergency management is defining “adequate preparedness.” This may be better addressed by restating the issue as “what is the threshold at which the organization is prepared to adequately respond so that it maintains organizational resiliency and provides the projected surge capacity and capability.”

- The importance of an effective response model: To approach the preparedness issue from the above question, it becomes increasingly apparent that **successful preparedness must be guided by an effective response model**, rather than simply by moving forward with “targets of opportunity” such as available training, acquiring resources through government funding, and the other less directed preparedness strategies currently in use. To reach a point where an organization can judge that it is adequately prepared, the response model for the organization must include detailed process descriptions for internal management and for external coordination within the community response. The model must therefore also describe the organization’s position and role within the community response. As discussed later in this text, this “model of response” is developed into the Emergency Operations Plan for the organization.
- The importance of consistent strategy: A detailed response model is complex, and the many preparedness and response actions must all be well integrated. A specific and consistent **strategy** is therefore required to achieve and maintain the overarching system that ties all the component systems together through a common, organized set of goals and objectives. A “**systems-approach**” (see terminology textbox) provides this strategy, and should be applied during the day-to-day activities related to development, maintenance, evaluation and improvement of the emergency management program, as well as during emergency response. A major focus of this text is describing the methods that achieve this strategy.

⁴⁶ Admiral James Loy (USCG Retired) - Deputy Secretary, Department of Homeland. *The Transition from Reaction to Proactive Risk Management*. GWU/SAIC Homeland Security, Emergency & Risk Management Forum (1/27/05); The George Washington University, Washington, D.C.

Terminology alert!

Systems approach: A management strategy that recognizes that disparate components must be viewed as inter-related components of a single system, and so employs specific methods to achieve and maintain the overarching system. These methods include the use of standardized structure and processes and foundational knowledge and concepts in the conduct of all related activities. This approach may also be called “systems-based methods.”

A systems approach to the emergency management program emphasizes:

1) Core concepts and principles found within the discipline.

2) Standardized processes and templates for consistency

3) Common managerial strategies and practices with defined roles for participants

Foundations for a systems-based Emergency Management Program

Three important foundations to the systems-based approach to developing emergency management programs:

1) Core concepts and principles: These concepts and principles define the body of knowledge that is known as Emergency Management. They underlie both the research and practice of emergency management and provide the terminology, theory, and organization upon which the discipline is based. This has analogies in the field of medicine, such as the modern theory of disease transmission and its application across all related areas of medical research and practice.⁴⁷ The foundational concepts (Textbox 1.1.2.1) for emergency management have commonly been presented in landmark publications (Textbox 1.1.2.2). The more prominent ones that have relevance to emergency management for healthcare systems will be reviewed here (see below), with others referenced throughout this educational text.

⁴⁷ In the past, many healthcare experts have undertaken the practice and research of emergency management without little or no appreciation or knowledge of these foundational concepts. This is analogous to an emergency manager attempting to practice medicine without appreciation or knowledge of disease transmission, anatomy, physiology, or many other fundamental medical concepts.

In many instances, medical personnel have become 'creative' in addressing emergency management programs before consulting established literature that addresses the issue at hand in a more efficient manner.

Textbox 1.1.2.1

**Core Concepts and Principles for
Emergency Management for Healthcare Systems**

Emergency Management Program Development

- Disaster and Organizational Research
- Comprehensive Emergency Management
- Continuity Planning
- Integrated Emergency Management System
- Emergency Management Standards
- Evaluation & Organizational Learning concepts.

Incident Management

- Incident Command System
- Standardized Emergency Management System
- National Incident Management System
- National Response Plan.

Textbox 1.1.2.2

**Foundational Documents for
Emergency Management for Healthcare Systems**

- Comprehensive Emergency Management (CEM)
- Integrated Emergency Management System (IEMS)
- The Incident Command System (ICS)
- The Federal Response Plan
- Standardized Emergency Management System (SEMS)
- National Incident Management System (NIMS) with Incident Command System
- National Response Plan (succeeding the Federal Response Plan)
- Federal Preparedness Circular #65 (Continuity of Operations)

Relevant Standards

- NFPA 1600, 2004 Edition (Standards for Emergency/Disaster Management and Business Continuity Programs)
- NFPA 99, 2005 Edition (Standard for Health Care Facilities)
- ASTM 1288-90, 2005 Edition (Standard Guide for Planning for and Response to a Multiple Casualty Incident)
- ASTM E54.02.01 (Standard on Hospital Preparedness)

- Joint Commission for Accreditation of Healthcare Organizations (JCAHO) emergency management standards for healthcare organization.

It is important for the medical and health disciplines to recognize and understand these foundational concepts as they research, develop, and practice emergency management. It is no longer sufficient for healthcare professionals to assume that they can adequately develop and manage emergency management programs based upon traditional knowledge accumulated during regular medical educational experience. For example, the management of a very busy emergency department does not equate in any fashion to “incident management” performed using ICS concepts under extraordinary conditions. Creative ideas and innovations cannot alone serve to adequately address the healthcare organization’s mitigation, preparedness, response, and recovery. A professional, validated emergency management system is essential.

2) Standardized process and templates: Standardized process and methods involves well-described, reproducible, and usually sequential steps to accomplish a stated objective. They are used for conducting most emergency management-related activities.

- Examples from preparedness: Standardized development process can be used during emergency management committee work to develop:
 - A prioritized list of hazards that threaten a healthcare organization (a component of the Hazard Vulnerability Assessment process).
 - The overarching “emergency operations plan” (EOP) that guides response and recovery, with an increasingly standardized format and incident command system).
 - A plan component, such as a notification procedure (standardized terminology and principles that tie the notification into EOP mobilization and response actions).
 - A fixed asset, such as a decontamination facility (standardized layout, common principles for receiving and processing patients, and so on).
 - An After Action Report (the end product of a standardized AAR process).

Standardized processes can be used throughout the 4 phases of emergency management (mitigation, preparedness, response, and recovery).

Establishing defined roles for the organization's personnel within an emergency management program is critical.

- Examples during incident response: Standardized templates from the Incident Command System are similarly used for:
 - Developing incident action plans.
 - Conducting operational briefings.
 - Use of situation reports.
 - Many other management functions during emergency response and recovery operations.

In designing capacity and capabilities, **this standardized approach assures that all components of the total “system” are coordinated, with their individual objectives supporting the overall organizational mission.** This type of standardized or template process for emergency management is analogous to “the scientific method”⁴⁸ used ubiquitously in modern medicine to provide a subject neutral, objective and common process for conducting research.

3) An organized emergency management program with common managerial strategies and practices: Those responsible for emergency management must create and maintain an effective interdisciplinary organization to mitigate, prepare for, respond to, and recover from major threats to lives and livelihoods. It is important to recognize that plans alone are not effective unless they are supported by people and a process brought together by good management skills.⁴⁹

To establish and conduct effective emergency management, all activities should be organized within a single Emergency Management Program (see terminology textbox) for an organization. The program establishes common managerial strategies so that all participants have a defined role that is coordinated with the whole.

⁴⁸ Scientific methods and the follow-on *scientific methods* are described in many historical and contemporary resources. An accurate summary is available at: <http://www.scientificmethod.com/smvsm.html>, accessed August 10, 2005.

⁴⁹ LaValla P., Stoffel R. *Creating Interagency Cooperation and Coordination, Blueprint for Community Emergency Management: A Text for Managing Emergency Operations* (1992). Emergency Response Institute, Inc; pp. 168-169.,

Terminology alert!

Emergency Management Program: A program that implements the mission, vision, and strategic goals and objectives as well as the management framework of the organization. It uses a comprehensive approach to emergency management as a conceptual framework, combining mitigation, preparedness, response, and recovery into a fully integrated set of activities. The "program" applies to all departments and organizational units within the organization that have roles in responding to a potential emergency. (Adapted from NFPA 1600, 2004 and the VHA Guidebook, 2004)

When a disaster occurs, the entire community responds to and becomes involved in the response. Likewise, the response within the healthcare facility will involve everyone in some way. The emergency program manager (EPM) [see terminology textbox] must therefore build and maintain interest, support, and participation by leadership and key managers. Without their active involvement, the EM program is a "vacuum program," with significant probability of failure should disaster occur. Obtaining and maintaining support and participation is one of the major challenges of anyone with the role of EPM. The EPM must achieve and maintain an integration of emergency management principles and practices into the day-to-day administration of the organization, and tailor the emergency management program to the needs and culture of the organization.

Terminology alert!

Emergency Program Manager: The individual primarily responsible for developing, implementing and maintaining a healthcare organization's emergency management program.

The managerial strategies address program boundaries and integration into the organization's administrative (i.e., committee) structure. They address attaining visibility, maintaining credibility, and establishing organizational resilience and ability to surge despite the difficult business and economic environment in healthcare. This includes working with the larger community to define the role of the healthcare organization in the

The Emergency Program Manager holds responsibility for the program, but must be empowered to do so and must have a defined relationship with the organization's day-to-day administration.

A successful emergency management program has certain characteristics. These are listed here and discussed in more detail in Module 1.2.

community emergency response and addressing funding streams that will allow the healthcare organization to meet this “public safety” responsibility.⁵⁰

Components of a Successful Emergency Management Programs

The following are considered essential components of an emergency management program (and are discussed in more detail in Module 1.2):

- **Clear EM program mission/goals:** The mission or **goals** can best be described as the endpoint the organization would like to achieve (see Terminology Textbox). For the EM Program, the goals should be clearly stated and documented. For example, one goal may be “establishing a comprehensive emergency management program that is focused on maintaining continuity of patient care operations”. By describing this in clear terms, subsequent steps take on this purpose.

Terminology alert!

Goals, Organizational: A description of the end state – where the organization wants to be, at the end of the activity, program, or other entity for which the goal was defined. The goals taken together can be equated to the organizational mission. Goals can be set for any component of a program (e.g. goals for overall EM program, goals for response during an incident).

- **EM program objectives:** An effective Emergency Management (EM) program for healthcare systems must have clear objectives that are designed to achieve the goals. The objectives are then applied across the EM program, guiding the development of tasks for the annual mitigation and preparedness work plans, and development of the emergency operations plan for response and recovery. For example, The EM program will achieve the following objectives:
 - Provide leadership and direction across all phases of emergency management.

⁵⁰ Barbera, J. A., MD, Macintyre, G. A., MD, DeAtley, C.A., PA-C, *Ambulances to Nowhere: America's Critical Shortfall in Medical Preparedness for Catastrophic Terrorism*, BCSIA Discussion Paper 2001-15, ESDP Discussion Paper ESDP-2001-07, John F. Kennedy School of Government, Harvard University, October 2001.

- Identify hazards and take actions to minimize or eliminate their occurrence and/or their consequences.
- Define and prepare for the service needs created by the hazard impact on the community and on the healthcare organization itself.
- Define individual, team and organizational responsibilities during emergency response and recovery operations, and the competencies to meet these responsibilities.
- Identify required resources needed for response and recovery, and develop methods for acquiring and maintaining them in a state of readiness.
- Conduct effective organizational information management and effective decision-making during response and recovery as well as during day-to-day mitigation and preparedness activities.
- Provide emergency response and recovery management and coordination within the healthcare facility and/or the healthcare system, as well as integration with the broader response community.
- Systems-based program and plans: For any component of the EM Program, standardized structures, processes, and foundational knowledge should be applied to the development and maintenance of that component. The systems based approach uses the following template approach (briefly reviewed here) for the development of any new component.
 - Set goals
 - List assumptions
 - Establish objectives and strategies to achieve the goals
 - Establish system description
 - Establish concept of operations
 - Implement system with resources, instruction, processes
 - Evaluate the system
 - Maintain and revise the system as appropriate
- Established Advisory EM Committee and Emergency Program Manager: An established EM committee is a critical component of a successful EM program. The committee is charged with steering the EM program, through the establishment of measurable objectives as presented above, as it evolves through its development, implementation, use, maintenance, evaluations, and revisions. Successful EM committees (see Lesson 1.2.2) encourage multidisciplinary and departmental participation. Strategic approaches

The success of an EM program often hinges upon the appropriate construct of, participation in, and maintenance of an Advisory EM committee (EMC).

to the activities of the committee provide better results than reactive activities that merely create products in reaction to events or for accountability purposes. Recognizing the established relationship of the EM committee to the organization's regular day-to-day structure can provide benefit. Finally, the selection of a qualified emergency program manager to lead the efforts of the EM committee can provide the appropriate overall guidance and management of the collective EM program efforts.

- Leadership and direction: Specific leadership and direction strategies can be employed by the emergency program manager and committee to enhance the ability of the EM program to integrate with and support the overall organization. As an example, the above described mission or goals of the EM program must be established within the context of the overall organizational mission. This requires research and delineation on what it is the organization is attempting to achieve on a regular basis. Building organizational support for the EM program is often necessary to counter inertia. This organizational support from all levels is vital as the EM program must be continuously considered, practiced, and managed to develop and maintain the necessary structure and levels of competence throughout the organization.
- Strategic administrative planning and effective annual work-plan: The EM program will only succeed if it is approached in a professional manner. It must have the support of the organization's administration. In addition, an overall work plan for the development and refinement of the EM program is necessary. This type of planning organizes a series of activities across the year and assigns responsibilities for action and follow-up. One of these activities, the Annual Program Review, is a primary driver for revision and improvement of the strategic administrative plan. This can be accomplished through various means but often involves document reviews, interviews and/or observations of important EM program components. The program review would reveal areas where the EM program could be improved as well as report on the progress towards goals and objectives set for that period. The work plans then delineates the tasks to be accomplished that will achieve these improvements and objectives.
- All-hazards planning: Consistent with the concepts of CEM, every successful EM program should include planning for all hazards across the four phases (mitigation, preparedness, response, recovery). The strategy is based upon a comprehensive Hazards Vulnerability Analysis (HVA) which, in simple terms, provides a structured analysis of the potential risks that an organization faces (the methodology for a comprehensive HVA is presented in Module 1.3). This analysis allows for realistic organizational planning. The activities addressed during

EM programs should develop annual work plans to be most effective and to avoid maintaining a reactive posture.

mitigation are designed to prevent hazard occurrence or lessen the severity of any hazard impact on the organization. Preparedness planning allows for the development and implementation of a response and recovery plan to be used after hazard impact. The **Emergency Operations Plan (EOP)**⁵¹ is the term utilized to describe the collective procedures and processes used for all hazard **response** and for at least the early recovery phase. In this manner, common procedures and processes across all hazards are emphasized. Hazard-specific issues are addressed by developing short, concise action guidance. For healthcare organizations, this emergency operations planning addresses not only the potential **surge** that they may have to address, but also the organizational **resiliency** in maintaining its regular day-to-day operations (continuity of operations).

- Commitment to program evaluation and organizational learning: The most successful organizations are ones that are committed to constant self-evaluation, with revision as indicated. The same may be said of successful EM programs. Though discussion is often provided regarding the evaluation of the emergency operation plan, the overall EM program itself should be regularly evaluated and revised as appropriate. There are several approaches and vehicles for conducting evaluations (see Unit 4). The critical and frequently neglected next step after evaluations of any component of the EM program is to incorporate necessary changes. This “organizational learning” is a systematic process for assessing proposed changes to the system and incorporating accepted proposals to effect lasting change in system performance. This attains true organizational improvement, rather than the usual “lessons learned”⁵² focused on individual performance. At first glance, these critical EM program activities (described at length in Unit 4) may seem onerous. Once thoroughly understood, they in reality make the conduct and maintenance of the EM program easier.

All hazards planning is a critical concept inherent to EM. This necessitates that commonalities amongst all hazards are emphasized FIRST (e.g. a Base Plan/EOP) and then hazard specific issues are addressed SECOND (e.g. hazard annex/EOP). This has historically not been the approach in health and medicine as efforts often revolve around a specific hazard (e.g. a mass casualty plan).

⁵¹ The Joint Commission on Healthcare Organizations (JCAHO) describes the “Emergency Management Plan.” This is consistent with JCAHO’s approach to having “management plans” for various major areas that they evaluate for accreditation. In the nomenclature of emergency management, much of the “Emergency Management Plan” is captured in EM program documents, and the EOP is a critical component of this plan.

⁵² Adapted from Barbera, JA, Macintyre AG. *Medical and Health Incident Management (MaHIM) System: A Comprehensive Functional System Description for Mass Casualty Medical and Health Incident Management* (December 2002), available at: www.gwu.edu/~icdrm. accessed June 4, 2006.

Lesson 1.1.3 Emergency Management Core Concepts and Principles

Lesson Objectives

- *Explain why the disaster research findings are important to the development of an emergency management program and incident management activities.*
- *Explain Comprehensive Emergency Management, its purpose, and its four phases*
- *Summarize the foundational concepts that form the basis for organizing and conducting an emergency management program.*
- *Identify core concepts that support incident management.*

Introduction

Some of the more important concepts and principles are briefly presented here to introduce the foundations for “all-hazards” emergency management programs for healthcare systems. Many of these concepts are expanded upon in later sections of this text.

The Disaster Research

- Disaster sociology and natural hazards research: Since the 1940s, a considerable amount of knowledge has been gained by hazards researchers (focusing on pre-event hazard vulnerability from the various physical sciences) and the disaster researchers (investigating pre- and post-impact issues).
- Diverse investigational areas: The lessons offered by history are invaluable to the future, and the disaster research field is as diverse as the disciplines that are involved in emergency management. This text focuses particularly on the contributions from disaster sociology, in which organized research of human behavior during crises has been ongoing for many decades. The works of major contributors such as Enrique Quarantelli, Thomas Drabek, Russell Dynes, and Kathleen Tierney are available in the public domain from the Disaster Research Center (University of Delaware)⁵³ and the Natural Hazards Research and Information Applications Hazards Center (University of

A body of literature exists outside of traditional medical literature that provides critical considerations for the healthcare system EM program. Much of this is contained within “disaster sociology research.”

⁵³ Information on the Disaster Research Center is available at <http://www.udel.edu/DRC>, accessed March 25, 2006.

Colorado).⁵⁴ This information is included throughout the text, but important components are presented here:

- Functional organization: The idea of organizing emergency operations plans around functions and not particular hazards was the result of contributions from the disaster research community. Researchers argued that the same types of activities need to be performed regardless of the cause of the disaster. These “agent-generated demands,” such as search and rescue, medical care, evacuation, and so forth, were only part of what was going on during the response to a disaster. The “response-generated demands” or the forces at play within organizations as they mobilized, such as decision-making, communication, interagency coordination and so on, needed greater attention.⁵⁵
- Problem-solving, distributed approach: The disaster research helped explain why the previous military “top-down” approach that typified the civil defense era was not a realistic model for civilian emergency management systems. A problem-solving approach was advanced that emphasized that response capabilities are enhanced by bringing responders together in common planning and rehearsal activities, by personal contact, by liaison activities during incidents, and by establishing shared facilities.
- Understanding crisis behavior: The behavior of people as individuals, members of families and small groups, and as organizations during disasters has been studied in depth by the above researchers and other sociologists. Human behavior under stress, the behavior of emergent organizations, and many other topics have been presented. These are very important to fully understanding the science and practice of emergency management. While many of these research findings are incorporated into the concepts in this text, their individual presentation are beyond its scope.
- Clarifying the difference between “disaster planning” and “disaster managing”: An important observation by a pre-eminent disaster researcher, Enrique Quarantelli and his colleagues (see Textbox

Disaster research has emphasized that the issues that challenge an organization during an incident can come from within the organization (i.e. response demands) as well as from the hazard impact itself.

Disaster research distinguishes between disaster planning (preparedness and mitigation) and disaster management (response and recovery).

⁵⁴ Information on the Natural Hazards Center is available at: <http://www.colorado.edu/hazards/>, accessed March 25, 2006.

⁵⁵ Adapted from: Quarantelli EL. *Major Criteria for Judging Disaster Planning and Managing and Their Applicability in Developing Societies* (1998). Disaster Research Center, University of Delaware; Newark, Delaware, available at: <http://www.udel.edu/DRC/preliminary/268.pdf>; accessed January 21, 2006.

1.1.3.1) was differentiating between disaster planning and disaster management. In this educational document, the term “disaster planning” translates to the **mitigation and preparedness planning** during “emergency management program activities,” and the term “disaster managing” is now referred to as “**incident management.**” Incident management incorporates the important concept of “**incident action planning,**” which occurs during the emergency response and recovery phases. The concepts that support both types of planning are identified in this lesson, although the focus of this Unit is on EM program development. Incident management and incident action planning is more fully described in Units 2 and 3.

Textbox 1.1.3.1

“Disaster Planning and Managing”⁵⁶
Enrique Quarantelli

“Our starting point is that what is crucial. [It] is not planning or managing, but good planning and managing. It is after all possible to have bad instances of both. Thus, to assess in an intelligent way the preparedness planning for and the managing of disasters requires asking the question: what is good planning and managing?”

Good community disaster planning must:

- Focus on the planning process rather than the production of a written document.
- Recognize that disasters are both quantitatively and qualitatively different from minor emergencies and everyday crises.
- Be generic rather than agent specific.
- Be based upon emergent resource coordination and not a command and control model.
- Focus on general principles and not specific details.
- Be based on what is likely to happen.
- Be vertically and horizontally integrated.
- Strive to evoke appropriate actions by anticipating likely problems and possible solutions or options.
- Use the best social science knowledge possible and not myths and misconceptions.

⁵⁶ Quarantelli EL. *Major Criteria for Judging Disaster Planning and Managing Their Applicability In Developing Countries*. University of Delaware Disaster Research Center, DRC Publication 268; available at: <http://dspace.udel.edu:8080/dspace/bitstream/19716/286/1/PP268.pdf>, accessed March 14, 2006.

- Recognize that crisis time disaster planning and disaster managing are separate processes.

Good disaster managing must:

- Recognize correctly the difference between agent and response generated needs and demands.
- Carry out generic functions in an adequate way.
- Mobilize personnel and resources in an effective manner.
- Involve proper task delegation and division of labor.
- Allow the adequate processing of information.
- Permit the proper exercise of decision making.
- Focus on the development of overall coordination.
- Blend emergent aspects with established ones.
- Provide the mass communication system with appropriate information.
- Have a well functioning Emergency Operations Center (EOC).”

The Management Research

An important point to acknowledge at the outset of any examination of “emergency management” is that **EM is a management science**. Much has been written about the tasks that emergency managers must accomplish within their duties, about the context in which they operate, the human behavior they must address under incident conditions, and other topics. It is important to recognize, however, that these all must be addressed through consistent, overarching management principles.

- Management of organizations: As a research area, this has been studied for many decades. Many of the important research findings and principles that were developed for other areas of management science are applicable to emergency management and incident command. Application concepts are modified for the relatively unique emergency and disaster context (rapid pace, greater uncertainty, and so on). These include:
 - Organizational theory and function: Management researchers and practitioners have been striving for decades to determine how organizations may optimally function. Research foci have included how the organization: 1) interacts externally; 2) manages internally; and 3) optimally accomplishes its outputs (products and/or services) to meet demands. Research conclusions are presented in appropriate locations throughout this text. Some of the more important and longstanding

Additional research relevant to EM can be found in the managerial sciences. Some of this material is from the business and the systems engineering disciplines.

management concepts include:

- **System theory:** System theory (see Textbox 1.1.3.2) revolutionized how organizations and the organizational change processes are understood.⁵⁷ The full complexity of the environment of any organization or system, the people and personal motivations that make up such a system, and the difficulty of effecting change form the basis of this understanding. The systems theory sees organizations as complex and always dynamic. Systems theorists understand that there is a politics of change in large organizations and that fostering change has much to do with organizational culture.

Textbox 1.1.3.2

System Theory: A Brief Summary⁵⁸

System theory is the trans-disciplinary study of the abstract organization of phenomena, independent of their substance, type, or spatial or temporal scale of existence. It investigates the principles common to all complex entities and the models that can be used to describe them. A system can be said to consist of four things:

1. Objects – the parts, elements, or variables within the system. These may be physical or abstract or both, depending on the nature of the system.
2. Attributes – the qualities or properties of the system and its objects.
3. Internal relationships among its objects.
4. External relations with the environment.

A system, then, has multiple components and forces that affect one another within an environment and form a larger pattern that is distinguished from any of the parts. The fundamental systems-interactive paradigm of organizational analysis features the continual stages of input, throughput (processing), and output, which demonstrate the concept of open versus closed systems. A closed

⁵⁷ This body of thought evolved over many decades in the 20th century. An author credited with consolidating much of the thought was Ludwig von Bertalanffy. An adapted summary of his teaching is provided in Textbox 1.1.3.2

⁵⁸ Adapted from: von Bertalanffy L. *General Systems Theory* (1968). New York: Braziller. Excerpts available at: <http://www.panarchy.org/vonbertalanffy/systems.1968.html>, accessed March 27, 2006.

system does not interact with its environment. It does not take in information and therefore is likely to atrophy, that is, to vanish. An open system receives information, which it uses to interact dynamically with its environment. Openness increases its likelihood to survive and prosper.

- ❑ Open versus closed systems in system theory: System theory does not view most organizations as closed systems or independent of external forces. Instead, organizational systems are recognized as having interdependent relationships with many defined components: the external environment, the individuals inside the system, the relationships that generate cooperation or conflict, and others. This “open system” recognizes the goals of individual members can be as important as any one singular organizational purpose declared by those in leadership positions. As such, systems theory focuses on the complexities of open systems and the necessity for organizations to adapt to ever-changing environments. It seeks to understand the social character of dynamic system interrelationships and their impact upon outcomes. A fundamental principle that characterizes open systems is that objectives can be pursued through a variety of methods and means and there is no single approach that will always produce the desired results.⁵⁹

*“Organizational rationality therefore is some result of
1) constraints which the organization must face,
2) contingencies which the organization must meet, and
3) variables which the organization can control.”
(J.D. Thompson, 1967)⁶⁰*

- ❑ Management by objectives: This management concept was described and promulgated by George S. Odiorne in his 1965 book *Management by Objectives*.⁶¹ It is discussed in

Systems theory proposes that organizations be viewed in terms of their components, their relationships with other organizations, and their dynamic changing environments.

⁵⁹ Katz D., Kahn R. *Organizations and the System Concept*. Classics of Organization Theory (1966). Schafritz J., and Ott S.J. Belmont, Wadsworth - Thomson Learning.

⁶⁰ Thompson, J D. *Organizations in Action*. *Classics of Organization Theory* (1967). Schafritz J., and Ott S.J. Belmont, Wadsworth - Thomson Learning. p. 280.

⁶¹ Odiorne, G.E. *Management by Objectives* (1965). Pitman Publishing Corp. New York. Described in Sydänmaanlakka P. *Intelligent Leadership and Leadership Competencies: Developing a leadership framework for intelligent organizations* (2003). Doctoral Dissertation, Helsinki University of Technology, Department of Industrial Management, available at:

Competencies were originally established to characterize knowledge, skills, and abilities relevant to a specific position. They have come under increasing scrutiny by response systems as a valuable tool.

detail as it applies to incident management later in this lesson.

- ❑ **Management terminology:** As management science has evolved over the decades and is applied to multiple disciplines, management terminology has developed very wide variations. To address this major difficulty in developing this extensive emergency management text, the authors sought to establish and maintain terminology consistency across the multiple subject areas. A detailed glossary was therefore developed to provide this terminology base.
- **Competencies:** Competencies (see terminology textbox) and competency modeling originated in business management research and has evolved extensively over the past 25 years as other disciplines began adopting the practice.⁶²
 - ❑ The original intent of competency identification and development was to enhance the then common “job/task analysis” by **relating a position’s requisite knowledge, skills and abilities to overall objectives of the organization** in which the position existed.
 - ❑ This approach aligns the objectives (i.e., desired outputs) of individual and team jobs/responsibilities with overall goals and objectives of the organization, such that organizational mission and objectives are achieved through effective individual and team performance.
 - ❑ Competencies should therefore be defined such that they describe specific elements that contribute to effective job performance within the context of a job’s responsibilities. Each **job or position competency is further delineated as some combination of knowledge elements, skills, and abilities that are objective and measurable (i.e., demonstrable) on the job.**

<http://lib.tkk.fi/Diss/2003/isbn9512263602/isbn9512263602.pdf>, accessed March 27, 2006.

⁶² Newsome S., Canto V.M., and Day A.L. *Leader Competencies: Proposing a Research Framework* (2003), available at:

http://cleadership.ca/paper/leader_competencies_a_research_framework.pdf, accessed September 14, 2005.

- ❑ In the aggregate, the competencies of all key jobs describe the overall position requirements to achieve the objectives of the organization.

Terminology alert!

Competency: A specific knowledge element, skill, and/or ability that is objective and measurable (i.e., demonstrable) on the job. It is required for effective performance within the context of a job's responsibilities and leads to achieving the objectives of the organization.⁶³

- ❑ Competencies are therefore described in the context of the organizational structures, processes, procedures, and relationships that are required for emergency response and recovery. Competencies related to emergency response and recovery operations should be defined in the context of emergency and disaster conditions and response systems: the emergency operations plan. This distinguishes emergency response and recovery competencies from those associated with everyday job requirements. Preparedness competencies are a separate issue and are much more in line with standard competencies (related to effectively running meetings, conducting training, etc.).
- ❑ Competencies are further qualified by the **level of proficiency** (see terminology textbox) needed by a particular job or group of jobs. Many different proficiency levels have been promulgated, with most versions containing three levels. As a component of this curriculum project, a competency framework was developed based upon an extensive literature search, and the follow-on competencies developed within that framework were evaluated and judged as valid by a panel of experts.⁶⁴ The levels of proficiency in this framework are presented in the

Competencies associated with the EM program should be distinguished from day-to-day organizational competencies and should also be established within the appropriate context (e.g. preparedness versus response competencies).

Defining levels of proficiency for specific competencies adds additional guidance for the organization's personnel.

⁶³ Adapted from Barbera J.A., Macintyre A.G., Shaw G.L., Seefried V., Westerman L., DeCosmo S. *VHA-EMA Emergency Response and Recovery Competencies: Competency Survey, Analysis and Report*, available at www.gwu.edu/~icdrm, accessed December 1, 2005.

⁶⁴ Barbera J.A., Macintyre A.G., Shaw G.L., Seefried V., Westerman L., DeCosmo S. *VHA-EMA Emergency Response and Recovery Competencies: Competency Survey, Analysis and Report*, available at: www.gwu.edu/~icdrm, accessed December 1, 2005

following terminology textbox. The specific level of proficiency that is assigned to a competency for a job group, or for an individual job/position, is based upon the individual or team roles and responsibilities within the functional areas and the overall EOP.

Terminology alert!	
<p>Levels of proficiency: Proficiency levels delineate “The degree of understanding of the subject matter and its practical application through training and performance...” (FEMA, 2004).⁶⁵ The following levels were defined in the <i>VHA-EMA Emergency Response and Recovery Competencies: Competency Survey, Analysis, and Report</i>.⁶⁶</p>	
Awareness	<p>Represents an understanding of the knowledge/skills/abilities encompassed by the competency, but not to a level of capability to adequately perform the competency actions within the organization’s system.</p>
Operations	<p>Represents the knowledge/skills/abilities to safely and effectively perform the assigned tasks and activities, including equipment use as necessary.</p>
Expert	<p>Represents operations-level proficiency plus the additional knowledge/skills/abilities to apply expert judgment to solve problems and make complex decisions.</p>

- Competencies in healthcare emergency response and recovery: It is important for these to be developed in a carefully constructed competency framework. Important considerations are:

⁶⁵ FEMA. *Urban Search & Rescue Incident Support Team Training: Student Manual*. Module 1, Unit 4, p. 6: Planning Process Overview. n/a:40. April 16, 2004). Available at: http://www.fema.gov/pdf/usr/mod1_u4.pdf, accessed March 23, 2005.

⁶⁶ The report is available at: www.qwu.edu/~icdrm/, accessed December 16, 2005.

- ❑ These are defined in the context of healthcare emergency response, not in the everyday context of healthcare operating systems. For example, the normal context is department and unit based (e.g., Emergency Department, Administration, Engineering, etc.), which is not emergency response functional and based upon ICS (e.g., command, operations, planning, finance, logistics, and ICS subdivisions, such as a patient care services branch of operations).
- ❑ The competencies must be detailed enough to be objective and measurable on the job, under emergency or simulated emergency (exercise) conditions. This important concept highlights the importance of having a clearly defined incident command system within which the organization operates during emergencies and disasters.
- Grouping related jobs by competencies: A job grouping strategy should make the competency framework useful to systems development (by providing elements of position qualifications), to training requirements (by competency-based instruction), to job and system evaluation (by competency-based evaluation), and organizational learning (system improvements by modifying competencies):
 - ❑ Job and competency “grouping” for healthcare system emergency response and recovery: “Grouping” organizes jobs in categories with like characteristics (i.e., those having similar or closely related responsibilities/functions and thus sharing common competencies). These groupings and sub-groupings may become progressively more specific, such that **competencies specific to a single position are the only ones not designated as part of a larger position set**. Job sub-groupings therefore, in aggregate, cover all individual positions within the emergency response and recovery system in the organization. An example of the first layers of this job grouping strategy, applied to competency development for the Veterans Health Administration, is provided in Textbox 1.1.3.3. A possible fully developed grouping strategy is provided in Exhibit 1.1.3.1.
 - ❑ Job grouping applications: Grouping using this strategy promotes efficient use of competencies from the EOP (and therefore ICS-based) for training, exercise evaluation, and other EM program activities. This provides distinct

For a competency to provide maximum usefulness to an organization, it should provide information relevant to the position that is measurable (i.e. an objective observer would be able to discern whether the individual possesses the skill, knowledge, or ability to meet the defined competency).

advantage compared to an approach addressing the competencies for each individual job position in an unrelated fashion. Competency-based training, evaluation, and organizational change are therefore simplified.

Textbox 1.1.3.3

Groupings of Jobs for a Competency Framework

The Veterans Health Administration extensively analyzed their emergency response and recovery roles and responsibilities and defined four critical target audiences:

- All Employee (AE) – “Core Competencies”
- Facility Leader (FL)
- Patient Care Provider (PCP)
- Emergency Program Manager (PM)

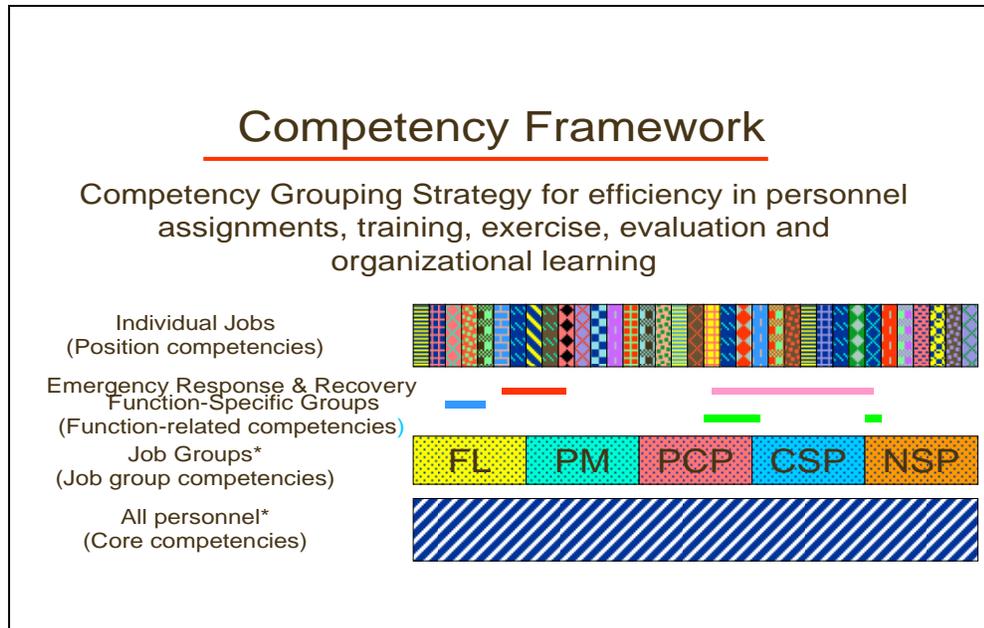
A comprehensive list of primary and supporting competencies was then developed for the “All Employees” and additional primary and supporting competencies for each of the three pre-determined “job groups” was then developed as a component of this curriculum project. As an example, the target audience All Employees, defined as “All personnel with assigned job positions within the Emergency Operations Plan and supervisory staff who may be required to perform the duties of an initial Incident Commander,⁶⁷” includes 15 primary competencies, which are further described as “core competencies necessary as a base for every position within the organization⁶⁸.” Each of the core competencies is decomposed into multiple supporting competencies.

Grouping competencies is an efficient methodology. Competencies that all personnel should possess are defined first with more refined ones defined for specific job groups and positions.

⁶⁷ VHA Emergency Management Program Guidebook (2005). Chapter 9 –Education, Training and Exercises: p. 9-2. Available at <http://www1.va.gov/emshg/page.cfm?pg=114>. accessed June 2, 2006.

⁶⁸ Ibid. p. 9-2.

Exhibit 1.1.3.1. A competency grouping, layered strategy. FL (Facility Leaders), PM (Program Managers), PCP (Patient Care Providers), CSP (Clinical Support Personnel), NSP (Non-clinical Support Personnel).



- **Organizational change:** Organizational change is an essential issue to address in any organization. Even if constructed to operate in an optimal manner at its inception, the organization must adapt (i.e., “change”) as its environment changes, including market and labor conditions, business risks and opportunities, and product and/or services demand. The degree of change may be characterized in many ways, from “adjustments” to “evolution” and even major “transformation.”
- **Management approaches to change:** Many varying approaches have been developed to accomplish change. Several became prominent within the U.S. medical establishment over the past two decades: Quality Assurance, Quality Improvement, Total Quality Management, and others.⁶⁹ In pursuit of this goal, it may be more effective to consider the organization itself before focusing upon the specifics of change.

All efficient organizations address prospectively how they will incorporate beneficial changes. This approach should be utilized for EM programs in healthcare systems. It must be more expansive than just individuals learning and include organizational learning.

⁶⁹ Ahire SL, Landeros R, Golhartotal DY. *Quality Management: A Literature Review and an Agenda for Future Research. Production and Operations Management* (Summer 1995) Vol. 4, No. 3: 277-306.

- ❑ System theory and organizational change: Evaluation and organizational change was addressed in system theory. When organizational change and adaptation to essential operations becomes an organizational objective, defining the change needed and evaluating the success of implemented change involves many different types of program evaluation. This combination of qualitative, as well as quantitative, methods recognizes real world factors that indicate that a method that works well in one area may not work in another. The system theory approach to evaluation emphasizes the ability to adapt to a changing environment by tailoring evaluation styles to different components of the system in order to produce the most accurate and useful results.

- ❑ The learning organization: A prominent conceptual approach in management research addressing change within organizations views the goal as transforming the business or other entity needing change into a “learning organization.” The term “learning organization” has been presented by a range of authors in the research literature. One of the earliest and best recognized descriptions is Peter Senge (see terminology textbox). While the terminology these authors use differs from that used in modern comprehensive emergency management (CEM), many of the conceptual descriptions such as “systems thinking”⁷⁰ are consistent with the “systems approach to emergency management” described earlier.

- ❑ Unit 4 of this text covers evaluation and organizational change in much greater depth.

⁷⁰ Senge, P. (1990). *The Fifth Discipline: The Art and Practice of the Learning Organization*. Classic Readings in Organizational Behavior. S. J. Ott, S. J. Parkes and R. B. Simpson. Belmont, California, Thomson Learning: pp. 484 - 491.

Terminology alert!

Learning organization: An **organization** that conducts continuous evaluation of its experience and transforms that experience into lasting improvements in performance.⁷¹ This is accomplished through change to objectives, structure, process, personnel qualifications (including competencies, which describe knowledge/skills/abilities), facilities, equipment, supplies and other parameters. This “learning process” is accessible to the whole organization and relevant to its core mission and objectives.

Foundational Concepts That Support the Systems-based Emergency Management Program

The important foundational concepts and principles, and the landmark documents in which they are described, are briefly described here to present the breadth of the emergency management discipline and its relation to emergency management for healthcare systems.

- **Comprehensive Emergency Management - 1978:** The concept of Comprehensive Emergency Management (CEM) was first articulated in the 1978 committee report of the National Governors’ Association, which studied the intergovernmental system of emergency management in the United States.⁷² The concepts presented in this work clearly demarcate **emergency management** from its narrower predecessor, **civil defense**.

The follow-on landmark 1978 publication *Comprehensive Emergency Management: A Governor’s Guide*⁷³ declared:

One of the first authoritative documents related to EM was *Comprehensive Emergency Management* published by the National Governor’s Association in 1978.

⁷¹ Adapted from Senge, P. (1990). *The Fifth Discipline: The Art and Practice of the Learning Organization*. Classic Readings in Organizational Behavior. S. J. Ott, S. J. Parkes and R. B. Simpson. Belmont, California, Thomson Learning: pp. 484 - 491.

⁷² Drabek, T.E., and Hoetmer, G.J. Editors. *Emergency Management: Principles and Practices for Local Government* (1991). Chapter 1. The Evolution of Emergency Management. Washington, D.C.

⁷³ NGA. *Comprehensive Emergency Management: A Governor’s Guide* (1979). U.S. Government Printing Office, Washington, DC: pp.11-17.

CEM defined the four phases of EM and introduced the concept of “all hazards.”

