



Certified Healthcare Emergency Professional (CHEP) Prep Session May 1, 2011

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Certified Healthcare Emergency Professional (CHEP) Program



- The International Board for Certification of Safety Managers developed the Certified Healthcare Emergency Professional (CHEP) program in 2008
- The Board believes that CHEP personnel can help standardize management and system principles related to healthcare emergency planning, response, mitigation, and recovery



Objectives

- To familiarize CHEP candidates with important programs and concepts that Healthcare Emergency Managers must understand
- To assist CHEP candidates in preparing for the certification exam – and **have fun** doing it!
- Disclaimer: There is no guarantee that everything on tomorrow's exam will be touched on by the Study Guide or this review session. The Board develops the exams changing questions from time-to time



Key Areas We'll Cover

- Government Agencies/Legislation
- Emergency Management Planning
- Incident Command System
- Joint Commission – Emergency Management
- Joint Commission – Environment of Care
- Joint Commission – Life Safety
- OSHA/Hazardous Materials
- Terrorism & Influenza Pandemic



Government Agencies/Legislation

Government Agencies/Legislation



- FEMA coordinates the federal response through the National Response Framework (NRF), which details the roles and responsibilities of federal agencies during national emergencies
- Federal Emergency Management Agency (FEMA) has the authority to release medical resources and other supplies in the event of a disaster or emergency declared by the president

Government Agencies/Legislation, Continued



- Congress passed the Disaster Mitigation Act (2000), which required that all state, local, and tribal governments meet FEMA standards for disaster mitigation in order to receive grant assistance
- Congress passed the Public Health Security and Bioterrorism Preparedness and Response Act (2002)
- The Act known as the Bioterrorism Act, called for improvement of state, local, and hospital preparedness/response to bioterrorism and other public health emergencies

Homeland Security Presidential Directive - 5



- Directed the Department of Homeland Security (DHS) to develop the National Response Plan to integrate federal government agencies in domestic prevention, preparedness, response and recovery
- Required compliance with the National Incident Management System (NIMS) and develop an all-hazards approach to emergency management, which included hospitals



HSPD -7

- Identified and prioritized critical infrastructure in the US
- Public health and hospitals are listed as critical infrastructure
- Assigned DHHS to protect this sector by mitigating risk and providing recovery assistance if a disaster occurs

HSPD - 21

- Public health and health care were assigned the task of providing of medical needs to American people in case of a catastrophic event
- Stockpiling (vaccines, drugs and therapeutics) with a rapid distribution process to large populations (Does SNS ring a bell?)

Department of Homeland Security (DHS)



- Formed by HSPD – 5 under Bush administration after 9/11
- Got off to a shaky start
- Too many different agencies brought together with too many egos and no experience working together
- Has since restructured and operating better
- Chartered to lead a unified effort to prevent, prepare and respond to national emergencies



Pandemic and All Hazards Preparedness Act (PAHPA) in 2006

- Created the position for Assistant Secretary for Preparedness and Response (ASPR) within the DHHS
- Called for the development of a National Health Security Strategy
- Amended the Public Health Service Act to require DHHS to lead federal responses to public health emergencies covered by NRF
- Resulted in the National Disaster Medical System moving from the Homeland Security back to DHHS



Americans with Disabilities Act

- Requires organizations to not only provide access to facilities but also to develop an evacuation plan for those with disabilities
- Should also look at having a plan for those with special needs individuals without disabilities

Healthcare National Incident Management System (NIMS) Implementation



- Organizations receiving federal grant funding are required to implement and report on all of the following 14 NIMS implementation objectives:
- NIMS implementation objectives are broken down into 5 categories:

Healthcare NIMS Implementation, continued



- Adoption
 1. Adopt NIMS throughout the healthcare organization
 2. Ensure federal preparedness awards support NIMS Implementation

Healthcare NIMS Implementation, continued



- Preparedness Planning
 3. Revise and update emergency operations plans, standard operating procedures, and standard operating guidelines to incorporate NIMS and NRF components, principles, and policies. Be sure to include planning, training, response, exercises, equipment, evaluation, and corrective actions.
 4. Participate in interagency mutual aid and/or assistance agreements to include agreements with public and private sector and non-governmental organizations.

Healthcare NIMS Implementation, continued



- Preparedness Training and Exercise
 5. Identify the personnel to complete ICS-100, ICS- 200, and IS-700, or equivalent courses.
 6. Identify the appropriate personnel to complete IS-800 or an equivalent course
 7. Promote NIMS concepts/principles in all organization-related training and exercises.

Healthcare NIMS Implementation, continued



- Communications and Information Management
 8. Ensure equipment, communication, and data interoperability are incorporated into the healthcare organization's acquisition programs
 9. Apply common and consistent terminology as promoted by NIMS including the establishment of plain language communications standards
 10. Utilize systems, tools, and processes that facilitate the collection and distribution of consistent/accurate information during an incident or event

Healthcare NIMS Implementation, continued



- **Command and Management**
 11. Manage all emergency incidents, exercises, and preplanned events in accordance with ICS organizational structures, doctrine, and procedures
 12. ICS implementation must include the consistent application of Incident Action Planning and common communications plans if appropriate
 13. Adopt the principle of Public Information as facilitated by the use of the Joint Information System and Joint Information Center during an incident or event
 14. Ensure that Public Information procedures and processes gather, verify, coordinate, and disseminate information during an incident or event



National Disaster Medical System (NDMS)

- The system functions as a cooperative asset-sharing program among government agencies including state and local governments
- The system also interacts with the private enterprise and civilian volunteers to ensure availability of resources to support medical services following a disaster that overwhelms the local health care resources
- This federally coordinated system augments the Nation's emergency medical response capability

Homeland Security Exercise and Evaluation Program (HSEEP)



- The purpose of the HSEEP is to provide common exercise policy and program guidance that constitutes a national standard for exercises
- HSEEP includes consistent terminology that can be used by all exercise planners, regardless of the nature and composition of their sponsoring agency or organization

HSEEP, Continued

- The 5 volumes also provide tools to help exercise managers plan, conduct, and evaluate exercises to improve overall preparedness
- HSEEP reflects lessons learned and best practices from existing exercise programs and can be adapted to the full spectrum of hazardous scenarios and incidents including natural disasters, terrorism, and technological disasters



HSEEP, Continued

- HSEEP integrates language and concepts from the NRF, NIMS, the National Preparedness Goal, the Universal Task List (UTL), the Target Capabilities List (TCL), existing exercise programs, and prevention and response protocols from all levels of government
- In the spirit of NIMS, all efforts should be made to ensure consistent use of the terminology and processes described in HSEEP



Emergency Management Planning



All-Hazards Planning

- All hazard planning is based upon a hazard vulnerability analysis (HVA)
- An Emergency Operations Plan (EOP) describes the collective procedures and processes used for all hazard response and the early recovery phase
- Emergency management planning should address potential surge and organizational ability to maintain normal operations

Emergency Management Planning



- Four key elements of emergency management planning:
 - Mitigation – The “building the Alamo phase.” Take actions to identify hazards and prevent or lessen damage from a potential incident
 - Preparedness – The “getting ready phase.” Done with input from all elements of the organization and not in a vacuum. Includes staff roles, training, drills/exercises, what equipment and supplies and sources, location victim treatment, alternate care sites, etc.

Emergency Management Planning

- Four key elements of emergency management planning:
 - Response – The “get ‘er done phase.” Acting to take care of whatever has occurred. Staff’s roles, internal and external support, community coordination, communication, evacuation, etc.
 - Recovery – The “cleaning up the mess phase.” Physically cleaning up, insurance claims, getting back to normal

Emergency Management Planning, continued



- Healthcare organizations must establish an emergency management planning committee and a response team
- Committee members should include the hospital senior leadership, director of nursing, a physician, and support department representatives
- Ensure departments such as pharmacy, laboratory, emergency, social services, risk management, and public relations provide representation

Emergency Management Planning, continued



- Consider ways to improve management's involvement
- Plan for drills/exercises that address risks identified by the hazard vulnerability analysis
- Ensure the plan incorporates lessons learned from past drills/exercises and actual events
- Determine if emergency teams understand their roles and responsibilities

Emergency Management Planning, Continued



- Ensure your plan reflects the physical layout of the facility
- Determine if emergency training meets established objectives
- Identify new hazards that may affect your facility
- Ensure names, agencies, and contact numbers are current
- Keep community agencies updated with changes or revisions to the plan



Critical Planning Areas

- Communication - Develop plans to maintain communication both within the organization and with community disaster resources
- Resources/Assets - Develop plans to access materials, supplies, vendors, community resources, and governmental agencies/ programs necessary to sustain operations such as patient care, safety, and services
- Safety/Security - Develop plans to ensure welfare of all patients and others by adapting to changing situations and operational parameters

Critical Planning Areas, Continued



- Staff Responsibilities - Develop plans to educate and train all staff members about their changing roles and demands during an emergency to ensure patient care and safety at appropriate levels
- Utilities Management - Develop plans for maintaining key utilities such as drinking water, power sources, ventilation, and fuel supplies
- Patient Clinical/Support Activities - Develop plans to ensure the needs of patients during extreme emergency conditions when organizational resources are taxed.