- CEM is inclusive of four phases: CEM defines its phases through time and function relationships, as having a common time and different focus that drives its activities. CEM phases are summarized as:
 - **Mitigation**: The phase of Comprehensive Emergency Management that encompasses all activities that reduce or eliminate the probability of a hazard occurrence, or eliminate or reduce the impact from the hazard if it should occur. In comprehensive emergency management, mitigation activities are undertaken during the time period prior to an imminent or actual hazard impact.
 - **Preparedness**: The phase of Comprehensive Emergency Management that encompasses actions designed to build organizational resiliency and/or organizational capacity and capabilities for response to and recovery from disasters and emergencies.⁷⁴ These activities precede any imminent threat or hazard impact (activities in the imminent or post-impact timeframe are considered part of response).
 - **Response**: The phase of Comprehensive Emergency Management that encompasses activities immediately before (for an impending threat), during, and after a hazard impact to address the immediate and short-term effects of the disaster or emergency.
 - **Recovery**: The phase of Comprehensive Emergency Management that encompasses activities and programs implemented during and after response that are designed to return the entity to its usual state or to a “new normal.” For response organizations, this includes return-to-readiness activities.
- CEM applies to “all risks,”⁷⁵ with the document’s definition of “all risks” equating to the current EM term “all-hazard” (see Textbox

⁷⁴ Adapted from the *VHA Emergency Management Program Guidebook* (2005). Available at <http://www1.va.gov/emshg/page.cfm?pg=114>, accessed June 2, 2006.

⁷⁵ “All risks” is qualified as “attack, man-made, and natural, in a federal-state-local partnership” (NGA. *Comprehensive Emergency Management: A Governor’s Guide* (1979). U.S. Government Printing Office, Washington, DC: 11). The “risk” categories correspond to the now common “hazard categories” of “intentional, technological, and natural.”

1.1.3.4). Associated with this statement are strategies for the identification, analysis, and management of common vulnerabilities across multiple hazards. The organization establishes common response processes (notification, incident management, information processing, and many others) that can be used across the full range of hazard events.

- CEM concepts are applicable across all levels of government and the private sector.
 - CEM has become the cornerstone of professional emergency management in the United States and even formed the basis for the organizational structure of the Federal Emergency Management Agency (FEMA), which was founded in 1979.
 - In the post- 9/11 era, the multiple foci of CEM have been retained and incorporated within the Department of Homeland Security, the National Response Plan, and the National Incident Management System. Participation in the emergency management process has now been explicitly extended to citizens' groups as well.⁷⁶ It is important to recognize, however, that Homeland Security, which to date has only been defined by the U.S. government as focused upon terrorism (see terminology textbox) is not the same as EM (see Textbox 1.1.3.5)

Textbox 1.1.3.4

What Does “All-Hazards” Mean?

The term “all-hazards” denotes a specific **strategy** for managing activities in an emergency management program. Throughout the four phases of EM, management structure, processes, and procedures are developed so they are applicable to every significant identified hazard. The few remaining interventions that are specific to individual hazards are layered on top of the basic components as indicated. For example, the procedures for notifying appropriate personnel during EOP activation would use the same process across all hazard types, even though the types of personnel notified and mobilized may vary by hazard.

Homeland security (as currently defined) has a more narrow scope than emergency management. This concept is not always recognized.

⁷⁶ The Citizens Corps (<http://www.citizencorps.gov/>), Citizens Emergency Response Team (CERT) (<http://training.fema.gov/EMIWeb/CERT/>) and many other volunteer programs have been established to involve citizens in organized emergency response.

Terminology alert!

Homeland Security: "...a concerted national effort to prevent terrorist attacks within the United States, reduce America's vulnerability to terrorism, and minimize the damage and recover from attacks that do occur."⁷⁷

Textbox 1.1.3.5

Is Homeland Security the Same as Emergency Management?

Because of the terrorist attacks in the United States in 2001, a Department of Homeland Security (DHS) was created, integrating 22 various Federal agencies, including the Federal Emergency Management Agency (FEMA). A guiding philosophy for FEMA since its creation in 1980 was Comprehensive Emergency Management (CEM), as created by the National Governor's Association in 1978. CEM is a conceptual framework for emergency management and consists of four phases that are cyclical: mitigation, preparedness, response and recovery.

CEM remains unchanged. Homeland security is an agency-related or industry application of emergency management with a counter-terrorism focus, such that prevention is an important activity. In summary, emergency management and homeland security, while related, are separate and distinct entities and must be recognized as such.

Integrated Emergency Management System, published by FEMA in 1983, is another foundational document for EM programs.

- Integrated Emergency Management System (IEMS) - 1983: The Integrated Emergency Management System (see Textbox 1.1.3.6) was promulgated by FEMA, early in the agency's existence, to explain how State and local jurisdictions could implement an "all-hazards" CEM program. Its goal was to "develop and maintain a credible emergency management capability nationwide by integrating activities along functional lines at all levels of the government and, to the fullest

⁷⁷ Office of Homeland Security. *National Strategy for Homeland Security* (2002), p.2 available at: http://www.dhs.gov/interweb/assetlibrary/nat_strat_hls.pdf, accessed January 25, 2006. (No superseding definition has been published as of March 26, 2006.)

extent possible, across all hazards.”⁷⁸ This guidance was primarily directed towards State and local government, but the recommended actions are applicable to any organization interested in establishing a consistent strategy for achieving an emergency management capability.

- IEMS promotes a 13-step process that provided a foundational framework for many emergency management programs in the United States (see Textbox 1.1.3.6)
- Notably, it raised the Hazard Vulnerability Analysis and Mitigation to the same levels of importance that response and recovery had received.⁷⁹
- While the IEMS approach has been modified over the years by most organizations practicing emergency management, it provided a strong precedence for structuring the entire EM program in an organized, inter-related process.

One of the important concepts introduced by IEMS was the elevation of the importance of the Hazard Vulnerability Analysis (HVA).

Textbox 1.1.3.6

Integrated Emergency Management System (1983)

- Step 1: Hazard analysis
- Step 2: Capability assessment
- Step 3: Emergency operations plans
- Step 4: Capability maintenance
- Step 5: Mitigation efforts
- Step 6: Emergency operations
- Step 7: Evaluation
- Step 8: Capability shortfall
- Step 9: Multiyear development
- Step 10: Annual development increment
- Step 11: State/local resources
- Step 12: Federal resources
- Step 13: Annual work increment.

- Incident Command System – 1970s: Perhaps one of the most critical foundational constructs for Emergency Management is the **Incident Command System**. Simply put, ICS provides a standardized

⁷⁸ FEMA. *The Integrated Emergency Management System: Process Overview* (1983), pp. CPG 1-100. Federal Emergency Management Agency, Washington D.C.

⁷⁹ Drabek TE, Hoetmer GJ (ed). *Emergency Management: Principles and Practice for Local Government*. International City Management Association (1991); Washington D.C.: pp.133-134.

The Incident Command System (ICS), introduced in the 1970s, provides a management framework for organizations during emergency response. Its usefulness has been demonstrated for multiple disciplines beyond the fire community and it now serves as the basis of response for all levels of government. It also applies to certain components of the private sector.

management structure with accompanying processes that can be used by any organization(s) to respond to events that challenge their day-to-day management structure. Traditional day-to-day management systems are usually very effective at what they have been designed to achieve (e.g., make products, provide services, accumulate income, and so on). They are generally not sufficient for response to emergencies or disasters that entail a very different context (e.g. different time pressures, different requirements for information management, and greater levels of uncertainty) and different objectives (e.g., save lives, prevent loss of property, provide organizational resiliency, coordination/integration with other agencies, etc). An in-depth examination of ICS applied to healthcare systems is presented in Units 2 and 3 of this educational text.

- **History:** The Incident Command System (ICS) was developed under a congressional charter to solve interagency coordination problems associated with wildland firefighting. This was designated the National Interagency Incident Management System (NIIMS).⁸⁰ ICS was adopted by FEMA for managing its incident operations in the 1990s. In 2003, the Department of Homeland Security (DHS) announced the National Incident Management System (NIMS) and mandated its use by Federal, State and local agencies beginning in FY 2005.⁸¹ The Hospital Emergency Incident Command System (HEICS),⁸² popular with many healthcare facilities, has been renamed to Hospital Incident Command System (HICS) and adapted to be more consistent with NIMS ICS. Scalability is also addressed to meet the needs of various sized healthcare organizations across a range of settings.⁸³
 - **Basis for ICS:** The Incident Command System originated as a result of management problems with the complex, multi-agency responses to wildland fires in the United States in the 1970s.⁸⁴
- Concepts used to develop the Incident Command System**

⁸⁰ NIIMS: *National Interagency Incident Management System*, available at: <http://www.fs.fed.us/fire/operations/niims.shtml>, accessed April 12, 2006.

⁸¹ NIMS Integration Center Web Site, available at http://www.fema.gov/txt/nims/nims_ics_position_paper.txt, accessed January 27, 2006.

⁸² HEICS: *Hospital Incident Command System*, available at: http://www.emsa.cahwnet.gov/dms2/heics_main.asp accessed February 16, 2006.

⁸³ State of California Hospital Incident Command System Update Project. http://www.emsa.cahwnet.gov/dms2/heics_main.asp accessed June 4, 2006.

⁸⁴ NIMS and the Incident Command System: *The History of the Incident Command System*. NIMS Integration Center Web Site, available at http://www.fema.gov/txt/nims/nims_ics_position_paper.txt, accessed January 27, 2006.

were drawn from business management, military command, and systems engineering sectors.⁸⁵ The resulting management system, designed for managing large wildland fires, has since been adapted and demonstrated effective by multiple disciplines that respond to a wide range of complex incidents.

- Managing complex incidents: A primary tenet of ICS is recognizing the many different activities that must occur to successfully manage response to any event. These tasks can be grouped into categories that reflect functional similarities. For instance, all tasks that represent support of the organization's response through the acquisition and provision of accurate information can be grouped together into one functional group (Plans Sections). This approach has led to the description of five main functional areas (see Exhibit 1.1.3.2) that are necessary for response (more in-depth discussions are provided in Units 2 and 3):
 - Command: provides overall direction of the response through the establishment of objectives for the organization to meet. This function may be performed through "unified command," which is explained later in this lesson. In addition to the incident commander, this functional area may include other critical, "high-level" activities such as:
 - Safety: Identifies and assesses hazards to the organization's personnel and develops measures to prevent injury or illness from the hazards.
 - Liaison: Provides coordination and integration with agencies or organizations external to the response system in question.
 - Public Information: Develops and provides, subject to the incident commander's approval, incident information for the public and for response personnel.
 - Senior Advisors: Additional positions, as designated by the incident commander, to provide needed advice and expertise to the command staff.
 - Operations: Through developed strategies and tactics, achieves the objectives set by Command. The Operations

A core concept in ICS is that all of the activities necessary for organizational response to an event can be categorized into similar groups or functions. This is consistent with the disaster research cited above.

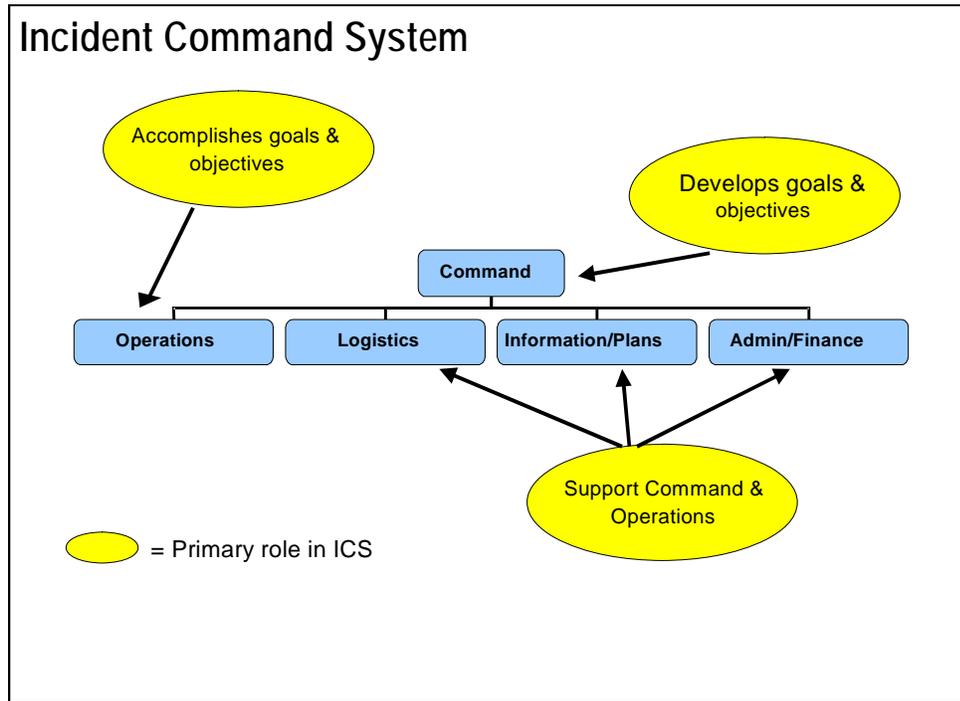
Within ICS, Command sets the goals and objectives of the response for the organization and the Operations Section performs activities to achieve them. The remaining functions support Command and Operations.

⁸⁵ Interview with Mr. Chuck Mills, US Forest Service (retired), a member of the research and development team for the original FIRESCOPE ICS development.

Section is often the most “visible” function in the response system as it addresses the hazard impact (e.g. patient care as a result of the hazard impact, provision of security after a threat, re-establishment of power after an outage). Unfortunately, healthcare system emergency program managers have commonly focused attention exclusively on preparing for Operations to the detriment of the other functions.

- Plans: Supports the response organization by conducting the incident planning activities and through acquiring, processing, documenting, and disseminating all incident-related information. Incidents that involve healthcare systems can have intense information management requirements, highlighting the importance of this critical function.
- Logistics: Supports the response organization with facilities, transportation, supplies, equipment maintenance and fuel, food services, communications and information technology support, and emergency responder medical services.
- Finance/Administration: Supports the response organization by tracking incident costs and addressing issues such as reimbursements, claims, and regulatory compliance.

Exhibit 1.1.3.2 The ICS five functions and their broad relationship with each other.



- Advantage of ICS: The use of ICS provides advantages beyond merely organizing assets into like-minded tasks. This merely represents a “systems description,” demonstrating the direct relationship between various functions. The critical advantage that ICS provides is a detailed “concept of operations” or how each section functions (performs its assignments) and how they interact through the successive stages of a response.
 - All-hazard application: This concept of operations is applicable to any type of hazard incident, so trained responders understand the process and how they will participate in a coordinated fashion.
 - Critical management processes: Processes critical to incident management and incorporated into the ICS concept of operations include: accountability for all resources to more expansive issues such as the following:
 - ❑ Accountability: Process for accountability and tracking of all resources assigned to the incident.
 - ❑ Management by objective: This is a well-described strategy within ICS (see terminology textbox), delineating how

The use of ICS provides many advantages beyond an organizational structure (functions). It also provides template processes and procedures that enhance the organization's effectiveness and efficiency.

Command actually oversees and directs the organization's response.

In ICS, effective decision making is enhanced through a process termed "Management by Objective." Adapted from the business community, this process allows an organization to maintain a pro-active approach during response and is facilitated through the process of Action Planning.

Terminology alert!

Management by Objective: "A management approach that involves a four-step process for achieving the incident goal. The... approach includes the following: establishing overarching objectives; developing and issuing assignments, plans, procedures, and protocols; establishing specific, measurable objectives for various incident management functional activities and directing efforts to fulfill them, in support of defined strategic objectives; and documenting results to measure performance and facilitate corrective action." (NIMS Glossary of Key Terms, p. 132)

The proactive management strategy in ICS that directs and coordinates resources across the incident command system by:

1. Setting overall (control) objectives for the incident and objectives for each specific operational period.
2. Assigning resources to achieve those objectives and to provide support.
3. Providing plans, procedures, and protocols to establish parameters within which assigned resources operate.
4. Monitor progress towards achieving the incident objectives, reassess and revise the objectives, and revise assignments as indicated.

- **Incident action planning:** This is the process used by Command and the Planning Section to manage information, define the response structure, and provide management by objectives. Initially, during the early stages of an incident, Command of an organization is expected to be reactive (e.g., obtaining initial incident information, following the EOP guidance for the early stages, providing tactical guidance in response to immediate circumstances, addressing immediate life safety issues, etc.). ICS promotes a rapid transition to pro-active management. Though not often thought of as important activities in healthcare, establishing a defined response structure and objectives can be critical activities for this transition. From these objectives, strategies, and tactics can be developed for the organization and assignments coordinated through assignment

objectives and operating parameters, including reporting requirements. Furthermore, response objectives are continually re-evaluated and revised during action planning throughout the incident. The result of incident action planning is an action plan (see terminology textbox).

Terminology alert!

Action Plans: Written or verbal plans that reflect the overall incident goal (control objectives) and incident strategy, objectives for the designated operational period, specific tactical actions and assignments, and supporting information for the designated operational period. They provide designated personnel with knowledge of the objectives to be achieved and the strategy and steps to be used for achievement, hence improving coordination across different levels of government and intra-State jurisdictional borders. Actions Plans not only provide direction, but also provide a metric for measuring achievement of objectives and overall system performance.⁸⁶

- Standardized operating principles: ICS is traditionally described as having eight basic features. These ICS principles and their advantages to responding organizations are briefly presented below:
 - Common terminology: When an organization has integrated ICS into its EOP, personnel within the organization, by default, utilize commonly understood and accepted terminology to refer things, such as resources, processes, positions, and organizational structures. This presents an obvious advantage by reducing confusion, especially when multiple organizations are involved that don't commonly work together.
 - Integrated communications: ICS places emphasis on the collection, processing, and appropriate dissemination (to participating parties) of information. It is recognized that

ICS is traditionally described as having eight basic features that demonstrate its advantages. One of the most critical is the use of common terminology. For healthcare systems, which often have disparate organizational structures and processes during day-to-day operations, this can be of tremendous importance.

⁸⁶ Adapted from *Standardized Emergency Management System (SEMS) Guidelines*; Part I. System Description Section A (Draft 12/23/94), page 5; at <http://www.oes.ca.gov/OESHomeP.nsf/10884826d3b7edaa882565f0005adc7f7c59014bc54199bc88256aae006fdcef?OpenDocument>, accessed March 21, 2004.

In ICS, only those portions of the response organization that are needed are activated. This important point is often not recognized by healthcare systems. For instance, a very limited event could potentially require activation of only a few positions within the ICS organizational structure to address the real or potential hazard impact. This could then be expanded or contracted in a modular fashion as needed.

many different types of information exist, with varying levels of importance and different dissemination requirements. ICS promotes the development of a common Communication Plan for use across the response and, in addition, promotes interoperability between communication systems.

- ❑ **Modular organization:** A critical concept in ICS is that the response organization is composed of functional modules that are scalable. They can expand or contract flexibly based upon the incident size, type, and response needs. Functions, activities, or tasks within the organizational structure that do not have assigned personnel are the responsibility of the immediate “higher” level on the organization chart. This means that for some incidents with limited scope, the response organization may only consist of a few personnel (covering all 5 functions as needed) and still perform the functions of ICS. If the incident were to expand, personnel are added to the response organization in a modular fashion. Large incidents may involve hundreds of persons organized according to the five functions referenced above. It is important to understand that the response organization can expand or contract based upon the incident needs, demobilizing valued everyday resources as soon as possible so they can return to their critical everyday tasks.
- ❑ **Unified command structure:** For incidents in which different organizations have responsibilities in managing the response, a single “unified” command structure is promoted. This structure allows the various organizations to develop and agree upon common response objectives, under the guidance of an incident commander from the “lead agency.” This concept should be distinguished from another ICS principle, “Unity of Command” which refers to the fact that each response individual has only one position within ICS where they report and take direction.
- ❑ **Manageable span of control:** ICS promotes a concept where any one position has a limited number of positions that they are directly responsible for managing. The “number” typically cited is between three and seven direct subordinates. This number is influenced by the incident type, the positioning of resources, similarity of functional assignments, and other factors. For certain simple and straightforward activities, this number could potentially

expand.

- ❑ Consolidated action plans: Because the management of the incident is through established objectives, ICS encourages the dissemination of these objectives along with other critical information, such as the assignment of resources, tactics being used, safety information, and other critical response data. This comprises an Incident Action Plan (see Units 2 and 3). It can be either orally disseminated or, for any complex incident, via a written document (preferred). Action Plans from different responding organizations should be consolidated and guidance for how this is accomplished is provided by ICS.
- ❑ Comprehensive resource management: ICS provides processes for categorizing, ordering, dispatching, tracking, and demobilizing resources. The term “resources” in ICS is expansive and encompasses personnel, equipment, supplies, and facilities.
- ❑ Pre-designated incident facilities: ICS assumes that certain critical activities during response will need specific operational areas for the tasks to be performed. These areas include places such as the “Incident Command Post,” staging areas, and others.
- The limitation of “stand-alone” ICS: While ICS is a very valuable concept, its usefulness is limited as a stand-alone system. To achieve its purpose, ICS must be fully incorporated into the organization’s emergency operations plan (EOP). It should be the guiding framework for the functional structure of the organization’s response system, and its principles, processes, forms, and procedures must be established in positions descriptions and competencies, management processes, and task lists, including job action sheets.
- Standardized Emergency Management System (SEMS) - 1994: Standardized Emergency Management System (SEMS) was instituted as a mandatory California program in 1994. State legislation creating it was prompted by severe management coordination problems encountered during major incidents in the preceding years.^{87, 88}

ICS is intended to serve as the framework for an organization’s response plan – not to replace the organization’s response plan.

⁸⁷ *Standardized Emergency Management System (SEMS) Guidelines*; Part I. System Description, Section A (Draft 12/23/94); available at:

Standardized Emergency Management Systems, developed in California in the 1990's, extends many of the principles of ICS to the intergovernmental relationships necessary during response. In this context, management becomes a more critical term than command (which is more appropriate for the tactical scene).

- SEMS purpose: SEMS was formally implemented through regulation and was designed to:
 - Improve the use of mutual aid resources.
 - Reduce the incidence of poor coordination and communications.
 - Reduce resource ordering duplication.
- Based upon ICS principles: SEMS incorporates the tenets of the Incident Command System (ICS) and demonstrates application of those concepts in a layered approach that **integrates the field response and the multiple levels of government at and below the State level**. Of particular note:
 - SEMS delineates the activities of the five ICS functions: Command, operations, planning/intelligence, logistics, and finance/administration, but it notes that **above the field response level**, the term “**management**” rather than “command” is more appropriate.
 - SEMS also delineates “management by objectives”⁸⁹ and “action planning”⁹⁰ as the management methods that provide the important interface between different government levels. “Management by objectives” in SEMS connotes that the management team develops measurable and attainable objectives to be achieved during a given operational period, and this is what guides and coordinates response activities across the incident.

<http://www.oes.ca.gov/OESHomeP.nsf/10884826d3b7edaa882565f0005adc7f/7c59014bc54199bc88256aae006fdcef?OpenDocument>, accessed March 21, 2004.

⁸⁸ CA OES, *Standardized Emergency Management System (SEMS) Guidelines*, available at:

<http://www.oes.ca.gov/Operational/OESHome.nsf/Content/B49435352108954488256C2A0071E038?OpenDocument>, accessed January 26, 2006.

⁸⁹ “Management by objective” connotes that the management team develops measurable and attainable objectives to be achieved during a given operational period, and this is what guides and coordinates response activities across the incident.

⁹⁰ Action plans are written or verbal plans that reflect the overall incident goal (control objectives) and overall incident strategy, objectives for the designated operational period, specific tactical actions and assignments, and supporting information for the designated operational period.

- SEMS defines two types of action plans:
 - ❑ Incident action plans at the field level
 - ❑ EOC Action Plans at the local, operational, regional, and State levels.
- A possible model for a national system: SEMS remains an excellent guide for the use of ICS concepts in organizing and managing EOCs at the multiple levels above field response.⁹¹ These concepts were incorporated into the Medical Surge Capacity and Capability: a Management System for Integrating Medical and Health Resources during Large-Scale Emergencies, which provided a similar strategy for organizing medical response to mass casualties.⁹² These concepts from MSCC are presented in Unit 2.
- **Continuity of Operations (COOP) - 1994**: Continuity of Operations (COOP) refers to “the activities of individual departments and agencies and their sub-components to ensure that their essential functions are performed (see Textbox 1.1.3.7 for the defined COOP elements).”⁹³ COOP, as a defined, mandatory program within the U. S. Government, has its roots in the Continuity of Government Program of the Cold War.
 - Modern guidance: Government-wide emphasis of COOP gained prominence in the mid-1990s with the issuance of Federal Response Planning Guidance 01-94, "Continuity of Operations (COOP)", dated December 4, 1994.
 - COOP standards: Standards for COOP were subsequently updated by Federal Preparedness Circular 65 (FPC 65), "Federal

Continuity of Operations (1994) is a program applying to federal agencies mandating capabilities to continue operations of specific mission critical functions after hazard impact. This program has its origins in the civil defense era and has real applications to ALL organizations seeking to enhance their resiliency.

⁹¹ *Standardized Emergency Management System (SEMS) Guidelines*; Part I. System Description, Section B-D (Draft 12/23/94); available at:

<http://www.oes.ca.gov/OESHomeP.nsf/10884826d3b7edaa882565f0005adc7f/7c59014bc54199bc88256aae006fdcef?OpenDocument>, accessed March 21, 2004.

⁹² Barbera J.A., Macintyre A.G. *Medical Surge Capacity and Capability: A Management System for Integrating Medical and Health Resources during Large-Scale Emergencies*. CNA Corporation under contract to the U.S. Department of Health and Human Services, August 2004. Available at: http://www.hhs.gov/ophep/mscc_handbook.html, accessed November 10, 2005.

⁹³ Federal Emergency Management Agency. *Federal Preparedness Circular 65* (June 15, 2004). Washington, D.C., p.2; available at: http://www.fema.gov/txt/library/fpc65_0604.txt, accessed April 12, 2006.

COOP concepts are invaluable in developing a comprehensive EM program that ensures the organization can continue to function after hazard impact.

Executive Branch Continuity of Operations (COOP)", dated July 26, 1999 and the revised version dated June 15, 2004. FPC 65 establishes the following objectives for a viable COOP Plan:

- Ensuring the performance of an agency's essential function/operations during a COOP event.
- Reducing loss of life, minimizing damage and losses.
- Executing as required, succession to office with accompanying authorities in the event that a disruption renders agency leadership unable, unavailable, or incapable of assuming and performing their authorities and responsibilities of office.
- Reducing or mitigating disruptions to operations.
- Ensuring that agencies have alternate facilities from which to continue to perform essential functions/operations during a COOP event,
- Protecting essential facilities, equipment, vital records and other assets,
- Achieving a timely and orderly recovery from an emergency and reconstitution of normal operations that allows resumption of essential functions for both internal and external clients, and
- Ensuring and validating COOP readiness through an integrated test, training and exercise program to support the implementation of COOP plans.

Textbox 1.1.3.7

FPC 65 Elements of COOP⁹⁴

1. Plans and procedures
2. Essential functions
3. Delegations of authority
4. Orders of succession
5. Alternate operating facility(ies)

⁹⁴ Federal Emergency Management Agency. *Federal Preparedness Circular 65* (June 15, 2004), Washington, D.C., available at: http://www.fema.gov/txt/library/fpc65_0604.txt, accessed April 12, 2006.

6. Interoperable communications
7. Vital records and databases
8. Human capital
9. Test, training, and exercises
10. Devolution (delegation of powers) of control and direction
11. Reconstitution

- COOP application to non-government organizations: COOP is most commonly identified with government organizations, and is primarily intended to assure **continuity of government services**. Private and not-for-profit sector organizations also have the need to survive and maintain their own continuity of operations, both for business and product/service related activities. The initiatives that developed to address this narrow area of emergency management for business were various titled Business Continuity, Crisis Management, Disaster Recovery, and others. As their scope expanded, it was recognized that they were addressing the same issues as emergency management was for public and “response” organizations. This led to the defining documents such as the NFPA Standard 1600 discussed above, that address emergency management and business continuity in a consistent manner.
- Distinguishing COOP and business continuity: COOP, as a term that relates to FPC 65, is most commonly identified with government organizations concerned with potential service interruptions due to terrorism or enemy attack. In this text, non-governmental organizations application of these concepts is termed **continuity planning** (see terminology textbox).

COOP, as written, applies formally to federal agencies. A term that can be used to reflect its importance to all EM programs may be continuity planning.

Terminology alert!

Continuity planning: An internal effort within an organization to assure that the capability exists to continue essential business and service functions across a wide range of potential emergencies, including localized acts of nature, accidents, and technological and/or attack/terrorist-related emergencies. Accordingly, an effective Emergency Management program for healthcare systems not only addresses the four phases of mitigation, preparedness, response, and recovery, but also includes continuity planning activities to ensure that mission critical business operations, patient care services, and ancillary and support functions would continue with little or no interruption.

The National Incident Management System (NIMS) published in 2004 mandates ICS as the management framework for all Federal, State, local, and Tribal agencies during response. It also has specific application to the private sector including many healthcare systems.

- Relationship between CEM and continuity planning: The elements that support viable continuity of planning capability can be integrated within a Comprehensive Emergency Management Program. Planners can also create a separate stand-alone “COOP plan” if that meets the needs of the organization. In the latter approach, it may still be optimal to incorporate the elements of COOP seamlessly into the EOP, then provide a cross-walk instrument that demonstrates where each element of the stand-alone COOP Plan is located in the EOP. In this text, continuity planning is explained and related to mitigation, preparedness, pre-event response and recovery planning (see Lesson 1. 3.3).
- National Incident Management System - 2004: In March of 2004, the U.S. Department of Homeland Security published the **National Incident Management System (NIMS)** as a result of the **Homeland Security Presidential Directive (HSPD)-5**. Its intent is to provide a “consistent nation-wide approach for Federal, State, local, and Tribal governments to work effectively and efficiently together to prepare for, prevent, respond to, and recover from domestic incidents, regardless of cause, size, or complexity.”⁹⁵
 - NIMS topic areas: Though entitled National Incident Management System, the document also contains many concepts and principles related to the non-response phases of emergency management. The six core chapters discuss:
 - Command and management: NIMS is based on three key organizational systems: Incident Command System, Multiagency Coordination Systems (first described in SEMS), and Public Information Systems.
 - Preparedness: Preparedness includes a series of integrated activities designed to build capabilities, including: planning, training, exercises, personnel qualification and certification standards, equipment acquisition and certification standards, and publication management.
 - Resource management: NIMS standardizes terms and mechanisms and establishes requirements for the processes that are used to describe, inventory, mobilize, dispatch, track, and recover resources over the course of an incident. To do

⁹⁵ *National Incident Management System (NIMS)*, p.1, available at: www.dhs.gov. accessed June 4, 2006.

this effectively in health and medical response, much must be accomplished through preparedness actions (see Module 1.5).

- **Communications and information management:** NIMS identifies the requirement for a standardized framework for communications, information management (collection, analysis, and dissemination), and information sharing at all levels of government (local, State, regional and national).
- **Supporting technologies:** Technology and technological systems provide supporting capabilities essential to implementing and improving the system, including voice and data communications systems, information management systems (i.e., record keeping and resource tracking), and data display systems.
- **Ongoing management and maintenance:** In addition to maintaining equipment, supplies, facilities, and response personnel (commonly considered resource management activities grouped under preparedness), this includes plan evaluation and organizational learning. Addressing these activities comprise a central focus for the EM committee's strategic direction and oversight of work plans.
- **NIMS compliance by healthcare organizations:** NIMS has explicit application to the private sector, including healthcare organizations, which are defined as "response organizations" in Homeland Security Presidential Directive 8, *National Preparedness*.⁹⁶ Response organizations and first responders (see terminology textbox), including healthcare organizations, are expected to adopt NIMS. Lack of compliance may impact eligibility for future Federal preparedness funding. "NIMS compliance" means more than having employees take a training course. NIMS compliance by healthcare organizations is currently being addressed by the NIMS Integration Center.⁹⁷

At the time of the writing of this curriculum, compliance with NIMS is evolving as many of the metrics have yet to be formally established for healthcare systems.

⁹⁶ *Homeland Security Presidential Directive-8 (HSPD-8)*, available at: <http://www.whitehouse.gov/news/releases/2003/12/20031217-6.html>, accessed February 16, 2006.

⁹⁷ NIMS Integration Center compliance criteria available at: http://www.fema.gov/nims/nims_compliance.shtm, accessed March 29, 2006.

The National Response Plan (replacing the Federal Response Plan) utilizes NIMS principles to explain the organization of federal response and integration with State, local, and Tribal entities. The format of the plan is useful for healthcare systems to examine as they establish their own Emergency Operations Plans (EOP).

Terminology alert!

First responder. (d) The term "first responder" refers to those individuals who in the early stages of an incident are responsible for the protection and preservation of life, property, evidence, and the environment, including emergency response providers as defined in Section 2 of the Homeland Security Act of 2002 (6 U.S.C. 101), as well as emergency management, public health, clinical care, public works, and other skilled support personnel (such as equipment operators) who provide immediate support services during prevention, response, and recovery operations.⁹⁸

- NIMS as evolving doctrine: As the NIMS document states, NIMS is not a finalized and complete guide. It is expected that future additions and revisions will be necessary.
- National Response Plan (NRP) - 2004: The purpose of the National Response Plan (NRP) was to create a single, integrated national Emergency Operations Plan (EOP).
 - NRP history and context: The NRP, published in December 2004, was based on the organizational structure established in 1992 by the Federal Response Plan (FRP), which the NRP superseded.
 - Expanded scope: The NRP expands beyond the "Federal" focus of the FRP and intends to guide response management across the Federal, State and local levels of government plus the participating private sector.
 - Consolidation of Federal plans: The NRP is designed to integrate the other, more hazard-specific and stand-alone Federal plans, including:
 - The National Contingency Plan, used for major HAZMAT incidents in the U.S.

⁹⁸ Homeland Security Presidential Directive-8 (HSPD-8), available at: <http://www.whitehouse.gov/news/releases/2003/12/20031217-6.html>, accessed February 16, 2006.

- The Federal Radiological Emergency Response Plan, a plan originally for nuclear mishaps, especially related to nuclear power plants.
- Terrorism response plans from several Federal departments and agencies.
- NRP framework: The “all-hazards” guidance includes a Base Plan that explains the overall management and coordination of response and recovery efforts.
 - The Base Plan includes the following sub-sections:
 - Policies
 - Situation
 - Concept of Operations
 - Response Actions
 - Responsibilities.
 - Functional annexes: These annexes describe the roles and responsibilities of the various agencies that direct and/or provide support activities under the Base Plan, grouped by functional area. The support annexes are designated as Emergency Support Functions (ESFs) [see terminology textbox]. With the expanded focus over the FRP, additional ESFs have been added. The ESFs include:
 - Communications
 - Transportation
 - Public Works and Engineering
 - Firefighting
 - Emergency Management
 - Mass Care, Housing and Human Services
 - Resource Support
 - Public Health and Medical Services
 - Urban Search and Rescue
 - Oil and Hazardous Materials
 - Agriculture and Natural Resources
 - Energy
 - Public Safety and Security
 - Long-term Community Recovery and Mitigation
 - External Affairs.

Terminology alert!

Emergency Support Function (ESF): A grouping of government and certain private-sector capabilities into an organizational structure to provide support, resources, and services.⁹⁹

- Support annexes: Support annexes describe crosscutting process, procedures and other issues that apply to a wide range of response entities. Support annexes in the NRP include:
 - Financial Management
 - International Coordination
 - Logistics Management
 - Private-sector Coordination
 - Public Affairs
 - Science and Technology
 - Tribal Relations
 - Volunteer and Donations Management
 - Worker Safety and Health.
- Evolution of EM reflected in Federal planning: The history of the implementation of the FRP, its revisions, and the transition to the NRP reflect the evolution of EM in the United States.
 - The FRP provided the first all-hazards Federal emergency operations plan (1992).
 - The FRP incorporated the Incident Command System (ICS) for its national and regional emergency operations centers and for the field assets that provided linkage to State and local governments. FEMA also incorporated ICS principles into the defined process and procedures for its EOC and Emergency Response Team.
 - The NRP expanded the scope of the FRP to incorporate previously independent response activities (oil spills, terrorism, radiation release, and others).

⁹⁹ *National Response Plan (NRP)*, p. 10, available at www.dhs.gov. accessed June 4, 2006.

- Both the FRP and the NRP were “tested by fire”: the FRP by Hurricane(s) Andrew and Iniki both occurring within months of the initial FRP publication¹⁰⁰ and the NRP by Hurricane(s) Katrina and Rita in 2005.¹⁰¹

Relevant Emergency Management Standards

- National Fire Protection Association (NFPA): NFPA standards are developed through a broad-based consensus process¹⁰² and, while the standards are voluntary, carry significant credibility across disciplines, including healthcare organizations. For example, many organizations, including the Veterans Health Administration (VHA) have adopted NFPA standards as mandatory. There are two NFPA standards that relate to emergency management programs for health systems:
 - NFPA 1600: NFPA 1600 *Standard on Disaster/Emergency Management and Business Continuity Programs* is the leading example of a framework for a comprehensive emergency management program.
 - Wide recognition: The standard has gained international acceptance by both the public and private sectors. This is exemplified by fact that it is contained in both the American National Standards Institute (ANSI)¹⁰³ and 9/11 Commission¹⁰⁴ recommendation as a national standard. Originally published a decade ago, it has undergone multiple revisions.
 - Comprehensive scope: The most recent (2004) edition expands the focus to a “*total program approach for disaster/emergency management and business continuity programs* (NFPA

The National Fire Protection Association (NFPA) publishes many standards that have application to EM programs. One of the most important for EM programs to be familiar with is NFPA 1600 which is freely available on the internet (see citation below on next page).

¹⁰⁰ Information from the FEMA perspective on Hurricanes Andrew and Iniki is available at: <http://www.fema.gov/hazards/hurricanes/hurrica.shtm>, accessed March 27, 2006.

¹⁰¹ Information from the FEMA perspective on Hurricane Katrina is available at: http://www.fema.gov/hazards/floods/recoverydata/katrina_about.shtm, accessed March 27, 2006.

¹⁰² Bokman L. *Linking NFPA 1600 with ANSI and ISO Technical Committee 223*; available at: <http://www.riskinstitute.org/symposiumdocs/LinkingNFPAandISO.pdf>, accessed August 9, 2005.

¹⁰³ Information concerning NFPA and ANSI is available at: <http://www.ansi.org/>, accessed March 26, 2006.

¹⁰⁴ *The National Commission on Terrorist Attacks Upon the United States. 9/11 Report*, Chapter 12.4 Protect Against and Prepare For Terrorist Attacks (2004); available at: http://www.9-11commission.gov/report/911Report_Ch12.htm, accessed April 13, 2006.

2004).”¹⁰⁵ NFPA 1600 lists a set of 15 program elements (Textbox 1.1.3.8) critical to a comprehensive program, emphasizing some concepts that have been under-appreciated by many practitioners in the past.

- Commonality of EM and business continuity: Importantly, NFPA 1600 demonstrates the commonality between **emergency management** and **business continuity**, prompting integration between these formerly disparate initiatives within organizations.

Textbox 1.1.3.8

NFPA 1600 (2004 Edition) Disaster/Emergency Management and Business Continuity Program Elements

1. General – The program shall include all of the following listed elements and shall be applicable to the four phases of disaster/emergency management: mitigation, preparedness, response, and recovery.
2. Law and Authorities – The program shall comply with applicable legislation, regulations, directives, policies, and industry codes of practice and shall contain a strategy for dealing with changes in legislative and regulatory revisions that evolve over time.
3. Hazard Identification, Risk Assessment and Impact Analysis – The program shall identify hazards, the likelihood of their occurrence, and the vulnerability of people, property, the environment, and the entity owning the program to those hazards. The program shall also include an analysis of the impacts of the identified hazards on people, property, and operations.
4. Hazard Mitigation – The program shall include a strategy to eliminate hazards or mitigate the effects of hazards that cannot be eliminated based upon the hazard identification, risk assessment and impact analysis, and sound business practices.

¹⁰⁵ NFPA 1600 Standard on Disaster/Emergency Management and Business (2004). National Fire Protection Association, available at: <http://www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=1600&cookie%5Ftes=1>, accessed August 9, 2005.

5. Resource Management – The program shall include resource management objectives consistent with overall program goals and objectives.
6. Mutual Aid – The program shall include mutual aid agreements consistent with program requirements.
7. Planning – The program shall include, as a minimum, a strategic plan, an emergency operations/response plan, a mitigation plan, a recovery plan, and a continuity plan.
8. Direction, Control, and Coordination – The program shall include the capability to direct, control, and coordinate response and recovery operations through an organizational structure consistent with an incident management system (IMS).
9. Communications and Warning – The program shall include a communications system and procedures that adequately supports all components of the response and recovery plans and the inter-operability of multiple responding organizations and personnel.
10. Operations and Procedures – The program shall include operational procedures to support the program.
11. Logistics and Facilities – The program shall include a logistical capability and procedures, including a primary and alternate facility capable of supporting continuity, response, and recovery operations adequate to support the program.
12. Training – The program shall include a training/educational curriculum to support the program.
13. Exercises, Evaluations, and Corrective Actions – The program shall evaluate plans, procedures, and capabilities through periodic reviews, testing, post-incident reports, lessons learned, performance evaluations, and exercises.
14. Crisis Communication and Public Information – The program shall include procedures to disseminate and respond to requests for pre-disaster, disaster, and post-disaster information, to and from external and internal audiences.
15. Finance and Administration – The program shall include financial and administrative procedures to support the program before, during, and after an emergency or a disaster.

- NFPA 1600 and industry application of CEM: NFPA is, in effect, industry application of Comprehensive Emergency Management (CEM) principles. As such, the pending addition of “prevention” to the NFPA 2007 Edition as an “aspect” of emergency management may be considered a homeland security industry application that highlights the importance of

counterterrorism, national security intelligence, and other terrorist-prevention activities. It does not change the fundamental phases of CEM. Careful reading of CEM demonstrates that prevention is already an integral component of the mitigation phase.

- NFPA 99/12: NFPA Standard 99, Standard for Healthcare Facilities, 2005 Edition addresses safety issues: “The scope of this document is to establish criteria to minimize the hazards of fire, explosion, and electricity in healthcare facilities providing services to human beings.”¹⁰⁶ Chapter 12, Emergency Management, is focused on identifying minimum criteria for a facility’s Emergency Operations Plan (EOP). The guidance in this text exceeds the NFPA 99/12 standards.
- American Society of Testing and Materials (ASTM): ASTM’s Committee E54 on Homeland Security Applications was formed to develop standards and guidance materials with a specific focus on borders, ports and transportation systems; to advance and harness science and technology; to prepare and respond to national emergencies; and to protect critical infrastructure. A Hospital Preparedness Standard (ASTM E54.02.01)¹⁰⁷ has been developed with input from Federal, State, and local entities and the private sector. Another ASTM standard (ASTM 1288-90: Standard Guide for Planning for and Response to a Multiple Casualty Incident¹⁰⁸) is also applicable.
- Joint Commission on the Accreditation of Healthcare Organizations (JCAHO): JCAHO provides extensive standards for healthcare organizations seeking accreditation under its programs.¹⁰⁹ JCAHO addresses emergency management within a set of standards referred to as the Environment of Care. Major changes were made to these standards in January 2001, incorporating CEM, a Hazards Vulnerability Analysis (HVA), and the Incident Command System (ICS). Since the terrorist attacks in the fall of 2001, JCAHO emergency management standards have stressed healthcare facility

JCAHO refers to an Emergency Management Plan for healthcare systems. It is worth considering this topic within the context of a program to reflect its dynamic and continuous activities.

¹⁰⁶ NFPA 99 information is available at:

<http://www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=99&cookie%5Ftest=1>, accessed May 17, 2006.

¹⁰⁷ ASTM standards are available through: http://www.astm.org/cgi-bin/SoftCart.exe/SNEWS/APRIL_2005/index.html?E+mystore, accessed May 17, 2006.

¹⁰⁸ ASTM 1288-90 is available at: <http://www1.va.gov/emshg/apps/kml/docs/astm1288.PDF>, accessed May 17, 2006.

¹⁰⁹ Information is available on JCAHO and its programs at: <http://www.jointcommission.org/AccreditationPrograms/>, accessed March 29, 2006.

coordination with its community partners, information management, and training and exercises.

- JCAHO emergency management standards and a comprehensive emergency management program: JCAHO terminology varies from that of standard emergency management, but the concepts are consistent (see Textbox 1.1.3.9). JCAHO's use of "Emergency Management Plan" is consistent with their approach to having "management plans" for various major areas that they evaluate for accreditation. In the nomenclature of emergency management, this "Emergency Management Plan" is captured in EM program documents, including the emergency operations "plan" (EOP). The JCAHO "plan" essentially can be accomplished by the EM program and its EOP as described in this Unit.

JCAHO has published standards related to healthcare system preparedness. These are familiar to many healthcare systems. It should be noted that they are currently evolving.

Textbox 1.1.3.9

EM Program Versus Plan

The Joint Commission on Healthcare Organizations (JCAHO) emergency management standards refer to the development of an "Emergency Management Plan." This text explains the development of an "Emergency Management Program." The actual difference is more terminology than philosophy as noted above, but the terminology variance is explained here.

An **Emergency Management Program** implements the mission, vision, and strategic goals and objectives as well as the management framework of the program and organization.¹¹⁰ NFPA 1600 illustrated that ***planning is one of many program elements***. An Emergency Operations Plan (EOP) is the document that explains how an organization will coordinate its **response and recovery** to all hazards.

The JCAHO emergency management standards that relate to ***emergency management program activities*** include:

- Involving the hospital's leaders, including those of the medical staff.

¹¹⁰ NFPA 1600. *Standard on Disaster/Emergency Management and Business Continuity Programs*, 2004 Edition; available at: <http://www.nfpa.org/assets/files/pdf/nfpa1600.pdf>, accessed January 12, 2006.

- Defining and integrating the hospital's role in relation to communitywide emergency management program,
- Conducting a hazard vulnerability analysis to identify potential emergencies that could affect the need for the hospital's services or its ability to provide those services;
- Establishing, in coordination with community emergency management planning (where available), priorities among the potential emergencies identified in the hazard vulnerability analysis.
- Identifying specific procedures that describe mitigation, preparedness, response and recovery strategies, actions and responsibilities. These procedures would be attachments to the organization's Emergency Operations Plan.
- Pre-incident planning that is accomplished cooperatively among healthcare organizations that together provide services to a contiguous geographic area (for example, among organizations serving a town or borough). This facilitates timely sharing of information and coordinated response and recovery plans.

JCAHO standards can be considered in relation to the 5 functions outlined in ICS.

- JCAHO standards related to ICS: The JCAHO emergency management standards address incident command for healthcare organizations. The standards' requirements have been reorganized here according to the functions of the Incident Command System. This may illustrate how an enterprise might structure its Emergency Operations Plan to be useful for both accreditation surveys and for actual response guidance.
 - Command: The command section is responsible for overall management of the incident. JCAHO emergency management standards for this functional area include an "all-hazards" Incident Command Structure (ICS) in the hospital that links with the community's ICS structure and that addresses the following:
 - ❑ Initiating the response and recovery phases of the plan, including how, when, and by whom the phases are to be activated.
 - ❑ Notifying staff when emergency response measures are initiated.

- Notifying external authorities of emergencies, including possible community emergencies identified by the hospital; (for example, evidence of a possible bioterrorist attack).
- Identifying and assigning staff to cover all essential staff functions under emergency conditions.
- Managing communication with the news media.
- Re-establishing usual operations after an emergency.
- Operations: The operations section responsibilities include all activities that are directed toward reducing the immediate hazard, establishing situation control, and restoring normal operations. JCAHO emergency management standards for this functional area include:
 - Activities related to care, treatment or services. Examples include scheduling, modifying, or discontinuing services, maintaining patient information, arranging referrals, and transporting patients.
 - An influx of casualties of a number sufficient to stress the capabilities of the hospital.
 - Evacuation of the entire facility (both horizontally and, when applicable, vertically) when the environment cannot support adequate patient care and treatment.
 - Establishment of alternative care site(s) that can meet the needs of patients when the environment cannot support adequate care, treatment, or services.
 - Security (examples include access, crowd management, and traffic control).
 - Communications with patients.
- Planning: The planning section responsibilities include the collection, evaluation and dissemination of tactical information about the incident. JCAHO emergency management standards for this functional area include:
 - Cooperative planning throughout an incident among healthcare organizations that together provide services to a

contiguous geographic area (for example, among organizations serving a town or borough). As with pre-event planning, this facilitates the timely sharing of information about:

- Confirm essential elements of their command structures and control centers (from preparedness planning) for that specific emergency response.
 - Names, roles, and telephone numbers of individuals in their command structures for the specific response.
 - Resources and assets that are available and could be potentially shared in the evolving emergency.
 - Names of patients and deceased individuals brought to their hospitals to facilitate identifying and locating victims of the emergency.
 - Ability to track patients to and from any alternative care site.
- Logistics: The logistics section responsibilities include providing all support needs to the incident (facilities, transportation, supplies, equipment maintenance and fueling, feeding, and communications). JCAHO emergency management standards for this functional area include:
- Maintaining backup internal and external communication systems in the event of a primary communication system failure during emergencies.
 - Managing the following under emergency conditions:
 - Staff support activities (Examples include housing, transportation, and incident stress debriefing).
 - Staff family support activities.
 - Critical supplies (Examples include pharmaceuticals, supplies, food, linen, and water).
 - Establishing procedures, as applicable, for:
 - Transporting patients, staff, and equipment to the alternative care site.

- Transferring necessities of patients (for example, medications and medical records) to and from the alternative care site.
 - Facilitating communication between the hospital and the alternative care site.
 - Identifying care providers and other personnel during emergencies.
 - Providing alternative means for meeting essential building utility requirements (for example, electricity, water, ventilation, fuel sources, and medical gas/vacuum systems).
 - Mobilizing facilities for decontaminating and/or isolating patients with radioactive, chemical, or biological contamination.
- Finance/Administration: The finance/administration section responsibilities include accounting for all incident-related personnel time and attendance, procurement, compensation/claims, and costs incurred.
- There are no JCAHO emergency management standards that relate to this functional area.

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Module 1.2

The Emergency Management Program for Healthcare Systems

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Lesson 1.2.1 Overview, Concepts, and Principles: The Healthcare System Emergency Management Program

Lesson Objectives

- *Describe how CEM provides an organizational basis for an emergency management (EM) program.*
- *Describe the key activities of the EM program.*
- *Describe the different types of planning the EM program conducts.*
- *Describe the relationship of the various components of an EM program development process to the four phases of Comprehensive Emergency Management (CEM).*

Introduction

As described in the previous module, Comprehensive Emergency Management (CEM) is an overarching concept that includes three major areas of focus:

1. An “all-hazards” approach, with a strategy that addresses the commonalities of incident identification, assessment, and response to natural, technological, and intentional hazards. It provides a common emergency operations plan for use in response to and recovery from all emergencies and disasters.
2. The management of hazards across the four phases of emergency management: mitigation, preparedness, response, and recovery.
3. The inclusion of all levels of government and non-governmental sectors: Federal, State, and local government, the private sector, and relevant not-for-profit organizations.

System-based methodology requires that all activities related to emergency management for an organization are organized within a single “system.” It provides a unified approach, demonstrating an overarching strategy and an inter-relationship between components to achieve a common goal. System-based methodology (i.e., “a systems approach”) in emergency management demonstrates how the wide range of activities performed under “emergency management” inter-relate, and how a consistent strategy is applied throughout the four CEM phases and the varied EM initiatives within an organization.

- The emergency management program: As noted in the preceding lesson, the “system” is accomplished by establishing and maintaining an **emergency management (EM) program** that collectively encompasses and organizes all EM activities for the healthcare

A systems approach to EM programs enhances the coordination of the various EM program components.

system. EM program incorporates the word “program” (see terminology textbox) rather than “plan” to emphasize that emergency management includes many wide-ranging, ongoing activities that address all four phases of CEM, whereas a plan is more commonly guidance for a series of actions that occur only in response to defined circumstances. The EM program is the ongoing activities that develop the plans, execute the plans, assess the plans’ effectiveness and the changing circumstances, and revise the plans as necessary.

Terminology alert!

Program (management definition): An organized collection of projects, activities and/or individual plans in an established framework that directs them toward a common goal. The term “program” implies that regular, ongoing activities are occurring. This contrasts with the term “plan,” which may be a set of guidelines that are inactive until “activated.”

The four phases of EM are organized according to time and function characteristics (but there may be obvious overlap of these phases).

- The EM program and the phases of CEM: The EM program has responsibility for all healthcare system activities across the four phases of CEM: mitigation, preparedness, response and recovery. The “phases” of CEM were established in order to group EM activities according to **time and function** characteristics. Each phase is described in Lesson 1.1.3, and the activities grouped under these phases are presented in more detail in later modules in this unit.
 - Mitigation activities: These are actions to either prevent selected hazards from occurring or minimizing or eliminating the hazard impact should it occur. It is the cornerstone of emergency management for healthcare systems because any response strategy relies on healthcare system resiliency (i.e., surviving a hazard and maintaining operations in the post-impact environment). An effective mitigation effort should begin with, and be based upon, a valid hazard vulnerability analysis (HVA)¹¹¹ as this will help an organization prioritize issues during mitigation and preparedness planning.
 - Preparedness activities: These actions are designed to build response and recovery to optimize resiliency and surge capacity

¹¹¹ The HVA is addressed in detail in Lesson 2.3.2.

and capability for organizations.¹¹² The activities are intended to help save lives and minimize damage by preparing systems and their personnel to respond appropriately when an emergency is imminent or occurs.

- Preparedness activities establish, implement, exercise, refine, and maintain systems used for response. The critical task in preparedness planning is to define the system (how assets are organized) and processes (actions and interactions that must occur) that will guide response. These systems and processes (system description and concept of operations) should ensure the most effective, efficient response to a disaster or emergency. Preparedness activities also include:
 - ❑ Establishing and conducting instructional activities such as education and training
 - ❑ Acquiring and maintaining resources
 - ❑ Conducting exercises and other evaluation activity
 - ❑ Improving the plans and response system.
- Response activities: Actions that directly address the hazard impact, including actions taken in anticipation of an impending event (e.g., hurricane, tornado) and actions during and shortly after an impact has occurred. Specific guidance for incident response, including processes for asset deployment, is addressed in an Emergency Operations Plan (EOP). An effective EOP uses ICS/IMS as its management system and not only guides the initial or reactive response actions but also promotes transition to subsequent proactive incident management (“management by objectives”).
- Recovery activities: Actions that restore the community to “normal” or a “new normal”¹¹³ after a major incident. The initial recovery stage (which actually begins in the late stages of response) is fully integrated into response mechanisms, and the EOP incident management process may be extended well into any complex recovery. For a healthcare system, recovery includes the “return to readiness” of the emergency response ability, resolving important backlogs of medical cases, assuring personnel impact has been addressed, and restoring property loss or damage (including

Preparedness activities can consume much of an EM program’s time. Critical activities during preparedness are the development, implementation, maintenance, and revision of an EOP.

¹¹² See Lesson 1.1.1 for an extensive discussion of these terms.

¹¹³ In some cases, the need for new buildings, geographic re-location, new methods for conducting business, new security arrangements and other indicated recovery actions create such a change from the “pre-incident state” that it is referred to as “the new normal.”

restoration of normal systems). The management transition from response to recovery (both timing and methods) must be carefully planned and implemented to avoid problems. As recovery progresses, ICS eventually transitions to regular agency management personnel and processes or some intermediate method defined by the responsible organizations.

The Need for a Single “Entity” to Coordinate All Components of Comprehensive Emergency Management (CEM)

The many tasks and inter-related efforts of CEM create a complex range of activities. A single entity must therefore be assigned to provide oversight and high-level management. This single entity should also provide close coordination with related initiatives within the organization, with “neighborhood” partners, and with community emergency response organizations. These include the local government jurisdiction’s Emergency Management Agency, Public Health Departments, Emergency Medical Services, law enforcement, fire services and others. In most healthcare systems, this entity is the EM committee, with the lead individual acting as the system emergency program manager.

Comprehensive Emergency Management Program Organization

System-based methodology requires that all activities under emergency management be organized within a single system that demonstrates an overarching strategy, including how each component is related to the others to achieve the common EM goal. This is accomplished by carefully organizing the EM program that collectively encompasses all the EM activities. Important program considerations include:

- Clear EM program mission: The mission or goal (also called “control objective” in NIMS terminology) can best be described as the endpoint the organization would like to achieve (such as “developing a comprehensive emergency management program that is focused on maintaining continuity of patient care operations and meeting the medical needs of the community”). By describing the mission of the EM program in clear terms, its purpose is understandable. The supporting objectives, strategy, and subsequent steps in the EM program take on this purpose and a consistency can be established (see terminology textbox for relationship between goal, objectives and strategy).

EM programs should have an explicitly described mission statement (see text).

Terminology alert!

The relationship between *goal, objective, and strategy*

Goal: A description of the end state – where the organization wants to be at the end of the activity, program, or other entity for which the goal was defined.

Objectives: The interim steps to achieving the goal.

Strategy: The approach to how a goal and objectives are to be achieved.

- **EM program organization:** The EM program is organized by defining the role of organizational leadership in the EM program, by the position of an emergency program manager, and by the make-up and function of the EM committee. These are addressed in detail in Lesson 1.2.2.
- **EM program activities:** The EM program has many activities to conduct (see Textbox 1.2.1.1). These should be organized into categories, based upon whether they are overarching activities or primarily focused upon one area of the EM program.

Personnel participating in the EM program in an ongoing basis typically do so through the EM committee. This is usually managed and directed by the Emergency Program Manager (EPM).

Textbox 1.2.1.1

Roles and Activities for an EM Program

Contributions from the social sciences have identified a number of organizational characteristics that contribute to effectiveness. Findings as summarized by PERI¹¹⁴ are:

- Roles of officials are defined
- Strong and definitive lines of command
- Similar routine – disaster organizational structures
- Emergency operations procedures are as close as possible to routine procedures
- Good interpersonal relationships

¹¹⁴ *Characteristics of Effective Emergency Management Organizational Structures*, Public Entity Risk Institute, 2001, available at: www.riskinstitute.org. accessed June 4, 2006.

- Emergency planning is seen as an on-going activity
- Use of an all-hazard approach
- Conducting hazard mitigation/prevention activities
- Providing motivation for involvement in emergency planning
- Strong coordination between participating agencies
- Public information function is clearly defined
- Citizen/employee/user involvement
- Ongoing monitoring and alerting procedures
- Ability to maintain comprehensive records

Overarching EM program activities are viewed as “programmatic” leadership and direction and program support. More narrow activities can be grouped by their relationship to CEM phases. As will be discussed later, this ordering of activities lends itself to more effective management as well as to evaluation and organizational learning strategies. Program activities are conducted by the EPM and members of the EM committee on a planned basis. They include:

EM programs can benefit from strategic planning that provides prospective guidance for the organization on its yearly activities.

- Strategic administrative planning: The **Strategic Administrative Plan** is the framework for what the organization hopes to accomplish over some multi-year period of time. Within that, annual work plans may be guided by the mission, goals, objectives, and budget established by the EM committee. The Strategic Administrative Plan outlines activities, programs, and systems intended to build and maintain the EM program. It addresses:
 - EM program strategic goals and objectives.
 - Program strategy: leadership and direction, program support and other overarching program initiatives.
 - EM committee composition and structure (including sub-committees and other units), general meeting schedule and guidelines.
 - Extension of the strategic administrative planning to developing annual mitigation and preparedness work.
- Liaison and outreach efforts: These include conducting liaison and coordination activities that build support for the EM program within the organization and with key external entities in the community. Conducting resource assessments of community partners and support assets and participating in other appropriate community mitigation and preparedness activities are important components.
- Conducting or updating the Hazard Vulnerability Analysis (HVA): The Hazard Vulnerability Analysis (HVA) is the needs assessment

for the EM program. This process identifies likely hazards, estimates the probability of their occurrence, and determines the consequences of the impacts on Mission Critical Systems (people, operating systems, suppliers, and so on). This serves as the basis for all planning for the four phases of CEM, and so is a centrally important activity. It is addressed in detail in Lessons 1.3.1 and 1.3.2.

- EM program component plan activities: The “phases” of CEM were established in order to group emergency-related activities according to time and function characteristics. Similarly, many of the activities of the EM program itself may be grouped according to CEM phases:
 - Mitigation work plan: A primary goal of any healthcare system is organizational resiliency: assuring continuity of patient care operations and business operations and thereby establishing organizational resiliency. The HVA, as noted above, identifies likely hazards and organizational vulnerabilities. A component of **continuity planning** (Lesson 1.3.3) identifies essential business functions, processes, and resources and develops strategies that prevent their interruption through mitigation activities, such as backup redundancies, substitution or hardening. **The mitigation work plan** establishes the intended actions related to mitigation for an established period of time, defined within the strategic administrative planning of the EM program. This is addressed in detail in Lessons 1.4.1 and 1.4.2.
 - Preparedness work plan: In addition to organizational resiliency, other primary goals of any healthcare system include the ability to provide medical surge (see Lesson 1.1.1). Preparedness develops the ability for protective actions related to resiliency and for maximal surge response. **The preparedness work plan** establishes the intended actions related to these issues that will be accomplished during a defined period of time within the strategic administrative planning for the EM program. The central task in preparedness planning is to define the emergency response system (how assets are organized) and processes (actions and interactions that must occur) that will guide response. This system description/concept of operations with key processes and procedures becomes a central component of the “base plan” of the emergency operations plan (EOP). Preparedness activities that must be addressed by the EM committee may be categorized as:

EM program activities can be grouped according to the four phases of emergency management.

Resource management is an activity that occurs during response. It necessarily requires specific actions during preparedness in order to adequately perform it.

- ❑ Emergency operations plan documentation: Developing and revising/refining the written plan for response and recovery guidance and all of its components must be a closely coordinated activity. It extends from an overarching all-hazards **base plan** through **function-based planning** to **service-level planning**. This preparedness area addresses the refinement and revision of templates, checklists, position descriptions, notifications lists, and other job aids.
- ❑ Resource management planning: These activities include acquiring, storing in a ready state for mobilization, and maintaining resources. It includes include identifying, acquiring and maintaining key human, physical and informational resources that may be needed to support response operations. Other examples include developing arrangements for acquiring resources, such as mutual aid memoranda, cooperative agreements, contingency contracts, and volunteer recruitment and processing.
- ❑ Instructional (education and training) activities: These activities are directed at designing, developing and conducting education and training that builds response and recovery capacity. Emergency management instruction includes all activities that impart and maintain the knowledge, skills, and abilities necessary for personnel to activate, mobilize, and operate under emergency response and recovery conditions. It should be competency-based and aimed at developing a certain level of proficiency (“awareness, operations, or technician/specialist/expert”).
- ❑ Exercise: Exercising of plans provides a method for performance evaluation, outside of actual incidents, to assess the response and recovery system.
- ❑ Evaluation: Formal and informal assessment activities (beyond exercises) are conducted to develop a basis for judgment and decision-making in regard to plans, programs, or policies.
- ❑ Organizational learning: Accepted findings from the evaluation activity are used to develop and incorporate change in the EM program and its component plans. This is accomplished in a manner that promotes permanent improvement or “organizational learning”.

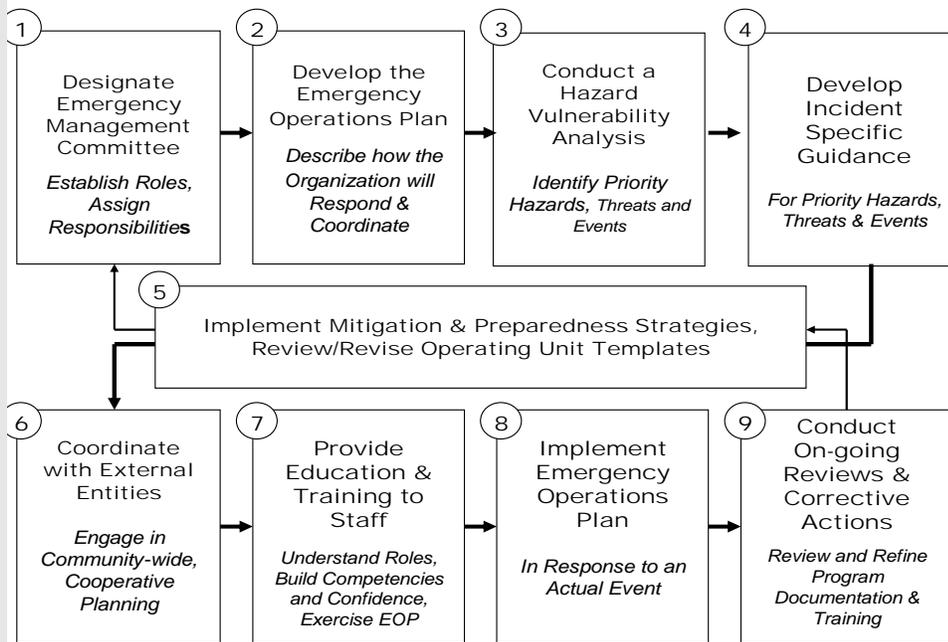
Preparedness is discussed in much greater detail in Lessons 1.5.1–1.5.3 and in Unit 4.

An example of the VHA nine-step preparedness work plan guidance used to develop and maintain the EM Program in VA Medical Centers is provided in Textbox 1.2.1.2

Textbox 1.2.1.2

The VHA Nine-step Emergency Management Program

The model below illustrates an adaptation of the original Integrated Emergency Management System (IEMS) program development process. In the guidance that accompanies the model, each of the nine steps is keyed to relevant JCAHO, NFPA and FPC 65 requirements.



- **Response planning:** An effectively-developed EOP explains how the organization intends to behave during emergencies. The EOP consists of a base plan, functional annexes, support annexes and incident-specific appendices. The majority of the EOP is best described as the written record of the emergency operations planning process - the only parts used in the initial response to an emergency are the incident-specific guidance (Standard Operating

Procedures or Pre-plans).

- Recovery planning: Early recovery is managed using the **incident action planning** process of the **EOP**. Pre-event recovery planning (which becomes incident annexes in the EOP) is largely focused upon the aspects of **continuity planning** that establish priorities for “recovering” impacted functions, processes, and resources. Recovery **occurs** through procedures for relocation, recovery, replacement, and restoration. Guidance for recovery of specific mission-critical systems, and for recovery from specific hazards, is accomplished through the preparedness work plan and maintained for use during recovery operations. Recovery is addressed in greater detail later in Lesson 3.3.9.

Lesson 1.2.2 Emergency Management Program: Leadership and Direction

Lesson objectives

- *Explain the relationship of the facility emergency management (EM) program to everyday management, administrative, and operational activities.*
- *Explain the organizational elements that should participate actively in the EM program process.*
- *Describe the role and major responsibility of the emergency program manager and the EM committee.*
- *Explain the importance of organizational commitment to emergency management.*
- *Identify and describe the activities that support program leadership and direction.*
- *Explain the importance of an organization's mission, core values, and code of ethics to EM program development.*

Introduction: Establishing Emergency Management Program Leadership

Leadership of an EM program is clearly the responsibility of senior executives and administrators of the organization. Administrators make the decisions involving policies, procedures, priorities, and resource allocation as reflected in the EM program and component plans. The importance of emergency management to the overall organization is being increasingly recognized (Textbox 1.2.2.1).

- Issues for the organization's leadership: Questions concerning this leadership do, however, arise and must be answered if the EM program is to properly mature and achieve its goal and objectives. These questions include:
 - What level of management should be involved?
 - What is the appropriate level of involvement?
 - What is the appropriate commitment of resources by the organization?

EM programs require participation by the organization's leadership in order to be successful.

Textbox 1.2.2.1

Organizational Leadership in Emergency Management: The Commercial Private Sector Experience

The private sector has focused on emergency management program standards and leadership involvement over the past decade. Attention was particularly pronounced during the Y2K preparations and again after the 9/11 attacks that significantly impacted the business sector (in the case of Y 2K, the threat of the hazard and computer malfunctions caused the impact). The experience and resultant philosophy, as described below, is relevant for healthcare system administrators responsible for emergency management and may inform senior healthcare system executives and governing boards.

The Business Roundtable, an association of chief executive officers of leading U.S. corporations with a combined workforce of more than 10 million employees, has recently published *Committed to Protecting America: CEO Guide to Security Challenges (February 2005)* which makes several guiding statements related to the governance of business crisis and continuity management programs. This important document reflects the private sector's concern about hazard impacts and provides lessons for the healthcare organization's EM program leadership. The following statements were included in the Business Roundtable report:

"Evolving security threats and the potential for devastating damage following a terrorist attack require an enterprise-wide governance model to develop crisis management, business continuity, and disaster recovery programs."¹¹⁵

"Given the nature of recent threats and the consequences of an attack, CEOs realize that they must find the determination, resources, and creativity to deploy real and flexible solutions. Strategic planning and prudent financial investments are essential to saving lives and supporting critical business operations in the event of another disaster."

"Without direct CEO involvement, crisis planning and recovery programs might not be elevated to a high enough level across the corporation."

Clearly, the Business Roundtable is emphasizing the necessity for top-level (CEO) involvement and support.

¹¹⁵ *Committed to Protecting America: CEO Guide to Security Challenges* (February 2005). Business Roundtable: p. iii, pp. 86-88, available at: <http://www.businessroundtable.org/>, accessed November 22, 2005.

- EM and healthcare system leadership: The oversight of, and participation in, the EM program is no longer considered just an ancillary duty for upper and mid-level managers, department heads (key operating unit managers in VHA nomenclature), and senior executives. A robust and realistic EM program is a strategic imperative that requires attention and support at the very highest level of the organization. The tragic events and impacts of 9/11 coupled with increased realization of infrastructure vulnerabilities have energized the private sector to reassess their business crisis and continuity management programs (their terminology for an EM program and continuity planning) and to elevate ownership and oversight to the appropriate organizational levels. Many healthcare system executives are adopting the same level of involvement.
 - Delegating authority for the EM program: In most healthcare organizations, senior management does not directly supervise day-to-day management of the EM program. This has traditionally been assigned to a subordinate management employee. The level of this subordinate position, however, has evolved in many institutions, as the field of emergency management has advanced over the past three decades. It has become increasingly clear that to be optimally effective, the day-to-day responsibility for coordinating emergency management must be assigned to an individual who has the support of the leaders of the organization.
 - Professionalism in healthcare EM: It has also become increasingly evident to healthcare systems that emergency management is a science and a professional discipline. It is no longer acceptable to recruit individuals to manage EM programs who merely have a passing interest or very little EM knowledge. The recognition of the importance of emergency management must begin with the recruitment or development of emergency management professionals to adequately conduct their EM program activities. This recognition has analogies from other healthcare system experience: at one time there were no medico-legal risk managers, infection control practitioners, or trauma coordinators in the healthcare industry. All three types of professionals are now considered essential to effective operation of major healthcare systems. A similar phenomenon is underway in healthcare system EM.

Healthcare system executives often delegate authority for the management of an EM program. For this to be effective, the individuals assigned must be empowered and receive appropriate support from executive leadership.

The Emergency Program Manager and Emergency Management Committee

In many organizations, the position assigned direct supervision of the EM

Disaster research provides important considerations for Emergency Program Managers.

The composition of the EM committee should be reflective of the various components of the organization.

program is called an “emergency management coordinator.” While this is a well-recognized position, the **importance of the management component of EM must be well-recognized.** The position directly supervising the EM program is, therefore, in this text, designated as the **emergency program manager (EPM)** [see terminology textbox in Lesson 1.1.2].

- EPM position objectives: One of the main objectives of the EPM is to develop an effective emergency management program. Behavioral researchers developed advice for emergency managers almost two decades ago (see Textbox 1.2.2.2).

Textbox 1.2.2.2

Advice to Emergency Program Managers¹¹⁶

Researchers asked experienced emergency program managers this question: “If you were in conversation with a new emergency program manager —someone just starting out —what would be the two or three most important pieces of advice you would offer...?” The following 12 themes provide important food for thought:

- Meet and greet agency heads
- Establish personal credibility and commitment
- Use past experience
- Research your community
- Ascertain the level of commitment and mission
- Engage in consensus-building activities
- Seek to coordinate, not control
- Increase public awareness and knowledge
- Establish media relationships
- Continue professional development
- Establish a professional network
- Tenacity is essential.

- The EM committee: Without the participation and input from the various departments or services within the organization, the overall response to emergencies cannot be effectively managed. This input is generally obtained in healthcare organizations through an

¹¹⁶ Drabek, Thomas E., *The Professional Emergency Manager: Structures and Strategies for Success* (1987), University of Colorado, Institute of Behavioral Science, pp. 58-59 and 236-243.

emergency management committee. The committee serves in an advisory capacity to the EPM and senior organizational leadership. While the emergency program manager serves as the staff member overseeing the EM program on a day-to-day basis, the input and commitment of stakeholders into the development, maintenance, and evaluation of the program ensures its long-term success. It is therefore important that the EM committee membership includes leadership, key operating unit managers, and a balanced representation of the organization's operational and support units. It should also have a wide range of expertise. Perhaps the most important role the committee plays is in the ongoing program evaluation and organizational learning (i.e., the review and revision of the EM program and its emergency operations plan), which benefits from the advice of personnel who understand the organization's systems. Important considerations for the EM committee include:

- EM committee integration into the organization's administrative hierarchy: The EM committee should be incorporated into existing administrative and committee structures based upon organizational preference and resources. This should be in accordance with the organization's committee policy. Generally, the EM committee should report to, or have a very close liaison with, the Facility Safety Committee.
- EM committee authority: The committee shall include the emergency management program manager and others having the appropriate expertise and knowledge of the entity and the authority to commit resources from all key functional areas within the entity and shall solicit applicable external representatives from public and private entities.
- EM committee mission: The EM committee should establish a clearly defined mission statement that includes oversight of the EM program and its relationship to regular system operations. This essentially reflects the mission statement of the EM program itself.
- EPM as the lead: The EPM shall be appointed by the organization and be authorized to administer and conduct the emergency management program in consultation with the emergency management committee.
- Committee advisory role: The committee shall advise the EPM on the emergency management program activities.
- Conformity: The disaster/emergency management program shall comply with applicable legislation, regulations, and industry codes

All personnel within an organization have at least some minimal competencies that are required in relation to EM programs (usually awareness level or some limited operations level proficiencies).

of practice.

- Involving staff in emergency management: All personnel working within a healthcare organization will be involved to some extent if a major hazard impact affects the healthcare organization. Varying levels of involvement will occur, and understanding this can help guide the pre-incident preparedness for range of personnel groups within the organization.
 - All personnel: In an emergency or disaster, the majority of healthcare system workers will be performing in their usual job capacities. They may be working at a faster pace or more intensely, with longer hours and more reporting requirements, but they will generally be performing within their usual job descriptions. They should all have an understanding of how the emergency response and recovery is managed and how they operate in relationship to the emergency response. This can be addressed through the “all personnel competencies” presented in Lesson 1.1.3. These personnel should also be able to expect additional support in the performance of their duties (see Textbox 1.2.2.3).
 - Personnel with specific responsibilities for emergency response and recovery: For personnel with emergency response and recovery assignments that deviate significantly from their everyday responsibilities, adequately funded time and opportunity for participating in the EM program development activities, as well as education, training, and exercising, must be provided.

Textbox 1.2.2.3

Healthcare System Support to Employees During Response

During an extended or unusual incident, support could include healthcare system management noting and complimenting employee actions, free refreshments, or other “perks,” and overtime or bonus pay where appropriate. Living space and meals could become important in weather and other types of extended emergencies, and even day care services and living space for employee families may be vital to maintaining healthcare system services. Extra support staffing for specialty care providers may allow more focus upon highly skilled tasks, and so expand patient care capacity in areas such as critical care units.

- Recognize all levels of personnel in planning and preparedness: While most healthcare system emergency program managers

have their attention focused upon organizational leaders and the larger emergency response system, it is important to recognize the contributions of non-clinical support during application of the EOP. Housekeeping, plant engineers, groundskeepers and others have critical roles for keeping a healthcare system operating and even greater ones in providing unusual surge capacity and capability. These personnel, however, may not have the same sense of the importance of their role or the same commitment to duty as clinical staff. This issue should be addressed in the EOP development and other preparedness activities and be a consideration, particularly for logistics, during emergency response (see example issue in Textbox 1.2.2.4).

Textbox 1.2.2.4

Hurricane Isabel and the Washington D.C. Area Hospital Experience

As Hurricane Isabel approached Washington, D.C., in the summer of 2003, hospitals focused upon maintaining clinical services. Unexpectedly, the Washington Metropolitan Transit Authority announced an impending closure of Metro, the mass transit rail system for the area. This news spread rapidly since many area residents were closely monitoring the media. Groundskeepers, housekeeping and other non-clinical staff at several hospitals immediately began to depart, since for many their only transportation was Metro. This was later acknowledged as a very reasonable perspective since overtime payment, food and sleeping arrangements, and eventual assistance in returning home had never been discussed with non-clinical support staff.

The resultant manpower gap required increased management attention, a greater strain on clinical staff, and additional expense. In many situations, nurses and other clinical personnel were performing clerical and housekeeping duties.

In hindsight, it was recognized that the issue could have been avoided by offers to arrange meals and living space for those staying for multiple shifts, taxi vouchers for those dependent upon public transportation, and overtime pay for extended shifts (all may be reimbursable expenses through FEMA during a declared disaster or emergency). Service could therefore have been maintained using usual staff in the usual manner. *(Authors' direct observations.)*

The importance of competencies for all employees can be reflected in the concept that each individual has some role, no matter how limited, during response. Many positions not traditionally considered in preparedness planning are essential to continuity planning.

The Emergency Management Committee: Its Composition and Responsibilities of Membership

The EM committee membership reflects the organization's mission, administrative make-up, and other organization-specific details. To be multi-disciplinary and represent all key internal "stakeholder" units and positions, the membership of the EM committee should include:

- Chairperson – usually the EPM acting on behalf of the organization's director.
- Emergency Management Program Coordinator (if one exists as a support position to the EPM)
- Representation from:
 - Medical staff
 - Nursing staff
 - Infection Control
 - Clinical support services
 - Facilities Engineering (also called Physical Plant)
 - Safety/Industrial Hygiene
 - Acquisition and Materials Management
 - Fiscal Services
 - Security
 - Emergency program manager or designee from any larger system that includes the healthcare facility (for VHA, this would be the Area Emergency Managers, who coordinate emergency management among regional VHA healthcare facilities)
 - Key Operating Unit (i.e., Departmental) Managers.
- Roles of the EM committee membership: The roles of members, including who they represent and what additional areas they are responsible for within the EM program, should be defined and well understood by the EM committee membership. An adaptation of the Veteran's Health Administration EM committee guidance provides an example (see Textbox 1.2.2.5).

Specific recommendations for composition of the EM committee are provided (see text).

Textbox 1.2.2.5

VHA EM Committee Membership and Roles

Veterans Integrated Service Network (VISN) Director: The Network Director shall be responsible for the development, coordination, implementation, and evaluation of a Network-wide EM program. This program includes:

- Response to all hazards, threats, and events that adversely affect VHA facilities within the Network, including Outpatient Clinics and Consolidated Mail Outpatient Pharmacies (CMOPs).
- External response plans [i.e., VA-DoD Contingency Plans, National Disaster Medical System (NDMS) and the National Response Plan (NRP)].

Area Emergency Manager: The Area Emergency Manager (AEM) serves as a consultant to both Network Directors and Medical Center Directors for the purpose of developing EM programs. The AEM should also assist with education, exercises, and external coordination.

VISN Safety Manager/Industrial Hygienist: The VISN Safety Manager/Industrial Hygienist reviews and evaluates the EM program at all facilities within the Network.

Medical Center Director: The Medical Center Director is responsible for the development and implementation of an EM program that addresses all facilities under the control of the Medical Center. The Director must:

- Establish an EM committee.
- Define and approve the role of the Medical Center in the community during emergencies.
- Ensure that the EM program addresses internal and external hazards, threats, and events.

Associate Director or Equivalent: The Associate Director or other top management operation official shall serve as Chairperson of the EM committee. (Due to specific VHA considerations, this position chairs the EM committee. The VHA designated position the “EM Coordinator” in effect serves as the Emergency Program Manager.)

Chief of Staff: The VA Medical Center (VAMC) Chief of Staff (COS) is responsible for the development, endorsement, training, and implementation of clinical guideline protocols for the EM program. The Chief of Staff must:

- Establish a workgroup of healthcare providers to review and edit, as appropriate, medical treatment and triage procedures contained in this guidance to meet the needs of the VAMC.
- Endorse all clinical treatment protocols distributed to VAMC healthcare providers addressing the delivery of patient care during an emergency.
- Ensure that healthcare providers receive the required educational training specific to various types of emergency situations, such as, blast injuries, crush injuries, human events,

nuclear/biological/chemical injuries, and mass casualty triage.

- Ensure that the Emergency Operations Plan (EOP) addresses the medical chain-of-command to use during the emergency situation.
- Ensure appropriate safety measures are utilized to protect employees, staff and visitors within the VAMC.
- Review, approve, and endorse the mass-distribution of materials (e-mail, brochures, etc.) within the VAMC related to medical management of an emergency event.
- Maintain coordination of emergency medical activities with the Network Director or Medical Director, other VISN Chiefs of Staff (COS), and the VISN Healthcare Advisory Committee.
- Review and endorse Memoranda of Understanding (MOUs)/sharing agreements for medical resources, supplies, medical care, and alternate treatment sites.
- Ensure compliance with all medical treatment-related regulatory requirements [e.g., Emergency Medical Treatment for Active Labor Act (EMTALA), Consolidated Omnibus Budget Reconciliation Act (COBRA)].

Key Operations Managers: Key Operations Managers have responsibilities that have broad control of systems and operations of the facility (i.e., Chief of Engineering, Chief of Acquisition and Materiel Management, Chief of Security, etc.).

Emergency Program Coordinator: The Emergency Program Coordinator/ Emergency Management Program Coordinator is the individual responsible for coordinating with the AEM, the staff within the VAMC, and the community and regulatory agencies. On a day-to-day basis, the EPC is responsible for ensuring that the EM program complies with all applicable regulations and standards. This position is typically assigned to the Facility Safety Officer, the Chief of Safety, or the Chief of Facilities.

Operating Unit Managers: The Operating Unit Managers are responsible for participating in the EM program, including planning, training and implementation during drills, exercises and actual threats/events.

Strategic Guidance for the EM Program

The emergency program manager and members of the emergency management committee should consider the organization's mission statement, code of ethics and core values, and other organizational directives in setting the strategic direction of the EM program. If clearly stated, widely communicated, and broadly understood, these documents provide an important context for guiding the actions of organizational personnel during **all conditions and circumstances**. Therefore, analysis of the mission, code of ethics, and core values can produce the context in which the emergency management program is developed and maintained. Indeed, it is within this context that the goals and objectives of the emergency management program should be described.

- Mission statement, code of ethics and core values: The guidance provided by the organization's mission statements, codes of ethics, and core values may be especially valuable in EM committee work, as well as responding to emergency situations. Emergency and disaster events are commonly associated with ambiguity of information, the need to make rapid decisions, and the lack of specific direction by supervisors. Normal organizational structure and lines of communication may be blurred. These characteristics increase the importance of the organization's mission, codes, and values in providing direction, since all should promote individuals and teams working toward a common goal. To better illustrate this important concept, the VHA mission statement is provided as a specific example in Textbox 1.2.2.6.

Textbox 1.2.2.6

The Veterans Health Administration (VHA) Mission Statement¹¹⁷:

“The mission of the Veterans Healthcare System is to serve the needs of America's veterans by providing primary care, specialized care, and related medical and social support services. To accomplish this mission, VHA needs to be a comprehensive, integrated healthcare system that provides excellence in healthcare value, excellence in service as defined by its customers, and excellence in education and research, and needs to be an

Strategic guidance for the EM program includes consideration of day-to-day mission statements, code of ethics, and core values in the development of program components.