Emergency Communication



- Providing information and instructions to staff and independent licensed practitioners
- Notifying authorities that emergency response measures have been initiated and continuing communicating with them
- Communicating with patients, their families, the community, and media
- Contacting sources of essential supplies, services, and equipment
- Communicating with other healthcare organizations and alternative care sites
- Establishing backup systems/technologies for the communication activities



Staff Planning

- Develop processes for assigning staff to all essential staff functions
- Identify persons to whom staff members report to within the command structure
- Manage staff including their housing, transportation, and stress debriefing
- Manage family support needs, child-care, elder care, and communication
- Train staff for assigned emergency response roles



Staff Planning, Continued

- Identify licensed independent practitioners, staff, and authorized volunteers
- Communicate in writing with licensed independent practitioners about role(s)
- Identify staff by use of cards, wrist bands, vests, hats, or badges

Resource Management Planning



- Monitor quantities of resources and assets during an emergency
- Obtain and replenish medications or related supplies that will be required during response and recovery including access to and distribution of caches that may be stockpiled by the hospital and by affiliates or local, state, or federal sources
- Obtain and replenish medical supplies that will be required throughout response and recovery phases including personal protective equipment where required
- Obtain and replenish non-medical supplies required throughout response/recovery

Resource Management Planning, Continued



- Share resources and assets with other healthcare facilities inside and outside of the community, as necessary, during a regional or prolonged emergency/disaster
- Arrangements for transporting some or all patients, their medications, supplies, equipment, and staff to an alternative care site(s)
- Arrangements for transferring pertinent patient information

Medical Supplies



- Facilities near transportation systems should maintain a two-day supply of drugs and medical supplies
- Remote and rural facilities should plan for maintaining operations for least 96 hours
- Plan to obtain drugs and other supplies from existing vendors, group purchasing organizations, other hospital systems, and state hospital associations

Utilities

- Different types of emergencies can have the same detrimental impact on an organization's utility systems. The plan should address the following alternate ways to provide for the following:
 - Electricity
 - Water for consumption/essential care and equipment/sanitary purposes
 - Fuel for operations, generators, and transport
 - Medical gas/vacuum systems
 - Utility systems defined as hospital essential
 - Determine components that require advance preparation

Emergency Operations Plan (EOP)



- The plan should be designed to address all hazards and must be adaptable to any situation that may be anticipated
- This approach permits response to a range of emergencies of different duration, scale, and cause
- A successful response effort relies on a plan that guides decision-making from the beginning of an emergency and as the emergency situation evolves



EOP Requirements

- The plan may be formatted in a number of ways [accreditation – no specific format, community responders – yes (CPG 101)]
- The plan must address response procedures applicable to the likely emergencies and adaptable to support key areas such as communication and patient care
- Senior leaders, including the medical staff, must participate in the development of the plan
- Do not forget all ancillary services when planning

EOP Requirements, Continued



- Designate who can activate and who can deactivate the hospital's response and recovery phases
- Actions to maintain or expand services
- Conservation of resources
- Curtailing services
- Supplementing resources from outside the local community

EOP Requirements, Continued



- Staged evacuation and total evacuation
- Alternate care sites
- Establish response procedures for self-sustainment when the local community can not provide support for resources (TJC 96 hour rule)
- Accreditation agencies do not require hospitals to stockpile supplies for 96 hours of operation

EOP Requirements, Continued



- Address mass casualty situations including terrorist incidents of a chemical, biological, or radiological nature

EOP Requirements, Continued



- Include risk management principles identifying potential liabilities and risks prior to any event or disaster
- Coordinate plans for maintaining a predictable environment of care during an emergency situation
- Provide for a command structure capable of assessing situations, coordinating actions, and making decisions



Hazard Vulnerability Analysis (HVA)

- A good hazard vulnerability analysis will identify and rate all major potential emergencies or disaster situations – coordinate with community
- Consider the impact that a particular event could have on the need for healthcare services
- Establish priorities and rank each identified emergency
- Determine the organization's role in the community plan



HVA, Continued

- Use an analysis chart to guide the process and help with assignment of probabilities
- Recommend use of a simple numerical system to assess each risk
- Evaluate the HVA at least annually, more often if changes are made to the organization or campus
- Determine the need for critical medical and patient care supplies

HVA, Continued

- Determine resources needed to continue operations or support emergency response
- Assess capability to respond to both internal and external community incidents
- Use HVA as a tool for future funding of mitigation activities
- Hospital may have 2 HVAs – internal & external

Information & Communication Technology Management



- The art of gathering information, analyzing and summarizing it, then sharing it with those who need it is known as information management
- Accessing pertinent information as needed is paramount to a successful response and recovery
- Identify key communications and information technology (IT) components that are critical to the continuation of essential services in an emergency

The Telecommunications Service Priority (TSP) Program



- This program provides organizations engaged in national security and emergency preparedness functions with priority provisioning and restoration of telecommunications services that are vital to coordinating and responding to crises
- A telecommunications service user with a TSP assignment is assured of receiving service by the service vendor before a non-TSP service user

Government Emergency Telecommunications Service (GETS)

- The GETS program provides emergency access and priority processing in the local and long distance segments of the Public Switched Network
- It is used in an emergency or crisis situation during which the probability of completing a call over normal or other alternate telecommunication means has significantly decreased

Wireless Priority Service (WPS)



- WPS can improve connection capabilities for a limited number of authorized national security and emergency preparedness mobile phone users
- In the event of congestion in the wireless network, an emergency call using WPS will have priority queuing for the next available channel. Learn the capabilities of the system so as to maximize the value of the plan

Cyber Attack Incident Response

- Take actions immediately during the initial operational period (0-2 hours)
- Define scope and impact of potential problems
- Isolate affected systems
- Restore automated systems and services
- Notify affected end-user supervisors and provide guidance on system usage

Questions?



Are We Having Fun Yet?



Organizations and Systems Planning

Understanding System Theory



- It investigates the principles common to all complex entities and the models that can be used to describe them
- The many things taking place within an environment can form a larger pattern that is distinguished from any of the individual parts
- System theory uses a trans-disciplinary (across disciplines) study of the organization



Using A Systems Approach

- Set goals and list assumptions
- Establish objectives and strategies to achieve the goals
- Establish system description and concept of operations
- Implement system utilizing resources, instruction, processes
- Evaluate, maintain and revise system as appropriate

Elements of Systems

- Objects are the parts, elements, or variables within the system
- Attributes are the qualities or properties of the system and its objects
- Internal relationships between or among its objects
- External relations with the environment and its objects



Management Related Terms

- Controlling is measuring performance of work by monitoring outcomes
- Coordinating is obtaining input, suggestions, or agreement
- Evaluating is determining effectiveness of operations
- Line Organization: Authority is placed through a chain of command

Management Related Terms, Continued



- Span of Control: The number of workers a person can effectively supervise (5-7 with an optimum of 5)
- Unity of Command: Being accountable to a single person
- Management-by-Exception: Making a decision by reviewing only pertinent information on a topic

Organizational Dynamics

- Transactional change – First-order change where effective leadership is based on a reciprocal exchange between leaders and followers. Giving employees something in return for their compliance.
- Transformational change – Second-order change that transforms followers into leaders, helping each other, looking out for the organization as a whole

Organizational Dynamics

- Transactional changes/interventions usually do not target structures
- Organizational assumptions are the truths taken for granted
- Culture change integrates individual needs with organizational goals
- Migrating decision-making permits persons with expertise to decide

Human Relation Terms

- Character – Moral and/ethical structure of individuals
- Belief – The mental act of placing trust in something
- Values – A belief that something has worth
- Culture – Socially accepted behaviors or beliefs
- Attitude – State of mind/feeling about something
- Behavior – Open actions of a person

Characteristics of High Reliability Organizations



- An organization that through awareness has succeeded in avoiding catastrophes in an environment where normal accidents can be expected due to risk factors and complexity
- Vigilance in looking for weaknesses to fix

Characteristics of High Reliability Organizations, continued



- Encourages reporting of near misses
- Effective critical incident monitoring
- Anticipates, designs and redesigns for expected failure
- Allows decisions to be made on the front line
- Plans for failure with redundancy and backups

Staff Education, Training and Exercises




- Emphasize self/family preparedness and encourage their developing a home plan


HURRICANE • FLASH FLOOD • FIRE • HAZARDOUS MATERIALS SPILL • EARTHQUAKE • TORNADO • WINTER STORM

Your Family Disaster Plan


Where will your family be when disaster strikes? They could be anywhere—



at work



at school






or in the car.