¹¹⁷ Veteran Health Administration General Information, available at: http://www1.va.gov/Health_Benefits/page.cfm?pg=1, accessed November 22, 2005.

Healthcare systems, even if they reside in the private sector, have important public sector responsibilities in relation to emergency response.

organization characterized by exceptional accountability and by being an employer of choice.”

The mission, codes and values are particularly important in the public service sector (e.g. EMS and Public Health and most full service medical facilities). As much of the service provided by healthcare facilities can be considered “public” even though they may be private sector institutions, they should be considered in the same manner. Generally, a public service organization’s mission statement, code of ethics, and core values focus on the organization’s commitment to the **communities** they serve. Regardless of circumstance, public service organizations generally strive to provide continuous service at the highest level of capability.

Healthcare systems responding to an emergency or disaster are responding as part of the emergency response community and are essentially acting as public service organizations. Therefore, it is essential that in preparing for and responding to emergencies, healthcare systems consider the broader community within which they operate and understand the need for continuous service at the highest levels possible.

- The use of assumptions to incorporate organizational guidance into the EM program: Organizational mission, codes, and values can be utilized as assumptions in development of the EM program. To apply this concept, the EM program should delineate key organizational considerations as **planning assumptions** (see terminology textbox) during the development of strategic administrative EM planning. An example of incorporating the VHA mission statement into an EM program assumptions follows:
 - Resiliency and continuity as the central mission: Central to the accomplishment of each EM program initiative is the goal of continuous or uninterrupted availability of a “comprehensive, integrated healthcare system” (VHA Mission Statement in Textbox 1.2.2.6).

Terminology alert!

Assumptions (management definition): Statements of conditions accepted as true and that have influence over the development of a system. In emergency management, assumptions provide context, requirements, and situational realities that must be addressed in system planning and development and/or system operations. When these assumptions are extended to specific operations, they may require re-validation for the specific incident.

Other generally applicable programmatic assumptions to be developed include:

- Mission critical service to the community: Healthcare systems (like other public service organizations) commonly address life-saving and other critical activities during regular, everyday operations. They, therefore, do not have the latitude to shut down many of their normal operations until an emergency passes.
- Establishing a priority scheme: Life-safety issues are very common in emergencies and disasters and take precedence over elective procedures and financial/business considerations. Predictable response issues that are secondary to personnel protection and life-saving intervention should be recognized and addressed in advance through a defined priority scheme.
- Addressing the bigger picture: Healthcare systems and other public service organizations cannot react to the exigency of the moment without considering the strategic implications for its ability to sustain its regular commitment to the community and usual patients. This includes maintaining the financial viability of the healthcare organization. The need for adequate funding for healthcare system response operations and similar considerations should therefore be included in the strategic EM program assumptions. Preparedness should address this important issue in advance of any incident.
- Visible competence as a mission assignment: The **visible competence** of public service organizations during and after hazard impact is vital to maintaining public confidence in authority. Similarly, the community's confidence in the healthcare organization's ability to provide medical and psychological

It is important for the healthcare system to understand that its response is evaluated by the public. A visibly competent response by a healthcare system reflects on the overall jurisdictional or system response in a community.

healthcare during response is in part dependent upon the visible competence of healthcare systems. Addressing this in all aspects of the EM program may be very important during incident response.

Lesson 1.2.3 Emergency Management Program: Managerial Strategies for Achieving Effectiveness

Lesson objectives

- *Describe managerial strategies that promote success in the EM program.*
- *Explain important factors in setting and maintaining a consistent strategic direction in the EM program.*
- *List a representative sample of important EM program and emergency response assumptions.*
- *Describe important elements in the conduct of efficient and effective EM program meetings.*
- *List the steps of a systems approach to development and its application to EM programs.*

Introduction

In the two preceding lessons, the EM program and its composition were presented. This lesson focuses upon managerial strategies that may be important to the success of the EM program.

Promoting and Supporting the EM Program

For the EM program to be successful, it must be promoted and supported within both the healthcare organization and the larger community.

- **Building Support:** A hospital can be compared to a city in several ways. In one way, a hospital combines the functions of patient care with those of a warehouse, a hotel, a laboratory, shopping center, and an office building. In another, the various departments and organizational units can be compared to the various agencies that provide services to the public. Hundreds and sometimes thousands of employees work in various buildings and on various shifts. Like a city, the hospital also has a surrounding community that is interested in its activities and within which it must integrate for effective planning.
 - **Promoting the healthcare system EM program to the larger community:** It is critical to remember that the entire community responds to and is involved with disaster. If the public and community response partners are knowledgeable about the healthcare systems EM program, a more effective response may be promoted.
 - **Promoting EM within the organization:** The response to emergencies and disasters within the healthcare facility will, in a

EM programs require active promotion within and external to an organization in order to be successful.

One of the greatest challenges to an EM program is apathy on the part of the organization's personnel. Understanding the causes of this can help with the development of methods to counter it.

like manner to the community, involve everyone in some way. Therefore, the emergency program manager (EPM) must build and maintain interest, support, and participation by leadership and key managers, otherwise a "vacuum program" is created, doomed to fail should disaster occur. Obtaining and maintaining support and involvement is one of the major challenges to anyone with the role of an EPM.

- Maintaining awareness of and participation in the EM program: For those EPMs who have had the experience of going through a serious incident with good results and/or those who work in organizations regularly impacted by significant hazards (e.g., hurricanes), gaining the interest and support of the EM committee and other personnel is not a major problem. On the other hand, for most organizations, disasters are not very common and running an effective EM program requires the EPM to understand how to maintain interest. A variety of techniques may be used by the EPM to manage the day-to-day program responsibilities and keep these efforts visible to all organizational personnel. One major requirement is to understand and address "apathy."
 - Understanding "apathy": Apathy is a principal barrier to creating a truly participatory EM planning process. To understand how to offset this attitude, it is important to appreciate the various reasons that it exists within organizations. Erik Auf der Heide, in his book titled, *Disaster Response, Principles of Preparation and Coordination*,¹¹⁸ pointed out some of the major sources of apathy:
 - ❑ Apathy on the part of the general public (and healthcare system personnel) can be due to a **lack of awareness** in the potential for disasters.
 - ❑ Even when people (including healthcare system personnel) are aware, they have a tendency to **underestimate the risk of or vulnerability** to a disaster.
 - ❑ A third source of apathy is **reliance on manmade protective devices** such as levees, dams, warning systems, or construction techniques, despite recognition that these have limitations that actually prevent absolute protection.

¹¹⁸ Available at <http://orgmail2.coe-dmha.org/dr/Index.htm>, accessed April 5, 2006.

- ❑ **Fatalism and denial** are also contributors to the general apathy about hazards and their impacts, including natural disasters and terrorism.

These attitudes are commonly present in the individuals who participate in the emergency management committee. Other pressures that lean against emergency preparedness programs, at a collective level, include defeatism or the belief that adequate preparedness for disasters cannot be achieved, so why try?

- Addressing “apathy”:

- ❑ Developing realistic, achievable interventions: A well-run EM program develops achievable objectives and then demonstrably accomplishes them in a participatory fashion. Exercises, job fairs with EM exhibits, and other EM-related activities visible to healthcare system executives and other personnel are avenues to demonstrate that appropriate effort can achieve significant results in protecting the organization and responding adequately.
- ❑ Highlighting the importance of the EM program: The primary objective of an EM program is protecting the resiliency of patient care operations and business functions (service and products) that comprise the organization’s normal mission. For a healthcare system, the EM program supports an environment of competence, awareness, and security that allows the system’s personnel to go about their every day activities knowing that there are plans, policies, and procedures that are designed to protect and to allow system function in an emergency situation. This benefit should be publicized to the organization’s personnel.
- ❑ Presenting cost-benefit data: In order to advance the program initiatives, EPMS must ask for financial and other resources. Budgets for the EM program must compete with other more visible revenue-producing programs. In order to be successful, EPMS must have the ability to substantiate the cost-benefit aspects of the emergency management activities they seek to have funded.
- ❑ Communicating changes to the EM program and EOP and reporting important upcoming events: To maintain awareness, respect for, and participation in the EM program, methods must be in place to convey the

An important way the efforts of the EM program can be “advertised” is to emphasize activities designed to promote organizational resiliency.

organization's EM-related activities and accomplishments to the organization's personnel, its governance board, response partners, other healthcare systems, the organizations "customers," and the general public. A method for disseminating EM program information is therefore needed during non-response periods, as well as during response (which is addressed in Units 2 and 3). This should be accomplished in a standardized fashion that makes it easy to do. The method should also set the information apart from all the regular administrative messages that are conveyed, so that they are recognizable as pertaining to emergency management issues. An example of a standardized methodology for this is presented in Textbox 1.2.3.1.

Day-to-day requirements exist for dissemination of EMP related information.

Textbox 1.2.3.1

**Standardized Categories for Information Dissemination During Day-to-Day Operations:
Example Categories**

These categories are discussed extensively under response messages (Unit 3), but their value for information dissemination during non-response periods should also be recognized.

- Updates for the EM program: This should be a standardized method for communicating new information related to the EM Program. Re-organization of the EM PROGRAM or changes in its functions should be disseminated. As the EM program and program components are developed and revised, appropriate administrative and staff personnel should be informed through this method. In particular, any important change to the EOP should be disseminated in a timely fashion to prevent confusion during response and recovery. All personnel will therefore maintain a current understanding of the EOP and their individual and collective responsibilities.

Additionally, the update message can be used to disseminate announcements regarding future exercises, important meetings, program evaluations and other events, can be disseminated, either to specific audiences or the entire organization. If the information becomes more urgent, the information is better transmitted as an advisory (for example, on the day of an exercise, an advisory may be issued to remind personnel to post signs and inform patients and visitors).

- Advisories (see terminology textbox in Lesson 3.3.2): Information that is of a regular nature but has the potential to rapidly impact healthcare system operations can be conveyed through this category. For example, scheduled community events (concerts, demonstrations) could generate higher than normal volume for the Emergency Department or could impact the commute of workers to the facility. Impending inclement weather may prompt a reminder of the organization's snow policies and recommended actions, such as allowing extra travel time to get to work, bringing an overnight bag, etc. This is further discussed in Units 2 and 3.

- Integration of the EM program into the community: Those responsible for emergency management in the local community jurisdiction must create and maintain an effective interagency organization to mitigate, prepare for, respond to, and recover from major threats to lives and livelihoods. It is important to recognize that plans alone are not effective unless they are supported by people and a process brought together by high-quality management skills, and the healthcare organization must participate in this activity within the larger community. The EPM and EM committee's external liaison function must be robust, with an available cadre of skilled personnel who can appropriately participate in all community EM activities.
- Good-faith compliance with standards: JCAHO emergency management standards establish the requirement for emergency management planning for healthcare organizations and facilities. If healthcare systems treat emergency management activities like a "project" with a defined end product — a plan or plans — merely to satisfy the JCAHO requirement, the time and effort may be largely unproductive in achieving and maintaining effective mitigation, preparedness, response, and recovery capabilities.
- EM program integration with everyday healthcare system operations: Although emergency response is generally outside of normal day-to-day healthcare facility operations, it must be continuously considered, practiced, and managed to develop and maintain the necessary structure and levels of competence throughout the organization. Because healthcare system personnel are fully committed with their usual job tasking and do not have an abundance of time to set aside for emergency-management related activities, their existing jobs should support emergency preparedness to the maximum extent possible.
 - Match EM roles with everyday positions and tasks as much as

If the EM program is developed merely to comply with standards and regulations, the resultant effort can be expected to be sub-optimal.

Matching EM program positions and tasks with those of everyday positions has distinct advantages in the ability to maintain the program.

Certain assumptions should be considered in the development of different components of the EM program. These provide context and can impact the various activities related to the four phases of EM.

possible: Emergency response requirements and tasks should match day-to-day organization and job assignments as closely as possible, with deviations recognized, documented, resourced, and practiced to a sufficient level.¹¹⁹ As day-to-day management, administrative, and operational process and procedures evolve, they may require adjustment in the EM program to accommodate these changes. Conversely, critical EM program requirements may induce modifications to normal operational structures and processes.

- Integrate the EM program into the everyday administrative and operational activities: As noted above, as the EM program becomes more integrated into regular management, administrative, and operational activities, personnel will be in position to practice their EM program roles and responsibilities on a regular basis and/or recognize requirements that are clearly outside of normal operations and prepare accordingly.

Assuring a Sound Base for the EM Program:

The EM program and its initiatives must be based upon a valid EM foundation. This can be accomplished through the use of **valid assumptions** to guide system development. Program development assumptions are facts, organizational responsibilities, contextual parameters, and constraints that the system can be expected to encounter while conducting the EM program and under actual operating conditions. Organizational assumptions (and the definition of the term) were discussed under Leadership and Direction in Lesson 1.2.2. The assumptions must accurately reflect the environment in which the organization resides, as well as the environment of incident response. Generally applicable emergency response assumptions for a healthcare system EOP include:

- Preparedness Assumptions:
 - EM program development assumptions (in addition to the considerations presented in Lesson 1.2.2)
 - The program will be developed over a period of years, guided

¹¹⁹ In an emergency and under high stress conditions, people often revert to their routine activity because it is what they know how to do and what they feel comfortable doing. It is therefore best to have their routine activity be as close to the emergency response activity as possible. This is a concept defined in the past by the U.S. military as the “doctrine of daily routine.”

- by an inter-departmental committee.
 - It will be focused on all hazards, with procedures that address the initial response to priority hazards.
 - Certain capacities and capabilities will be constrained by the availability of funds and staff time.
 - Preparedness activities will be based upon response and recovery requirements.
 - Emergencies occur in one of two ways: those that provide a warning period, such a hurricane; and those that provide no warning, such a loss of power. The organization must develop the ability to respond effectively to both situations.
 - The Emergency Operations Plan (EOP) will be based on an Incident Command System (ICS) consistent with the National Incident Management System (NIMS).
- Organization and Healthcare System assumptions
 - Clear-cut, well-delineated organizational roles and responsibilities must be developed and exercised to promote efficient response.
 - Event hazards may directly impact the healthcare facility. Examples include:
 - ❑ Structural impact from earthquake, explosion, or hurricane necessitating structural evaluation or evacuation.
 - ❑ Personnel affected by hazard necessitating prophylaxis, vaccination, or treatment of personnel.
 - Systems that perform the best during crisis are ones that are used or practiced regularly. This is the stated reason for the use of ICS during day-to-day operations in the fire service and serves as a motivation for the establishment of a day-to-day EM **information management function** where feasible (see Unit 3).
 - Promulgation of useful response information is essential, both internal and external to the healthcare system. In the absence of good information, rumors, speculation, and dissent emerge.
 - Expanded (surge capacity) and specialized (surge capability) needs during response can be addressed through careful planning.
 - Activities at the facility will rarely operate in a vacuum and usually take place in the context of the broader community response. Examples include:
 - ❑ Common terminology is essential to prevent confusion and potential harm when coordinating efforts of different organizational entities.
 - ❑ Healthcare system support needs (security, transportation, etc.) should be identified and assured through existing local

An important incident response assumption for healthcare facilities relates to the possibility that organizations will not get formal notification of the occurrence of an event. This type of assumption assists in developing realistic expectations and initial response actions.

- and regional emergency constructs.
- ❑ Facilities may be asked to share resources with other facilities (Federal or State provided supplies, blood supplies, vendor supplies that may support multiple hospitals in a jurisdiction).
- ❑ Tactics applied at the facility may cause community confusion if not coordinated with the overall response community (e.g. doing nasal swabs as a diagnostic test for potential anthrax exposure).
- ❑ Facilities may be requested to support other healthcare facilities (through donated personnel, supplies, pharmaceuticals, or bed space).
- ❑ Patient load may necessitate transfers to other facilities.
- ❑ Media messages delivered by a facility may impact the activities at other facilities (and therefore should be coordinated with the overall response community).
- Facility may not have maximum staffing patterns at the beginning of an event (e.g., nights, weekends).
- Incident assumptions
 - The facility may not receive initial formal notification of an event from jurisdictional authorities (e.g., initial indications may come from the media, other facilities in a jurisdiction posing questions, or from patients presenting for care).
 - Initial event parameters may not be clear but facility response actions may still be required (e.g., partial activation with notifications and the establishment of a Planning Section that can track incident parameters as they unfold).
 - Events may occur in an obvious and rapid fashion (explosion) or may be slower and surreptitious in nature (infectious disease outbreak). In some instances, it may not initially be clear that an event requiring some level of facility response is occurring at all.
 - Events may require brief healthcare facility response or may last days.
 - The focus of events may vary. Events may involve the presentation of large numbers of patients (surge capacity) or the presentation of patients with unique care requirements (surge capability). Conversely and as noted above, events may not involve the generation of any new patients at all (e.g., power outage).
 - Volunteers may present unsolicited to assist with the facility response.
 - Profiteering by medical assets and those that support medical assets is not expected but has occurred in the past after certain tragedies. A well-established EOP must be prepared to

respond to this potential phenomenon (see Textbox 1.2.3.2).

Textbox 1.2.3.2

Example: Profiteering (Based on a True Story but Without Identifiers)

A hospital has had direct structural impact after a hurricane, which includes damage to its roof. The first contractor available for repairs provides an estimate that appears inordinately expensive. The healthcare facility liaison officer has learned through coordination with the jurisdiction's emergency management agency what typical repair rates should be and that anti-profiteering regulations have been enacted by the governor. When confronted by the healthcare facility with this information, the contractor withdraws and another more suitable repair company is identified.

- Event parameters indicating the healthcare facility may initiate demobilization may not always be obvious.
- Victim assumptions
 - Victims may arrive rapidly, independent of official jurisdictional response, and without pre-arrival notification to the facility.
 - Event victims may represent a wide demographic group (all ages, different languages spoken, existing co-morbidities, etc.).
 - Based upon prior experience, the majority of incident victims may not require hospitalization after initial care.¹²⁰ While this could change during very unusual events, it may be considered as a planning assumption for the general EOP.
 - Some victims may not have physical injury or illness but still require evaluation and some intervention or at least observation. It is recommended the term “worried well” be avoided for this group as it is inaccurate and can be interpreted as a derogatory label. An alternative descriptor might be “Concerned, potentially exposed” or “Concerned, potentially injured” (see Unit 3). In some instances, this group of patients may significantly exceed the numbers of physically injured or ill.
 - Victims will follow direction if they perceive that something is being done for them and that they will receive adequate

Other important response assumptions to consider relate to duration of response, donation of unwanted resources, and the potential for profiteering to exist during an incident.

For events that involve casualties presenting for care, healthcare systems can develop assumptions based upon prior validated experiences.

¹²⁰ This is supported by data from incidents such as the US Embassy bombing in Nairobi, the Oklahoma City Bombing, WTC attack, anthrax dissemination events, and multiple natural hazard events.

treatment and care.

- Victims have expectations, including the assumptions inherent in normal medical care (respect/dignity, information privacy, competent medical providers) and the assumption that care providers have expert medical knowledge of the event hazard. Victim expectations may be shaped by information provided through the media.
 - Victims may serve as a resource to provide information about the scene and other incident parameters.
 - For intentional events, perpetrators may present with other victims for treatment and care.
 - If properly managed and instructed, victims can provide some measure of self and “buddy” care.
 - Convergence of patients, family members, the media and volunteers will occur during major emergencies to facilities near the incident, regardless of the capabilities of any particular healthcare facility.
- Jurisdictional response assumptions
 - Jurisdictional authorities may not be able to provide assistance to the healthcare facility (especially during the initial stages of a response).
 - Initial information from the jurisdiction may be incomplete.
 - In some instances, the jurisdiction may request assistance from the healthcare facility.
 - The jurisdictional response mechanism may request formatted information from the healthcare facility in a timely fashion.
 - Events with potential patient contamination assumptions
 - The healthcare facility is not within the zone of release.
 - Patients may arrive without decontamination or with inadequate decontamination having occurred.
 - Initial identification of the contaminant may not be possible.
 - Patients may present with contamination after an explosive event (industrial contaminants, chemical, radiological, etc.) and require decontamination.

Establishing and Maintaining Strategic Direction for the EM Program

The most important role of the EM committee is providing direction for and quality control over the EM program.

- Determining a strategic direction was discussed in Lesson 1.2.1. The EM committee can establish and maintain a consistent EM program

strategic direction across the organization through:

- Strategic administrative planning: The Strategic Administrative Plan defines the overall strategic objectives of the organization related to EM and provides the work plans for the development and refinement of the organization's EM program. These work plans organize a series of activities across the year; assign responsibilities for action; and direct follow-up. One of these activities is the Annual Program Review, which is a primary driver for the revision of the strategic administrative plan. This accomplishes EM program evaluation and organizational learning, discussed below.
- All-hazards planning: Regularly updating the Hazard Vulnerability Analysis HVA and review of the priority hazards, threats and events identified in the prior year's HVA. This is updated as necessary and all applicable issues incorporated into EM component work plans (mitigation, preparedness, response, and recovery).
- EM program evaluation and organizational learning: The EM committee assures structured as well as informal evaluation of the EM program itself, plus each of its component parts, on some regular basis. The evaluation results are collected and analyzed. These evaluations may be through structured program reviews, After Action Reports from exercises or actual emergency responses, informal reviews that may be part of EM committee or sub-committee meetings, or from input provided by others in the organization or the community. The accepted revisions are formally integrated into the EM program and its components through organizational (see Unit 4).
- The Strategic Administrative Plan description: The Strategic Administrative Plan should provide a view of the overall framework of the EM program, and then present the activities planned for the coming year. The plan should be consistent with NFPA 1600 (edition 2004) guidance (see Textbox 1.2.3.2), and so the following elements would be included:
 - The overall emergency management mission and vision of the organization and a description of its role in community-wide emergencies.
 - Organizational goals and objectives that will guide overall program management efforts.

Strategic direction for the EM program involves administrative planning (e.g. annual plans and reviews), all-hazards planning, and organizational learning.

Strategic administrative planning can be summarized for the EM program in an actual document that is updated at least yearly and reflects overall mission and vision of the EM program. It should also include budget details (as appropriate).

- The timeframe for annual work plans and other regularly recurring, important programmatic activities.
- Assignment of responsibilities to individual committee positions and sub-committees.
- Budgetary and related administrative details.

Textbox 1.2.3.2

NFPA 1600¹²¹
Program Administration

The entity shall have a written emergency management policy that defines:

- a. The enabling authority,
- b. Vision, mission statement, goals, objectives and milestones.
- c. Management policies and procedures.
- d. Applicable legislation, regulations, and industry codes of practice.
- e. Program budget and management schedules.

The strategic plan shall define the vision, mission, goals, and objectives of the emergency management program as it relates to the policy of the entity as defined in Section 2.1.

A sample format for a Strategic Administrative Plan is provided in Textbox 1.2.3.3.

Textbox 1.2.3.3

Strategic Administrative Plan: Sample Outline

- I. Introduction
 - Organizational mission, vision, and overall objectives
 - Description of the purpose of the organization's emergency management program
 - Identification of the priority hazards, threats and events

¹²¹ NFPA 1600 Standard on Disaster/Emergency Management and Business (2004). National Fire Protection Association, available at: <http://www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=1600&cookie%5Ftes t=1>, accessed August 9, 2005.

that threaten the organization

- Explanation of any assumptions bearing on organizational performance during emergencies
- List of overall emergency management goals
- General description of the process the organization will use to accomplish these goals and objectives, including committees and sub-committees, steps, timeframes, and budget.

II. Program management goals and objectives

- Statement of overall emergency management goals and supporting objectives
- Explanation of the metrics that will be used to monitor progress.

III. Program management process

- Explanation of the major steps or sequences for program development, maintenance and evaluation
- Identification of personnel involved in the EM committee and their roles and responsibilities
- Description of the EM committee decision-making process for selecting priority projects and establishing mitigation and preparedness work plans and project level objectives.

IV. Work plans and project level implementation activities. For each work plan, include a:

- Description of the major project, the problems they address, performance objective(s) and the current status of the projects
- Listing of strategies for accomplishing the work plan objective(s), including who is responsible, time and budgetary issues.

V. Appendices

- Overall program timelines
- Project level work plans where indicated.

Example tools (from VHA) for establishing effort and timelines for development within the EM program are provided in Exhibit 1.2.3.1.¹²²

¹²² VHA *Emergency Management Program Guidebook* (2005). Chapter 9 –Education, Training and Exercises: p. 9-2. Available at <http://www1.va.gov/emshg/page.cfm?pg=114>. accessed June 2, 2006.

Exhibit 1.2.3.1 Timeline tool (worksheets A and B) for use in EM program development.

Worksheet A

Emergency Management Program Step	Year 1	Year 2	Year 3	End Product
<div style="border: 1px solid black; border-radius: 10px; padding: 10px; width: fit-content; margin: auto;"> <i>List steps and activities here</i> </div>	<div style="border: 1px solid black; border-radius: 10px; padding: 10px; width: fit-content; margin: auto;"> <i>Indicate the year the step/activity is to be accomplished</i> Development _____ Maintenance _ _ _ _ </div>			<div style="border: 1px solid black; border-radius: 10px; padding: 10px; width: fit-content; margin: auto;"> <i>Exactly what will the results be ?</i> </div>

3 Year Program Overview

Worksheet B Emergency Management Program

Step:	Estimate of Staff Time:								Cost:							
End Product:	Year 1				Year 2				Year 3							
	Quarter				Quarter				Quarter							
Action Steps (Strategies)	1	2	3	4	1	2	3	4	1	2	3	4				
<div style="border: 1px solid black; border-radius: 10px; padding: 10px; width: fit-content; margin: auto;"> <i>List tasks and strategies for each activity required to complete this Step.</i> </div>	<div style="border: 1px solid black; border-radius: 10px; padding: 10px; width: fit-content; margin: auto;"> <i>Indicate the year and quarter the activity is to be completed.</i> </div>															

Effective Management of the EM Committee Activities

As noted earlier, the EM committee should be incorporated into existing administrative and committee structures based upon organizational preference and resources. Generally, the EM committee should report to, or have a very close liaison with, the organization's Safety Committee.

- **EM committee authorities:** The authorities for decisions made by the EM committee should be clearly delineated as to how they are acted upon. Many decisions made by the EM committee can be acted upon within the authorities granted to it. Some, however, may require referral to higher administrative authorities within the organization (e.g., decisions on expenditures for major capital expenditures).
- **EM committee meetings:** The EM committee should hold regular scheduled meetings. The frequency of these meetings will be determined by the level of activity at any particular point in time. For instance, during initial EM program development, major revisions, or after significant responses, the frequency of EM committee meetings may be higher (e.g. two or three per month).
- **EM committee meeting management:** The conduct of the EM committee meetings should follow protocols established for any professional committee within the organization. These usually include:
 - **Agenda:** Agendas established prior to the meetings, preferably developed and disseminated beforehand.
 - **Meeting facilitation:** The EPM should facilitate the meetings. They should start on time, run crisply, adhere to the agenda and meeting time frame, avoid distracting side conversations and prevent lengthy discussions that should be addressed by subcommittees or other entities. This meeting discipline can be considered "training" for incident management meetings that occur during response.
 - **Meeting minutes:** Meeting discussion and actions are documented. Minutes from the prior meeting are reviewed and formally accepted into the EM program records.
 - **Meeting decisions:** Formal motions and votes on items of critical relevance are conducted.
 - **Invited guests:** EM committees may provide an avenue for organizational integration with external emergency management and response organizations by inviting participation in specific EM

The EM committee should conduct regularly scheduled and announced meetings. The conduct of these meetings should follow predetermined agendas (to ensure completion of material at hand) as well as be conducted within the timeframe allotted.

committee meetings when mutually important topics are discussed.

Conducting Activities within the EM Program: The Use of Consistent Templates and Strategy

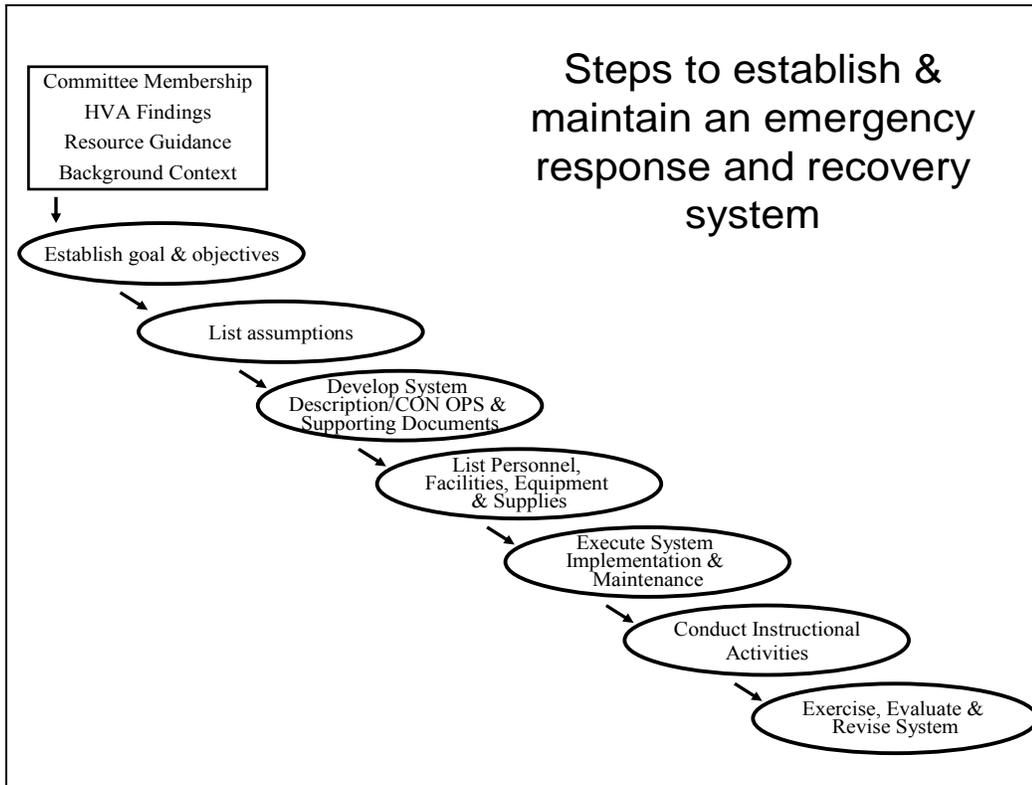
It becomes obvious that the EM program and its various component activities can span a very wide range. These can include but are not limited to meetings, plan development and execution, resource development and management, education and training, exercises, evaluations, and organizational learning. For maximal efficiency and to maintain consistency across the EM program, consistent strategy, templates, and other guides should be used as appropriate for all activities. For example, all in-house training documents within an organization should use the same development process (based upon Instructional System Design, as presented in Unit 4) and the same document format.

The use of template processes can facilitate a uniform approach to various components of the EM program. An example might be the approach demonstrated in Exhibit 1.2.3.1.

- VHA templates: The *VHA Emergency Management Program Guidebook*¹²³ is an illustration of an organization's collection of tools to assist a healthcare system prepare in an efficient and consistent manner. For example, the VHA template for developing and maintaining an effective EM program is presented in Textbox 1.2.1.2.
- Other templates in this text: Many other template approaches are presented for considerations throughout this text. In particular, the authors have successfully used the stepwise approach presented in the following Exhibit 1.2.3.1 during their experience in developing many different components of emergency response systems. The development template may be used for developing particular operational components of an EM program, such as decontamination, pharmaceutical cache, patient reception, etc.

¹²³ U.S. Department of Veterans Affairs. *Emergency Management Program Guidebook*. 2005, Washington, D.C., available at <http://www1.va.gov/emshg/page.cfm?pg=114>, accessed June 6, 2006.

Exhibit 1.2.3.1: Systems-based methodology for developing and maintaining effective response and recovery.



Example of applying a systems template approach to the development of a specific component of the EM program:

- Establish goals and objectives: For a healthcare system decontamination capability, suggested goals might be:
 - Provide for the protection of the facility, facility personnel, and patients already being cared for at the time of a hazardous materials event.
 - Provide adequate and efficient care for patients presenting with real or the potential for real contamination.
 - Provide for the consideration of regulatory requirements (as appropriate).
- List assumptions: For a decontamination capability, assumptions are listed. To develop accurate assumptions, a thorough understanding of the system environment for managing emergency, no-notice, contaminated patients is required. The assumptions then summarize

An example of a systems approach in developing a decontamination capability is presented.

important aspects of the environment, the organization, and the response needs.

- Develop the concept of operations and the system description: The necessary functions are delineated for the capability of decontaminating patients. The structure should be ICS consistent and utilize ICS terminology. For instance, a decontamination task force could be utilized by the healthcare system to address this activity. Specific positions (manager, personnel assigned to assist patients, personnel assigned to secure decontamination areas, etc.) should be established with requirements for personnel to fulfill these. The reporting structure to the overall organization should be described as well. In addition, specific procedures and processes should be outlined. Key activities, such as donning and doffing of PPE or care of injured employee, should be outlined.
- List indicated personnel, facilities, equipment, and supplies: Personnel required for managing and maintaining the program should be selected to fulfill the structure outlined as above. Equipment and supplies should be investigated, acquired, and stored in a manner conducive to their emergency use. Other important resource considerations are provided in module 1.5.
- Execute system implementation and maintenance: Acquire, construct, store resources necessary for the decontamination process to be conducted. This also includes following maintenance schedules for equipment servicing and/or replacement.
- Develop and conduct education and training: Specific education and training are delivered. In addition, drills are utilized to practice a series of skills such as procedures for washing off a patient or for donning and doffing PPE. Refresher mechanisms and schedules are established for personnel.
- Exercise, evaluate, and revise system: Evaluation and revision of the decontamination capability occurs after exercises or responses to real events. Accepted changes are incorporated into EOP documentation and EM program guidance documents. Appropriate personnel are informed of the changes.

Module 1.3

Hazard Vulnerability Analysis: The Unifying Base for the Emergency Management Program

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Lesson 1.3.1 Overview, Concepts, and Principles: Hazard Vulnerability Analysis

Lesson Objectives

- *Explain the role of the HVA in Comprehensive Emergency Management.*
- *Define the key terms associated with hazards and risk associated with the HVA process.*
- *Describe the relationship between the HVA process and Risk Management.*
- *Explain the application of the HVA process to the EM program.*

Introduction

The Hazard Vulnerability Analysis (HVA) [see terminology textbox] process provides the foundation for the four phases of Comprehensive Emergency Management (CEM) and, hence, is a critical part of the healthcare system emergency management (EM) program. Inherent in each of the phases of CEM is the goal of effectively and efficiently managing the myriad hazards that may adversely impact an organization's ability to provide its services and products. The HVA therefore provides the “**needs assessment**” for the EM program, and as such provides its focus and steering direction. **Understanding the HVA process is the key to developing a risk-based, all-hazard emergency management program.**

The Hazard Vulnerability Analysis provides the “needs assessment” for the EM program. It therefore directly impacts all components of the EM program.

Terminology alert!

Hazard Vulnerability Analysis: A systematic approach to identifying all hazards that may affect an organization and/or its community, assessing the risk (probability of hazard occurrence and the consequence for the organization) associated with each hazard and analyzing the findings to create a prioritized comparison of hazard vulnerabilities. The consequence, or “vulnerability,” is related to both the impact on organizational function and the likely service demands created by the hazard impact.

- **HVA terminology:** The following definitions are provided to set the context for considering HVA and its importance to risk management, CEM, and the EM program.

The science of Risk Management has its origins in the business community. Its focus is on mitigation and preparedness activities.

Terminology alert!

Hazard - A potential or actual force, physical condition, or agent with the ability to cause human injury, illness, and/or death and significant damage to property, the environment, business operations, or other types of harm or loss.^{124, 125}

Vulnerability - The likelihood of an organization being affected by a hazard and its susceptibility to the impact and consequences (injury, death, and damage) of the hazard.¹²⁶

Risk - Risk is the product of probability (likelihood) and the impact/consequences of a hazard event.¹²⁷ Defining risk in this manner connotes that risk can be addressed by managing probability of occurrence (through mitigation and preparedness) and managing impact/consequences (through mitigation, preparedness, response, and recovery).

Risk Management¹²⁸ – A management science that employs the findings of the Hazards Vulnerability Analysis process to make strategic and tactical decisions on how risks will be treated – whether deferred, reduced (through mitigation and preparedness activities), transferred, or avoided¹²⁹. Risk management provides the option of accepting certain levels of risk, at least temporarily, that are considered too low for resource allocation. Conversely, it provides the decision option to commit major resources that

¹²⁴ Adapted from FEMA. *Multi Hazard Identification and Assessment*. Washington, D.C. 1997.

¹²⁵ Hazard is defined more generally in the National Response Plan (NRP) and National Incident Management System (NIMS) Glossaries: “Something that is potentially dangerous or harmful, often the root cause of an unwanted outcome. Department of Homeland Security.” (NRP Glossary [Dec 2004], NIMS Glossary [March 2004]; Washington, D.C.).

¹²⁶ Adapted from Department of Veterans Affairs. *Emergency Management Program Guidebook*. 2005. Available at <http://www1.va.gov/emshg/page.cfm?pg=114>, accessed June 6, 2006.

¹²⁷ Adapted from Ansell, J. and F. Wharton. 1992. *Risk: Analysis, Assessment, and Management*. John Wiley & Sons. Chichester, p. 100.

¹²⁸ The authors recognize that many medical professionals view “risk management” only as a subject related to “medical-legal” risk. It is important to note that this is only a narrow segment of total healthcare system risk and that all risk should be managed.

¹²⁹ Adapted from Shaw G., and Harrald J. *The Identification of the Core Competencies Required of Executive Level Business Crisis and Continuity Managers* (January 2004). The Electronic Journal of Homeland Security and Emergency Management, Berkeley Electronic Press.

eliminate or avoid risks that are of such high probability and/or high consequence that they threaten the very existence of an organization. Risk management, which may be considered a subsection of overall emergency management, focuses upon mitigation and preparedness activities that prevent and/or reduce hazard impacts, and is considered by many to be its own discipline.^{130,131}

- **Healthcare system HVA:** For a healthcare system, the hazard vulnerability analysis identifies potential emergencies that could affect the ability of the healthcare system to deliver its normal services, as well as the increased or unusual healthcare service needs created by the hazard impact. **A comprehensive HVA process must therefore identify and analyze all hazards that could significantly impact a facility and the community it serves.** Textbox 1.3.1.1 discusses areas of healthcare system vulnerability.

Textbox 1.3.1.1

Unique Characteristics of Healthcare Facilities

The following points illustrate how the characteristics of how hospitals may contribute to their overall vulnerability from hazards:

- Healthcare facilities are heavily occupied buildings; they house patients, staff, medical personnel, and visitors and are occupied 24 hours a day. Many patients are helpless and require trained care. In addition, they may be surrounded by special equipment, using potentially hazardous gases such as oxygen, or they might be connected to life support equipment, which is dependent upon power.
- Healthcare facilities are very complex buildings combining the functions of a hotel, office, laboratory, and warehouse. Their planning is complicated because of the presence of many small rooms. After an [incident occurs], patients and visitors will be

Healthcare facilities have unique characteristics (such as occupation 24 hours a day) that should be considered in the HVA.

¹³⁰ Carnegie Mellon Software Engineering Institute – Risk Management, available at: <http://www.sei.cmu.edu/risk/main.html>, accessed August 10, 2005.

¹³¹ Though the term “Risk Management” in the medical workplace has increasingly been associated with malpractice litigation against healthcare systems and personnel, it has in fact, this much broader scope. It is a widely accepted practice and responsibility in all sectors: public, private, and not-for-profit.

Personnel involved with the EM program should understand the limitations of any HVA process. For instance, many applications of the HVA are not precise but still provide value in the relative assignment of priorities.

very confused, lights may be out, and hallways and room exits may be blocked.

- Many healthcare facility supplies (pharmaceuticals, splints, bandages, etc.) are essential for patient survival and crucial for treatment of ...victims. Patient records are vital for accurate patient treatment, particularly in the event of patient evacuation to other facilities. Damage to storage and records areas may render these items unavailable at the time when they are most needed.
- Healthcare facility function is dependent upon utilities such as power, water supply, waste disposal, and communication. Radiology, monitoring, life support, sterilization, and other equipment must be powered.
- Many items in a healthcare facility are hazardous if overturned or damaged (drugs, chemicals, heavy equipment, and radiation devices). In addition, drugs may become a target of abusers if normal security breaks down.
- The business viability of many healthcare organizations depends upon its reputation among medical providers and the public in relation to its quality of medical services. Patient care mishaps and regulatory problems can have devastating organizational effects.
- In addition to internal problems caused by damage to the facility itself, community impact will result in an influx of injured people, as well as friends and relatives seeking information about hospital patients. At the time of most need, the facility may be non-functional with trained staff killed or injured.¹³²

- Limitations of an HVA: Given the many unpredictable or poorly understood variables in hazard probability and organizational vulnerability, no HVA process or instrument can provide for precise stratification of risks/hazards for a facility or community. In many cases, the information available is limited, and the stratification of risks can be no more detailed than assigning broad categories such as “severe, moderate, and low.” Despite this limitation, an organized, logical, and carefully executed HVA process provides the basis for

¹³² U.S. Government. *Seismic Considerations - Health Care Facilities* (May 1990), FEMA 150, pp. 9-11.

developing relative priorities among the many options that can be implemented to manage risk with the limited resources available. This then serves as essential input to the mitigation, preparedness, and incident response and recovery planning. The HVA process and its component steps, as described in more detail in Lesson 1.3.2, provide a rational and defensible methodology for all CEM-related activities.