How will you find each other? Will you know if your children are safe?

Disaster can strike quickly and without warning. It can force you to evacuate your neighborhood or confine you to your home. What would you do if basic services—water, gas, electricity or telephones—were cut off? Local officials and relief workers will be on the scene after a disaster, but they cannot reach everyone right away.

Families can—and do—cope with disaster by preparing in advance and working together as a team. Follow the steps listed in this brochure to create your family's disaster plan. Knowing what to do is your best protection and your responsibility.





Education & Training

- Healthcare organizations must provide realistic training and education for all emergency response & support personnel
- Ensure all staff members understand their roles and responsibilities and validates this during drills and exercises
- Educational sessions can help reduce fear among hospital personnel responding to terrorism type events

Education & Training, Continued



- Educate key staff, to include physicians, how to address local media when providing updated information about medical issues
- Make the public aware of changes of any hospital treatment procedures
- Begin by making your own staff emergency ready within their families and living environment

Disaster Management, Emergency Management, & Business Continuity



- Covered in NFPA 1600 standard dated 2010. The purpose of the standard is to help the disaster management, emergency management, and business continuity communities cope with disasters and emergencies
- The standard established a common set of criteria for disaster management, emergency management and business continuity programs
- In addition, it identifies methodologies for exercising those plans and provides a listing of resource organizations within the fields of disaster recovery, emergency management and business continuity planning



Incident Command System (ICS)



ICS Principles

- **Common Terminology:** The use of similar terms and definitions for resource descriptions, organizational functions, and incident facilities across disciplines
- **Integrated Communications:** The ability to send and receive information within an organization, as well as externally to other disciplines
- **Modular Organization:** Assets within each functional unit may be expanded or contracted based on the requirements of the event



ICS Principles, Continued

- **Span of Control:** The organization is structured so that each supervisory level oversees an appropriate number of assets based on size and complexity of the event
- **Span of Control Ratio:** The goal is to maintain effective supervision with an element supervising three to seven entities with five being the ideal
- **Unified Command Structure:** Disciplines and response organizations work through designated managers to establish common objectives/strategies to reduce conflict or duplication



ICS Principles, Continued

- Incident Action Plans: The goals, objectives, strategies, and major assignments that are defined by the incident commander or by unified command
- Comprehensive Resource Management: System processes are in place to describe, maintain, identify, request, and track all resources within the system during an incident
- Pre-Designated Incident Facilities: Assign locations where expected critical incident-related functions will occur and ensure adequate space and technical support for the assigned function

ICS to Hospital Incident Command System (HICS)



- The system establishes five basic functional areas:
 - Command
 - Operations
 - Planning
 - Logistics
 - Finance/administration
- The system coordinates responses for internal incidents and those involving multiple jurisdictions or agencies

HICS, Continued

- It retains the principle of unified command for coordinating the efforts of many jurisdictions
- The system ensures joint decisions in the areas of objectives, strategies, plans, priorities, and public communications



HICS, Continued

- Maintain a predictable chain of management accountability
- Provides a flexible response to emergencies
- Improved documentation of issues
- Common language to facilitate outside assistance
- Prioritized response checklists, and cost-effective emergency planning

Multi-Agency Coordination (MAC)

- The NIMS model defines a MAC as a system where resource coordination takes place (think local, county or state Emergency Operations Centers)
- MAC entities establish priorities and associated resource allocation
- A MAC coordinates assistance to communities in providing assets to them during an emergency incident

Multi-Agency Coordination (MAC), Continued



- The medical or health support [Emergency Support Function (ESF)-8] requirements should first be requested through existing local and regional emergency constructs
- The physical size, staffing, and equipping of a local MAC will depend on the size and complexity of the local government's emergency operations it can expect to manage
- Staffing levels can vary with the specific emergency situation

Incident Action Planning

- Management by objectives can be accomplished through a process known as incident action planning
- This process addresses the many considerations necessary for establishing and efficiently achieving objectives
- This includes situational awareness, which is understanding of the evolving state of the environment



Incident Assessment Information

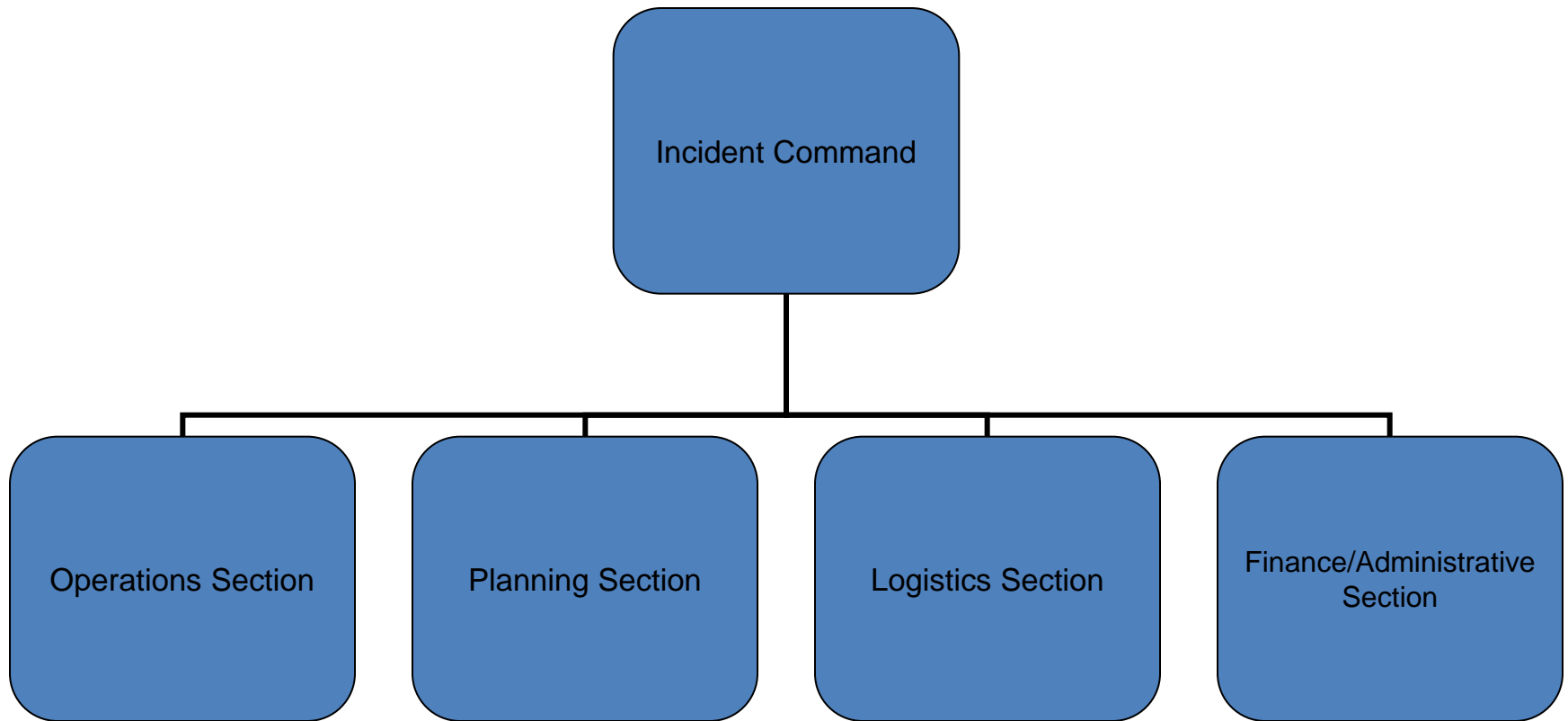
- Hazard type, impact, and expected duration including secondary hazards
- Weather and other geophysical conditions including warning period
- Impact timing, such as day and time of onset, and duration
- Response actions, location and scope of impact
- Predicted expansion and/or migration of impact area
- Specific needs including type, amount, and location of priority resource needs



Standardization

- Standardized processes and methods involve well-described, reproducible, and usually sequential steps to accomplish a stated objective
- The EOP guides response and recovery using standardized formats and the incident command system
- Standardized processes can be used throughout all four phases of emergency management
- Standardized templates from the Incident Command System can be used for developing incident action plans, conducting briefings, and using situation reports