- The HVA position in the context of CEM: While it is important for the HVA to be a distinct “step” in the emergency management program and to be presented as a stand-alone document, the HVA is **not** an end in itself and must be fully integrated into the overall EM program process.
 - The extent of an HVA: The HVA process must extend further than the periodic completion of forms and the tabulation of numbers to sort hazards and set their priority. The results of the HVA should provide essential input to the annual mitigation and preparedness planning cycles.
 - A continuous process: Ideally, the HVA process should be continuously considered and should be regularly revisited when new or changing conditions affect the facility **and the community**. Urgent changes to any part of the EM program process cannot wait for the next annual planning cycle for action. This continual attention to the HVA process facilitates a proactive approach to risk management throughout the CEM phases.
- Important considerations: To increase the value of the HVA, the organization’s “environment”¹³³ or context should be well understood. The following points should be considered:
 - Addressing the community role: The HVA should be conducted in the context of the healthcare system’s mission and objectives **and its community role** and the related requirements (see Lesson 1.1.3). The larger community-wide HVA should be analyzed in order to identify the generally recognized community hazards and understand the potential physical and business impacts. The HVA process for healthcare systems, however, cannot be completely adapted from the community process. It must extend further to fully identify specific risks related to healthcare system response requirements, including risk for its internal processes that support

HVAs are only valuable if the results provide input into all phases of EM and if it is performed in a continuous manner.

¹³³ In the organizational management research literature, the “environment” refers to the context in which the organization exists and operates (the “external environment”) and the characteristics of the organization itself (the “internal environment”).

surge capacity and surge capability.

- Incorporating the organization’s cultural tradition: The HVA should reflect the social, economic, political, and legal realities of facility-based and community healthcare. For example, a community hospital in a very low-crime area that has a long tradition of “open doors” and easy access may decide to continue this approach to perimeter control, which may be different from an urban facility in a riskier environment.
- Understanding the “business” of the organization: To fully analyze the vulnerabilities of an organization, its business processes must be understood. One established approach to accomplish this understanding is the Business Area Analysis (see textbox 1.3.1.2).

The program HVA should be conducted within the context of the organization’s day-to-day business. This approach parallels existing approaches in the business community (Business Area Analysis).

Textbox 1.3.1.2

Business Area Analysis

In the business arena, there are multiple processes that are conducted to evaluate the efficiency of the organization and its resilience. One such process is known as a “**business area analysis**” or BAA which is part of a larger business continuity program (a business term for continuity planning, discussed in Lesson 1.3.3). The BAA is an investigation of the business of an organization and it **examines day-to-day operations to determine critical functions and processes, their inter-dependencies, and their vulnerability to hazards**. The BAA varies from the HVA in its orientation: the BAA starts with a focus on the business (people, property, management, operations) itself, while the HVA starts with a focus on the hazards and their impact and consequences. The hazards a BAA focuses on are ones that impact the “business of the organization” and, therefore, should include hazards similar to those found in an HVA. The BAA, if it has been conducted by an organization, has typically been developed independently of EM efforts and yet it provides an important interface between normal business operations and the Hazard Vulnerability Analysis (HVA):

- The BAA can identify inefficiencies and ways to improve day-to-day operations and in the process decrease vulnerabilities.
- The HVA assesses the probability of a hazard and its impact on people, property, and operations. **The people, property, and operations are in fact the business of the organization and a continuous BAA process is necessary to assess and analyze the hazard impacts.**
- The EM program may use the BAA findings during the HVA process to design and implement efficient ways of protecting

business operations, as well as service and products delivery. This should include designing and implementing methods for creating and managing surge of services and products during emergency response and recovery.

- Full vulnerability considerations: The HVA must reflect not only facility impact but also community impact on patients, staff, and suppliers. For example, if hazard impact affects community schooling, then employees with children may be significantly affected.
- The medically vulnerable: The “at-home” patient population in the community must be included in the hazard impact. Those dependent upon electricity for life-critical medical equipment, upon mail delivery for important medications, upon assisted transportation for critical outpatient treatments, such as dialysis, and others will be difficult to support if not considered in the hazard vulnerability assessment. These issues can directly impact healthcare facilities, as medically fragile patients frequently seek assistance in hospitals when their outpatient support is interrupted.
- HVA administrative issues:
 - Inclusive process: Although the responsibility for the HVA is often assigned to a high-level committee such as the emergency management committee, the activity itself should be a highly inclusive process that considers multiple perspectives internal and external to the organization.
 - Dynamic process: The HVA product is subject to evaluation and change – in fact, re-evaluation and change are essential, reflecting the dynamic nature of the internal and external environments.
 - Legal issues: Like any other healthcare activity addressing risk, legal services should be consulted to assure that good-faith efforts do not inadvertently increase liability exposure.
- The detailed picture necessary for an effective HVA: For a comprehensive HVA that provides effective guidance across the EM program, additional understanding is important:
 - Understanding the current status of mitigation and preparedness: To fully understand the vulnerability of an organization to hazards, the status of mitigation and

Conducting the HVA with consideration of external considerations is vitally important. For instance, consideration of the impact on utility disruptions on vulnerable populations raises the possibility of these individuals presenting to hospitals for care.

If healthcare systems coordinate their HVA efforts with the jurisdiction, invaluable information can be exchanged between both parties.

preparedness within the context of the organization's regular initiatives must be understood. This requires that personnel performing the actual vulnerability analysis have an in-depth understanding of both the organization's normal operations and its EM program structure and function.

- **More detailed analysis:** The Hazard Vulnerability Analysis has traditionally approached the assessment and analysis of each hazard individually, with only global comparisons between hazards to delineate which hazards are high priority for mitigation and preparedness. A more effective approach is **Hazards Vulnerability Analysis** (stressing the plural) where all hazards are considered together to identify the most effective and efficient risk intervention measures. When hazard/risks are considered collectively rather than individually, the ability to identify and implement multi-hazard/risk reduction options is enhanced. This has obvious benefits in the current fiscal environment found in healthcare systems. To further improve the process, each hazard/risk is decomposed into component vulnerabilities using common metrics that can then be compared across all hazards. For example, many hazards that threaten healthcare systems present similar life-safety issues for healthcare employees. By describing these vulnerabilities in common conceptual terms and categories (personal hazard exposure, perimeter security, and others) interventions may be identified that reduce risk across multiple hazards.
- **The VHA approach:** The VHA has incorporated the HVA in its EM program for many years, as a component of its step-wise management process. Their approach provides an example strategy for other hospitals that are developing or revising their EM programs (see Textbox 1.3.1.3 below).

Textbox 1.3.1.3

The VHA-Specific Requirements for an HVA

As departmental policy, the VHA complies with all JCAHO standards. JCAHO standard EC.4.10¹³⁴ requires hospitals to conduct a Hazard Vulnerability Analysis (HVA) to identify potential emergencies that could affect the need for its services or its ability to

¹³⁴ JCAHO. *Comprehensive Accreditation Manual for Hospitals*, 2006. Joint Commission on Accreditation of Healthcare Organizations, Oakbrook Terrace, IL

provide those services. Accordingly, the *VHA Emergency Management Program Guidebook* includes the following foundational steps in the development and implementation of a “successful” emergency management program:

- Conduct a Hazard Vulnerability Analysis (HVA) and identify priority hazards, threats, and events (VHA EM Program Step 3).
- Develop incident-specific guidance for priority hazards, threats, and events (VHA EM Program Step 4).

The *VHA Emergency Management Program Guidebook* provides an HVA definition similar to that used in this text, stating the HVA is “a systematic approach to assessing the probability and consequence of hazards or threats/events that may affect the continued operation of the VAMC and surrounding community.”¹³⁵ The guidebook charges the EM committee at the VAMC with overall responsibility for the HVA. Additionally, the guidebook encourages participation at the operating unit management level and coordination with community emergency management planning, where available. A sample form is provided to assist in conducting an HVA as a basis for developing priorities among the many options that can reduce risk and enhance preparedness (see Exhibit 1.3.2.2). Specifically, the form provides for the identification of hazards and the qualitative ratings (not applicable, low, moderate, or high) of probability and impact (human, property, operational) to assist in the setting of priorities for incident-specific mitigation, preparedness, response, and recovery initiatives.

¹³⁵ Department of Veterans Affairs. *Emergency Management Program Guidebook*. 2005. Section 3.4.3. Available at <http://www1.va.gov/emshg/page.cfm?pg=114>. accessed June 6, 2006.

Lesson 1.3.2 The Hazard Vulnerability Analysis Process

Lesson Objectives

- *Explain the sequential steps of a comprehensive HVA process as applied to the healthcare system's mission and operations.*
- *Explain how the results of the HVA are incorporated into the facility Mitigation Plan, Preparedness Plan, and Emergency Operations Plan.*
- *Explain the necessity of consulting with legal experts to determine the proper manner of documenting and communicating the results of the HVA.*

Introduction

This lesson builds upon the HVA definition and process framework introduced in the previous lesson by providing a more in-depth explanation of each of the process steps and their inter-dependencies. Hazard Vulnerability Analysis (HVA) is a formal, structured process that provides the basis for all EM program activities.

- The HVA as the EM program starting point and base: From a systems perspective, the HVA can be considered the starting point for initial EM program development and for yearly program review and revision. Therefore, the outputs from the HVA shape the overall direction and focus of the EM program, in an iterative fashion, throughout its life cycle. Despite the critical importance of the HVA process, many organizations may not devote enough attention to detail, possibly indicating a lack of understanding of its utility and importance.
- HVA – the process: The HVA process, simply put, is a method of identifying, assessing, and analyzing. In other words, the HVA is used to identify potential hazard events the organization could realistically confront. It then extends to understanding, through assessment, the components of the vulnerability to the hazard and the related impacts on the **Mission Critical Systems (MCS) that support continuity of patient care and business continuity for the organization.** It also includes impacts on patients at home, staff, and suppliers. Finally, the HVA analyzes the findings to develop some priority-ranking scheme for potential interventions.
 - Unfortunately, many efforts to conduct a Hazard Vulnerability Analysis only go so far as to “**identify**,” with perhaps a minimal assessment. The process is reduced to listing hazards and their overall impacts and perhaps conducting a ranking to demonstrate their relative importance.

The utility and importance of the HVA are often not completely understood by organizations.

- The critical link of defining and prioritizing solutions through the EM program, via the annual mitigation and preparedness work plans and the response and recovery plan (the EOP), must be addressed systematically to fully benefit from an HVA. Because of the importance of the HVA information, it is recommended that an HVA be conducted at the beginning of program development, with annual updates by each individual organization. This may appear to be a daunting task at first glance. Once the initial HVA is accomplished, however, the annual HVA process primarily addresses changes to the internal and external organizational environment.
- HVA examples: Multiple approaches for conducting an HVA have been published. Widely available examples include:
 - The Kaiser Permanente¹³⁶ template
 - The New York University Medical Center HVA templates¹³⁷
 - The Federal Emergency Management Agency (FEMA) Vulnerability Analysis Chart¹³⁸
 - The VHA EM Program Guidebook HVA template (which also includes helpful examples).¹³⁹

The differences between each of the HVA methods or templates are relatively minor and primarily involve terminology differences. Each requires the identification of hazards and the qualitative rating of the probability and impact (consequence) of that hazard to develop a hazard/vulnerability/risk prioritization scheme.

- These HVA templates, however, prompt only a portion of a

There are multiple examples of template HVA processes available for healthcare systems to evaluate. This text proposes a methodology that facilitates incorporation of HVA findings into components of the EM program.

¹³⁶ Kaiser Permanente. *Medical Center Hazard and Vulnerability Analysis* (2001). Kaiser Foundation Health Plan, available at: www.gnyha.org/eprc/general/templates/Hazard_Assessment_KP.pdf, accessed August 8, 2005.

¹³⁷ OSHA. *Best Practices for Hospital-Based First Receivers of Victims from Mass Casualty Incidents Involving the Release of Hazardous Substances, Appendix F*, available at <http://www.osha.gov/dts/osta/bestpractices/html/appf>, accessed July 21, 2005.

¹³⁸ *Emergency Management Guide for Business and Industry*. FEMA 141 (October 1993), Appendix, available at: <http://www.fema.gov/graphics/library/vulanal.gif>, accessed August 9, 2005.

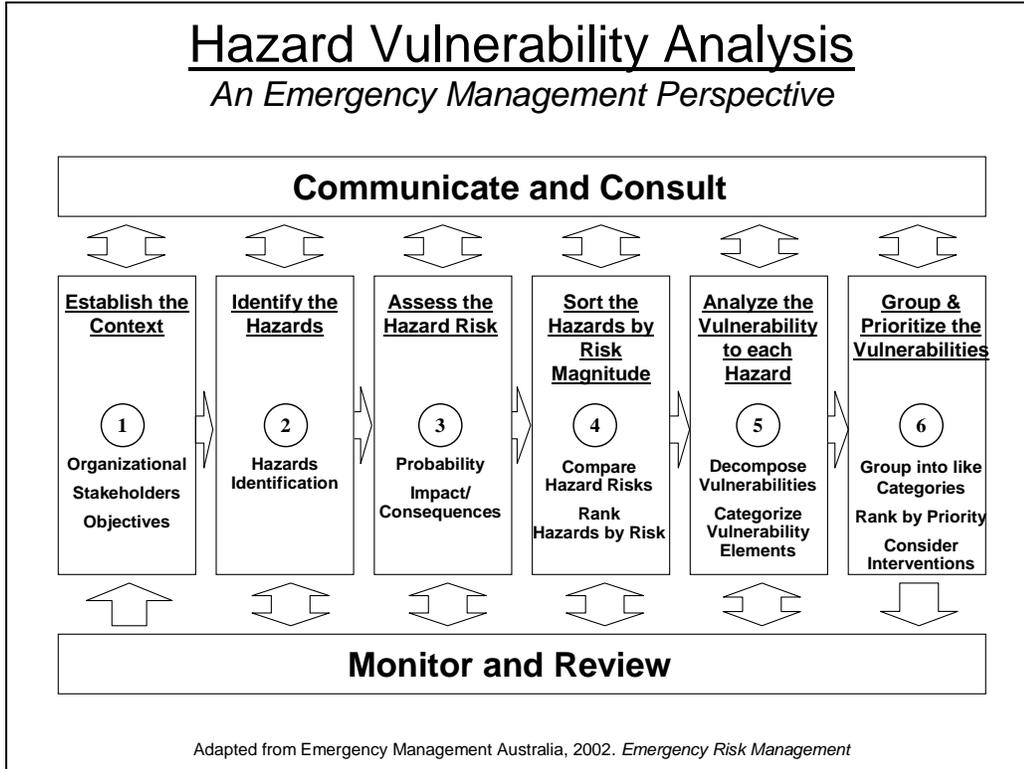
¹³⁹ *VHA EM Program Guidebook* (2005). Chapter 3 and Examples 4A, 4B, and 4C. Available at <http://www1.va.gov/emshg/page.cfm?pg=114>, accessed June 6, 2006.

comprehensive HVA process. Additional guidance for extension of the analytical work is necessary to realize the full potential of the HVA process. This includes 1) understanding the individual elements of vulnerability for each hazard and 2) recognizing vulnerability components that are common across multiple hazards.

- Comprehensive HVA approach: This lesson presents a six-step HVA process, supported by continuous communication, consultation, monitoring, and review throughout. The steps, as graphically displayed in Exhibit 1.3.2.1, are:
 - 1) Establish the context for the HVA.
 - 2) Identify the hazards.
 - 3) Assess the hazard-associated “risk” (probability and consequence).
 - 4) Sort the hazards by magnitude of risk.
 - 5) Analyze the vulnerability of **mission-critical systems** to each individual hazard or hazard threat, and identify each vulnerability element.
 - 6) Group and prioritize the vulnerabilities and consider risk interventions.

This provides a more comprehensive HVA process than the templates described earlier, which essentially focus upon steps 2, 3, and 4 in this diagram. The arrows shown in exhibit 1.3.2.1 portray the continuous and iterative nature of the HVA that serve to strengthen the individual steps and the process taken as a whole.

Exhibit 1.3.2.1 The Hazard Vulnerability Analysis Process



The HVA Process

- **HVA timing:** The HVA may be conducted at multiple times in the EM program life cycle: at the outset of program development, during a scheduled annual EM program review, after an exercise or actual incident response, or when new hazards and/or vulnerabilities are recognized. For an initial HVA conducted at the outset of program development, the process is expected to be more in-depth and time intensive. Subsequent HVAs, conducted during yearly program review and revision, build upon prior work but should avoid “rubber stamping” previous efforts as “updated.” Each hazard and the organization’s vulnerabilities should be critically reviewed during subsequent HVA updates.
- **HVA Step 1 - Establish the context for the HVA:** Establishing the **context**¹⁴⁰ for the HVA (and, essentially, for the overall EM program),

The timing of an HVA can vary. It can exist as a yearly activity prior to the annual EM program review. It can also be utilized after a major hazard impact or the discovery of a new threat.

¹⁴⁰ As noted in the previous lesson, the context refers to the external environment in which the organization operates, and the internal characteristics of the organization itself.

The first important step for the HVA process is to establish the context in which it is conducted. This includes establishing the role and boundaries of the organization as well as any major constraints such as financial limitations.

is the logical starting point for the process (see Lesson 1.3.1). To accomplish this, the organizational context, the stakeholders, and the objectives for the HVA must be established.

- Develop the context: The **organizational context** for the HVA is established based upon the healthcare system and community responsibilities, the social, economic, political and legal realities, and the review and input of stakeholders.
 - The “community” boundaries are delineated, and the community and healthcare system profiles are defined, along with the medical care responsibilities to the community and region. For example, in the VHA, the Veterans Integrated Service Network (VISN) would be acknowledged and considered.
 - Values include the recognition of the role of the healthcare system in the overall community public safety mission and the acknowledgement that services must continue uninterrupted or even surge during and after a hazard impact. This also supports the need for public financial assistance.¹⁴¹
 - Major constraints on the organization for EM should be described. These may include:
 - Financial limitations for mitigation, preparedness, response, and recovery.
 - Regulatory constraints on a publicly owned system. For example, a U.S. Military hospital has a primary national security mission that cannot be subrogated to a local civilian response. Similarly, VHA healthcare system has constraints due to its primary Federal role of caring for veterans and supporting the Department of Defense.
 - Other legal and political issues (it is incumbent on the healthcare system leadership to identify and communicate these issues to the HVA team).
- Establish the stakeholders group: The **stakeholder group** is the second critical component to establish. The EM committee accomplishes this by identifying and inviting all appropriate “stakeholders,” both internal and external to the facility that should be included and considered in all steps of the HVA. Stakeholders are defined as key people, groups of people, or institutions that may significantly influence the success of the process, plan,

¹⁴¹ Barbera J. A., Macintyre A.G., DeAtley C.A. *Ambulances to Nowhere: America's Critical Shortfall in Medical Preparedness for Catastrophic Terrorism* (October 2001), BCSIA Discussion Paper 2001-15, ESDP Discussion Paper ESDP-2001-07, John F. Kennedy School of Government, Harvard University.

program or project (see VHA example in Textbox 1.3.2.1).¹⁴²

Textbox 1.3.2.1

Stakeholders for the VHA Facility

- VHA facility leadership
- VHA regional leadership (Veterans Integrated Service Network)
- Facility medical providers
- Facility safety personnel
- Facility security personnel
- Legal counsel (to review and ensure that the HVA process and documentation do not result in undue legal liability)
- Facility leaders from other medical facilities in the community
- Local Emergency Preparedness Council (LEPC)
- Community first responder agencies (fire, law enforcement, emergency medical services, public works, public health, the local emergency management agency, and others)
- Neighborhood and community representatives to provide insights from the general public. These may include neighborhood council leaders or individuals who have expressed interest.

- Other resource “stakeholders” such as military organizations with specialized medical expertise or resources located in geographic proximity to the facility that could provide support.
- Establishing the stakeholder group can be facilitated by building on pre-existing entities. For instance, local medical emergency management committees and other emergency planning groups, if they exist, already bring many of the above listed participants together on a regular basis. Examples include Local Emergency Planning Committees (LEPCs), emergency management committees in medical societies or hospital associations, and committees established for the CDC and HRSA Bioterrorism Preparedness Program.¹⁴³ These venues can be used to incorporate the outside participants in the facility

Establishing the context for the HVA also includes identifying any “stakeholders” that should be potentially involved in the process.

¹⁴² Adapted from: Management Sciences for Health and United Nations Children Fund. *The Guide to Managing for Quality*. available at:

<http://erc.msh.org/quality/ittools/itstkan.cfm>, accessed April 2, 2006.

¹⁴³ HRSA/HHS. *National Bioterrorism Hospital Preparedness Program*, available at: <http://www.hrsa.gov/bioterrorism/>, accessed May 17, 2006.

HVA process and can assist in establishing consistent analyses in the various facilities across a jurisdiction.

- Analyze the stakeholder group for adequacy: **Stakeholder analysis** is a technique that is increasingly employed in private industry to identify and assess the importance of stakeholders and thereby judge that the stakeholder group is balanced and comprehensive.
 - Representation: To ensure that multiple perspectives are adequately considered and represented in the overall HVA process, the following steps help define a successful stakeholder analysis:¹⁴⁴
 - Identify people, groups, and institutions that will influence your HVA process.
 - Develop strategies to build the most effective support possible for your process and reduce any obstacles to successful implementation of your EM program. For example, simply by inviting outsiders such as public health officials into the emergency management process may resolve misconceptions and miscommunications.
 - Stakeholder participation: Stakeholders can assist in identifying the social, economic, political, and legal realities and constraints that impact the EM program and HVA process. Stakeholders should therefore participate in all of the HVA steps.
- Setting the objectives for the HVA: If the HVA is being conducted in a system that already has an EOP, HVA objectives may be similar to EOP “control”¹⁴⁵ (or overall) objectives. These objectives might include:
 - Organizational Resiliency: Protect the personnel, current staff and visitors, the integrity of the healthcare organization, and its service commitment to the community.
 - Medical surge: Provide adequate medical care to patients.
 - Community support: Support the community response to

The HVA context may also include its objectives and any specific tasks that the healthcare system has accepted as a responsibility during response.

¹⁴⁴ Adapted from: Management Sciences for Health and United Nations Children Fund. *The Guide to Managing for Quality*. available at: <http://erc.msh.org/quality/ittools/itstkan.cfm>, accessed April 2, 2006.

¹⁴⁵ “Control objectives” is a NIMS term – see glossary.

emergencies and disasters.

- Additional accepted tasks: Any specific roles accepted by the hospital for community emergency response. For example: “provide medical support to the HAZMAT teams that would be cleaning up a major hazardous materials release in the community.”

All of the above considerations serve as background context for the HVA process in support of the EM program. The use of this material also extends beyond the HVA: it can be incorporated into the healthcare system’s EM program and EOP background descriptions, so that the reader understands the role of the healthcare system in the overall community EM program.

- HVA Step 2: Identify the hazards: This activity involves the listing of all possible hazard types that could significantly impact healthcare system operations.
 - Comprehensive hazard identification: The full range of hazards must be captured. The list includes hazards that don’t directly or physically impact the healthcare system, but could generate excessive or unusual casualties or other unusual service needs. These surge needs can impact the ability of the healthcare system to provide its usual standard of care under usual operating conditions. Hazard identification should also include hazards that, if they occur, could cause catastrophic business financial risk (litigation, liability payments, poor publicity and loss of normal business, and other considerations).
 - Hazard identification strategy – agency resources: While multiple resources are available to assist a facility in identifying hazards, an essential consideration is coordination with the community emergency management. Hazards that could potentially impact the facility are commonly hazards that may impact the larger community, and therefore have already been identified or are being defined by local government agencies. Additionally, community hazards must be analyzed to determine a predictable number and types of casualties to expect from a community hazard event.
 - Hazard identification strategy – Web resources: Other resources are available to assist in hazard identification. These include local, State and national Websites, FEMA and NOAA publications, and the 15 National Preparedness Scenarios established within the 2005 *National Preparedness Guidelines*. Examples include: The

The second step in an HVA is to identify the potential hazards that could impact the healthcare system. There are several considerations including working with jurisdictional authorities who have also conducted an HVA.

In some instances, the hazards identified may not clearly be the responsibility of the EM program. For instance, reputation crisis for the organization could be handled through traditional management methods or through the EM program. The important point is the responsibility for these particular hazards are pre-identified.

Washington, D.C., Emergency Management Agency provides a list and description of the “18 Major Hazards” expected to impact the D.C. area¹⁴⁶; the State of Virginia Department of Emergency Management provides a list and description of potential hazards¹⁴⁷; FEMA provides historical data and links to hazard-related Websites.¹⁴⁸ Many of these resources provide important historical data on hazards.

- Distinguishing the boundaries of “EM hazards”: During the process of developing a comprehensive hazard list, the boundaries between hazards that are **primarily emergency management** versus those addressed primarily by “**general safety**” or “**environment of care**”¹⁴⁹ **during everyday hospital administration** may become indistinct. For example, is a technological failure in the laboratory or blood bank, which results in patient injury a hazard for the EM program to address or for the environment of care committee? It is part of everyday practice, but is it also a major business risk for the hospital due to the importance of trust in its marketing and acceptance? Newborn abduction is an intentional hazard that similarly exists at the boundaries between everyday hospital practices and emergency/incident response. The recognition of these domain boundary considerations highlights the importance of effectively integrating the emergency management committee into the organization’s administrative committee architecture.
- Categorizing hazards by type: As internal, external, and combined hazards are identified, organizations may find it useful to group the hazards according to the following categories, where commonalities predominate in both vulnerabilities and in actions necessary to address the hazard risk:
 - Natural hazards: Hazards that primarily consist of the forces of nature
 - For example, hurricane, tornado, storm, flood, high water, wind-driven water, tidal wave, earthquake, drought,

¹⁴⁶ Washington D.C. Emergency Management Agency, available at: [http://dcema.dc.gov/dcema/cwp/view,a,1226,q,533340,dcemaNav,\[31810\].asp](http://dcema.dc.gov/dcema/cwp/view,a,1226,q,533340,dcemaNav,[31810].asp), accessed July 21, 2005.

¹⁴⁷ Virginia Department of Emergency Management, available at: <http://www.vdem.virginia.gov/prepare/>, accessed May 17, 2006.

¹⁴⁸ FEMA Websites, including: <http://www.fema.gov>, <https://disasterhelp.gov/>, and <http://www.hazardmaps.gov>. accessed June 4, 2006.

¹⁴⁹ “Environment of care” is the term used by Joint Commission on Accreditation of Healthcare Organizations in its survey of hospital safety practices for patient care.

lightning-caused wildfire, infectious disease epidemic.

- **Technological hazards:** Hazards that are primarily caused by unintentional malfunction of technology, including human and system actions.
 - ❑ For example, industrial, nuclear, or transportation accidents; power and other utility failure; information technology failure; hazardous materials release; and building collapse.
- **Intentional hazards:** Hazards that are caused primarily by deliberate human threat or executed action. These are usually criminal, civil disobedience, or terrorist in nature.
 - ❑ For example, civil strife, terrorism, or criminal attacks on the community, including special security events that could impact the healthcare facilities.
- **HVA Step 3 - Assess the hazard-associated risk:** “Risk” is a product of probability and vulnerability. Each hazard identified by the healthcare system should, therefore, be assessed **individually** according to its probability of occurrence and its impact (consequences) on the organization. This essentially **approximates a level of risk**.
 - **Risk assessment strategy:** How the risk assessment is presented varies among sources (for examples, see the HVA examples presented earlier in this lesson). Since the goal is to establish relative importance between hazards, most utilize a ranking system that assigns a quantitative value to each individual hazard. This is intended to assist with the subsequent step (Step 4) of sorting the hazards by overall risk. This data is best formatted and presented as a work sheet (Excel or similar software). An excellent example is the tool described in the *VHA Emergency Management Program Guidebook*¹⁵⁰ as displayed in Exhibit 1.3.2.2. It must be cautioned, however, that the stakeholders developing this input to the assessment must have a common understanding of the rating measures in order for them to be consistent across all inputs. For example, the VHA template uses the relatively general measures of: Not Applicable (N/A), Low, Moderate, and High for probability and impact. This is adequate for the general purposes in which the findings are used.¹⁵¹

The third step of the HVA is to assess the risk associated with each identified hazard. The specific risk can be hard to establish and assigning relative risk is perhaps more important for the process.

¹⁵⁰ U.S. Department of Veterans Affairs. *Emergency Management Program Guidebook*. Appendix F. (2005), Washington, D.C. Available at <http://www1.va.gov/emshg/page.cfm?pg=114>, accessed June 6, 2006.

¹⁵¹ The VHA Emergency Management Program Guidebook explicitly states the requirement that an assigned probability and/or impact ranking of 2 or higher (moderate

Exhibit 1.3.2.2: VHA tool for assessing and sorting hazards:
 Presentation of data in this type of format is recommended to facilitate collection of data and to enhance presentation to and understanding by stakeholders.

TYPE OF EVENT	SEVERITY CLASSIFICATION – LOW, MODERATE, HIGH				RANK
	PROBABILITY	HUMAN IMPACT	PROPERTY IMPACT	OPERATIONAL IMPACT	
	<i>Likelihood this will occur within 1 year</i>	<i>Possibility of death or injury</i>	<i>Physical losses and damages</i>	<i>Interruption of services</i>	SCORE 2 OR HIGHER IN ANY CATEGORY REQUIRES SOP
SCORE	0 = N/A 1 = Low 2 = MODERATE 3 = HIGH	0 = N/A 1 = Low 2 = MODERATE 3 = HIGH	0 = N/A 1 = Low 2 = MODERATE 3 = HIGH	0 = N/A 1 = Low 2 = MODERATE 3 = HIGH	SOP REQUIRED YES OR NO? <i>(If yes, for sample SOP, see section 0.2.1)</i>
DROUGHT/ DUST STORM	2	1	0	2	YES

Components of risk include hazard probability and organizational vulnerability to the hazard. Probability can at times be difficult to ascertain definitively. Vulnerabilities are usually easier to establish.

- Hazard probability: Assessing the probability of hazard occurrence can, in some instances, be difficult and in other instances must be recognized as a very imprecise process. For recurring natural events, historical data and scientific probability studies may be helpful. For technological and intentional hazards, community data may be of assistance in establishing probability of occurrence. For intentional hazards, historical data may be very limited and current intelligence may be classified or otherwise unavailable. Without relevant and verifiable probability data, the assigned likelihood may become subjective, using expert judgment to assign a level of quantification.

or high) with this tool automatically qualifies the hazard as important enough to generate hazard-specific considerations in a “Standard Operating Procedure” (or “pre-plan” as described in Lesson 1.5.2).

- Vulnerability to the hazard: Assessment of hazards also includes establishing the expected impact the hazard may have on the healthcare organization. An excellent example again is provided in Exhibit 1.3.2.2, where hazard consequence is categorized according to **human impact, property impact, and operational impact**. While this value assignment assists with Step 4, sorting of hazards, a much more detailed analysis of the vulnerability to each significant hazard is essential (see Step 5). For example, the vulnerability of a healthcare facility to a tornado hazard may be decomposed beyond “structural damage with resultant injuries and deaths.” It may be further detailed to describe the most vulnerable locations of staff and patients (parking lots, facility entrances, glass enclosure areas, such as lobbies, solariums, and others); difficulties in notifying staff to take immediate protective actions; and other details that can illuminate critical interventions during mitigation and preparedness planning.
- Assigning a value to the hazard risk: The VHA and other widely used HVA models, including those referenced earlier in this section, use slightly different methods but this step produces the same general result: **an assigned value that may be used for sorting and ranking the hazards according to their general levels of risk**.
- HVA Step 4 - Sort the hazards by magnitude of risk: This step consists primarily of assigning a relative level of importance to each hazard value from Step 3 and, therefore placing each hazard **in the context of overall cohort of identified hazards**.
 - Sorting strategies: This sorting of hazard/risks (i.e., hazards and their consequences) entails the comparison of the assigned risk (established in Step 3) associated with each hazard and the designation of each hazard to one of the broad categories (High Risk, Moderate Risk, and Low Risk) via mathematical^{152,153} or expert judgment methods. While simple numerical values are commonly used to represent probability and impact/consequence,

The fourth step of the HVA involves sorting the identified hazards by assigned risk. There are several strategies as to how this can be achieved.

¹⁵² Kaiser Permanente. *Medical Center Hazard and Vulnerability Analysis* (2001). Kaiser Foundation Health Plan, available at: www.gnyha.org/eprc/general/templates/Hazard_Assessment_KP.pdf, accessed August 8, 2005.

¹⁵³ McLaughlin SB. *Hazard Vulnerability Analysis* (2001). Health Facilities Management Series, American Society for Healthcare Engineering of the American Hospital Association, Chicago IL; available at: http://www.gnyha.org/eprc/general/guidelines/200102_HVA_TechDoc.pdf accessed June 4, 2006.

Ranking of identified hazard risks may demonstrate some hazards with such low probability that their consideration may be deferred (as with Risk Management). Deferred hazards should be re-evaluated on a regular basis to verify the assumption is still valid.

The fifth step involves a more detailed analysis of each hazard vulnerability. This should begin with a decomposition of the vulnerability into components that can be compared across different hazards.

the comparative value of the selected metrics must be fully understood for this ranking system to have merit. In other words, is a value of 3.92 essentially equal to a value of 4.15? If so, separating hazards with these two values into different categories may be misleading and cause judgment errors during later EM program activities. To address this, presenting the score for **all** identified hazards on a single graph or spreadsheet may allow appropriate grouping of hazards, with less reliance on specific (but relatively arbitrary) numerical assignments.

- The use of expert judgment: Expert judgment should enter into this hazard sorting and may result in a rearrangement of the results based upon specific intelligence related to probability and/or consequence. For example, a terrorist attack using biological agents may have almost unimaginable consequences that totally dwarf the probability considerations of such an event, elevating such an event to the top of the priority list. In the absence of specific intelligence, however, the rank of this hazard may be moved to below that of an event with a better defined probability, such as a hurricane in a rural coastal community. Conversely, a lower ranked terrorist hazard may suddenly be elevated to the top of the hazard list based upon new threat information, thereby overriding the earlier expert judgment. The dynamic nature of the natural, technological, and intentional hazard environment necessitate an expert level review and judgment beyond mere numerical sorting.
- Assigning hazards to a deferred category: A second purpose of this step, equal in importance to identifying the highest risk hazards, is providing objective grounds for deferring or discounting the further examination of certain hazards. Program managers should search out strong background data that may eliminate an identified hazard as not having the significant potential to both occur and impact the facility (e.g., volcano – not in proximity to a volcano AND not in a volcanically active region). This will help narrow the hazard spectrum and better focus attention to likely hazard events.
- HVA Step 5 - Analyze the vulnerability to each individual hazard: Hazards are considered individually during the earlier assessment steps, and the risk of each hazard is compared only at a very macro level. The final “**analysis**” component of the HVA should allow decision makers to look across all hazards and vulnerabilities to **identify components of hazard risk that are common to multiple hazards**. This approach promotes the identification of options that reduce or eliminate vulnerabilities to multiple hazards through a single

intervention (see Step 6) and therefore supports the most effective and efficient application of risk management/emergency management resources.

- Vulnerability analysis strategy: To accomplish this, the vulnerability to each hazard should be “decomposed” into significant elements that can be compared and/or grouped across the range of identified hazards. The component vulnerabilities for each hazard are objectively described in an “all-hazards” manner so that they can be grouped across hazard types. The categories used for global consequence assessment in the VHA’s HVA (human impact, property impact, and operational impact) may serve as effective starting points, since the analysis is usually started (but not formally captured) in Step 3. The sub-categories’ descriptions should refer to the processes and resources that are disrupted (i.e., so that they can later be grouped across hazards according to the “all-hazard” processes and resources that are affected). For example, a healthcare system’s vulnerability to a hurricane would include:

- Human Impact:

- Inability for staff to reach or remain at, work: child/elder care responsibilities, transportation disruption, concern about personal property, loss of personal property, and others.
- Injury to staff (at work or at home) and patients within the facility due to high winds and debris causing window/door glass failure.
- Injury to staff while performing outdoor responsibilities for system function.

- Property impact:

- Flooding, roof failures, and other water effects.
- Wind and debris damage to buildings, outside equipment, vehicles, and other property on facility premises.
- Storm surge effects if relevant.
- Maintenance problems due to failure of personnel to report for work.

- Operational impact:

- Patient flow/cash flow interruption.
- Negative effects due to failure of personnel to report for work (include housekeeping and other important support personnel).
- Potential for need to evaluate and treat multiple casualties due to community impact (casualty types within the typical casualty profile).

The sixth step involves grouping like vulnerabilities across hazards.

The grouped vulnerabilities are then considered according to a priority scheme. The scheme proposed in this text elevates life-safety threats to the highest priority.

- Utility loss affecting essential services, such as dialysis (loss of power and water), critical care, operative care, and emergency services (loss of power, suction, medical gases, and water).
- **Categorizing the vulnerability findings:** For each significant hazard, the vulnerability is analyzed, decomposed into elements, and **categorized in a format that will allow like elements to be identified across all hazards.**
- **HVA Step 6 - Group and prioritize the vulnerabilities and consider risk interventions:** This step sorts and compares the vulnerability elements determined in Step 5.
 - **Grouping and prioritizing strategy:** It is very likely that some identical vulnerability elements (defined in step 5) will be present in a wide range of hazards that cross the natural, technological, and intentional hazard categories. **Similar vulnerability elements are grouped.** For example, nearby hazardous materials releases with explosive potential (technological or intentional), an approaching tornado, and a realistic truck bomb threat all leave staff and patients vulnerable to the physical impact unless immediate protective actions are taken. This grouping may be accomplished according to the categories used by VHA in Step 3, or by the priority scheme in Textbox 1.3.2.2, which establishes an inherent relative value (listed in descending order). In the preceding example, the “grouped” vulnerability would likely be assigned a “high” priority (in a “high-moderate-low-none” impact priority classification scheme) when compared with other vulnerabilities in a systematic manner.

Textbox 1.3.2.2

Vulnerability Groupings by Priority

1. Life-Safety threat (injury/illness, death, short-, and long-term health risk) – highest priority.¹⁵⁴
2. Disruption of product or service delivery (external or internal impact affecting the organization’s service or product output) –

¹⁵⁴ It may be helpful to list the hazards as internal (hazards originating within the healthcare system or its facilities that could generate victims or compromise operations), external (hazards originating outside the system), or combined. Responsibility for hazards generated within the system (such as fires and electrical power failures) may be weighted with additional importance when developing EM program component plans.

very high priority since the “product and services” of a healthcare system may have life-and-death consequences.

3. Business systems failure – high priority since they may affect product and service delivery.
4. Loss of customer/community trust and/or goodwill – for a healthcare system, this also a high priority because of the tight connection between trust/good will and service delivery.
5. Property and environment damage – important but not generally as high a priority until the magnitude affects categories 1-4.
6. Liability and legal/regulatory exposure – these are also important considerations, but less than 1-5. While these exposures may be addressed through legal actions, they may also be decreased by assuring the higher priority categories have been satisfactorily addressed.

- Consider vulnerability interventions: The individual vulnerability elements are further analyzed to develop potential interventions (continuity planning – see Lesson 1.3.3) that would:
 - Reduce the likelihood of occurrence or reduce the consequences of a hazard that does occur (i.e., mitigation) or
 - Build response capacity and capability for effective response to the hazard event (i.e., preparedness).

If the interventions are similar across hazards, this may prompt further grouping of vulnerability elements. At this step in the process, the vulnerability elements are grouped together. **Selection of interventions for implementation, however, is an activity that occurs later, during formal mitigation and/or preparedness planning.** Consideration of potential interventions is used only to prompt the grouping of vulnerability elements in a manner where they may be addressed through economy of scale or in a manner that provides greater benefit than if each element is individually addressed.

- Grouping example: For example, grouping of the perimeter vulnerability issues from internal events (e.g., infant abduction) and external events (e.g., terrorist attack, sudden security needs when an unexpected high-profile patient arrives, and others) help identify perimeter control and management interventions that are applicable to both types of events. Perimeter control and management directed inward or outward is generally a requirement for any hazard event and is an essential component of managing most hazard events.

The potential interventions that can be implemented to address the grouped and prioritized vulnerabilities is explored. The actual selection and implementation of these interventions occurs during mitigation and preparedness (and occasionally during response and recovery).

The results of the HVA should be communicated internally and externally to the healthcare system. This promotes consistency within the organization and with other organizations and provides some sense of the efforts of the EM committee to organizational personnel.

The results of the HVA are applied throughout the four phases of Emergency Management (reflecting the importance of this process). Opportunities are sought to capitalize upon in relation to specific interventions (see text).

Similarly, it becomes obvious that personnel vulnerability across a wide range of hazards may be reduced by having an effective Occupant Emergency Procedure (for facility evacuation, shelter in place, and other immediate protective actions) that allows immediate communication with personnel.

- Communicate and consult: Communication and consultation within the healthcare facility and organization and with the community throughout the HVA process provides a means of inclusion and the establishment and management of realistic expectations for the EM program. Communication and consultation can also foster relationships and mutual understanding with the community (both healthcare and non-healthcare related organizations) that support the EM program. While a well-done HVA can be a time-consuming process, much of the information and analysis is applicable to all healthcare institutions within a locale.
- Monitor and review: **The HVA process is never actually “finished,” as it is subject to re-analysis and revision when changes occur in the internal and external environments.** Continuous monitoring and review of findings from all steps should be conducted to keep the overall process relevant and on track with the EM program. Drills, exercises, and actual events will test the EM program, and both the positive and negative observations related to system vulnerabilities should be noted and analyzed. The HVA process also constitutes a major means of monitoring and reviewing any findings related to reduced as well to newly recognized vulnerabilities. For example, an exercise could examine whether a new process or procedure has effectively reduced a previously recognized vulnerability. Similarly, an exercise, a threat, or an actual event may prompt the recognition of a previously unidentified hazard and/or vulnerability.