HICS Management Functions

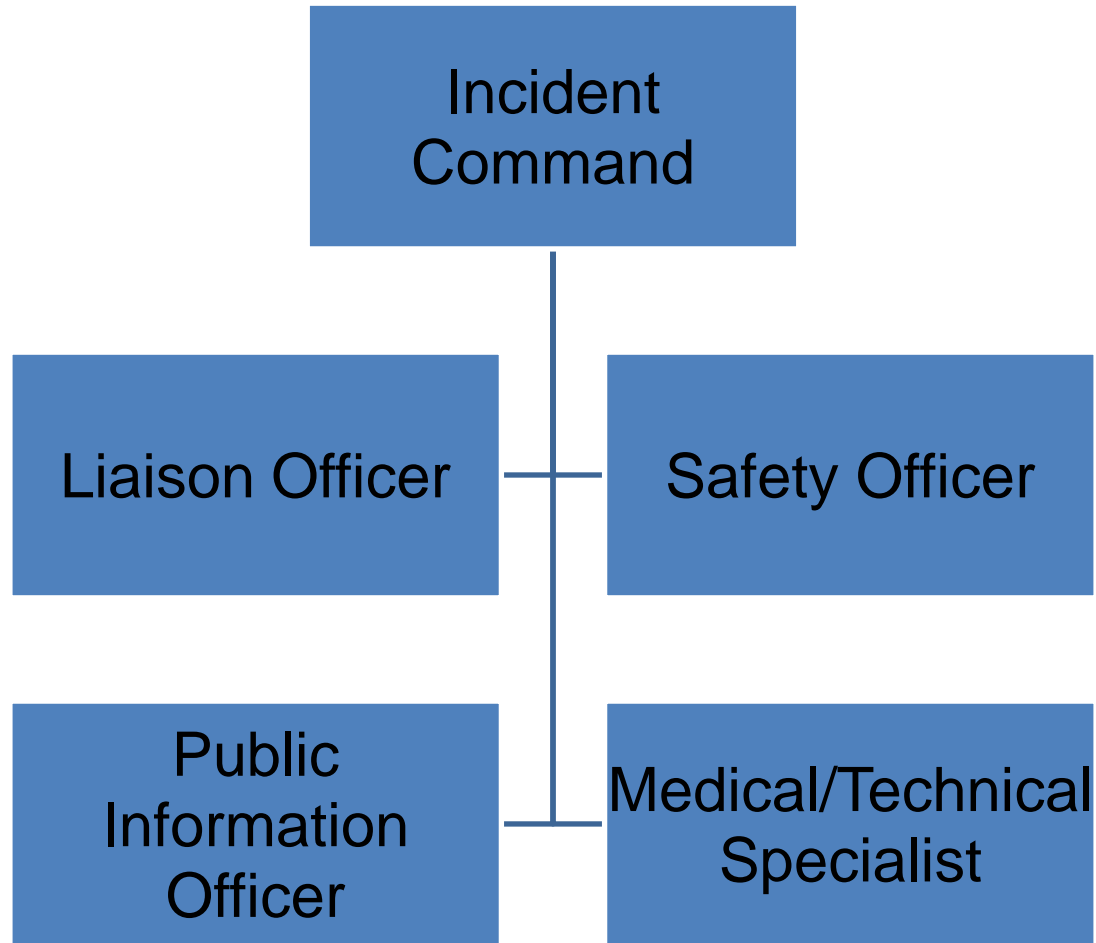


HICS Management Functions



- Command = Directs
- Operations = Executes the objectives
- Planning, Logistics & Finance & Administration = Supports Operations

Command Element





Incident Command

- Incident Commander
 - Only position that is always filled
 - Should not be the hospital chief executive*
 - Sets objectives
 - Develops initial strategies, priorities and incident action plan
 - Maintains overall responsibility for managing the incident

Incident Commander Responsibilities



- Assigns the duties to certain positions and not to specific individuals
- Maintains the hospital/incident command center effectiveness, ensuring communications, and maintaining security
- Key duties include providing public information and media releases, coordinating facilities, sheltering, feeding, medical and morgue activities and counseling as needed



HICS Command Staff

- **Safety:** Identifies and assesses hazards to the organization's personnel and develop 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 both the public and response personnel
- **Medical/Technical Specialist:** Additional positions, as designated by the incident commander, to provide needed advice and expertise to the command staff



ICS General Staff Sections

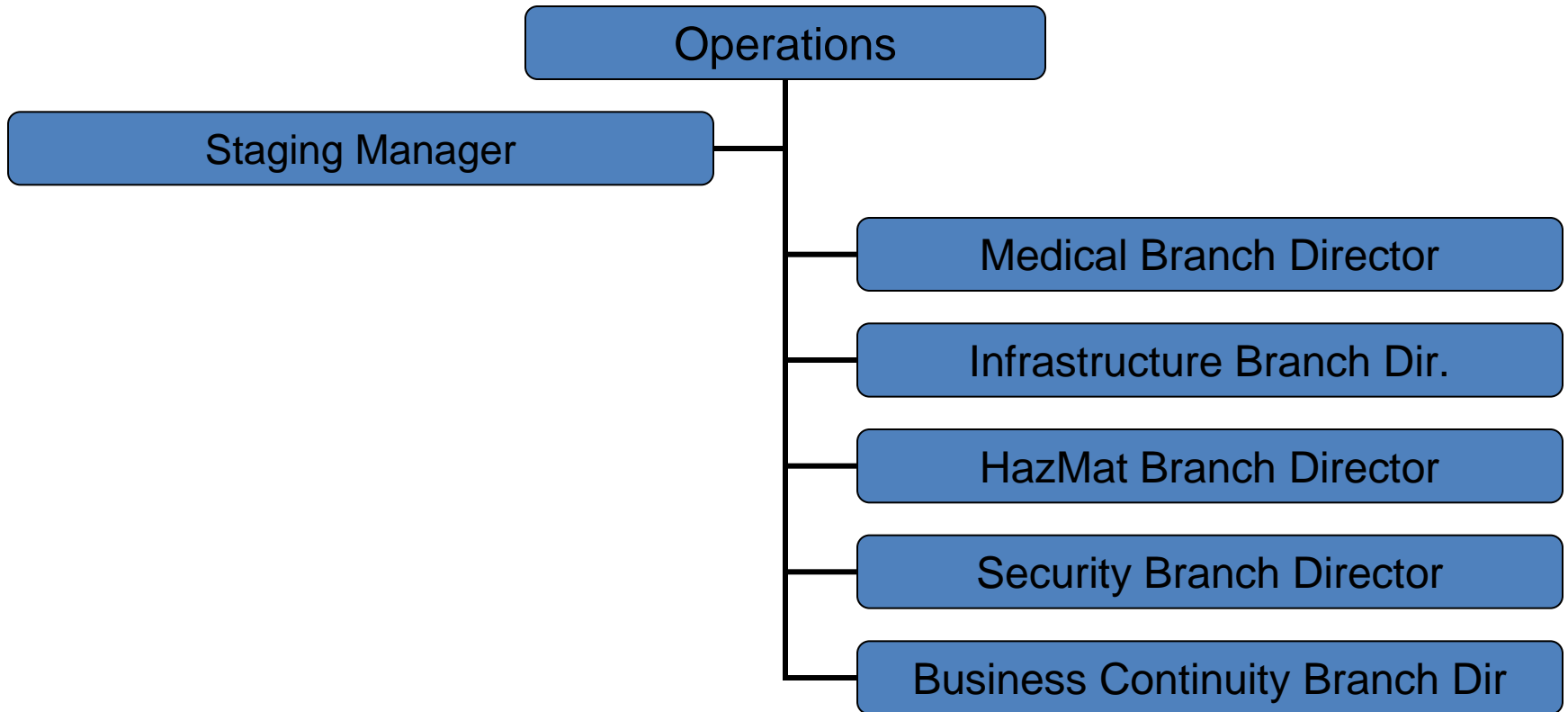
- **Operations** – The Command sets the goals and objectives of the response for the organization and the Operations Section performs activities to achieve them
- **Plans** - This function supports the response organization by conducting the incident planning activities and by acquiring, processing, documenting, and disseminating all incident-related information



ICS General Staff Sections

- **Logistics** - This function 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** - This function supports the response organization by tracking incident costs and addressing issues such as reimbursements, claims, and regulatory compliance

Operations Section

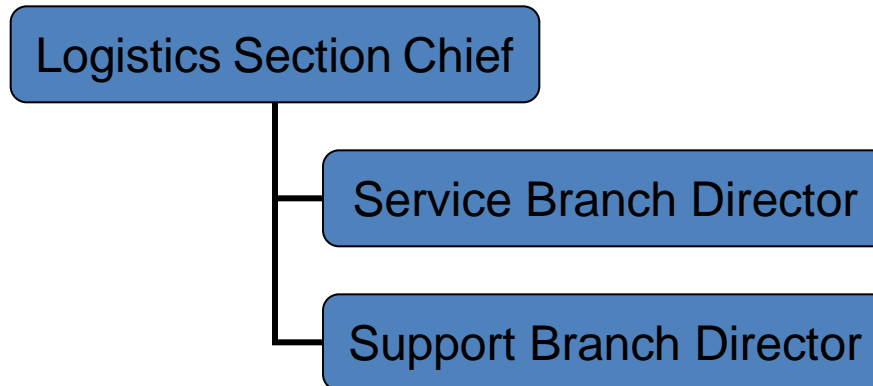




Operations Section

- Manages and accomplishes tactical objectives outlined by the Incident Commander
- Largest in terms of size and needed resources
- Carries out the plan using defined objectives
- Directs all needed resources
- Operations Section Chief is responsible for providing tactical objectives for the Incident Action Plan (IAP)

Logistics Section

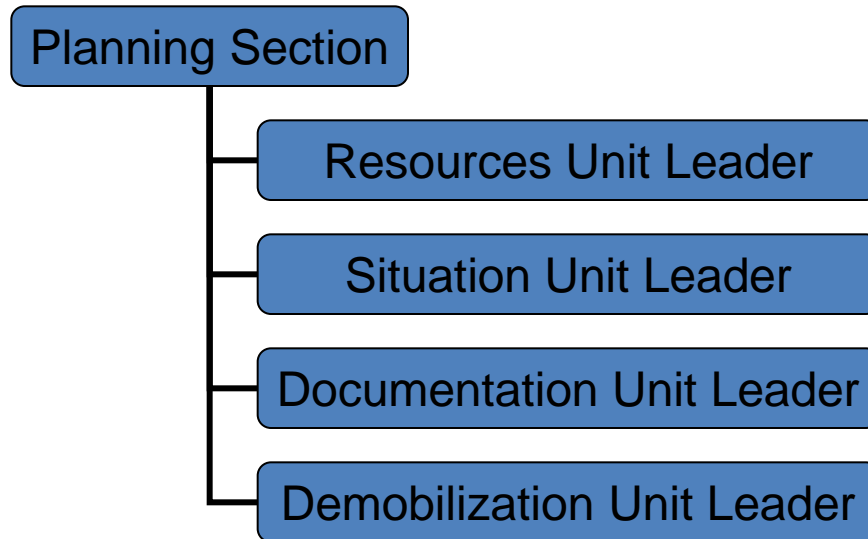


Logistics Section



- Responsible for
 - Acquiring resources from internal and external sources
 - Use standard and emergency acquisition procedures
- Provides support, resources, and other essential services to meet the operational objectives

Planning Section

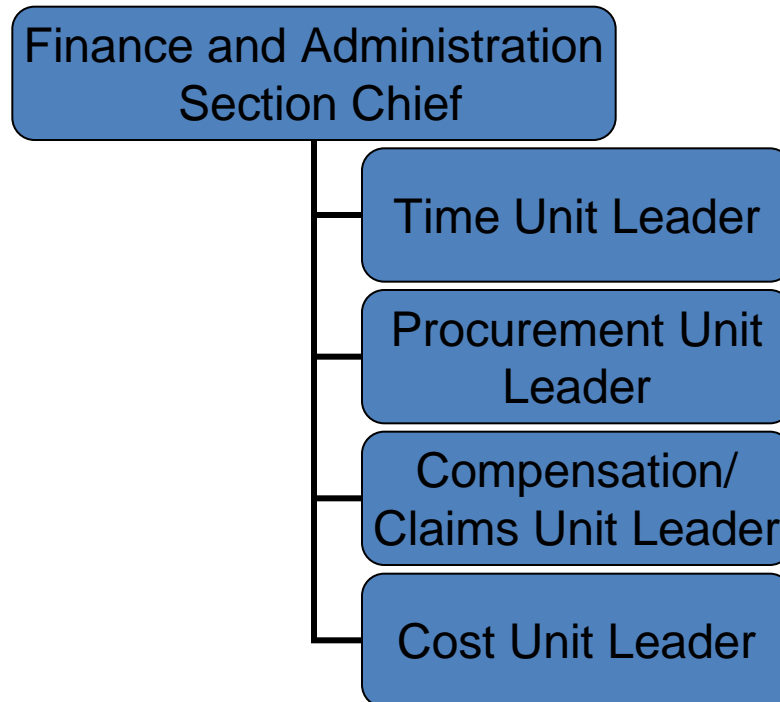




Planning Section

- Collects, evaluates, and disseminates incident situation information and intelligence to support Incident Commander's objectives
- Prepares status reports
- Develops the IAP with input from others
- Displays various information that is incident related (incident status board)
- Maintains documentation for incident reports
- Develops demobilization plan

Finance and Administration Section



Finance/Administration



- Monitors costs related to the incident
- Provides daily cost reports
- Provides support for accounting, procurement, time recording, and cost analyses

Questions?



Joint Commission – Emergency Management

The Joint Commission (TJC)



- The Joint Commission defines an emergency as an unexpected or sudden event that significantly disrupts the organization's ability to provide care, or the environment of care itself, or that results in a sudden, significantly changed or increased demand for the organization's services
- Emergencies can be either human-made or natural or a combination
- A disaster is defined as an emergency with complexity, scope, or duration that can threaten organizational capabilities

The Joint Commission (TJC), continued



- TJC wants hospital leaders, including medical staff, involved in the planning process
- TJC emphasizes the importance of developing a Hazard Vulnerability Analysis (HVA) and sharing with the community
- Once the HVA is developed, begin mitigating, preparing, and creating response and recovery plans
- Operate under an incident command system that is integrated with the community structure

The Joint Commission (TJC), continued



- TJC wants a written Emergency Operations Plan (EOP) describing procedures for:
 - Maintaining services, curtailing services, conserving resources, supplementing resources, closing the facility and evacuating the facility
 - Whether or not you can keep utilities and patient care viable for up to 96-hours
 - Recovery
 - Who has the authority to activate and deactivate emergency operations

The Joint Commission (TJC), continued



- TJC wants plans for communicating with:
 - Local authorities
 - Other healthcare organizations
 - Patients and their families
 - Media
 - Other sources of supplies and resources

The Joint Commission (TJC), continued



- TJC wants plans for managing resources by:
 - Replenishing medications, medical and non-medical supplies and equipment
 - Sharing with other healthcare organizations
 - Monitoring resources

The Joint Commission (TJC), continued



- TJC wants plans for managing security:
 - Planning for safety and security risks that affect all individuals in the organization, including patients, visitors, and staff
 - Controlling movement of personnel and vehicles
 - Coordinating security needs with external agencies
 - Planning for decontamination operations
 - Controlling access to and from the facility during an emergency situation

The Joint Commission (TJC), continued



- TJC wants plans for managing staff by:
 - Assuring that they all know their roles during an emergency incident
 - Providing training and education to staff
 - Providing care for families
 - Informing individual licensed practitioners of their roles

The Joint Commission (TJC), continued



- TJC wants plans for managing utilities by:
 - Having an alternate means for providing electricity
 - Provide water and sanitation
 - Provide medical gases and vacuum
 - Having fuel supplies

The Joint Commission (TJC), continued



- TJC wants plans for managing patients by:
 - Triage, assessment, treatment, admission, transfer discharge
 - Vertical/horizontal evacuation when care or treatment can't be supported
 - Demand for clinical services for vulnerable populations

The Joint Commission (TJC), continued



- TJC wants plans for managing patients by:
 - Considering hygiene and sanitation requirements
 - Patient related mental health services and mortuary services
 - Documentation and tracking of patient clinical information
 - Preparation for managing patients during an emergency

The Joint Commission (TJC), continued



- TJC wants plans for privileging volunteer licensed and non-licensed independent practitioners:
 - Having by-laws approving it
 - Having ways to identify them
 - Having a plan for overseeing them
 - Having a process to verify them

Annual Review of EOP

- Annual review of risks, hazards, and potential emergencies as defined by HVA
- Review objectives and scope of EOP and its inventory process

Annual Review & Exercises, TJC and NIMS



- Activate the plan twice a year (hospitals with community roles participate in one annual community exercise)
- Staff in freestanding business occupancy must participate in one annual drill
- Activation in response to one or more actual emergencies
- Tabletop sessions are not acceptable as a substitute for above exercises