Application/Incorporation of HVA Findings

The HVA findings are applied throughout the EM program activities. This is addressed as “continuity planning” in the next lesson. How they are applied through the four phases of EM is summarized below:

- Mitigation and preparedness planning: The potential interventions identified in HVA Step 6 are considered in the development (or revision) of the annual mitigation and preparedness planning (see Lessons 1.4.1 and 1.4.2): The finished version of each annual work plan delineates the risk intervention measures that are selected for action during the time period covered by those plans.
- EOP (response and recovery) planning: Similarly, the Emergency

Operations Plans and its response/recovery planning structure and process should reflect the findings of the HVA and the content of the mitigation and preparedness planning, with adjustments as indicated. For example, hazard-specific issues of high risk can be addressed through the development of EOP annexes. Healthcare systems may choose to use a similar approach as that presented in the VHA guidelines, where a specific risk requires the development of a hazard-specific Standard Operating Procedure (or pre-plan). This pre-plan is established, through preparedness actions, in the hazard-specific appendices to the EOP (see Lesson 1.5.2).

- Addressing high-risk hazards: The emergency program manager looks for opportunities to implement the interventions, particularly for high-risk hazards, in a cost-effective and sustainable manner. Opportunities may include:
 - Financial: Newly available grants and other financial assistance applied to mitigation and preparedness areas (such as monies from the HRSA Bioterrorism Preparedness Program¹⁵⁵).
 - System motivation: Increased awareness and motivation to change based upon a recent incident or “near-miss,” as occurred after the 2001 anthrax dissemination, where the hospitals in the National Capital area worked on closer coordination with each other and with public health.¹⁵⁶
 - Newly recognized hazards: Emerging new hazards (such as SARS¹⁵⁷) or improved understanding of the potential impact of long-recognized hazards (such as occurred in 2001 with the reported off-gassing of ingested organophosphate pesticides¹⁵⁸).
 - Capital improvements: New capital projects that may make it affordable to implement major mitigation measures (such as the addition of a parking garage that could reasonably include a decontamination facility).

¹⁵⁵Health Resources and Services Administration (HRSA). *National Bioterrorism Hospital Preparedness Program* (NBHPP), information available at:

<http://www.hrsa.gov/bioterrorism/>, accessed May 5, 2006.

¹⁵⁶ Morbidity and Mortality Report. *Nosocomial Poisoning Associated with Emergency Department Treatment of Organophosphate Toxicity --- Georgia, 2000*; available at:

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4951a2.htm>, accessed May 5, 2006.

¹⁵⁷ Centers for Disease Control and prevention. *Severe Acute Respiratory Syndrome, 2005*; available at: <http://www.cdc.gov/ncidod/sars/>, accessed May 5, 2006.

¹⁵⁸ Ibid..

An example of this text's proposed HVA process is provided with the example being the potential hazard of intentional release of the biological agent anthrax in a community.

- New technology: New technologies may lower the cost of desired interventions.

The HVA Process: An Example Application

An example of processing a newly identified hazard through the six-step HVA process may serve to illustrate the value of this approach. This example hazard is the intentional (terrorist) biological agent attack with anthrax, and the organization revising its HVA is a full-scale, tertiary care healthcare facility (HCF).

- Step 1. Establish the context: The context of the overall HVA would have already been established before analysis of this individual hazard. For the purposes of this example, key contextual concepts are presented:
 - Organizational context: The healthcare system's role, created by geographic, social, economic, political, and legal realities, is reviewed. Pertinent points include:
 - The community: The jurisdiction and its community are politically active and have potential terrorist targets of significant national symbolic value.
 - Though incident management and emergency management have been addressed, there is little counter-terrorism capability in this particular community.
 - The local public health and EMS personnel traditionally look to this HCF for medical leadership for this community, as well as caring for their employees under emergent conditions. Prophylaxis for exposed public safety employees may be a responsibility.
 - Limitations in jurisdictional support (informational, logistical, and other) to the healthcare system have been defined.
 - The HCF's emergency response role in the community: This HCF is the largest, most comprehensive HCF in the area and so will not be transferring patients to a "higher" level of care. This also creates the likelihood that with any hazard impact, a disproportionate number of victims will self-refer to this HCF, due to its reputation for treating unusual patients, rather than evenly distribute to all area HCFs.
 - Financial implications for the HCF: The HCF has a thin operational margin during day-to-day operations and therefore cannot afford expensive purchases and lengthy staff training

programs without outside funding. Consideration will be given to available program-specific funding, such as HRSA grants, in determining the cost-benefit ratio of interventions that reduce risk.

- Contemporary events related to the hazard: These are also considered. Though unlikely for this example, recent incidents or law enforcement findings may indicate a markedly increased risk for this hazard. For example, have there been any recent threats, or are there any cases in which anthrax has been discovered in the possession of suspicious persons?
- Stakeholder group selection and analysis: The usual stakeholders for the organization's HVA have been reviewed to determine particularly relevant input into this hazard analysis. Examples include: facility leadership, VHA regional leadership, facility medical providers (particularly emergency medicine, infectious disease, and critical care), nursing leaders, facility safety personnel, facility security personnel, legal counsel, public health and community medical facility leaders, community first responders, military personnel stationed locally with specific expertise, law enforcement, and others.
- HVA objectives: The HVA objectives are tied to those already developed for the EM program and the EOP. These include: **adequately meeting the medical needs of patients, protecting facility personnel, protecting patients, and protecting the healthcare system's ability to provide continuing care to its community.** For VHA facilities, other objectives may exist, such as the support to ESF #8¹⁵⁹ in the National Response Plan and support to the Department of Defense. All primary objectives must be considered when evaluating whether the anthrax attack's impact on the healthcare system could compromise its ability to meet objectives.
- Step 2. Identify the hazards: In this example, an intentional dissemination of anthrax has been identified as a potential hazard.
- Step 3. Assess the hazard-associated risk: Both probability and vulnerability are assessed to arrive at an approximated level of risk:

¹⁵⁹ ESF #8 is Emergency Support Function #8, *Public Health and Medical Services*, in the National Response Plan (December 2004), full version with ESFs is available at: http://www.dhs.gov/interweb/assetlibrary/NRP_FullText.pdf, accessed May 22, 2006.

- Probability assessment: Assessing the probability of any given hazard can be difficult. For this example, little assistance may be provided by historical examples of hazard impact. Intentional anthrax dissemination has rarely occurred in the U.S. Interaction with community, State, and Federal stakeholders may provide some insight as to the intelligence information describing the likelihood of this hazard occurring in this community. Current socio-political events that indicate the potential for an intentional attack of any nature can be complex and unpredictable for the healthcare system to realistically interpret. In the end, the probability of this hazard impact may remain very general and described, for example, as “not likely (or very infrequent), but possible.”
- Vulnerability assessment: For this example, there are multiple impacts and consequences to consider. The vulnerability to the potential for increased patient load is an example for consideration. In addition, the types of assistance patients would require could be unusual (screening for potential exposure based upon epidemiologic data received from public health, law enforcement, and media). This would necessarily require close coordination with jurisdictional public health authorities to determine who would provide mass prophylaxis, how they would refer suspected cases for evaluation, etc. Vulnerabilities related to supplies (adequate antibiotics on hand versus rapid re-supply) and to staff (if some have been infected by the agent or are concerned about the agent) should be considered. Could facility issues exist, such as loss of contaminated hospital areas or the loss of use of a ventilation system? Could loss of community trust impact the HCFs if public health and public safety are unable to effectively manage the incident? These provide only a sample of the consequences to be considered. The vulnerability of the community and those implications for the HCF must also be considered.
- Designated risk level: A risk magnitude of “moderate” is assigned to this anthrax dissemination hazard. Even though the probability was judged as relatively low, the vulnerability of the HCF and the community was considered exceptionally high.
- **Step 4. Sort the hazards by magnitude of risk**: A comparison of the assessed risk of intentional anthrax attack with the other hazard/risks identified and assessed by the HCF is accomplished.
 - Priority listing: The level of risk of a terrorist biological attack with anthrax is judged to be lower than some other pertinent hazard/risks for the HCF, such as its seismic risk (location is near

a seismically active fault line), its civil disturbance risk (recent labor unrest with large demonstrations near the HCF's location), and several other hazard risks. At the same time, the risk is high enough that it will receive considerable attention by the emergency management committee in the upcoming mitigation and preparedness cycles, so further vulnerability analysis (Step 5) is warranted.

- **Step 5. Analyze the vulnerability to each individual hazard:** The healthcare system's vulnerability to this intentional biological hazard is "decomposed" into significant elements that can be compared and/or grouped across the range of identified hazards. The component vulnerabilities for this hazard are therefore objectively described in an "all-hazards" manner so that they can be grouped across hazard types.

- Human impact

- Staff impact: Staff illness and death, staff fear of illness for themselves or families, and staff inability to work extended hours may all impact absentee rates and manpower levels. Factors influencing this include:
 - ❑ Exposure (airborne and contact) in the HCF workplace if acutely exposed victims are not recognized and decontaminated prior to entry or if staff is not adequately protected with personal protective equipment (PPE).
 - ❑ Exposure in the community.
- Patient (non-incident) and visitor impact: There is the possibility that response will disrupt the care of regular patients and their families. This includes the risk of exposing patients and their families to anthrax, if contaminated patients have entered the HCF prior to decontamination.
- Victim impact: Many casualties (exposure, illness, and death) may occur. A very large number of "concerned and potentially exposed" people could be generated (see operational impact below).

- Property impact

- Facility areas: Multiple hazards could cause the loss of use of certain work areas or even entire facilities. For this example, contaminated areas may be off-limits while they are decontaminated and then assessed and "certified" safe for use (e.g., mailroom after receipt of suspicious package).

- Medical equipment: The expected life span of reusable medical equipment may be prematurely expended due to increased use from higher patient volumes (or from higher frequency of expected use for each patient). There may not be enough equipment to address the patient surge needs.
- Operational impact
 - Business loss: Loss of regular patient business could occur due to high victim load, patient's fear of presenting to a potentially impacted facility, or loss of trust in the facility due to initial response problems. This could lead to a condition of business financial crisis.
 - Staff shortage: Negative effects may be caused by failure of personnel to report for work, including housekeeping and other important support personnel.
 - Operational surge issues: Anthrax may create a very large surge of patients requiring specialized interventions (decontamination for acute exposure, critical care services, unusual and/or expensive medications and other treatments).
 - Information management problems: It is that obtaining accurate information about the incident will be difficult. Informing personnel within the healthcare system and the ability to appropriately risk-stratify potentially exposed patients presenting for care may be compromised. This is a greater concern during terrorist incidents due to the additional complexity of law enforcement "close-hold" practices related to incident information.
 - Supply shortages: Community impact may create an inability for suppliers to meet obligations to multiple facilities.
 - Preparedness and coordination with community response: Close integration (operational, media message, etc.) with the jurisdictional response may be problematic, given the current jurisdictional response plans and the lack of experience with this type of incident.
- Step 6. **Group and prioritize the vulnerabilities and consider risk interventions**: The vulnerabilities defined in Step 5 may be grouped with similar vulnerability elements identified for other hazards.

Potential interventions by group may then be considered. The objective is to determine if addressing specific vulnerabilities to this hazard may also resolve individual vulnerabilities to multiple other hazards.

- Hazard prevention: Unlikely to be accomplished by the HCF for the intentional anthrax hazard.
- Minimize hazard impact:
 - Staff, visitor, and current patient exposure, property loss: Immediate, appropriate actions by HCF personnel may minimize this impact: preventing entrance or rapid removal and sequestering of contaminated “powder” victims; outside decontamination, adequate use of personal protective equipment by decontamination staff, and the securing and isolation of “suspicious packages.” Interventions could include:
 - ❑ A “white powder protocol” (which prompts use of the Occupant Emergency Procedures)
 - ❑ Staff education
 - ❑ Perimeter control, assuring prevention of facility contamination from any initial patient entry point and directing recently exposed patients to rapidly accessible outdoor decontamination facilities.
 - Operations:
 - ❑ Continuity of operations by minimizing loss of use of clinical areas by:
 - preventing contamination (see above intervention), or
 - providing the ability to rapidly clean and re-occupy contaminated areas (probably very expensive).
 - ❑ Maximum HCF response: general EOP measures, adequate training for PPE, and development of a community-wide screening protocol to evaluate and risk-stratify potentially exposed victims in future incidents.
- Grouping vulnerability elements: A review of the vulnerability elements and potential interventions identifies multiple interventions that can be grouped according to their benefit across multiple hazards beyond anthrax. For example, the “white powder protocol” could address all exposure scenarios; the PPE training benefits chemical and radiological hazard response as well as biological hazard response; and perimeter control is again identified as a needed intervention during most incidents. Cost-benefit analysis may indicate that perimeter control is of highest priority for preparedness, that isolating the ventilation system at the

initial patient reception area may be a high priority (particularly if it can be accomplished reasonably during a planned renovation), and so on.

Post-HVA actions

- Applying/incorporating the HVA findings: Based upon the previous steps, potential risk reduction interventions and the analysis (cost-benefit, applicability across multiple hazards, sustainability, etc.) are documented and presented for consideration and possible implementation in developing the EM program's continuity planning (see Lesson 1.3.3). Application examples include:
 - Mitigation planning: The mitigation work plan may establish a sequestered ventilation system for the emergency department area where patients are initially received and triaged.
 - Preparedness planning: The preparedness work plan would likely:
 - Develop the powder protocol and other procedures that are specific to an anthrax release and document them in the form of a Special Operations Procedure or "pre-plan" included in the incident specific annex of the EOP.
 - Assure rapidly available decontamination capability and staff access to appropriate PPE.
 - Spearhead a community healthcare initiative to develop a common protocol for evaluating potentially exposed patients with standardized treatment parameters.
 - Training on the new procedures and equipment and an exercise to evaluate effectiveness would be indicated.
 - Response planning: The Biological Agent SOP, an incident annex to the EOP may contain a checklist of response options specific to powder exposure, with contact information for technical experts who can be called upon for advice (developed as part of the preparedness planning).
 - Recovery planning: The Biological Agent SOP may also include a checklist of recommended recovery actions to return a contaminated area to full service, including contact information for environmental clean-up companies with appropriate technical expertise (developed as part of preparedness activities).

Lesson 1.3.3 Continuity Planning and Organizational Resiliency

Lesson Objectives

- *Explain the relationship between the HVA and continuity planning.*
- *Explain how continuity planning addresses the mission-critical vulnerabilities identified in the HVA and defines actions to be accomplished through mitigation, preparedness, response, and recovery activities.*
- *Explain the relationship between continuity planning, COOP, and the EOP.*
- *Discuss how continuity planning impacts the personal/family preparedness plans.*

Introduction

Organizations from all sectors (public, private, and not-for-profit) carry the risk that hazards will impact their organization's business operations and/or their service/product operations, ranging from mere inconvenience and short-lived organizational disruption to complete destruction of the organization. Analyzing this hazard risk and the organization's vulnerability is the primary focus of the HVA (Lessons 1.3.1 and 1.3.2) and provides the basis for understanding the threat to an organization's resiliency. Further action is necessary, however, to assure continuity of both business and service/product operations in the face of potentially disruptive hazard impact.

This lesson discusses the identification of activities to reduce or eliminate the risk of organizational¹⁶⁰ disruption, actions that can be accomplished through mitigation, preparedness, response, and recovery planning accomplished in the EM program. **Continuity planning is the process that applies the HVA findings to these planning activities.** Their priority and level of support should be based upon the organization's perception of its relevant environment and the business and service risk contained within that environment. The selected actions must then be established and resourced during strategic administrative planning, as will be discussed in Module 1.2.

- **Terminology:** Since the terminology in this area can be very confusing, it is addressed at the outset.

The selection of interventions that can address specific vulnerabilities identified in the HVA process should be established and managed within the context of the EM program strategic administrative planning. Many of the interventions relate to continuity planning for the organization.

¹⁶⁰ For the purpose of this lesson, the term "organization" refers to any entity in any sector (public, private, or not-for-profit) that provides a product or service to its customers.

The terms surrounding continuity planning come from different sources and disciplines and therefore, it becomes important to define these more precisely.

- Continuity of Operations (COOP) Program or Plan: Continuity of Operations (COOP) [see terminology textbox], as delineated in Federal Preparedness Circular 65 (FCP 65), focuses upon preserving **continuity of government services**, particularly as it relates to terrorism and acts of war. This is presented in Lesson 1.1.3, and is described well in the FEMA Emergency Management Institute course on the subject: “Continuity of Operations (COOP) is a Federal initiative, required by Presidential Directive, to ensure that Executive Branch departments and agencies are able to continue to perform their essential functions under a broad range of circumstances.”¹⁶¹

Terminology alert!

Continuity of Operations (COOP) Program: “The collective activities of individual departments and agencies and their sub-components to ensure that their essential functions are performed.”¹⁶² In terms of FPC 65, the term “COOP” refers primarily to continuity of government and is differentiated here from “continuity planning,” which may be more comprehensive.

- Business continuity: This professional area focused historically upon maintaining the **business operations** of an organization so that the service and products output was either not disrupted or could return to normal operations as rapidly as possible post-impact. The practice of business continuity has been termed “business continuity management.”¹⁶³ Major activity in this field has historically been within the private and not-for-profit sectors. For many enterprises, risk to business operations was the primary organizational risk they recognized when considering technological and natural hazards. The earthquake risk to technology-dependent California companies emphasized the importance of offsite record keeping and similar business protection measures, prompting significant industry growth in that area. The Y2K

¹⁶¹ FEMA Emergency Management Institute. IS-547 *Introduction to Continuity of Operations (COOP)*, Lesson 1: Course Welcome and COOP Overview, available at: <http://training.fema.gov/EMIWeb/IS/IS5471st.asp>, accessed May 16, 2006.

¹⁶² Adapted from *Federal Preparedness Circular 65* (June 15, 2004). Federal Emergency Management Agency. Washington, D.C., p.2.

¹⁶³ Continuity Central, available at: <http://www.continuitycentral.com/newtobusinesscontinuity.htm>, accessed April 30, 2006.

phenomenon¹⁶⁴ focused attention nationally upon business vulnerabilities created by computer dependency. Other terms that are commonly used by practicing professionals in this area include “contingency planning” and “disaster recovery.” It has only been more recently that direct risk to service and product output has been widely recognized in many commercial and not-for-profit sectors. Recent descriptions by NFPA 1600 Standard on Disaster/Emergency Management and Business Continuity Programs (see terminology textbox) have emphasized the relationship and similarities of business continuity to emergency management.

Terminology alert!

Business Continuity Program: “An ongoing process supported by senior management and funded to ensure that the necessary steps are taken to identify the impact of potential losses, maintain viable recovery strategies and recovery plans, and ensure continuity of services through personnel training, plan testing, and maintenance.”^{165,166}

ASIS International,¹⁶⁷ a preeminent not-for-profit organization dedicated to increasing the effectiveness and productivity of security professionals, also uses “business continuity” as its primary term. ASIS published its “all sector” *Business Continuity Guideline* in 2005, a document that complements the NFPA 1600 Standard and FPC 65 and provides a generic planning guide applicable to any organization. It makes the following statement to emphasize the importance of business continuity to organizational survival and success:

¹⁶⁴ Y2K was created by the concern that legacy computer systems, programmed only for dates that either began with “19” or used only the last two digits for dates, would crash at the beginning of the year 2000.

¹⁶⁵ NFPA 1600. *Standard on Disaster/Emergency Management and Business Continuity Programs* (2004 Edition), p. 4.

¹⁶⁶ In Business Continuity, the terminology varies from emergency management; business “recovery” includes actions that recover business system that may be considered part of the “response phase” by emergency management.

¹⁶⁷ ASIS International Web Site. *Business Continuity Guideline: A Practical Approach for Emergency Preparedness, Crisis Management, and Disaster Recovery* (2005), available at: <http://www.asisonline.org/guidelines/guidelines.htm>, accessed August 9, 2005.

Many public and some private sector organizations do not specifically spell out continuity of operations as an independent concept as the relevant activities are addressed in a well written EOP.

“Recent world events have challenged us to prepare to manage previously unthinkable situations that may threaten the organization’s future. The new challenge goes beyond the mere emergency response plan or disaster management activities that we previously employed. Organizations must now engage in a comprehensive process best described generically as Business Continuity. ... Today’s threats require the creation of an ongoing, interactive process that serves to assure the continuation of an organization’s core activities before, during, and most importantly, after a major crisis event. Regardless of the organization – for profit, not for profit, faith-based, non-governmental—its leadership has a duty to stakeholders to plan for its survival.”¹⁶⁸

- **“Continuity of services” and “continuity of operations”**: The idea of organizational resiliency in the public safety and other public service organizations has been incorporated in their practice for many years and is the driving force behind the importance of the HVA. The continuity concept, however, is not described by any commonly used term, although “continuity of operations” (small case versus that used in COOP) is used by many sources to emphasize this important area. Continuity of services can be used to denote a primary attention on addressing the risk of service disruption. **A well-written, ICS-based EOP that includes functional and support annexes and incident-specific appendices (see Lesson 1.5.2) incorporates many of the issues that address continuity of operations and services.**
- **Continuity planning**: This all-encompassing term (see terminology textbox) is used in this text to refer to all activities that share the common goal of organizational continuity (i.e., continuation or resumption and recovery) of leadership, essential organizational functions and processes, and service and product outputs under all conditions that could impact an organization.

¹⁶⁸ ASIS International Web Site. *Business Continuity Guideline: A Practical Approach for Emergency Preparedness, Crisis Management, and Disaster Recovery (2005)*, available at: <http://www.asisonline.org/guidelines/guidelines.htm>, accessed August 9, 2005.

Terminology alert!

Continuity planning: An internal effort within an organization to assure that mission-critical business and service functions are resistant to disruption from the broad range of likely natural, technological, and intentional (including terrorism) hazards. Accordingly, an effective EM program for healthcare systems addresses continuity planning across the four phases of mitigation, preparedness, response, and recovery to ensure that mission-critical business operations, patient care services, and ancillary and support functions continue with little or no interruption or return to function as rapidly as possible.

- Continuity planning for healthcare systems: In this text, the term continuity planning for healthcare systems addresses both business continuity and continuity of operations related to patient care services.
- Healthcare system continuity planning across all phases of CEM: Within the private business sector, definitive standards and guidance for the continuity planning have only recently gained widespread acceptance with the NFPA 1600 (see Lesson 1.1.3). Traditionally, business continuity and formal COOP have been primarily oriented towards **response and recovery actions**, with little attention to mitigation and preparedness. **Continuity planning must be considered in all phases of Comprehensive Emergency Management.** Building upon the Hazard Vulnerability Analysis (HVA) process described in Lessons 1.3.1 and 1.3.2, continuity planning is therefore an essential component of the overall EM program. Examples from each phase of EM program management include:
 - Program Leadership and Direction (emergency management committee):
 - Identify mission critical (“essential”) functions for continuity planning purposes.
 - Establish an order of succession and process for delegation of authority for organizational leadership as related to the EM program.
 - Mitigation planning:
 - Accomplish “hardening” of mission critical systems.
 - Develop redundancy for mission-critical systems.

This text utilizes the term “continuity planning” to refer to all the activities related to ensuring mission critical business and service functions are maintained.

Through a detailed examination of the various components of an EM program, one can visualize how the concepts of continuity planning are addressed.

- Preparedness planning:
 - Conduct education and training related to continuity of operations.
 - Establish exercises and other evaluation methodology to assess continuity capability and capacity.
- Response (Emergency Operations Plan):
 - Human Capital - Designation of mission-critical staff; Development of policies addressing personnel leave during emergencies and related actions.
 - Maintenance of vital records (both business and patient).
 - Management process for financial and reputational crises for the organization.
 - Delineate devolution of control and management.
 - Define alternate operating facilities.
 - Assure interoperable communications within and external to the organization.
 - Define order of succession and delegation of authority for managing emergency operations.
 - Formulate strategy and tactics for organizational reconstitution.
- Recovery planning:
 - Identification of essential functions for priority recovery purposes.
 - Establishment of methods for high priority recovery of vital records and databases.
- Documenting healthcare system continuity planning – separate versus integrated documentation: Continuity elements, including those specifically denoted in FPC 65 (see Textbox 1.1.3.6) can be integrated into the Emergency Operations Plan (EOP) and other EM program component planning documents or they can be established as a separate document. Both approaches to this issue are commonplace, and each organization should deliberately develop their own documentation strategy.
- Integration into EM documents: Continuity planning may be documented through incorporation of planning elements into the EOP and other EM program documents. To specifically address regulatory requirements to demonstrate a specific “COOP Plan,” a crosswalk of COOP requirements can be made with the appropriate sections in the EOP and EM program work plans. This may also assure that all mission-critical issues in COOP are adequately addressed in the organization’s EM documents. This

“incorporation” approach ensures that the documents will be maximally useful when needed and essentially strengthens the EOP while maintaining a single all-hazard plan.

- Separate document: If the path of using separate documents to delineate continuity planning is taken, these documents should be developed as **support annexes and/or incident annexes** to the EOP (see Lesson 3.5.1). The use of only a stand-alone “COOP Plan” creates the risk that it will not be operationally useful for complex hazard incidents that also have many issues beyond those addressed in COOP.
- Continuity planning – educational sources: To support the FPC 65 mandate that each Federal agency maintain a viable COOP capability, FEMA and other Federal agencies developed training courses and planning templates (see Textbox 1.3.3.1). Nongovernmental agencies may also find this guidance useful.

Some healthcare systems may be required to develop separate continuity plans. This can be achieved by a cross walk of relevant concepts to the organization’s EOP or through the development of support annexes and incident specific appendices to the EOP.

Textbox 1.3.3.1

COOP Education Sources

The U.S. General Services Administration’s (GSA) Continuity of Operations Manager’s Training Course is a 2.5 day course available to all Federal emergency planning managers¹⁶⁹. The GSA Office of Emergency Management, in addition to supporting internal GSA planning, works with the Department of Homeland Security’s Federal Emergency Management Agency (FEMA) to support the entire Federal government through a GSA schedule for vendor COOP planning support and the analysis and selection of alternate facilities.¹⁷⁰

The Federal Emergency Management Agency and U. S. Fire Administration Emergency Management Institute also offers two COOP-specific courses through the Independent Study Program:

¹⁶⁹ GSA Training Programs, available at: http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentType=GSA_BASIC&contentId=13544&noc=T, accessed August 17, 2005.

¹⁷⁰ GSA Responsibility, available at: http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentType=GSA_BASIC&contentId=12628&noc=T, accessed August 17, 2005.

IS-547 Introduction to Continuity of Operations¹⁷¹ and IS-546 Continuity of Operations Awareness Course.¹⁷²

The private sector, in addition to internal Business Continuity planning, offers various services to all sectors through COOP development software, consultant services, and training. A search of the Internet using the term COOP will locate literally thousands of businesses, ranging from *Fortune 500* companies to small businesses and individuals offering COOP products and services.

The VHA, as a federal agency, must comply with FPC #65. The programs implemented provide valuable insight for all healthcare systems.

The VHA COOP Program: An Example

The VHA has established the policy that “VAMCs and other essential VHA Facilities [e.g., Consolidated Mail Outpatient Pharmacies (CMOPs)] must comply with the provisions of FPC 65. The *VHA EM Program Guidebook* provides a description, templates and an example of an “acceptable” Continuity of Operations (COOP) Plan to support facility level development.¹⁷³ Importantly, the VHA extends their continuity planning well beyond the mandated provisions in FPC 65.

- COOP and the VHA Mission: Simply stated, the VHA COOP supports the mission of the VHA by providing a planned and adequately resourced ability to maintain continuity of medical care across a broad spectrum of emergency conditions. Like its counterpart in private sector “business” (i.e., Business Continuity), a validated COOP makes good business sense. As is the case for continuity planning above, COOP considerations are addressed as “all-hazard” and incorporated into the mitigation, preparedness, response, and recovery planning of CEM. COOP may be most effective if it uses the EOP base plan and incorporates the many EOP “all-hazard” processes wherever applicable.
- COOP and the HVA: The Hazard Vulnerability Analysis (HVA) process, as described in Lesson 1.3.1 and 1.3.2, provides the foundation of COOP through the identification, analysis, and management of risks that may impact the healthcare system and the

¹⁷¹ FEMA Emergency Management Institute, available at: <http://training.fema.gov/EMIWeb/IS/is547.asp>, accessed August 17, 2005.

¹⁷² FEMA Emergency Management Institute, available at: <http://training.fema.gov/EMIWeb/IS/is546.asp>, accessed August 17, 2005.

¹⁷³ *Emergency Management Program Guidebook*. Department of Veterans Affairs. 2005: 5-7-1, sections available at: <http://www1.va.gov/emshg/page.cfm?pg=114>, accessed June 6, 2006.

community. In the absence of unlimited resources, the COOP cannot absolutely guarantee continuity of operations for all eventualities. The HVA process, however, can focus COOP planning efforts and resources on the highest priorities and can provide a means of setting COOP objectives and measuring results during VHA EM Program mitigation and preparedness planning.

- COOP and VHA EM program guidance: To meet the COOP requirements of FPC 65, the *VHA EM Program Guidebook* specifies VHA-specific process, plans, policies and procedures across the EM program that:
 - Identify and analyze functions and processes and their inter-relations within the organization and between the organization and its external environment,
 - Prioritize functions and processes based upon their contributions to the organization's mission, goals, and objectives,
 - Provide for the redundancy and safe keeping of vital records, information and data whether in printed or electronic form,
 - Specify succession to office and the delegation of authority during emergency situations,
 - Specify alternate operating facilities that accommodate essential functions and processes,
 - Provide for interoperable communication,
 - Specify procedures for devolution (transfer of responsibilities and leadership) in the aftermath of a catastrophic event,
 - Provide awareness, training, direction and resources for personnel to meet their COOP responsibilities,
 - Validate the COOP Program and required capabilities through tests and exercises.
 - Maintain the COOP Program required capabilities.
- COOP plans and emergency response: During an emergency response, Standard Operating Procedures or Pre-plans are used to guide the initial response to a situation. The transitions to the incident action planning process occur as soon as practical.

- COOP and application templates: The VHA provides templates to assist with incorporating continuity planning across their EM program. Exhibit 1.3.3.1 demonstrates one VHA tool to prompt VA Medical Center emergency program managers to consider hazard vulnerabilities in developing response guidance during preparedness.

Exhibit 1.3.3.1 A VHA “Sample operating Unit Template” for developing hazard-specific preparedness

Sample Operating Unit Template					
OPERATING UNIT: _____				DATE: _____	
OPERATING UNIT MANAGER: _____					
Mission Critical System	Potential Problems	Contact for Assistance in Preparing for Potential Problems	Preparations to Make to Minimize Potential Problems	IF THERE IS AN INTERRUPTION IN OPERATIONS DUE TO LOSS OF CRITICAL SYSTEM, THEN:	
				Assess the situation for:	Action required:
1. Lighting (Emergency Lights Available)			1.	1.	1.
2. Electrical Power (Generator Power Available)			1.	1.	1.
3. Steam Distribution			1.	1.	1.
4. Heating, Ventilation & Air Conditioning (HVAC)			1.	1.	1.
5. Room of Hood Exhaust			1.	1.	1.
6. Water Delivery			1.	1.	1.

All contingency preparations have been completed

Personal and family preparedness planning is an important component of continuity planning. This is discussed in more detail in lesson 1.5.4.

Personal/Family Preparedness and Continuity Planning

Lesson 1.5.4 describes the importance and procedures for personal and family preparedness for emergency response and recovery operations in general. COOP, with its particular response and recovery requirements, impacts this planning for Federal government agencies, but the considerations from continuity planning similarly apply for all healthcare system personnel expected to participate in emergency response and recovery. In many cases, the nature of the emergency event may necessitate relocation of personnel and services on short notice to an alternate site for sustained operations of 30 days or longer, until normal operations are reconstituted. The decision on the location of the alternate facilities is driven by the HVA and may necessitate relocation beyond a

typical commuting distance. Preparing for short notice relocation and potentially extended work periods are continuity responsibilities that personnel should fully understand. They should structure their personal and family preparedness plans accordingly.

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Module 1.4

Mitigation Planning for Healthcare Systems

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Lesson 1.4.1 Overview, Concepts, and Principles: Mitigation

Lesson objectives

- *Explain the purpose of mitigation planning in relation to the other components of the EM program (preparedness, response, and recovery) for healthcare systems, highlighting the importance of continuity of patient care services and continuity of business operations.*
- *Explain the relationship between the HVA process and mitigation planning.*
- *Identify and describe the activities that support effective mitigation.*
- *Describe the relationship between the mitigation planning and the environment of care safety activities that should occur on a regular basis in healthcare facilities.*

Introduction

As used in emergency management, **mitigation refers to activities that reduce or eliminate the likelihood of a hazard occurrence or that eliminate or reduce the impact from a hazard if it does occur.** Mitigation is distinguished from “preparedness activities,” which may occur in the same time-frame but are focused upon building response and recovery capacity and capability, not upon reduction of hazard risk.

- Mitigation and phases of CEM: In comprehensive emergency management (CEM), mitigation activities are usually undertaken during the time period prior to any imminent or actual hazard impact. **Mitigation may also occur during the recovery period** (“It is also used effectively after a disaster to reduce the risk of a repeat disaster.”¹⁷⁴). In fact, the immediate post-impact period may be the time when funding and interest for making change are the highest. Mitigation is distinguished from preparedness above, but also must be distinguished from response actions: once an **imminent** hazard impact (such as an approaching hurricane) or an **actual** hazard impact (a subtle new disease that is becoming epidemic) is recognized, subsequent actions are considered part of response.
- Mitigation history: Early writings on CEM, while recognizing “mitigation” as one of the four phases in “all-hazards” planning, placed emphasis on “mitigation” as an activity that should take place **during**

Mitigation activities may occur during the same time frame as preparedness activities but have a different focus. They may also occur during recovery from an incident as attention and finances may be more available at this point in time.

¹⁷⁴ FEMA. *Mitigation Program Development Guidance* (1987). Federal Emergency Management Agency; Washington, DC.

The use of the term “mitigation” has been applied in fashions that vary from the meaning intended by the traditional EM community.

and after the disaster recovery period, reflecting the lack of motivation by government leaders and the public to conduct mitigation efforts until after a hazard impact has been experienced ¹⁷⁵ (see Exhibit 1.4.1.1). The promulgation of the Integrated Emergency Management System (IEMS) by FEMA in the early 1980s promoted a 13-step process for EM programs (see Textbox 1.1.3.6). This was the first national effort that emphasized the elevation of hazard analysis and mitigation planning to the same level of attention provided to response and recovery activities.

- **Mitigation terminology:** Some disciplines, particularly in hazardous materials (HAZMAT) response, use the term “mitigation” to describe actions taken **during a HAZMAT incident to reduce the environmental and human impact of the release.** The current glossary of key terms in NIMS¹⁷⁶ also incorporates this use, indicating that mitigation activities may occur “during” the incident. This use of the term varies from its use in emergency management and has created confusion for personnel in both disciplines. Since Comprehensive Emergency Management groups emergency management-related activities into phases through “time and function” relationships,¹⁷⁷ the actions that limit hazard impact during and immediately surrounding a HAZMAT release are considered response actions by emergency managers. In this text, the emergency management definition is used.
 - **NIMS and mitigation:** Another variation in mitigation terminology should be noted. With the development of NIMS and the NRP, the Federal Government has emphasized the activities of “**Awareness**” and “**Prevention.**”¹⁷⁸ This is in part due to the increased focus by the intelligence community and law enforcement on intentional hazards and their use of counter-

¹⁷⁵ Drabek, T. E., and Hoetmer, G. J. Editors. *Emergency Management: Principles and Practices for Local Government*, p. 135.

¹⁷⁶ Mitigation: The activities designed to reduce or eliminate risks to persons or property or to lessen the actual or potential effects or consequences of an incident. Mitigation measures may be implemented prior to, during, or after an incident. Mitigation measures are often informed by lessons learned from prior incidents. Mitigation involves ongoing actions to reduce exposure to, probability of, or potential loss from hazards. Measures may include zoning and building codes, floodplain buyouts, and analysis of hazard-related data to determine where it is safe to build or locate temporary facilities. Mitigation can include efforts to educate governments, businesses, and the public on measures they can take to reduce loss and injury (NIMS Glossary of Key Terms).

¹⁷⁷ NGA. *Comprehensive Emergency Management: A Governor’s Guide* (1979). National Governor’s Association, page 12

¹⁷⁸ NIMS; available at: <http://www.fema.gov/emergency/nims/index.shtm>, accessed April 13, 2006.

terrorism, law enforcement, legal, and other interventions. From an emergency management perspective, these “awareness and prevention” activities are important homeland security applications, but are commonly outside the scope of “emergency management” or already encompassed within mitigation (see Lesson 1.4.2).¹⁷⁹¹⁸⁰ These variances are viewed as “industry applications” (in this instance, Homeland Security applications). Redefining long-standing, valid, and professional EM concepts to address continually shifting Federal policy is unnecessary and potentially disruptive.

- Relative importance of mitigation: As emergency management has evolved over the past several decades in the public sector, mitigation has received increasing recognition. In modern EM, it is viewed as equally important to other phases of CEM.¹⁸¹ It has only much more recently begun to receive the same level of recognition in business and industry, including healthcare organizations. As critical infrastructure concerns extend well into private sector industry, attention to mitigation will continue to expand.

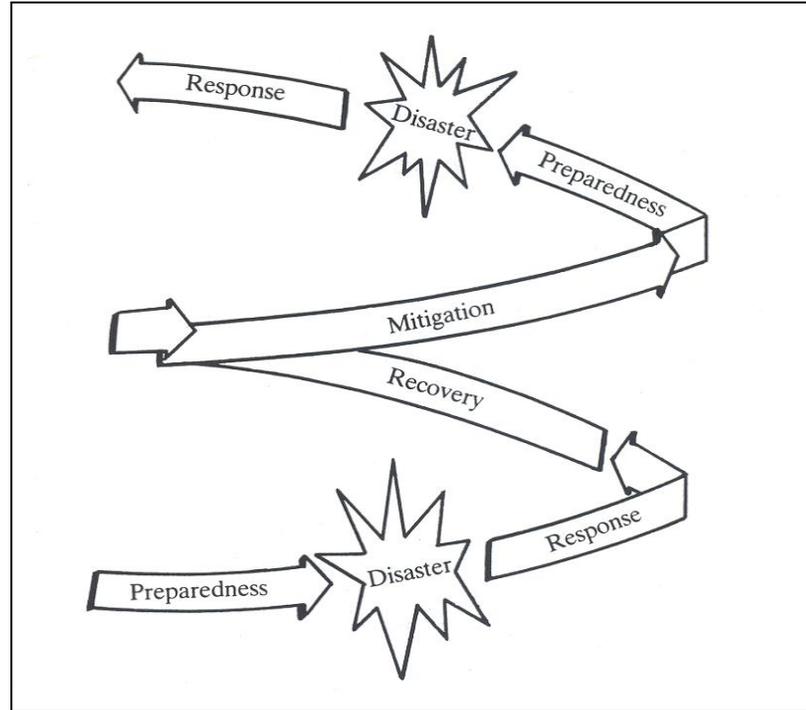
As Homeland Security has evolved, activities such as “prevention” have been emphasized. From an Emergency Management perspective, these activities are either a part of mitigation or outside the scope of Emergency Management.

¹⁷⁹ “Mitigation, including prevention activities accomplished prior to imminent threat or impact, encourages long-term reduction of hazard vulnerability. The goal of mitigation is to decrease the need for response as opposed to simply increasing the response capability.” (adapted from FEMA. *Integrating Manmade Hazards into Mitigation Planning* (Version 2.0, September 2003), Federal Emergency Management Agency, Washington D.C.

¹⁸⁰ ‘Mitigation action involves lasting, often permanent, reduction of exposure to probability of or potential loss from hazard events.’ FEMA. State and Local Guide (SLG)101, *Guide for All-Hazard Emergency Operations Planning*, available at: <http://www.fema.gov/rrr/gaheop.shtm>, accessed December 13, 2005.

¹⁸¹ FEMA. *The Integrated Emergency Management System: Process Overview* (1983), CPG 1-100. Federal Emergency Management Agency, Washington D.C.

Exhibit 1.4.1.1 The relationship of the phases of CEM¹⁸²



Mitigation activities should be maintained as separate and distinct from the HVA process. This distinction helps to emphasize the importance of the HVA contribution to all phases of the EM process.

- Mitigation and relationship to the HVA: Some educational and guidance documents blur the distinction between mitigation planning and the HVA. For example, steps in a mitigation planning process for terrorism promulgated by FEMA¹⁸³ include:
 - 1) identifying and organizing your resources.
 - 2) conducting a risk or threat assessment and estimating potential losses.
 - 3) identifying mitigation actions that will reduce the effects of the hazards and creating a strategy to place them in priority order.

¹⁸² NGA. *Comprehensive Emergency Management: A Governor's Guide* (1979). U.S. Government Printing Office, Washington, D.C., p. 135. (Reprinted with permission of the International City/County Management Association, 777 North Capitol Street, NE, Suite 500, Washington, DC 20002. All rights reserved.)

¹⁸³ FEMA. *Integrating Manmade Hazards Into Mitigation Planning* (Version 2.0, September 2003), Federal Emergency Management Agency, Washington, D.C.; Available at <http://www.fema.gov/fima/howto7.shtml>. Accessed November 15, 2005.

- 4) implementing the [mitigation] actions, evaluating the results, and keeping the plan [i.e., mitigation work plan] up-to-date.

In contrast, the comprehensive emergency management (CEM) approach requires a thorough HVA that **precedes** the development of a mitigation work plan. In fact, the HVA accomplishes much of Steps 1 and 2 in the above FEMA guidance. The most difficult issue in mitigation planning, at least for many emergency program managers, is selecting the most important vulnerabilities to be addressed. The HVA develops a basis for consistently applying a prioritization strategy.