Incident & Exercises Evaluation, TJC



- Designate individuals with responsibility for monitoring performance
- Monitors must be knowledgeable of goals/expectations of the exercise
- Monitors may be hospital staff members
- Evaluate exercises and real emergencies using multi-disciplinary processes

Incident & Exercises Evaluation, TJC



- Identify/document deficiencies and opportunities for improvement
- Communicate deficiencies/opportunities for improvement to the management team
- Modify the plan based on evaluations of exercises/ responses to emergencies



Evacuation Considerations

- Determine what could necessitate patient evacuation actions
- Establish a chain of command to coordinate/direct process
- Designate evacuation coordinators
- Develop specific evacuation procedures
- Establish a system for accounting for patients and personnel
- Provide employee transportation for area wide evacuations



Evacuation Considerations

- Plan for evacuating the facility either horizontally and/or vertically
- Plan for identifying roles for care providers and other personnel during emergencies
- Specify the locations that will serve as a staging areas

Evacuation Considerations, Continued



- Develop procedures for assisting persons with disabilities (ADA)
- Plan how to communicate to those who may not speak English
- Outline major post-evacuation procedures
- Designate personnel to continue or shut down critical operations
- Coordinate plans with the local emergency management agency

Evacuation Assembly Areas



- Designate assembly areas where personnel should gather after evacuating
- Plan for obtaining an accurate account of patients and personnel after completion of the evacuation
- Establish a method for accounting for non-employees such as suppliers and visitors
- Establish procedures for further evacuation in case the incident expands



Joint Commission – Environment of Care (EOC)



Environment of Care Standards

- Identify one or more individuals to coordinate and manage risk assessment and to intervene when conditions threaten life and health (Safety Officer, Risk Manager, EOC Committee, etc.)
- Use a systematic approach to evaluate the hazards centered around the facility's Environment of Care

Environment of Care Standards, Continued



- Five areas of risks in the healthcare environment include the following:
 - Safety
 - Security
 - Hazardous materials and waste
 - Medical equipment
 - Utility systems

Environment of Care Standards, Continued



- Develop a written plan to address the scope and objectives for the five areas included in the EOC
- Conduct environmental tours at least every six months in patient care areas to evaluate the effectiveness of previously implemented activities intended to minimize or eliminate environment of care risks

Environment of Care Standards, Continued



- Conduct annual environmental tours in non-patient care areas to evaluate the effectiveness of previously implemented activities intended to minimize or eliminate risks in the environment
- Use the tours to identify environmental deficiencies, hazards, and unsafe practices
- Evaluate all management plans every 12 months
- The review must assess each plan's objectives, scope, performance, and effectiveness

Managing Security & Safety Risks



Include:

- Internal security/safety arrangements involving the roles of community agencies and how that coordination will be accomplished
- Security of hazardous materials and waste
- Provide isolation and decontamination for radioactive, biological, and chemical incidents
- Control access in/out of the facility and movement of persons in the facility to include facility lockdown
- Control vehicles that access the organization's campus during an emergency

Collecting Information & Monitoring Environment



- Establish a process for monitoring, and investigating the following:
 - Injuries to patients or others within the hospital's facilities
 - Occupational illnesses and staff injuries
 - Incidents of damage to its property or the property of others
 - Security incidents involving patients, staff, or others within its facilities

Collecting Information & Monitor Environment, Continued



- Hazardous materials, waste spills and exposures
- Fire safety management problems, deficiencies, and failures
- Medical/laboratory equipment problems, failures, and/or use errors
- Utility systems management problems, failures, and/or use errors

Managing Medical Equipment Risks

- Maintain either a written inventory of all medical equipment or a written inventory of selected equipment categorized by physical risks
- This includes life support equipment and equipment incident history
- Evaluate new types of equipment before initial use to determine whether they should be included in the inventory

Managing Medical Equipment Risks, Continued



- Identify, in writing, frequencies for inspecting, testing, and maintaining medical equipment in the inventory
- Monitor and report all incidents in which medical equipment is suspected in or attributed to the death, serious injury, or serious illness of any individual, as required by the Safe Medical Devices Act of 1990



Managing Utility System Risks

- Maintain a written inventory of all operating components of utility systems or maintain a written inventory of selected operating components of utility systems based on risks for infection, occupant needs, and systems critical to patient care including all life support systems
- Identify, in writing, inspection and maintenance activities for all operating components of utility systems in the inventory

Managing Utility System Risks, Continued



- Map the distribution of utility systems
- Label utility system controls to facilitate partial or complete emergency shutdowns
- Have written procedures for responding to utility system disruptions

Emergency Electrical Power Sources



- Provide emergency power for exit route and exit sign illumination as required by the Life Safety Code
- Provide emergency power for emergency communication systems as required
- Provide emergency power for at least one elevator for non-ambulatory patients
- Provide support to equipment that could cause patient harm when it fails

Emergency Electrical Power Sources, Continued



- Equipment needing emergency power includes life support systems; blood, bone, and tissue storage systems; medical air compressors; and medical and surgical vacuum systems
- Ensure that emergency power is available for operating rooms, recovery rooms, obstetrical delivery rooms, nurseries, and urgent care areas

Emergency Electrical Power Systems



- Perform a functional test of battery-powered lights required for egress for a minimum duration of 30 seconds at 30-day intervals
- Perform a functional test of battery-powered lights required for egress for 1.5 hours every 12 months



Emergency Power System, Continued

- Can choose to replace all batteries every 12 months and during replacement can perform a random test of 10% of all batteries for 1.5 hours
- Each quarter, the hospital must perform a functional test of stored emergency power supply systems (SEPSS) for five minutes or as specified for its class (whichever is less)
- Perform an annual test at full load for 60% of the full duration of its class



Generator Testing

- Twelve times a year, at intervals of not less than 20 days and not more than 40 days, test each emergency generator for at least 30 continuous minutes
- Twelve times a year, at intervals of not less than 20 days and not more than 40 days, test all automatic transfer switches
- The emergency generator tests will be conducted with a dynamic load that is at least 30% of the nameplate rating of the generator or meets the manufacturer's recommended prime movers' exhaust gas temperature

Generator Testing, Continued



- If the test does not meet either the 30% of nameplate rating, or the recommended exhaust gas temperature during any test, then they must test each emergency generator once every 12 months using supplemental (dynamic or static) loads of: 25% of nameplate rating for 30 minutes, followed by 50% of nameplate rating for 30 minutes, followed by 75% of nameplate rating for 60 minutes, for a total of two continuous hours

Managing Hazardous Materials & Wastes



- Have current written inventory of hazardous materials and wastes that it uses, stores, or generates
- Written procedures must address precautions to follow and personal protective equipment to use in response to hazardous material spills or exposures
- Reduce risks associated with selecting, the handling, storing, transporting, using, and disposing hazardous chemicals, radioactive materials, hazardous medications, and hazardous gases/vapors

Managing Hazardous Materials & Wastes, Continued



- Hazardous gases and vapors include Glutaraldehyde, ethylene oxide, vapors generated while using cauterizing equipment and lasers, and gases such as nitrous oxide
- Monitor hazardous gases and vapors to determine if they are in a safe range
- Laws and regulations determine the frequency of monitoring hazardous gases and vapors as well as acceptable ranges

Managing Hazardous Materials & Wastes, Continued



- Obtain and maintain permits, licenses, manifests, and material safety data sheets for managing hazardous materials and wastes required by law and regulation
- Label hazardous materials and wastes to identify the contents and hazards
- The OSHA Bloodborne Pathogens and Hazard Communications Standards and the National Fire Protection Association (NFPA) provide details on labeling requirements



Joint Commission – Life Safety (LS)

NFPA 101-2000 - Life Safety Code



- Establishes minimum fire and egress requirements for healthcare occupancies
- Addresses the general requirements for a fire protection systems necessary to assure the safety of building occupants during a fire
- Specifies minimum hourly fire resistance ratings but does not specify how such ratings are to be achieved
- Provides the minimum requirements for the design, operation, and maintenance of healthcare organization buildings and structures required to ensure safety to life from fire and similar emergencies

Fire Confinement

- The fire doors usually have a rating of three-fourths to three hours and may be constructed of metal or metal-clad treated wood materials
- To assure proper protection of openings, install fire doors in accord with NFPA 80, Standard for Fire Doors and Fire Windows
- The movement of smoke within a structure is determined by many factors, including building height, ceiling height, suspended ceilings, venting, and external wind force or direction



Fire Drill Staff Knowledge Assessment

- When and how to sound fire alarms (where alarms are located)
- When and how to transmit to an offsite fire responder
- Containment of smoke and fire
- Transfer of patients to areas of safety
- Fire extinguishing information
- Specific response duties
- Preparation for building evacuation



Fire Safety Management

- Minimizes the potential for harm from fire, smoke, and other products of combustion
- Maintains free and unobstructed access to all exits
- This requirement applies to all buildings including those classified as business occupancy
- Develop a written fire response plan

Construction Life Safety Issues



- Ensure temporary construction partitions are smoke-tight and noncombustible
- Provide additional firefighting equipment and staff training
- Prohibit smoking in all buildings and construction areas
- Establish debris-removal practices to reduce fire loads

Note: Conduct a minimum of two fire drills per shift per quarter

Interim Life Safety Measures



- Ensure free and unobstructed exits
- Provide information/communication about alternative exits
- Maintain escape routes for construction workers at all times
- Inspect means of egress daily
- Ensure unobstructed access to emergency services, fire and police
- Ensure fire alarm, detection, and suppression systems work
- Provide temporary but equivalent systems for impaired systems (this may include fire watches)
- Test and inspect temporary systems monthly

Questions?



OSHA

Hazardous Material Exposure Routes



- Toxic substances can enter the body through the skin, respiratory system, the mouth, and the eyes
- Sometimes a chemical substance can enter through more than one route
- Inhalation of vapors is the most common route of exposure to hazardous materials
- Exposure to hazardous materials can cause stress on the body if inhaled, absorbed, or ingested by a person
- Exposure effects depend on concentration, duration of exposure, route of exposure, physical properties, and chemical properties

Hazardous Material Exposure Terms



- **Air Contaminant Standards:** A term used by OSHA for the hazardous materials regulated by the specific substance standards and the exposure tables found in 29 CFR 1910, Subpart Z.
- **Permissible Exposure Limit (PEL):** The maximum allowed OSHA exposure for workers based on a Time Weighted Average of eight hours for those working a 40-hour week
- **Short Term Exposure Limit (STEL):** The exposure allowed at one time (normally measured in a 15-minute period)
- **Ceiling:** The amount of airborne concentrations that cannot be exceeded

Hazardous Material Exposure Terms, Continued



- **Air Contaminant:** The term for hazardous substances regulated by OSHA in 29 CFR 1910, Subpart Z
- **OSHA Additive Formula:** The formula explained in 29 CFR 1910.1000 used to determine exposure affects when a substance contains more than one hazardous ingredient
- **Supplied Air Respirator:** Used in highly dangerous environments to protect against hazards posing an Immediate Danger to Life or Health (IDLH)
- **Air Purifying Respirator:** Used to filter contaminants or particulate matters from air

Hazardous Material Management Planning Considerations



- Coordinate with local emergency agencies when developing procedures (LEPC?)
- Educate employees to recognize/report hazardous material releases
- Train employees in proper handling and storage
- Develop a hazardous material spill response plan
- Establish procedures to notify emergency response organizations

Hazardous Material Management Planning Considerations, Continued



- Implement procedures for warning employees of an incident
- Establish evacuation procedures
- Perform a hazard analysis to determine what incidents could affect your facility
- Identify highways, railroads and waterways near your facility
- Determine how a transportation accident could affect your operations



Flammable & Combustible Liquids

- Vapor - Vapor is the gaseous state of material. Sometimes vapors can be smelled and at other times their presence is not readily detected. Vapors from materials combine with the oxygen in the air, forming a mixture that may ignite easily or burn rapidly, often with explosive force
- Flash Point - The flash point of a liquid is the lowest temperature at which it gives off enough vapors to form an ignitable mixture with the air around it
 - Combustible liquids have a flash point of at least 100 degrees Fahrenheit
 - Flammable liquids are those with a flash point of less than 100 degrees Fahrenheit

Chemical Storage

- Store a chemical according to its compatibilities with other substances
- A Material Safety Data Sheet (MSDS) must be on hand for every hazardous substance
- Refer to the MSDS, and the container label for information on special storage requirements
- Typical storage considerations may include temperature, ignition control, ventilation, segregation and identification



Worker Protection Standard

- All workers handling, loading, mixing, or applying chemicals should use appropriate personal protective equipment (PPE)
- Most chemical products require verbal warnings and posted warning signs.
- Hospital disinfectants also fall under this standard



HAZWOPER Emergencies

- Depending on your operations, organize and train an emergency response team to confine and control hazardous material spills in accordance with applicable standards such as OSHA 29 CFR 1910.120
- Employees benefit from the practical experience they gain during training, drills and exercises
- These events also offer employees an opportunity to demonstrate competence in critical areas

OSHA Competencies: First Responder Operations Level Training



- HAZWOPER Standard, 29 CFR 1910.120(q)(6)(ii) requires employees being trained at the First Responder Operations Level to receive at least eight hours of training or have had sufficient experience to objectively demonstrate competency in the following areas:
 - Understand hazardous substances and their associated risks
 - Understand potential outcomes when hazardous substances are present
 - Demonstrate the ability to recognize the presence and types of chemicals by signs and symptoms
 - Demonstrate the ability to identify hazardous substances

OSHA Competencies: First Responder Operations Level Training, Continued



- Understand roles in the hospital's emergency response plan
- Understand site security control and decontamination procedures
- Have the ability to realize need for resources and ability to make notifications
- Show knowledge of basic hazard and risk assessment techniques
- Show knowledge how to select and use proper PPE
- Understand basic hazardous materials terms
- Show knowledge how to perform control, containment, and/or confinement operations
- Demonstrate knowledge of how to implement basic decontamination procedures

OSHA Competencies: First Responder Awareness Level Training



- First responders at the awareness level will have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas, as required by the HAZWOPER Standard, paragraph 1910.120(q)(6)(I), (or the parallel State Plan standards) to include the following:
 - Understand hazardous substances and the risks associated with an incident
 - Understand potential outcomes in an event with hazardous substances

OSHA Competencies: First Responder Awareness Level Training, Continued



- Demonstrate the ability to recognize the presence of hazardous substances during an emergency
- Demonstrate the ability to identify hazardous substances
- Understand role in response plan to including site security/control, and decontamination procedures
- Demonstrate the ability to realize the need for additional resources and to make appropriate notifications to the communication center

Training Of Emergency Department Staff

- Once the ED staff suspects a patient is contaminated, they should be well trained in the following procedures:
 - Avoid physical contact with the patient
 - Notify supervisor and safety officer of possible hospital contamination
 - Allow other properly trained and equipped staff to isolate and decontaminate the victim according to emergency plans
 - Recommend providing a curricula with a range from two to four hours with an annual refresher course of one to four hours



Level A Protection

Highest level of skin and respiratory protection available. The protective clothing must be gas-tight, vapor-tight and splash resistant. Appropriate for possible threats to life and health and during operations dealing with an unknown hazard. Requires the highest level of respiratory protection with air-supplied respirators



Level B Protection

This level offers protection from a chemical splash, but does not prevent exposure to gases or vapors. Protective clothing may or may not be completely encapsulating. Requires highest level of respiratory protection



Level C Protection

The same as Level B but requires an air-purifying respirator. This level is used when the chemicals are known and it has been established that an air-purifying respirator is appropriate protection for the hazard



Level D Protection

The lowest level of protection used when no potential or actual hazard exists. It offers minimal protection for nuisance exposure. Refer to OSHA standard 29 CFR 1910.120, Appendix B

Industrial Chemical Contamination



- Hospitals must develop plans to respond to an influx of victims from hazardous material emergencies occurring in industrial or agriculture settings
- The Agency for Toxic Substances & Disease Registry (ATSDR) offers hospitals hazardous materials' response guidance information
- You can order free Guidelines from the ATSDR

ATSDR Decontamination Guidance



- Volume I - Emergency Medical Services: A Planning Guide for the Management of Contaminated Patients can assist first responders in planning for incidents that involve hazardous materials
- Volume II - Hospital Emergency Departments: A Planning Guide for the Management of Contaminated Patients can assist hospital emergency department personnel in planning for incidents that involve hazardous materials
- Volume III - Medical Management Guidelines for Acute Chemical Exposures can assist healthcare professionals who treat persons exposed to hazardous materials

Note: Video - Community Challenge: Hazardous Materials Response

Radiation Hazards

- The Nuclear Regulatory Commission (NRC) rules outline minimum safety requirements for workers and patients
- Safety instructions and precautions are specified for therapeutic interventions such as radio-pharmaceuticals and sealed sources or implants
- Ionizing radiation is produced naturally by the decay of radioactive materials or by the operation of X-ray devices
- A radioactive element spontaneously changes to a lower energy state and in the process emits gamma rays from the nucleus

Radiation Types

- **Alpha Particles** - These particles consist of two neutrons and two protons. They do not penetrate the skin and can be shielded by a thin layer of paper or clothing. Because the outer layer of skin is dead and several microns thick, the Alpha particle is unable to penetrate through the dead layers of skin to reach the lower layers of living cells.
- **Beta Particles** - These particles can travel a few centimeters into tissue. External and internal exposure is potentially hazardous. These particles travel meters in air and are moderately penetrating. If Beta emitting contaminants are allowed to remain on the skin for a prolonged period of time, they may cause skin injury. Beta emitting contaminants may be harmful if deposited internally.
- **Gamma and X-rays** - Gamma rays and X-ray can penetrate human tissue. Radioactive materials that emit gamma radiation constitute both an external and internal hazard to humans. Dense materials are needed to shield against gamma radiation.