- **Mitigation strategy:** As with other activities in an EM program, a carefully considered strategy should be used while establishing and executing mitigation planning. This provides a strategy to place mitigation actions in a priority order that reflect a risk-based, cost-benefit, decision-making process. Considerations include:
 - **Addressing mission-critical systems:** Potential impacts on mission-critical systems must be addressed, so that the healthcare organization resiliency is assured and the organization can effectively respond.
 - **Life-safety issues:** Life-safety vulnerabilities for staff, patients, and visitors should have the highest priority, followed by vulnerabilities that threaten the organization.
 - **Internal versus external hazards:** Mitigation considerations should include whether the hazard is generated external versus internal to the healthcare system. A hazard that is internal and is the direct responsibility of an organization is commonly considered a higher priority in the overall mitigation plan. See Textbox 1.4.1.1.

Strategic considerations for mitigation planning should reflect a risk-based, cost-benefit decision making process.

Textbox 1.4.1.1

Internal Hazards: An Example

A healthcare facility recognizes (during their HVA) that critical equipment in the ICU is not on back-up power outlets. This places certain patients at high risk during any potential power outage. The rewiring of the ICU becomes a high priority for the upcoming mitigation work plan.

- **The cost-benefit analysis:** There is some cost to the organization for any individual mitigation action. To compare cost to benefit, it

The benefits that any one mitigation action can provide should be examined from multiple perspectives.

Healthcare system mitigation activities should address both impacts from medical surge and impacts that affect organizational resiliency.

is helpful to examine the mitigation action benefits from multiple angles:

- The “benefit” may be assessed by the ranked importance of an identified vulnerability (i.e., it is of such importance, it must be addressed).
 - The “benefit” can be assessed in terms of the projected reduction in vulnerability (i.e., either prevent the individual hazard occurrence or significantly decrease the consequences of the hazard impact).
 - The “benefit” of the mitigation measure may address common vulnerability components across multiple hazard risks. For example, a security weakness may be a vulnerability noted across many hazard types, and a single intervention, such as monitoring and central electronic control of entrances, may reduce or eliminate this common vulnerability.
 - “Opportunity” factors should also be considered when assessing cost and benefit. For example, vulnerability reduction may be accomplished in a more cost-effective manner if undertaken during planned building renovations or new construction. In this instance, the mitigation measure attains a higher priority for the current Mitigation Plan period than it would have otherwise. This could address electrical system or structural vulnerabilities that would have been prohibitively expensive through retrofitting.
- Business operations versus service and product output operations:
The distinction between these two concepts was extensively discussed in Lesson 1.3.3. While the commercial sector has focused predominantly upon resiliency in business operations (see Textbox 1.4.1.2), many healthcare organizations have addressed facility and medical services mitigation with significantly less attention to business operations. A balanced mitigation work plan should be developed, guided by the HVA findings.

Textbox 1.4.1.2

Business Continuity and Mitigation Planning

The private sector, through business continuity (also referred to as contingency planning, business crisis and continuity management programs, and other terms), has led all sectors in mitigation related to information technology. Dating back to the 1960s, many

businesses realized their current and future reliance on information technology and electronic data and records.¹⁸⁴ Accordingly, their Business Impact Analysis (see Textbox 1.3.1.2) and Risk Management processes (business specific processes analogous to the HVA) identified and analyzed hazards and vulnerabilities for the purpose of prioritizing and implementing mitigation actions. These efforts primarily focused upon Information Technology (IT) and the necessary data backup and remote storage during the 1960s through 1980s. As these efforts continued, business mitigation plans and activities have increasingly been expanded to all aspects of the business, including employee protection and communication and provisions for alternate work sites and equipment. This broader “continuity planning,” with its focus on comprehensive organizational resiliency, is addressed in Lesson 1.3.3.

- VHA example of a mitigation strategy: The VHA mitigation strategy is summarized and presented as an example in Textbox 1.4.1.3.
- Communicating the established mitigation strategy and prioritization: As the mitigation planning is developed and implemented, it is important to succinctly communicate both the results and the rationale behind the risk-based decision process to stakeholders (see communicating and consulting under HVA). This may be accomplished through a summary, such as that in Textbox 1.4.1.3.

Textbox 1.4.1.3

Mitigation Strategy Points¹⁸⁵

- The mitigation plan shall establish interim and long-term actions to eliminate hazards or to reduce the impact of those hazards if they cannot be eliminated.
- The functional roles and responsibilities of internal and external agencies, organizations, departments, and individuals during mitigation, preparedness, response, and recovery shall be identified.
- Lines of authority for those agencies, organizations, departments, and individuals shall be established and/or identified.

¹⁸⁴ *How to Stay in Business When a Disaster Strikes* (1992). Software Magazine, Volume 12, No. 11, pp.48–52.

¹⁸⁵ Adapted from the *VHA Emergency Management Guidebook*, 2005.

- The entity shall implement a strategy for eliminating hazards or mitigate the effects of hazards that cannot be eliminated.
- The mitigation strategy shall be based upon the results of the hazard identification and risk assessment, consequence analysis, program assessment, and operational experience and cost-benefit analysis.
- The mitigation strategy shall consider but not be limited to the following:
 - a. The use of appropriate building construction standards.
 - b. Hazard avoidance through appropriate land use practices.
 - c. Relocation, retrofitting or removal of structures at risk.
 - d. Removal or elimination of the hazard.
 - e. Reduction of limitation of the amount or size of the hazard.
 - f. Segregation of the hazard from that which is to be protected.
 - g. Modification of the basic characteristics of the hazard.
 - h. Control of the rate of release of the hazard.
 - i. Provision of protective systems or equipment.
 - j. Establishment of hazard warning and communications procedures.
 - k. Redundancy or duplication of critical systems, equipment, information, operations, or materials.

Certain mitigation activities of the EM program may overlap or be consistent with other regular day-to-day administrative functions. The consistency of these efforts should be identified to prevent them from becoming duplicative.

Healthcare-specific Considerations in Mitigation Planning

- Mitigation and general safety activities: In healthcare system operations, it is important to recognize the relationship between Mitigation Planning and Environment of Care Safety Activities:
 - Environment of care: Most modern hospitals have active safety committees that follow JCAHO Environment of Care guidelines¹⁸⁶ that seek to minimize safety issues in healthcare system operations. At some point during safety and mitigation activities, initiatives may overlap or become duplicative if not closely coordinated.
 - Complementary actions between the EM program and other administrative functions: Mitigation priorities in the EM program

¹⁸⁶ Joint Commission on Accreditation of Healthcare Organizations. *2006 Hospital Accreditation Standards*, Oakbrook, IL.

should be considered in relationship to the vulnerability reductions sought for more common safety issues in the environment of care risk reduction. Coordinating the efforts may maximize benefits. For example, the common environment of care issue of fire safety and designation of fire evacuation routes should be coordinated with the EM program mitigation activities addressing safe exit routes for other hazards such as bomb threats.

- **Joint mitigation planning:** As with accomplishing the HVA (see identifying stakeholders in Lessons 1.3.1 and 1.3.2), it is advantageous to collaborate with other healthcare facilities and with non-medical response organizations when developing and conducting mitigation activities. This strategy may:
 - **Inform the process:** Coordinated planning could widen the range of mitigation measures to be considered (i.e., promote the sharing of best practices or innovative solutions).¹⁸⁷
 - **Minimize cost and/or maximize benefit:** The larger “pool” or participants could provide opportunity for mitigation measures that would be too costly individually (e.g., collective purchasing power) or where the benefit of the intervention is enhanced by other hospitals participating, making the cost/benefit ratio attractive (e.g., establishing a larger back-up cache that provides redundancy for mission-critical systems).
- **Consider the full range of mitigation:** Though some disciplines associate mitigation activities only with expensive structural changes or construction projects, it is important to recognize the breadth and scope of potential mitigation activities. For example, mitigation “tools” include plans, regulation and procedural changes, insurance, and education/training related to hazard elimination or vulnerability reduction.
 - **Examples:**
 - Designing and constructing healthcare facilities to avoid or minimize potential hazards (e.g., locate electronic and other infrastructure systems well above ground level in flood-prone areas).

Healthcare systems may, in some instances, shy away from mitigation activities as they are often associated with expensive structural changes of the facility itself. In fact, there are many mitigation activities that have minimal financial implications.

¹⁸⁷ Barbera J.A., Macintyre A.G.. *Jane's Mass Casualty Handbook: Hospital* (2003). Surrey, UK: Jane's Information Group, Ltd.

- Confining internal hazards, such as hazardous materials, in safe and secure areas to prevent their release during an internal event (e.g., a fire). Maintaining smaller quantities of potential hazardous materials, with more frequent re-ordering, may also reduce the risk of a significant hazardous materials incident.
- Developing redundancy in hospital operating systems to ensure backup capability during an emergency.
- Addressing the vulnerability of “improvements” to everyday operational functions to assure that the improvements have not increased risk to mission-critical systems (textbox 1.4.1.4). In particular, mitigation related to the reduction in vulnerability of information technology should be addressed.

Textbox 1.4.1.4

Example of an Evolving Vulnerability and Mitigation Measure

The current trend towards paperless documentation systems (electronic medical records and others) has made healthcare operations more efficient but may also have increased hazard vulnerability. Hospitals are required to have back-up generators that supply continued power to critical life-support systems in the event of a power failure. Some building codes designate the back-up power system with the installment of “red power outlets” to indicate which outlets will continue to be powered through the back-up power supply. The widespread location of computer interfaces for the paperless medical record, however, may in many facilities be outpacing the availability of red power outlets. Mitigation activities could include increasing their availability to mitigate medical ordering and information disruptions.

- The products of mitigation actions must also be considered for their vulnerability. For example, evaluating “back-up systems” designed to reduce vulnerability should also be assessed for **their individual vulnerability** to hazards, (see Textbox 1.4.1.5).
- Establishing programs for testing, inspecting, and conducting preventive maintenance on back-up systems and facility safety equipment.

- Protecting communication systems (both internal and external) and computer infrastructure from accidental or deliberate disruption; this could also include maintaining a stand-by capability to return to paper-based systems if needed. A continuity planning consideration, for example, includes additional repositories (offsite) of electronic medical records.
- Mitigation measures may include activities that reduce the risk of receiving unusual patient types, or excessive patient numbers, that could affect hospital operations. These include educating the public in recognizing and avoiding hazardous materials spills and other preventive measures.
- Education of healthcare system personnel to prevent hazards. For example, publicizing the importance of wearing identification (ID) badges and challenging individuals without an ID or visitor's pass can be considered a mitigation measure that reduces the risk of multiple intentional hazards.

Mitigation activities may include inspection of back-up systems, education of the public (which could potentially reduce patient numbers), and education of healthcare system personnel (e.g. to wear ID badges to prevent intentional hazards).

Textbox 1.4.1.5

Examples of Incomplete Mitigation and the Consequences*

Mitigation measures must be carefully designed and implemented. The following are actual examples of failures in healthcare facility emergency back-up systems:

- A hospital experienced a water pipe rupture into an electrical switching room, shorting the electrical circuits and automatically shutting down normal electrical power to the facility. Auxiliary power was immediately provided by the back-up generators. Unfortunately, the generated current routed through the same switching area and quickly short-circuited as well. The healthcare facility was without central electrical power until the leak and switching system was repaired.
- A hospital lost power following an earthquake. Its electrical generators immediately responded but were designed to be water-cooled. Since the local water supply system was also disrupted, the generators overheated and failed.
- A hospital lost power following a hurricane impact and was compelled to use generator power for several days. The hospital had no reserve generator and needed the constant power supply to maintain critical operations. The generators could therefore not be shut down for oil change and other

Lack of attention to mitigation activities can have serious consequences for the healthcare system. These are often most evident in the lack of attention to utility disruptions and back-up systems.

required maintenance, and they failed after two days of operations.

* These are actual cases, with identifiers removed to maintain anonymity.

- The importance of balanced and comprehensive mitigation planning: A case study from the commercial sector provides an illustration of the importance that mitigation has assumed in some recently enlightened enterprises. The mitigation efforts of a *Fortune 500* company, directly and physically impacted by the 9/11 attack on the World Trade Center, is provided in Textbox 1.4.1.6 as an example of business mitigation planning to reduce the risk of losing key personnel as well as stored information, and so decreasing company vulnerability to a resultant catastrophic effect on business service delivery.

Textbox 1.4.1.6

Business Mitigation Planning: An Example*

In the two decades prior to Y2K, business continuity responsibility in this company resided in the IT or other support divisions. In preparations for Y2K, business continuity responsibility was centralized under the direction of the major business lines and executive level managers. Overall business continuity governance was elevated to the Board of Directors level. The strategic goal of maintaining continuous and uninterrupted service in critical business areas was established and communicated, with the visible and tangible support from the very highest level of the company. To support this strategic goal, the following mitigation activities were planned and implemented:

- Enterprise technology infrastructure was consolidated, simplified, and moved away from work centers.
- Data, information, and record backup policies and capabilities were updated as new technology afforded additional opportunities.
- Remote work (working from home or technology centers) options were investigated and implemented consistent with work requirements.
- Non-individual work areas such as cafeterias, conference rooms, and training centers were retrofitted for rapid transition to work spaces for displaced employees.
- The company's real estate portfolio and technology centers were increasingly diversified to reduce the risk associated with the disaster impact on a single site.

- Particularly in the post 9/11 environment, physical, cyber, and personnel security programs were reviewed and revised to reflect the terrorist threat.
 - Plans to occupy a high rise building in New York City were abandoned and replaced by a physical move to an outlying county.
- * The identity of the company is withheld and descriptions have been made generic to maintain anonymity.

The above list of mitigation activities is not complete and is not fully applicable to a healthcare system, which does not have the option of multiple locations and a dispersed workforce during response and recovery operations. What is important is the process of applying the results of the HVA to identify, analyze, prioritize, plan, and implement mitigation actions supporting the organizational mission and objectives.

- Mitigation costs: Mitigation requires funding, but in many cases, these efforts provide additional value by streamlining day-to-day operations and reducing normal risk and cost over time (as reflected in the above example).
- The mitigation process: An organized approach to mitigation planning and conduct of a work plan is important to assure effectiveness and allow evaluation of the activities. This is addressed in Lesson 1.4.2.

The financial burden of well developed mitigation activities is often offset by the beneficial impact on day-to-day organizational operations (i.e. through streamlining of these processes).

Lesson 1.4.2 Mitigation Planning and Documentation

Lesson Objectives:

- *Explain the organization of a mitigation work plan.*
- *Discuss the important considerations in effective EM program governance of mitigation planning.*

Introduction

Mitigation planning encompasses all activities in the EM program that are intended to prevent or decrease the likelihood of the hazard occurring and minimize or eliminate organizational impact from any hazard that cannot be prevented.

Formal mitigation work plans in healthcare systems are not common, and no standardized format is widely disseminated. This lesson draws upon knowledge and experience from non-healthcare disciplines to present considerations for developing and accomplishing a mitigation work plan.

Mitigation Planning

The mitigation work plan is essentially a documentation of the emergency management committee's intentions as it prioritizes vulnerability concerns and opportunities, delineates mitigation strategies, and defines a yearly plan of action.

Using the information developed by the HVA, the mitigation plan commonly describes the significant hazards for the organization. They may best be grouped according to hazard categories, with common hazards listed as they have been in the HVA:

- Natural: floods, hurricanes, tornadoes, severe snow/ice storms, droughts, infectious disease outbreaks, and others.
- Technological: hazardous materials release, transportation mishaps, gas pipeline incidents, power failures, resource shortages, water contamination/shortages, and others.
- Intentional: civil disobedience, criminal disturbances, terrorism, and others.

The initial mitigation work plan development process may start with:

- Assessing current initiatives: Cataloging and reviewing relevant activities already underway across the organization to address safety,

Formal documentation of mitigation plans is not a common activity in healthcare systems. By examining the format of mitigation plans produced in other disciplines, the advantage of this process is self-evident.

prevention, business continuity, and other vulnerability reduction areas. This prevents duplication of effort or conflicting efforts within the organization.

- Assessing recent initiatives: Secondly, the process should involve an examination of the mitigation activities accomplished in the prior year's mitigation work plan.
- Defining goals, objectives and strategies: The mitigation work plan goals describe the desired end-state for mitigation at the completion of the work plan time period. The objectives delineate the interim steps for reaching the goals. The EM committee should also define the strategy it uses for selecting vulnerability interventions for that plan period; strategy considerations may include:
 - Overall strategy: The overall mitigation strategy is to determine actions and initiatives (using the HVA) that have **the most significant potential** to reduce the likelihood of hazard occurrence and to reduce or eliminate vulnerability of the response organization and possibly the general public.
 - Defining both short- and long-term mitigation strategy: Many mitigation actions may take longer than a single mitigation work plan to accomplish; others may be planned but accomplishing them must wait, with some of the more expensive interventions depending upon funding, capital improvements, new facility planning, and other opportunities that make the intervention more feasible.
 - Cost-benefit strategy: A general cost-benefit ratio for each potential mitigation action or initiative is approximated, and they are compared to determine relative priorities. Some vulnerability elements are similar enough across multiple hazards that they can be addressed through a single mitigation or preparedness intervention, and the risk/benefit profile for that intervention (including costs, positive or negative effects on usual operations, and other factors) should be judged accordingly.
 - Integration with non-EM safety initiatives: A critical component of any organization's mitigation planning is a process to fully evaluate, standardize (to the extent indicated), and update the everyday safety plans with the internal Occupant Emergency Procedures for each physical location within the healthcare system. The Mitigation Plan should develop and provide templates and process guidance for its operating units to improve their individual safety plans and procedures. An annual review and

Mitigation plans should include stated goals and objectives.

In addition, mitigation plans should include both long and short-term strategies as well as cost-benefit strategies.

update of this area of focus is considered an important mitigation activity.

- Grouping of EM program mitigation actions: Because of cost and other considerations, mitigation measures are often grouped as “structural” and “non-structural.”¹⁸⁸

Textbox 1.4.2.1

Structural Versus Non-structural Mitigation A Security Example

Structural mitigation to address security vulnerabilities may include reconstruction of entry paths into the healthcare facility, thereby limiting the number of unlocked entrances and allowing better control of the perimeter.

A non-structural security mitigation measure may be the institution of a screening and badging system for staff, vendors, patients, and visitors.

Both reduce vulnerability to theft and other intentional hazards.

A useful way to categorize mitigation activities is “structural” and “non-structural.”

- Other areas to be addressed by the mitigation work plan: Examples of additional mitigation planning activities to be considered for inclusion in a comprehensive work plan include:
 - Ongoing cooperative efforts with law enforcement, intelligence, and security services to decrease the threat and vulnerability to terrorism and other criminal acts.
 - Development and annual review of standard mitigation guidance for individual and family preparedness plans for healthcare system personnel (see Lesson 1.5.4) will decrease the vulnerability of personnel leaving (or losing focus) during a crisis or emergency.
 - Providing employee and public education and awareness on specific hazards and system vulnerabilities.

¹⁸⁸ Drabek TE, Hoetmer GJ (ed). *Emergency Management: Principles and Practice for Local Government*. International City Management Association (1991); Washington D.C., p. 142.

- Addressing mitigation and preparedness activities with nearby manufacturing plants, fuel storage facilities, major institutions, waste disposal facilities, and other facilities that present unusual hazards, to ensure compatibility of emergency plans and procedures, especially where there exists an acknowledged hazard that could spread offsite.

Mitigation Work Plan – Guidance and Format Options

As noted at the beginning of this lesson, there is no widely agreed upon and accepted format for an organization's mitigation work plan.

- FEMA guidance: FEMA provides several guidance documents for mitigation planning:
 - FEMA How-To-Guide #3, Developing the Mitigation Plan: Identifying Mitigation Actions and Implementation Strategies:¹⁸⁹ This guide presents a general process for developing a mitigation strategy and documenting the planning process which translates into their recommended outline for a mitigation plan.
 - FEMA Mitigation Planning Guidance for Manmade Hazards¹⁹⁰ presents the following scheme in its "Step 4 Document the Mitigation Planning Process":
 - A summary of the planning process, including the sequence of actions taken and a list of the team members and stakeholders who participated;
 - The results of the risk assessment and loss estimation;
 - Mitigation goals and objectives aimed at reducing or avoiding the effects of manmade hazards;
 - Mitigation actions that will help the community or State accomplish the established goals and objectives; and
 - Implementation strategies that detail how the mitigation actions will be implemented and administered.
- NFPA guidance: NFPA 1600 (2004 edition) also provides some guidance on mitigation activities.

There are different approaches to the mitigation planning process. Examples are provided in the text. These have been adapted to provide a recommended template.

¹⁸⁹ FEMA Mitigation Planning, available at: http://www.fema.gov/fima/planning_howto3.shtm, accessed 08/12/05

¹⁹⁰ FEMA. *State and Local Mitigation Planning How-To Guide: Integrating Manmade Hazards* (2003) Version 2.0. Phase 3; available at: <http://www.fema.gov/txt/fima/386-6phase3.txt> or http://www.fema.gov/pdf/plan/mitplanning/how7_phase3.pdf, accessed May 22, 2006.

The authors adapted the FEMA mitigation planning process and present the following stepped approach:

A. Develop a single all-hazards mitigation work plan:

Step 1: Develop mitigation goals and objectives and define the selected mitigation strategies.

Step 2: Identify and prioritize mitigation actions consistent with goals, objectives, and strategies established in Step 1.

Step 3: Prepare an implementation strategy.

Step 4: Document the mitigation planning process.

B. Implement the plan and monitor/document progress.

From these steps the authors propose the following generic mitigation work plan template:

- I. Introduction (this section will change little through successive work plans)
 - Statement of leadership support for the mitigation planning process and the resulting work plan.
 - Explanation of mitigation and its relationship to the EM program.
 - High-level explanation of the mitigation planning process.
- II. Mitigation work plan goals, objectives and assumptions
 - Statement of mitigation goals and supporting objectives.
 - Description of metrics to monitor the progress towards goals and objectives.
 - Statement of planning assumptions.
- III. Documentation of the mitigation planning process
 - Identification of personnel and organizations involved in the planning process.
 - Summary of the Hazard Vulnerability Analysis (HVA) findings to be considered for the mitigation plan (full detailed HVA is an appendix).
 - Summary of the general strategies (cost/benefit and others) used in selecting and assigning priority to mitigation actions.
 - Description of the decision-making process for selecting and prioritizing mitigation activities for the plan period, including details on activities that depart from the HVA results, as indicated. For example, a capital improvement project that presents a cost-

A recommended mitigation plan format is proposed.

effective opportunity to address a relatively low-priority mitigation issue could be explained.

IV. Planned mitigation activities

- Summary of the mitigation accomplishments and outstanding issues (such as ongoing long-term projects) from the preceding mitigation plan
- Identification of short-term (one-year) mitigation activities – these may be divided into structural and non-structural activities (see earlier explanation).
- Identification of new long-term (greater than one year) mitigation activities.
- Description of significant changes to existing long-term mitigation activities (as appropriate). For example, change in the schedule of implementing a specific structural mitigation measure.

V. Implementation strategy

- Description of the implementation strategy and tactics for the short-term mitigation activities.
- Description of the implementation strategy and tactics for the long-term mitigation activities.
- Identification of sources of funding to accomplish short- and long-term mitigation activities.

VI. Plan maintenance

- Description of the plan maintenance process and timetable.
- Description of any evaluation process for assessing and modifying the mitigation work plan.
- Description of individual's and group's responsibilities for work plan maintenance.

VII. Appendices

- The detailed HVA findings.
- Additional information supporting the mitigation plan.

Other Mitigation Guidance: A VHA Example

The VHA provides mitigation guidance to its medical centers by incorporating mitigation guidance into its Standard Operation Procedures (SOPs) that function as pre-plans in their EOP Incident Annexes. The Earthquake Hazard mitigation guidance is provided below as an example, adapted from the *VHA Emergency Management Program Guidebook, 2005*.

The VHA, as a part of its mitigation efforts, develops SOPs to address specific hazards. An example is provided.

Hazard – Earthquake

Hazard reduction/preparedness strategies and resource issues.

- Mitigation. [The term secure means to anchor or brace in accordance with applicable VA, American Institute of Architects (AIA), State, municipal, National Fire Protection Association (NFPA), or other directives and best practice engineering specifications or recommendations.]
 - Secure all major power conditioners, uninterruptible power supplies, and battery banks in Information Management Systems and telephone rooms.
 - Secure all electrical generator sets and associated battery systems, fuel systems, and control panels.
 - Secure all shelves, furniture, file cabinets, tool racks, and the like firmly to wall studs.
 - Secure water heaters by strapping to wall studs or on stands bolted to floor.
 - Secure direct exchange, fan coils, and window A/C units.
 - Secure all major building service equipment, such as:
 - Chillers and air handling units.
 - Medical vacuum and air sources.
 - Bulk oxygen storage tank and manifold.
 - Sub-stations, transformers, switchgear, power conditioners.
 - Fire suppression systems.
 - Boilers.
 - Water tanks.
 - Nutrition and Food Service systems (e.g., re-therm, tray lines, freezers, dishwashers).
 - Secure all bulk or portable gas storage tanks (e.g., propane, acetylene, carbon dioxide, nitrogen, nitrous oxide, and oxygen).
 - Hang heavy items such as artwork, displays, bulletin boards, calendar boards away from where people may sit, such as in a waiting room.
 - Brace all overhead light fixtures properly (see NFPA guidelines); brace all electrical conduit, pneumatic, and water lines in accordance with NFPA or other applicable standards.

- Anchor or brace indoor or outdoor fuel tanks.
- Anchor all fixed medical equipment, including:
 - Diagnostic and therapeutic radiographic equipment.
 - Nuclear Medicine.
 - Research.
 - Laboratory.
 - Dialysis (e.g., water purification system).
 - Pulmonary (e.g., barometric chamber).
 - Physical therapy.
 - Urology.
- Ensure electrical and gas distribution systems are maintained in good repair to minimize fire and explosion risks.
- Ensure fire suppression systems are maintained in good condition.
- Ensure potable, irrigation, and chilled water distribution systems are maintained in good repair to minimize flooding.
- Ensure adequate drainage capability for rooms at ground level or below which house patient records.
- Store flammable materials in closed, rated cabinets with latches to minimize explosion risk and damage.
- Store hazardous and radioactive materials securely with proper containment to minimize damage from spills and leaks.
- Store breakable items such as glassware in closed cabinets with latches and secure items in display cases with “earthquake putty.”
- Place large or heavy objects on lower shelves whenever possible.
- Repair deep or structural cracks in ceilings or foundations.
- Install earthquake shutoff valves for water, gas, and steam distribution systems.

Mitigation Work Plan - Governance and Administration

The healthcare system emergency program manager, under authority delegated by the organizational leadership, oversees mitigation planning. The EM committee should be directly related to the healthcare system Safety Committee (or environment of care committee). If it is not, the EM committee should closely coordinate with that entity in all mitigation planning.

The emergency program manager and EM committee are responsible for completing the annual mitigation work plan, and establishing a course of actions to accomplish the goals and objectives of the work plan. The emergency program manager informs the organization's executives of areas where new or revised codes, regulations, and operating procedures may provide significant mitigation for a particular hazard.

Mitigation measures identified in the plan that exceed defined cost or business impact thresholds should be presented to senior system executives and board of directors (as applicable) with justifications for their consideration. In turn, these senior levels should provide policy direction for the EM committee, after considering the HVA, in developing the mitigation and other EM program work plans. Senior-level involvement in this activity may promote greater organizational compliance with the mitigation work plan. In a multi-facility healthcare organization, the mitigation plan is extended to each location, with personnel at each facility implementing the plan with individual applications customized to their specific location.

The emergency program manager coordinates with other healthcare organizations and the appropriate agencies to accomplish the planned mitigation measures that extend beyond the organization.

The mitigation plan is ultimately the responsibility of the healthcare system administration. This is often delegated to the Emergency Program Manager and the EM committee. Specific capital expenditures are referred back to system administration.

Module 1.5

Preparedness Planning for Healthcare Systems

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Lesson 1.5.1 Overview, Concepts, and Principles: Preparedness

Lesson objectives

- *Explain the purpose of a preparedness planning for healthcare systems in relation to the organizational resiliency and medical surge.*
- *Describe the major categories of preparedness activities that support an effective response capacity and capability.*
- *Explain the purpose of the EOP and its relationship to the overall preparedness plan.*

Introduction

Preparedness planning in an EM program encompasses all activities that, in advance of any hazard impact or imminent threat, prepare the organization to optimally respond and recover. The NIMS definition (see glossary) provides a more generalized definition of preparedness than it is defined in CEM (see glossary), alluding to HVA activities as well as to developing response and recovery capacity.

Some **preparedness activities relate primarily to the overall EM program, addressing leadership and direction.** These programmatic initiatives, such as establishing relationships with community response agencies and promoting the EM program within the healthcare organization, were presented in Module 1.2. This lesson discusses initiatives that are specifically focused upon preparedness for emergency response and recovery.

- Preparedness planning and “management by objectives”: Preparedness planning should be guided by the use of goals and objectives as noted in the earlier discussion on management techniques. The planning may establish a multi-year preparedness plan with annual work increments (via an annual work plan), based upon the HVA, results of annual program reviews, and response and recovery evaluations.
- The HVA and preparedness: As with mitigation planning, the HVA provides a basis for what needs to be addressed.
 - Knowledge: The importance of the HVA to preparedness is cogently summarized by Perry and Lindell: “The first guideline for preparedness planning is that it should be based upon accurate knowledge of the threat and of likely human response. Accurate

Preparedness refers to all activities that establish a capability for the organization to respond.

As has been discussed throughout this text, preparedness activities for healthcare systems should focus on organizational resiliency as well as medical surge.

knowledge of the threat comes from thorough hazard assessment and vulnerability analysis.”¹⁹¹

- Priorities: Preparedness planning should clearly reflect the priority hazards and hazard vulnerabilities determined in the HVA.
- Inter-relationship of preparedness and mitigation: Much of preparedness in healthcare systems has traditionally focused upon developing medical surge capacity and capability. **Preparedness to protect, maintain and recover mission critical systems during and immediately after hazard impact, and preparedness to operate despite compromised mission-critical systems, is equally important.**
- Preparedness planning and NIMS: The NIMS document includes a major focus on preparedness, and establishes the term “preparedness organization” (see terminology textbox) to emphasize this activity. Much of the material in this text related to preparedness is derived from NIMS and other ICS documents.

Terminology alert!

Preparedness Organizations: The groups that provide interagency coordination for domestic incident management activities in a nonemergency context. Preparedness organizations can include all agencies with a role in incident management, for prevention, preparedness, response, or recovery activities. They represent a wide variety of committees, planning groups, and other organizations that meet and coordinate to ensure the proper level of planning, training, equipping, and other preparedness requirements within a jurisdiction or area. (NIMS)

- Relationship between “preparedness” and “response”: Preparedness should not be done for “preparedness sake,” but to establish optimal response. An accurate understanding of **effective response** must therefore be incorporated into preparedness planning. For example, the development of emergency response and recovery competencies for the VHA focuses upon describing knowledge, skills, and abilities

¹⁹¹ Perry R.W., Lindell M.K. *Preparedness for Emergency Response: Guidelines for the Emergency Planning Process*. Disasters (2003), 27(4), pp. 336-350.

within an accurate emergency context. Training based upon them is more likely to convey skills applicable in the emergency setting.

- Preparedness planning categories: Preparedness activities in the EM program (other than those related to leadership and direction) may be categorized as:

1. Emergency Operations Plan (EOP) documents: This documentation activity addresses developing, writing, and revising/refining the EOP instruments that guide response and recovery. It extends to all components, from the EOP base plan and functional annexes to **service-level planning** that addresses specific tools (Operating Unit templates, resource lists, position descriptions, notifications lists, ICS forms and other job aids). It also includes developing incident annexes (pre-plans or standard operating procedures for specific hazards). All of these instruments incorporate response and recovery planning considerations that are primarily focused upon organizational resiliency.

2. Preparedness resource management (i.e., planning outside of response and recovery): Resources (see terminology textbox) include personnel, facilities, equipment, supplies, and even additional “outside” personnel necessary for the functions of the response and recovery plans. Resource management (see terminology textbox for NIMS explanation) encompasses:

- Resource cache: All activities related to identifying, typing, and acquiring resources, assembling and building them if indicated, storing and/or maintaining resources in a readily available state for mobilization.
- “Just-in-time” resources: Developing methods for acquiring resources in a “just-in-time” manner during mobilization and incident response: mutual aid, mutual support, and cooperative agreements; contingency contracts; and volunteer recruitment and processing necessary to augment the capabilities and capacity of the organization’s response and recovery resources.
- Process and procedure for incident resource management: Establishing the processes necessary for resource management during response and recovery: for mobilization, incident operations, demobilization, and return to readiness. These processes are first delineated through activities undertaken to develop response and recovery plans (as noted

**Preparedness
planning
activities can be
subdivided for
convenience.**

Preparedness activities include instruction such as education and training which are covered extensively in Module 4.2.

above).

3. Emergency response and recovery education and training: Designing, developing, and conducting education and training related to emergency response and recovery. It should include general and specialized instruction to establish the knowledge, skills, and abilities necessary to activate and use the EOP and execute the indicated tasks. These are guided by response and recovery competencies for response personnel, developed as part of preparedness activities. **Maintenance of this knowledge and skills must also be addressed so that personnel are in a constant state of readiness.** Personnel must be educated and trained using competency-based instruction such that they are able to adequately perform their assigned roles (see Module 4.2 for more detail).
4. Exercise: Exercising of plans to provide a performance evaluation method, outside of actual incidents, that can assess the response and recovery system.
5. Evaluation: Formal and informal activities that develop a basis for judgment and decision making regarding plans, programs, or policies. These activities include a direct focus on the EM program itself through a programmatic evaluation, as well as evaluation of individual EM component plans (e.g., EOP, Strategic Administrative Plan, work plans, etc.). The EOP and recovery planning may be evaluated through the After Action Report process.
6. Organizational learning: Incorporating change and permanent improvement (“learning”) into the plans and response/recovery systems.

Areas 3-6 are extensively addressed in Unit 4.

Terminology alert!

Resources: Personnel and major items of equipment, supplies, and facilities available or potentially available for assignment to incident operations and for which status is maintained. Resources are described by kind and type and may be used in operational support or supervisory capacities at an incident or at an EOC. (*NIMS glossary*)

Terminology alert!

Resource Management: A system for identifying available resources at all jurisdictional levels to enable timely and unimpeded access to resources needed to prepare for, respond to, or recover from an incident. Resource management under the NIMS includes mutual-aid agreements; the use of special Federal, State, local, and Tribal teams; and resource mobilization protocols. (*NIMS glossary*)

Resource management involves four primary tasks:

- establishing systems for describing, inventorying, requesting, and tracking resources;
- activating these systems prior to and during an incident;
- dispatching resources prior to and during an incident; and
- deactivating or recalling resources during or after incidents. (*NIMS Chapter IV - Resource Management*)

Terminology alert!

Mutual Aid: Voluntary aid and assistance by the provision of services and facilities, including but not limited to: fire, police, medical and health, communications, transportation, and utilities. Mutual aid is intended to provide adequate resources, facilities, and other support to jurisdictions whenever their own resources prove to be inadequate to cope with a given situation. (*SEMS*)¹⁹² Some authorities differentiate “mutual aid” from “cooperative assistance,” where the assisting resources are compensated for their response costs. Other authorities designate this as “compensated mutual aid.”

¹⁹² *Standardized Emergency Management System (SEMS) Guidelines; Part I. System Description (Draft 12/23/94), p. 7; available at: <http://www.oes.ca.gov/OESHomeP.nsf/10884826d3b7edaa882565f0005adc7f/7c59014bc54199bc88256aae006fdcef?OpenDocument>, accessed November 21, 2005.*

Like mitigation planning, preparedness planning can include different categories of activities. These should be outlined in a preparedness plan for the organization that is reviewed and revised at least annually.

The Preparedness Work Plan

Planned preparedness activities are codified into an annual EM program “preparedness work plan.” As with mitigation planning, preparedness work plans are developed in an iterative fashion, commonly as a yearly cycle. Also similar to mitigation planning, they should outline measurable, attainable objectives and strategic direction to demonstrate the inter-relationship of the otherwise disparate activities.

The work plan should present the HVA basis (i.e., justification) for the selected activities. Author recommended categories for the projected activities are:

- The emergency preparedness process: Revisions to the structure, composition, or procedures of the emergency management committee. Examples include revising subcommittees or meeting schedules.
- “Outside” preparedness initiatives and their planned endpoints for the planning period: Participation in local or regional committees, conferences, regional response plan, and so on is described.
- Plan documentation: The initial development and/or revision of the EOP and its components.
- Resource management (facilities): Development of healthcare system emergency response facilities or resources for use in response or recovery, such as a decontamination area, a media area, or a medication cache.
- Resource management (equipment and supplies): Equipment and supplies acquisition, storage, and maintenance (e.g. rotation of stored pharmaceuticals to prevent expiration).
- Personnel instruction: Training and educational activities.
- Exercises and other evaluation: Planned exercises and their objectives; planned evaluation activities.
- Communication plans: Outreach to healthcare system personnel, community partners, patients and the public. It is particularly important to schedule regular updates and seek input from mid-level administration and key operating unit managers (department heads) when developing new/revised processes and procedures within the Emergency Operations Plan (EOP). Updates and

changes as well as ongoing planning work should be regularly communicated to all stakeholders as part of the healthcare facility's preparedness efforts.

From these steps the authors propose the following generic preparedness plan template:

I. Introduction

- Statement of leadership support for the preparedness process and the resulting plan
- Explanation of preparedness and its relationship to the EM program
- Broad explanation of the preparedness planning process

II. Preparedness Plan goals, objectives, and assumptions

- Statement of preparedness goals and supporting objectives
- Statement of plan assumptions

III. Documentation of the preparedness planning process

- Identification of personnel and organizations involved in the planning process
- Summary of the Hazard Vulnerability Analysis (HVA) findings to be considered for the preparedness plan (full detailed HVA is an appendix)
- Cost/benefit information for consideration
- Description of the strategy and decision-making process for selecting and prioritizing preparedness activities for the plan period, including details on activities that depart from the HVA results, as indicated. For example, a government-funded initiative for a training program that has been selected as a priority over previously scheduled healthcare system training.

IV. Planned preparedness activities

- Summary of the preparedness accomplishments and outstanding issues from the preceding preparedness plan
- Identification of short-term (one year) preparedness activities
- Identification of long-term (greater than one year) preparedness activities
- Description of significant changes to ongoing long-term activities.
- The activities may be presented in the categories discussed earlier:
 - EM committee leadership and direction:
 - EM committee meetings/subcommittee activities (unless described elsewhere under a "leadership and Direction" planning document)
 - Community Liaison: Community meetings and participation

A generic template for a preparedness plan is proposed.

in community-wide preparedness initiatives

- Response and recovery plans documentation: Healthcare System Emergency Operations Plan (EOP) and recovery planning analysis and revisions
- Resource management planning:
 - Implementation or modification of EOP elements (facilities, equipment, mutual aid, etc.)
- Strategic education and training plan
- Strategic exercise plan
- Evaluation planning: EOP assessment (from exercises, incidents, and EM committee analysis of the EOP), plus evaluation of recovery planning, training, and exercise efforts and others
- Organizational learning initiatives

V. Implementation strategy

- Description of the implementation strategy and tactics for the short-term (i.e., plan length or shorter) preparedness activities (see Unit 4)
- Description of the implementation strategy and tactics for the long-term preparedness and maintenance activities
- Identification of sources of funding to accomplish short and long term preparedness activities

VI. Plan maintenance

- Description of the plan maintenance process and time table
- Description of the process for considering goal, objective and activity metrics to update the preparedness plan
- Description of individual's and group's responsibilities for plan maintenance

VII. Appendices

- The detailed HVA findings
- Additional information supporting the preparedness plan

Preparedness Work Plan - Governance and Administration

The organization's emergency program managers, under authority delegated by the senior administrators and the governing board (if one exists), oversees all preparedness activities at the level of the healthcare system.

The emergency program manager, with input and usually consensus by the EM committee and approval by senior administration, establishes and maintains the annual preparedness work plan. This ideally entails

establishing a budget for the work plan actions that is approved by administration. Though not necessarily expensive, formal consideration should be given to the personnel time and effort devoted to these EM program duties.

Lesson 1.5.2 Preparedness Planning: Emergency Operations Plan Documentation

Lesson objectives

- *Describe the general content and organization of the healthcare system's emergency operations plan (EOP).*
- *Describe the requirements and components of EOP system development, implementation, and maintenance.*
- *Describe how the EOP is related to the HVA and the four phases of Comprehensive Emergency Management (CEM).*

Introduction

As defined in Lesson 1.1.2, the Emergency Operations Plan (EOP) provides the structure and the processes that an organization uses for response to and initial recovery from any event that could severely challenge or exceed the normal healthcare system management and/or operations. Importantly, the EOP provides the guidance and processes that support the development of incident action planning for the organization, and so it is directly related to the effectiveness of how the organization manages its emergency response and recovery. Critical guidance that the EOP should provide includes:

- Structure and processes for the management of the healthcare system during emergency response and initial recovery
- Processes for the interaction of the different system components and for healthcare system interaction with outside resources
- Time sensitive, initial ("reactive") response actions, which are usually represented in the EOP in the format of operational checklists (often referred to as job action sheets) and other job aids
- Methodology for managing the ongoing response, facilitated through the use of ICS-based forms in the EOP (see below and Unit 3).

Because of its importance, a significant portion of EM program preparedness activities is focused on the development, implementation, and maintenance of the EOP and its components: annexes, appendices, operational checklists (for example, job action sheets and mobilization guides). By approaching all of this guidance as components of a single overall response and recovery guidance document, consistency of content, format, and usefulness may be effectively addressed.

One of the most important components of preparedness planning is the development and maintenance of the organization's Emergency Operations Plan or EOP.

While the EOP is an instrument developed to guide the response and recovery phases of CEM, it must also be understood that the EOP documents have important guidance application during preparedness. They serve as primary reference material for establishing common response structure and process within the organization. The documents provide guidance for personnel recruitment, instructional activities, resource management and other development activity, and form the basis for exercise, evaluation, and organizational learning as presented in Unit 4.

The EOP: Format and Content

The EOP document itself contains extensive information, but much of this is developed for preparedness guidance as stated above. **EOP information to be used during response (e.g., SOPs and pre-plans in the incident specific annexes) should provide abbreviated guidance and quick reference material.** The actual format of these sections, therefore, has critical operational importance, ensuring the ability to efficiently use the guidance under the hectic conditions of emergency response and recovery.

Many templates to guide the construction of an EOP have been published. Most do not promote any rigidly prescriptive or proscriptive layout, but suggest approaches that may be helpful to response organizations. Prominent examples include:

- **FEMA's "Guide for All-Hazards Emergency Operations Planning"**¹⁹³. Also called "SLG 101," the guide presents multiple considerations that are relevant to healthcare organizations, even though it was originally written for local and State governments. Some of the important considerations from SLG 101 include:
 - **Organization and format:** The EOP document should be constructed in a fashion that permits efficient use of portions of the document during response. It should also take into account maintenance of the document. For example, assuring that revisions can be made in a simple fashion without revising the entire document.
 - **All-hazards:** By addressing core functions, the EOP may be used for many situations, including unanticipated ones. Incident or

Though the EOP is intended to guide response and recovery actions, it also helps to shape some preparedness activities such as instructional activities.

Different response plan formats can be examined by the healthcare system as it establishes its EOP. None are proscriptive in their structure.

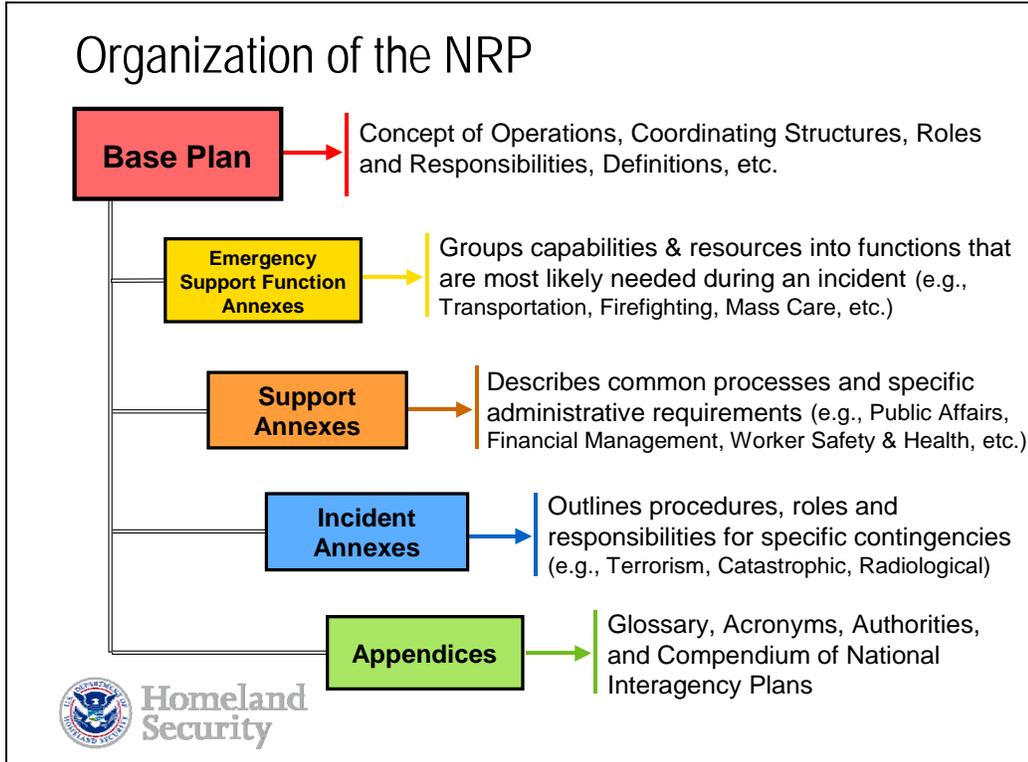
¹⁹³ FEMA. *State and Local Guide (SLG) 101: Guide for All-Hazard Emergency Operations Planning*, available at <http://www.fema.gov/plan/gaheop.shtml>, accessed April 30, 2006.

hazard-specific issues identified through the HVA process are addressed with more specific appendices.

- Structure of response processes and procedures: The EOP should contain not only how the healthcare system will organize its resources for response (a systems description), but also the necessary processes and procedures for the various stages of the incident (concept of operations).
- Different levels of specificity: As the EOP will be used by different persons with different responsibilities and will be used during both preparedness (during implementation) and response, there should be different levels of specificity contained in portions of the document. For instance, certain portions of the document may contain overview and contextual material but other portions should be explicit describing positions and their tasks.
- Compatibility: Does the use of the EOP promote or enhance coordination with other response organizations or agencies? For healthcare systems, the EOP format should permit relatively easy crosswalk of concerns that other agencies or disciplines may wish to address.
- The National Response Plan (NRP):¹⁹⁴ The format of the National Response Plan is provided in Exhibit 1.5.2.1. It represents a composite of the evolution of response plan templates over multiple decades in the U.S. and therefore provides a useful template to consider in structuring an individual organization's or healthcare system's EOP.

¹⁹⁴ Department of Homeland Security. *National Response Plan*, 2004, available at: <http://www.dhs.gov/interweb/assetlibrary/NRPbaseplan.pdf>, accessed April 30, 2006.

Exhibit 1.5.2.1 Organization of the National Response Plan (NRP)



- An example EOP template for healthcare systems: Using SLG 101 and the National Response Plan as models, this educational text proposes the following EOP template. Just as other guidance provided is not proscriptive, this template is not intended as a mandate. Variation among healthcare systems' EOP documentation is expected, based upon history and tradition, organizational structure and other circumstance unique to individual healthcare organizations.
- Incorporating ICS into the EOP: The proposed EOP format is summarized in Textbox 1.5.2.1 and explained in greater detail below. It is conducive to integrating the Incident Command System (ICS) as the all-hazards management system and to organizing the many types of documents currently in use in healthcare system response. ICS structures and processes used to manage organization-wide response and recovery activities are explained in the Base Plan. The functional annexes can be organized to reflect ICS functions. Finally, ICS position descriptions and the forms used to support implementation of the system are found in the functional annexes and appendices. The benefits to this approach include greater consistency with local and State Emergency Operations Plans and the National Response Plan.

ICS should serve as the basis for the organizational structure and processes described in the EOP.

A proposed EOP format for healthcare systems is described. It includes a Base Plan which covers an overview of basic principles with functional annexes that provide more detail and tools for use during response. In addition, support annexes outline common processes across functions and incident annexes provide unique considerations for specific hazards.

Textbox 1.5.2.1

Example of a Healthcare System EOP Format

The material developed for the EOP should be formatted for ease of use during response and recovery yet must remain comprehensive. This EOP format is consistent with the common format of other disciplines and is consistent with the with the National Response Plan (NRP) format:

Introduction (may be considered part of the Base Plan)

- Title page
- List of changes (with dates) to the EOP
- Table of contents
- Executive summary: Provides an awareness level of proficiency with the EOP.

EOP Base Plan

Provides an understanding of how the organization responds and how it interfaces with its outside environment during response. Essential sections include:

- Purpose/Mission: goal and objectives
- Scope
- Situation and assumptions
- Policies and Authorities
- Concept of Operations (including a System Description).

EOP Functional Annexes:

Specific, more detailed description of the response guidance for each functional area, including:

- Each functional annex provides the general response objectives for the functional area, the response structure, activation and mobilization procedures specific to that function, and its concept of operations
- Position descriptions and qualifications, operational checklists (job action sheets) for the positions
- Forms (including ICS forms) and other job aids to accomplish the tasks.

EOP Support annexes:

Specific processes and procedures that apply to all or most of the response functions and support response and recovery, including:

- Common administrative requirements
- Continuity of operations process and procedures
 - Occupant emergency procedures
 - Worker safety and health procedures

- Media policy and procedures
- Resource ordering procedures
- Response and recovery financial management Procedures
- Emergency credentialing and privileging of volunteers and mutual aid personnel
- Others.

Incident Annexes:

Contingency considerations for specific hazards, sites, and situation (roles, responsibilities, procedures), to include:

- Pre-plans for common hazards:
 - Weather emergencies
 - Hazardous materials
 - Infectious disease outbreak
 - Explosive threat
 - Security situations
 - Infant abduction
 - Care for the High Level Protectee pre-plan
 - Civil disturbance
 - Others as identified through HVA.

Appendices

Additional materials that is relevant to guidance for emergency response and recovery, including:

- Glossary
- Acronyms
- Authorities (if not incorporated into the Introduction)
- Compendium of pertinent local and regional response plans and procedures
- Resource lists and contact information.

- The healthcare system EOP: The EOP is presented in greater detail in Lesson 3.1.2. Its five major components beyond the introductory information are discussed below for preparedness purposes:
 - Base Plan: The base plan explains the role, assumptions and authorities upon which the organization's response and recovery is based, and then succinctly presents how the entity will organize to coordinate internal and external activities for responding to any type of hazard. It usually includes an Incident Command System-based organizational chart, with broad functional descriptions and the responsibilities of key departments and positions (system description) and an explanation of the processes the system uses to operate through successive stages of a response and recovery (concept of operations). For healthcare systems, the stages used

The EOP base plan should include processes specific to the different stages of response.

Functional annexes provide more specific instruction to the various components of the response organization.

to present the concept of operations may best be:

- Event recognition
 - Initial notification/activation
 - Mobilization
 - Incident operations
 - Demobilization
 - Transition to recovery.
- **Functional annexes:** Annexes to the base plan provide more detailed guidance than the base plan, with each annex focusing upon the management and operations of healthcare system “functional areas.” To be most effective, these described functional areas are larger than individual hospital departments or operating units. Instead, they group units together to address certain “key activities” of response and recovery. These activities are directly related to ICS section and sub-sections and define the management and operational requirements that were identified through the Hazards Vulnerability Analysis process. Therefore, the overarching functions that should be addressed include:
- Management
 - Planning
 - Logistics
 - Finance
 - Operations (Function Groups or Branches):
 - Business Continuity
 - Equipment, Plant and Utilities
 - Safety and Security
 - Health and Medical Services.

Functional annexes may be developed as more focused areas than those listed. For example, the Health and Medical Services annex may be divided into multiple annexes, addressing 1) acute patient care services, 2) operative and critical care, 3) inpatient services, and 4) mortuary services. Decisions on the size and focus of the functional annexes should be made by the EM committee early in EOP development. Beyond these annexes are service level guides that explain how each unit works in an integrated manner to address their responsibilities in the annex.

Many organizations include the specific “tools” (forms, operational checklists, and other job aids) used by specific functions as appendices to each relevant functional annex, while others may choose to have them incorporated in the “supporting documents” component of the EOP (see below).

- Support annexes: Some processes, procedures, and policy guidance may have applicability across more than one or all of the EOP functions. These are provided as support annexes to the base plan.
- Incident-specific annexes: For each priority hazard identified in the HVA process, pre-plans or “standard operating procedures”¹⁹⁵ may be developed that explain the initial response the organization will take to these specific incidents. The information may contain the unique adaptations to the ICS organizational structure necessary, as well as specific procedures or policies important to adequately address the hazard impact.
- Supporting documents: These are written materials that provide more specific guidance on system operations if not included in the functional annexes. In addition, broad reference to jurisdictional EOPs or other external processes can be included here.
- EOP development and revisions: Appropriate personnel must be identified and involved in the development and revision of the EOP, and this cohort likely extends beyond the formal EM committee membership.
 - Internal input: “In-house” subject matter experts or outside consultants may provide critical input on specific components of the EOP.
 - External input: Personnel external to the facility may also provide invaluable recommendations for integrating the healthcare system’s EOP into the community response plans. For example, specific notification and reporting procedures from the facility to external agencies may already be established.

The actual work of constructing an EOP, though time intensive, is best achieved by a small select group of personnel who are provided adequate administrative support. The larger group, through the EM committee, provides input or comment to the draft documents. This will maintain consistency of format and content throughout the development of various EOP components.

The EOP development process should be influenced by internal and external resources as appropriate.

¹⁹⁵ The VHA uses this term for its incident appendices, drawn from: FEMA. *State and Local Guide (SLG)101, Guide for All-Hazard Emergency Operations Planning*, available at: <http://www.fema.gov/rrr/gaheop.shtm>, accessed December 13, 2005.

Lesson 1.5.3 Preparedness Planning: Resource Management

Lesson objectives

- *Explain the relationship between preparedness activities focusing on resource management and other components of EM program development.*
- *Describe the concepts and principles that guide effective resource management in the pre-event timeframe (Note: How to manage resources during emergencies is discussed in Units 2 and 3, which explain resource management within the context of the Incident Command System and the healthcare system's emergency operations plan).*

Introduction

Resource management is an activity that takes place both prior to and during emergencies and disasters and involves various types of resources including personnel, equipment, supplies, and facilities. While NIMS and other response guidance generally focus upon resource management during response, this cannot be successful without comprehensive **resource management being addressed in advance**.

Resource management is traditionally described as a response activity. Significant efforts during preparedness must be conducted to ensure it is performed in an efficient manner.

- Key principles: As traditionally presented in NIMS¹⁹⁶ and its predecessor ICS guidance, resource management involves five key principles which underpin effective resource management:
 - Advance planning: Preparedness organizations (as defined in Section III.B.1 of NIMS) work together in advance of an incident to develop plans for managing and employing resources in a variety of possible emergency circumstances.
 - Resource identification and ordering: Standardized processes and methodology are used to order, identify, mobilize, dispatch, and track (during an incident) the resources required to support incident management activities. These activities are conducted by the Logistics Section Chief, under the direction of the Incident Commander and in accordance with planning requirements.
 - Categorizing resources: Resource “kinds” are categorized by size, capacity, capability, skill, and other characteristics. This makes the

¹⁹⁶ The five key principles are adapted from their presentation in: *National Incident Management System (NIMS)*, available at: www.dhs.gov. accessed June 4, 2006.

resource ordering and dispatch process within jurisdictions, across jurisdictions, and between governmental and nongovernmental entities more efficient and ensures that response organizations receive resources appropriate to their needs. Facilitating the development and issuance of national standards for "typing" resources (see terminology textbox) and "certifying" personnel (see terminology textbox) is the responsibility of the NIMS Integration Center¹⁹⁷ described in Chapter VII of NIMS. National typing of health and medical resources has not been accomplished at the time of this writing, and local and State efforts at standardization have occurred in some jurisdictions.

Terminology alert!

Resource typing: A classification of resources whether human or otherwise. In ICS, "type" refers to a designated resource's capability. Type 1 is generally considered to be more capable than Types 2, 3, or 4, respectively, because of size; power; capacity; or, in the case of incident management teams, experience and qualifications. Resource typing also involves categorizing the resource by its kind (e.g., what the resource is, snow plow, strike team, etc.). Therefore, resource typing involves designations of "kind" and "type."

Resource typing provides a classic example of the efforts that are required during preparedness to ensure that resource management occurs effectively during response.

Terminology alert!

Certification: Certification "entails authoritatively attesting that individuals meet professional standards for the training, experience, and performance required for key incident management functions." (NIMS). In ICS, the term certification may also be applied to equipment (verifying its appropriateness and adequacy for the intended use).

¹⁹⁷ NIMS Integration Center is the area within the Federal Emergency Management Agency (FEMA) charged with overseeing the implementation and revisions of NIMS. A national resource typing initiative for health and medical resources has not yet been accomplished at the time of this writing. More information is available at: http://www.fema.gov/emergency/nims/nims_toolsandtemplates.shtm, accessed April 29, 2006.

Resource management may require the establishment of certain agreements during preparedness. These include emergency contracts, mutual aid agreements, and cooperative assistance agreements.

- Use of agreements: Pre-incident agreements among all parties providing or requesting resources are necessary to enable effective and efficient resource management during incident operations. Formal pre-incident agreements (e.g., mutual aid and the Emergency Management Assistance Compact [EMAC]) between parties, both governmental and nongovernmental, that might provide or request resources are established to ensure the employment of standardized, interoperable equipment, and other incident resources during incident operations.
- Effective management of resources: Resource managers use validated practices to perform key resource management tasks systematically and efficiently. For example, procedures are standardized for ordering or tracking resources, such as the assignment and tracking of vehicles and equipment. In ICS, resource managers are typically the IC, Logistics Section Chief, and, at times, the Supply Unit Leader.
- Preparedness planning and resource management: In earlier lessons, the Hazards Vulnerability Analysis (HVA) identified priority hazards and hazard vulnerabilities that may potentially affect the organization. Three types of planning follow from the HVA that drive pre-event resource management activities:
 - Standard Operating Procedures (SOPs) or Pre-plans: These instruments **identify performance objectives** that guide mitigation, preparedness, response, and recovery efforts related to resource management.
 - Continuity planning: This activity (see Lesson 1.3.3) **identifies mission critical functions, systems, and processes** from the HVA and develops a more detailed consequence analysis of the impacts of those hazards. Resources for **response during compromising hazard impact**, as well as guidance for **restoration and recovery** of these mission-critical resources, drives this component of resource management preparedness.
 - Mitigation planning: This activity is driven by the EM program mitigation work plan (see Lessons 1.4.1 and 1.4.2) and identifies short- and long-term actions that will be accomplished to eliminate and/or reduce impacts from hazards on mission-critical systems and their essential resources.
- Identifying resource requirements: Within the preparedness activities in the EM program, it is important to designate personnel who will

identify, refine, and validate resource requirements throughout the incident life cycle for likely hazard events. For healthcare systems, this is an activity that is generally assigned to personnel who are addressing general preparedness issues for the specified EOP function (in larger, non-medical systems, formal **resource manager/s** may be designated).

- Resource requirements process: This process involves accurately identifying:
 - What and how much is needed (based upon some scale).
 - Where (by geographic and/or functional designation) and when it is needed.
 - Who (by position designation) will be receiving or using it.
- Assuring accurate resource requests and responses: Resources identified via this process should include supplies, equipment, facilities, and incident management and response personnel. Wherever possible, these resources must be designated by standard resource terminology. This can otherwise be problematic during healthcare emergency response, since no nationally accepted, standardized “resource kind” and “resource types” within each resource kind exists.¹⁹⁸
 - If a requestor is unable to describe an item by resource type or classification system, resource managers must provide technical advice to enable the requirements to be defined and translated into a specification, so that requests can be considered and effectively addressed by potential sources that use different everyday terminology to describe the resources.
 - Because resource availability and requirements will constantly change as the incident evolves, all entities participating in an operation must coordinate closely in this process. Coordination should begin at the earliest possible point in the incident life cycle.

At the time of writing of this text, resource typing for healthcare assets at a national level has not occurred. This issue may be partially addressed through specific strategies (see text).

¹⁹⁸ A major initiative within the mandates of NIMS Integration Center is the development of Resource Typing for many response disciplines, including public health and medical response. The currently developed guidance is available at: <http://www.fema.gov/emergency/nims/nims.shtm>, accessed April 25, 2006.

Concepts and Principles for Pre-event Resource Management

While NIMS focuses primarily upon resource management during incident response, much can be developed from this and other sources that provide helpful guidance for healthcare system emergency program managers during their preparedness planning. Much of the following information comes from the National Incident Management System (NIMS).

Concepts:

- The underlying rationale for carefully addressing resource management in this preparedness context includes:
 - Uniformity and accuracy: Resource management provides a uniform method for identifying, acquiring, allocating, and tracking resources within an organization and, if addressed at higher levels in the overall response, for jurisdiction-wide, State, regional and even national levels.
 - Promoting effective outside assistance: Resource management uses effective mutual-aid and donor assistance and is enabled by the standardized classification of kinds and types of resources required to support the incident management organization.
 - Credentialing as a component of a resource: Resource management may incorporate a credentialing system (for personnel). The credentialing may be tied to uniform training and certification standards, licensure, and other qualification to assure that requested personnel resources will be successfully accepted and assigned to incident positions for which they were requested.
 - Coordination across multiple resource units in a large incident: Resource management coordination is the responsibility of EOCs and/or multiagency coordination entities in addition to the specific Logistics Section elements of the ICS structure (e.g., the Resources Unit discussed in detail in Unit 2). Effective coordination between these entities requires established procedure and standardization.
 - Resources from all sources: Resource management personnel should be empowered to obtain and manage resources available through private sector and nongovernmental organizations as well as those available through public agencies. This is particularly important for medical resources, since many are based in the private sector.

As healthcare systems consider resource management, it is important to evaluate potential credentialing requirements. This will be most acute with accepting outside assistance of personnel into the system.

- **Preparedness initiatives:** A wide range of initiatives may be undertaken to prepare a response organization for optimal resource management during emergency response and recovery. Examples include the following:
 - **Resource descriptions:** A uniform method for the description of resources during response that is consistent across organizations is essential. ICS describes a very specific process, “resource typing.” This process involves classifying assets according to kind (described by what the resource is e.g., medic, strike team, snowplow etc.) and type (size, capabilities, and staffing qualifications as appropriate). For healthcare systems, several efforts have been initiated^{199, 200} to describe the myriad of medical resources and positions that could be utilized during response. Therefore, healthcare personnel should, during preparedness, examine the potential kinds and types of resources that they will be in charge of managing and that they may need to request. Simple, generic descriptions of each should be developed to prevent confusion. This may include methods of verifying qualifications of personnel integrated from outside of the organization and badging/privileging of these personnel allowing them to function within the organization.
 - **Request and acquisition procedures:** Used to obtain resources to support operational requirements, these tools, processes, and related procedures should be standardized to support acquisition activities. Standardization within a response organization is essential, but standardization across the larger response community should also be sought. Examples include resource requests, mission tasking, contracting, drawing from existing stocks, and making small purchases.
 - **Management information systems:** Used to collect, update, and process data; track resources; and display their readiness status. These tools enhance information flow and maintain accurate real-time data during the fast-paced and changing environment of incident response. Examples include geographical information

A variety of different activities can occur during preparedness that address resource management during response.

¹⁹⁹ Health Resources Services Administration/HHS. *Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP)*, available at: <http://www.hrsa.gov/esarvhp/>, accessed May 5, 2006.

²⁰⁰ *Credentialing the Nation's Emergency Responders: Working Group Guidelines – Draft Version 1.6* (November 2005), NIMS Integration Center, Federal Emergency Management Agency, Washington D.C.

systems (GIS), resource tracking systems, transportation tracking systems, inventory management systems, and reporting systems.

- Ordering, mobilization, tracking, dispatching, and demobilization protocols: Used to request resources, prioritize requests, activate and dispatch resources to incidents, and return resources to normal status. Per NIMS, preparedness organizations develop standard protocols for use within their organization or jurisdiction. Examples include tracking systems that monitor the location and status of mobilized or dispatched resources and prompt procedures to "demobilize" resources and return them to their original locations and status.
- Ordering processes: The processes and procedures for ordering needed resources should be well delineated during preparedness. These include:
 - Who: The responsibility for ordering resources within an organization should be well delineated. ICS lists specific positions that can do this (IC, Logistics Chief, and as appropriate, the Supply Unit Leader – see Units 2 & 3 for descriptions). Similarly, healthcare systems should have pre-designated positions that are assigned this responsibility.
 - How: The methodology for identifying what is needed and how to order it is a critical preparedness point as well.
 - Process: the specific process for resource ordering should be pre-established. This entails not only locations or organizations that resources can be requested from but the manner in which the request will be made. Specific information to be listed on the resource request should be established. This can prevent confusion, delays in receiving the resource, and/or the receipt of an inappropriate resource.
 - Decision making for what is to be ordered: Identifying what needs to be ordered requires constant evaluation of response efficiency. In addition, factors such as cost or contingency planning need to be taken into account when establishing procedures for determining what to order.
- Mobilization processes: Specific procedures and processes for mobilization of assets should be described. These should include assets that originated within the organization as well as

Who is specifically authorized to request resources and how the requests are made should be well defined before any incident.

assets that have arrived and been accepted from external to the organization. For example, a defined personnel check-in process helps to provide accountability of personnel resources. A defined method for receiving and cataloging all outside equipment and supplies should also be defined. Both should be coordinated with perimeter control process.

- **Tracking processes:** Tracking of resources and their status should be occurring continuously during response. ICS designates three categories to all resources (assigned, available, out of service).
 - As resources are assigned, they come under the direction of the function or more direct supervisor that they have been assigned to.
 - Appropriate procedures for tracking these assigned resources must be pre-established. Ongoing evaluation of resources during incident response can have tremendous importance as this helps to shape the strategies utilized to achieve objectives. Tracking is important for resource evaluation.
- **Dispatching processes:** If a medical center or other medical resource is dispatching assets outside of its immediate location, process for dispatch, constant communication, and any necessary support should be established.
- **Demobilization processes:** Process for rapid rehabilitation and restoration to a readiness state for all resources should be addressed during preparedness. This can include processes such as the medical evaluation of responders exposed to unusual hazards, identifying vendors to rapidly clean and service equipment, or contracting with HAZMAT services to evaluate a healthcare facility for residual contamination and declare it “clean,” depending on the nature of the incident. Final evaluation of resources, financial accounting, and compensation for resources should be initiated during demobilization if not accomplished during response.
- **Maintenance of a resource cache (storage):** Many items necessary for effective healthcare system response must be acquired and maintained in a cache that is immediately ready for mobilization (see Textbox 1.5.3.1).

Resource management includes attention to the early demobilization of resources when they are no longer needed. This important concept can contribute to the resiliency of the organization, particularly healthcare organizations.

Textbox 1.5.3.1

Storage Issues for Facilities, Equipment, and Supplies

- Immediately available location.
- Clean, dry, controlled temperature, humidity and possibly light for some medications and equipment.
- Secure but rapidly accessible to appropriate staff.
- Enough space to be able to access all aspects of the stored cache rapidly.
- Equipment and supplies exact location in the storage area mapped onto an available location finder.
- Electrical source for maintaining charged batteries.
- Plan and schedule for:
 - Charging/discharging batteries as indicated by battery type
 - Rotation of batteries with everyday stock if possible
 - Rotation of medications and equipment with everyday stock if possible, so that shelf life and cache maintenance is distributed evenly with the everyday equipment.
- If a training cache is developed, it should be clearly marked as “training.” It should be stored in a similar manner so that mobilization/demobilization training is accomplished to some degree with each use of the training cache.

The NIMS concepts behind resource management are presented here in order to provide insight into national initiatives.

- NIMS resource management processes: The NIMS stresses that “preparedness organizations” should focus on eight processes for managing resources. A brief description is provided so the emergency program managers have a larger understanding of national initiatives:
 - Identifying and typing resources: Resource typing entails categorizing by capability the resources that incident managers commonly request, deploy, and employ. Measurable standards identifying the capabilities and performance levels of resources serve as the basis for the typing categories. To allow resources to be deployed and used on a national basis, the NIMS Integration Center (defined in NIMS Chapter VII) is defining national resource typing standards. The NIMS Integration Center is undertaking this initiative to identify resource standards and then type resources on a consensus basis, with a national-level entity often taking the coordinating lead. In the NIMS resource initiative, resource “kinds” are divided into subcategories (“types”) to define resources more precisely according to their actual capabilities.

Resource typing is expected to be a continuous process. The strategy is to keep it as simple as possible to facilitate frequent use and accuracy in obtaining needed resources. (See NIMS Appendix B for a more complete discussion of the NIMS national resource typing protocol.)

- Certifying and credentialing personnel: Personnel certification is defined above. Credentialing involves providing documentation that can authenticate and verify the certification and identity of designated incident managers and emergency responders. The NIMS credentialing system is designed to ensure that personnel representing various jurisdictional levels and functional disciplines possess a minimum common level of training, currency, experience, physical and medical fitness, and capability for the incident management or emergency responder position they are tasked to fill.
- Inventorying resources: Resource managers use various resource inventory systems to assess the availability of assets provided by public, private, and volunteer organizations. Preparedness organizations enter all resources available for deployment into resource tracking systems maintained at local, State, regional, and national levels. The data are then made available to 911 centers, EOCs, and multiagency coordination entities. A key aspect of the inventorying process is determining whether or not the primary-use organization needs to warehouse items prior to an incident. Resource managers make this decision by considering the urgency of the need, whether there are sufficient quantities of required items on hand, and/or whether they can be produced quickly enough to meet demand. Another important part of the process is managing inventories with shelf life or special maintenance considerations. Resource managers must build sufficient funding into their budgets for periodic replenishments, preventive maintenance, and capital improvements.
- Reimbursement: Reimbursement provides a mechanism to fund critical needs that arise from incident-specific activities. Reimbursement processes also play an important role in establishing and maintaining the readiness of resources. Processes and procedures must be in place to ensure that resource providers are reimbursed in a timely manner. These must include mechanisms for collecting bills, validating costs against the

scope of the work, ensuring that proper authorities are involved, and accessing reimbursement programs, such as the Public Assistance Program²⁰¹ and the Emergency Relief Program.²⁰²

- Community resources to consider during resource management planning: Many community resources should be considered during the healthcare system preparedness activities related to resource management. Resources may be useful in all four phases of emergency management, as noted in Textbox 1.5.3.2.

Textbox 1.5.3.2

Types of Resources in the Community²⁰³

"For effective disaster mitigation, preparedness, response, and recovery, five resources need to be coordinated: information, people, money, physical space, and equipment. The nature of the resource exchange depends partly on the phase of the disaster. Although the exchanges associated with each of the four major phases differ from one another, in the following discussion, the main distinction is between pre-disaster (mitigation and preparedness) and post-disaster (response and recovery) types of resources."

Information Resources

"Although the general and pervasive nature of information makes it difficult to describe in an exact way, one may differentiate the kinds of information that must be exchanged. In pre-disaster stages, for example, coordination requires the sharing of information about hazard assessments, planning, training programs and exercises,

Certain resources may be available to healthcare systems within the community. These too should be considered during preparedness planning.

²⁰¹ The Public Assistance Program provides supplemental federal disaster grant assistance for the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations. The federal share of assistance is not less than 75% of the eligible cost for emergency measures and permanent restoration. The state determines how the non-Federal share (up to 25%) is split with the applicants. More information available at: <http://www.fema.gov/government/grant/pa/overview.shtm>, accessed April 25, 2006.

²⁰² The transportation-related Emergency Relief Program is presented in *Disaster Assistance: A Guide to Recovery Programs*. FEMA 229(4), September 2005 available at: <http://www.fema.gov/txt/rebuild/ltrc/recoveryprograms229.txt>, accessed April 25, 2006.

²⁰³ Gillespie DF. Coordinating Community Resources, Chapter 3, in: *Emergency Management: Principles and Practices for Local Government* (1991). International City Management Association, Washington D.C., pp. 63-66. (Reprinted with permission of the International City/County Management Association, 777 North Capitol Street, NE, Suite 500, Washington, DC 20002. All rights reserved.)

and the sharing of knowledge or opinions related to all four phases of emergency management. In other words, in the pre-disaster phases, the sharing of information builds a capacity to respond effectively. During these phases, information is used to establish, refine, and maintain mitigation and preparedness.

In contrast, information exchanged in the post-disaster stages includes medical assessments, damage assessments, and crisis counseling. In other words, during postdisaster stages, information guides action. An effective response to disaster requires the accurate and timely transfer of information - and one of the most serious problems in disasters is disruption of the flow of information."

Human Resources

"Lending or exchanging personnel is an essential aspect of coordination. As part of preparedness, an organization's experienced staff or persons with special expertise are assigned specific tasks and responsibilities in other organizations. Emergency managers and other key resource people serve on the boards of various organizations to promote concerted mitigation and preparedness efforts. Hazard assessment experts and planners share appraisals and discuss mobilization strategies to uncover snags and conflicts."

Fiscal Resources

"The exchange of any resource involves a cost, and money reflects the value assigned to the particular exchange. In predisaster situations, direct monetary exchanges include grants and fees for service. Within government, grants are usually made from higher to lower levels. Services provided for a fee include functions such as hazard assessment, education, and training. During the immediate response period, altruism and concerns about survival displace direct exchanges of money. Companies and stores open their doors and dispense food, tools, and whatever materials they have on hand to help the response effort."

Facilities

"The arrangement of buildings and land used to carry out emergency management functions during predisaster stages affects the pattern of relationships between the organizations in a community. For example, evidence indicates that organizations located in close proximity are more likely to share resources, which

suggests, in turn, that patterns of building occupancy affect the exchange of resources in mitigation and preparedness. If an emergency manager finds that organizations involved in emergency service delivery are spread about, he or she should draw upon the forms of coordination discussed below (see the section on forms of coordination) to facilitate contacts.

During pre-disaster phases, land sites and buildings are identified for possible use in emergency operations, sheltering, and other functions. Agreements on the use of specific buildings and land sites strengthen community preparedness: the larger the number of potentially useful sites, the more prepared the community. Efforts to assess both geographical areas of vulnerability and the resistance of buildings to hazards contribute to mitigation. After a disaster, a limited number of sites are selected for emergency operations centers, medical services, and sheltering."

Physical Resources

"Throughout the pre-disaster period, equipment such as educational tools, special materials for disaster exercises, and the gear necessary to conduct hazard assessments are shared. Like buildings and land, field equipment is identified and inventoried during pre-disaster phases to build resource capacity.

Post-disaster exchange of equipment is critical in saving lives and delivering services. Special communications equipment is often brought into disaster areas from neighboring communities, as is heavy equipment (to remove debris), four-wheel-drive vehicles, or boats."

Resource Management Preparedness: A Checklist

Preparedness phase: Categorize resource management issues according to the methods for how resources will be obtained during the mobilization stage of response:

- In-house resources:
 - Personnel recruited to emergency response and recovery positions:
 - Qualifications for selection
 - Instructional material for the competencies and other qualifications necessary for position
 - Guidance for self-prep for response availability, etc.
 - Facilities and equipment:
 - Materials acquired
 - Constructed/assembled and equipped
 - Storage in a ready state for mobilization
 - Maintenance during storage
 - Mobilization guidance
 - Maintenance during response guidance
 - Demobilization guidance
 - Development and maintenance of a training cache.
 - Supplies:
 - Acquired
 - Storage in a ready state and other issues noted for facilities and equipment
 - Shelf-life management: rotate through usual stock if possible, or rotate through suppliers stock; budget and plan for replacement as indicated
 - Training cache for any unusual medication delivery apparatus.
- Outside “just-in-time” resources:
 - Mechanisms and the accompanying instruments for rapidly acquiring resources from other entities as response is activated:
 - Agreements or Understandings for mutual aid and/or mutual support (list important issues addressed in the DCHA MOU)
 - Cooperative agreements (assistance provided with reimbursement for costs)
 - Contingency contracts.
 - Systems for volunteer recruitment, processing and management during response:

A resource management checklist is presented for consideration during preparedness of the healthcare system.

- Recruitment – directed requests (such as now commonly occurs in snow belt States when hospitals ask for drivers with 4-wheel drive vehicles to assist staff in getting to and from work)
- Receiving volunteers
- Registering volunteers
- Briefing in tasks and responsibilities
- Credentialing as indicated by task assignments
- Assigned to a specific task and supervisor
- Badging for site access and function as indicated
- Training and equipped as indicated for both safety and job efficacy
- Deployed to task site
- Tracked during response, with a “trouble desk” function if problems with/for volunteers during response
- Evaluation of performance
- Reassignment as tasks are completed
- Demobilization and out-processing (return badges, receive feed-back from volunteers, address medical and psychological issues and arrange after-care, obtain contact information for any surveillance or medical follow-up, and to thank volunteers for their service)
- Address post-response issues as indicated.

Lesson 1.5.4 Preparedness Planning: Personal and Family Preparedness

Lesson Objectives

- *Differentiate between system and individual preparedness.*
- *Explain the purpose and objectives of a personal and family preparedness plan.*
- *Explain the purpose and general content of a personal “go kit.”*
- *Explain how COOP may impact personal and family planning.*

Introduction

Preparedness to deal with the impacts of emergency events is the responsibility of each healthcare system employee with a role in the EOP. The organizational level EM program provides the structure for overall planning and action, but it requires the availability and efforts of the healthcare system workforce for successful emergency response and recovery.

As discussed earlier, individual preparedness by healthcare system personnel is also critical to assuring that necessary staffing is available and able to focus upon their potentially complex and demanding emergency response duties. To have the ability to meet these job-related responsibilities, healthcare system responders must first address the needs from their personal situation, particularly the safety and well-being of their families. A simple, but well-thought out and maintained personal and family preparedness plan can assist in rapid resolution of these important concerns.

Responsibility

Emergency response and recovery operations, by their very nature, can be extremely stressful events for affected patients and employees, and families of both. Healthcare system employees may be required to report to their work site and provide services related to emergency response and recovery operations in addition to their normally assigned duties. Healthcare system supervisors, co-workers, and the customers (patients) share an expectation that medical services will proceed uninterrupted and that medical needs generated by the incident impact will be addressed. Preparedness planning should therefore be recognized as a shared responsibility between healthcare system leadership and system personnel. In addition to reporting to their normal work site, the nature of the emergency event may require personnel to re-locate for extended

A significant component of preparedness includes efforts to ready the organization’s personnel to address individual and family issues. This promotes organizational resiliency.

Personal preparedness initiatives are contained in multiple resources. A common theme is the preparation of items that the individual may need during incident response.

periods of time, to either participate in Continuity of Operations (COOP) or to assist other medical facilities in response.

Preparedness Resources and Templates

Numerous resources are publicly available to assist in the development of a personal and family plan. They include the American Red Cross,²⁰⁴ Department of Homeland Security,²⁰⁵ local and State government emergency management Websites,²⁰⁶ and others. The more generic topics are commonly addressed (emergency telephone numbers; preparedness for persons with special needs; family emergency plan; emergency supply kits; pet preparedness; common emergency protective actions) and are applicable to all incidents. As an example, the American Red Cross Family Disaster Planning Website lays out the following four-step approach to personal and family planning:

1. Get informed: learning about hazards and family personal vulnerabilities.
2. Make a plan: a set of actions and supporting information for emergency situations, plus guidance for practicing the plan.
3. Assemble a kit: develop a cache of emergency supplies for the home, vehicle, and other family sites.
4. Maintain your plan and kit.

A point requiring special emphasis is the development of a family communication plan as part of the overall personal preparedness plan. The need to communicate with loved ones during an emergency event is a basic human requirement. Experience has shown that local communication via landline telephone and/or cell phone can be very difficult for widespread events and that calling long distance (out of area) may be more successful. Each employee's personal preparedness plan should include the telephone numbers for a person out of the local area that can serve as a point of contact for family members. The American Red Cross Website referenced above provides wallet-sized cards that

²⁰⁴ American Red Cross/FEMA. Preparing for Disaster, available at: <http://www.redcross.org/images/pdfs/preparedness/A4600.pdf>, accessed May 7, 2006.

²⁰⁵ U.S. Department of Homeland Security. Ready America, available at <http://www.ready.gov/america/index.html>, accessed May 7, 2006.

²⁰⁶ For example, Virginia Department of Emergency Management. Family Disaster Planning, available at: <http://www.vaemergency.com/prepare/planning/index.cfm>, accessed May 7, 2006; or Arlington County (VA) Office of Emergency Management. Prepare for the Unknown, available at: <http://www.arlingtonva.us/Departments/EmergencyManagement/EmergencyManagementPersonal.aspx>, accessed May 7, 2006.

can be used to list these contact numbers for the use of all family members.

Additionally, family preparedness should include immediate actions for:

- personal protection in an emergency situation.
- securing the home, including utilities.
- provisions for primary and alternate points of assembly/meeting .
- addressing disabilities in escape routes or shelter-in-place actions for impaired family members.
- what each family member should do if they are away from their residence or point of assembly (i.e., remain where they are or try to reach their point of assembly).
- what should be done to secure their residence to make it as safe as possible.
- what supplies (food, water, supplemental means of preserving and preparing food, etc.) should be available.
- what to do with pets.
- how to communicate with extended family and others.

The previously mentioned references provide extensive checklists and recommendations that can be tailored to meet the specific needs of each family. It must be emphasized, however, that regardless of the level and detail of these family and personal plans, they must be understood by each member of the family and periodically be reviewed and practiced if they are to meet their intended purpose.

Personal “Go Kits”

Supplementing the personal and family plan, each individual should maintain their own “go kit” (also called “stay kit,” “hot kit,” and multiple other terms), which contains personal supplies that emergency responders may need to accomplish their emergency response and recovery roles. In planning this kit, it is assumed that the stay will extend beyond a usual work shift and potentially not allow a return home for a protracted period of time (most sources recommend a “go kit” that will provide support for up to 72 hours). A “go kit” should reflect its owner’s personal circumstances: usual personnel position, potential emergency response and recovery roles and responsibilities, medical conditions, personal preferences, and other considerations. What is important is realistically matching the contents of the kit to each individual’s personal requirements and circumstances. The above-listed and referenced sources of information provide some guidance that can assist you in building a personalized “go kit.”

Personal go kits can contain multiple items such as the generic (e.g. flashlights) to the more individual specific (e.g. prescription medications).

Some of the more commonly recommended items for a personal “go kit” include:

- Bottles of water
- Non-perishable food such as energy bars and sealed survival meals
- Personal medications
- A flashlight (compact flashlights that allow recharging the battery by manual pumping are now available)
- Copy of the family communication plan
- Whistle or other signaling device
- Extra set/sets of undergarments and clothing
- Sanitary items
- Comfortable walking shoes
- Money, including change to use in vending machines and pay telephones
- Spare eye glasses or contact lens
- A local map.

As is the case with personal and family preparedness plans, no one standardized “go kit” items checklist fits the needs of every individual. In the aftermath of the 9-11 attacks, many vendors developed and sold high-priced survival equipment like individualized breathing apparatus, specialized food, fancy packaging, and other items to organizations and individuals. This did little to contribute to safety and their ability to participate in response and recovery operations. A common sense approach, stressing each individual’s needs balanced by financial, physical space for storage, and maintenance realities should result in a “go kit” that achieves its objective.

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