Radiation Measurements Terms

- Curie (Ci): Unit of measure of the radioactivity of a substance
- Absorbed Dose: The amount of radiation that is absorbed by the body
- Exposure: The amount of radiation to which the body is exposed
- Radioactive Half-Life: The time required for the radioactivity of an isotope to decrease by 50%

Radiation Measurements Terms, Continued



- Roentgen: Measures exposure. Unit of measure for the quantity of radiation produced by gamma or X-rays
- Rad (radiation absorbed dose): A measure of the absorbed dose of ionizing radiation
- Rem (roentgen equivalent man): The dosage of any ionizing radiation that will cause biological injury to human tissue equal to the injury caused by one Roentgen of X-ray or gamma-ray dosage

Safety From External Radiation Exposure



- Time---Decrease the amount of time you spend near the source of radiation
- Distance--Increase the distance from a radiation source
- Shielding---Increase the shielding between you and the radiation source

Resource Conservation and Recovery Act (RCRA)



- RCRA requires that waste material exhibiting the characteristic of toxicity for mercury to be managed as hazardous waste (see 40 CFR 261.24)
- Discarded commercial chemical products containing mercury must be managed as hazardous wastes (see 40 CFR 261.33) unless disposed of under the EPA Universal Waste Rules (see 40 CFR 273)



EPA Contingency Plan

- The provisions of a contingency plan must be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents that could threaten human health or the environment
- The following five components have been specified in the regulations (40 CFR 264.52) to be addressed in the plan:
 1. Emergency procedures for response to fires, explosions, or releases

EPA Contingency Plan, continued



2. Coordinated emergency services plan agreed to by local police departments, fire departments, hospitals, and state and local emergency response teams
3. A list of emergency coordinators that includes names, addresses, and telephone numbers of all persons qualified to act as emergency coordinators
4. A list of emergency equipment, physical description, and capabilities of each item
5. Evacuation plans for the safe egress of facility personnel



OSHA Fire Plan Elements (29 CFR 1910.38)

- Fire department notification and follow-up procedures
- Procedures for announcing the fire location using appropriate methods
- Locations for key personnel to assemble and manage the decisions
- Procedures for determining who will keep facility departments informed
- Designated personnel who will meet and direct fire personnel
- Procedure for holding non emergency calls and giving an "all-clear"

Egress

- Designing exits involves a study of numbers, flow rates, and population densities. Safe exits also require a safe path of escape from the fire
- NFPA 101 provides a reasonable and comprehensive guide to exit requirements
- Exits must provide alternative pathways in case one exit is blocked by fire



Egress, Continued

- The building's population and degree of hazard are major factors when designing exits
- Every required exit sign must be suitably illuminated by a reliable light source and be visible in both normal and emergency lighting modes
- Lettering for exit lights should be 6 inches in height



Egress, Continued

- The illuminated surface of the exit sign should have a value of not less than five foot-candles to meet 29 CFR 1910.37(q)(4) requirements
- NFPA 101 requires five foot-candles for internally and externally illuminated signs with some exceptions, such as approved self-luminous or electro-luminescent signs that provide evenly illuminated letters
- Signs can't have decorations, furnishings, or pieces of equipment that impair visibility
- Never place other brightly illuminated sign, display, or object in the line of vision of a required exit sign



Emergency Lighting

- NFPA 101 establishes requirements for emergency lighting
- Emergency illumination, if required, must provide a minimum of 1.5 hours of light.
- Emergency lighting should provide initial illumination of at least an average of one foot-candle
- This level can decline to a minimum of 0.6 foot-candle average and 0.06 foot-candle at any point at the end of emergency lighting time of 1.5 hours

Emergency Lighting, Continued

- The intensity of visible light is measured in units of candles
- The rate of flow of light or luminous flux is measured in lumen
- Foot-candle is the direct measurement of visible radiation falling on a surface
- Foot Lambert is the unit measure of physical brightness on any surface emitting or reflecting visible light

NFPA 99 Healthcare Facilities



- Contains criteria for safeguarding patients and healthcare personnel from fire, explosion, and electrical related hazards
- Addresses use of anesthetic agents, medical gas equipment, electrical apparatus, and high frequency electricity
- Addresses healthcare emergency management

NFPA 99 Healthcare Facilities, continued



- Contains information for external incidents that disrupt normal patient care, fire and explosion hazards associated with laboratory practices, the use of hyper baric and hypo baric facilities for medical purposes, and maintenance and testing criteria for electrical systems
- Also addresses fire risks associated with the maintenance, testing, and installation criteria of medical or surgical vacuums and medical gas systems

Fire Extinguisher Travel Distances



- Class A travel distance is no more than 75 feet
- Class B travel distance is no more than 50 feet
- Class C travel distance is based on appropriate A or B hazard.
- Class D travel distance is no more than 75 feet.
- Class K travel distance is no more than 30 feet

Classes of Fires

- Class A: Fires involving ordinary combustible materials, such as wood, paper, or clothing, where the cooling effects of water are most effective. Use a pressurized water extinguisher or ABC type dry powder extinguisher
- Class B: Fires involving flammable liquids and similar materials. Use type BC or ABC dry powder extinguishers. Carbon Dioxide (CO₂) extinguishers may be used



Classes of Fires, Continued

- Class C: Fires in or near energized electrical equipment where the use of a nonconductive extinguishing agent is of first importance. Use CO₂, or dry powder (BC or ABC). WATER MUST NEVER BE USED
- Class D: Metal fires - combustible metals like magnesium and sodium require special extinguishers labeled D
- Class K: Grease fires - use a portable extinguisher designed for cooling the fire.



Terrorism & Influenza Pandemic



Planning For Terrorism

- Compared with other facility emergencies, the covert and criminal nature of terrorism, including bombing incidents, bomb threats, and the taking of hostages is a highly complex problem for healthcare management and emergency service personnel
- Take appropriate actions to provide for the safety of patients, employees, visitors, and property

Planning for Terrorism, Continued



- Hospitals make up a substantial portion of the emergency response system
- Educate and train staff about possible events and response actions
- Experts advise that local communities should be prepared to deal with the consequences of a terrorist event for the 12-36 hours before federal agencies can augment local response and provide specialized support

Planning for Terrorism, Continued



- Mitigation against potential risks associated with nuclear, chemical, biological, or radiological weapons by terrorist calls for sound emergency planning procedures
- Terrorist events can result in potentially large numbers of casualties
- The psychological impact of weapons of mass destruction and the relative ease of their acquisition poses a great threat

CDC National Public Health Strategy For Terrorism Preparedness



- The guide contains info on the following topics:
 - Detection, investigation, and laboratory sciences
 - Prevention programs, worker safety, and communication
 - Emergency response, research, and long-term management
 - Workforce development

CDC Strategic National Stockpile



- The CDC Strategic National Stockpile will normally make drugs available within 12 hours after request from local authorities
- The stockpile serves as a national repository of antibiotics, chemical antidotes, antitoxins, life-support medications, IV administration supplies, airway maintenance supplies, and medical or surgical items
- Consider the stockpile as a supplemental source of supplies and not a first-response source

Bacteria

- They are self -sustaining organisms that do not require a host to reproduce
- Examples are anthrax, plague, cholera, and tularemia

Viruses

- Viruses are much smaller than bacteria and need a host to survive. The host can be plants, animals, insects, bacteria, or humans.
 - Smallpox
 - Venezuelan equine encephalitis (VEE)
 - Ebola
 - Marburg (Hemorrhagic Fevers)

Toxins

- Biological toxins are poisonous chemical compounds produced by living organisms such as animals, plants, and microbes
- These agents demonstrate lethality about 1,000 times higher than standard chemical agents
- Toxins normally do not pose an absorption risk
- An example would be botulism

The Association for Professionals in Infection Control (APIC)



- Published *Mass Casualty Disaster plan Checklist: A Template for Healthcare Facilities*, a checklist that stimulates questions for assessment and dialogue with key stakeholders

The Association for Professionals in Infection Control (APIC)



- This resource outlines the steps necessary for responding to biological agents, such as smallpox, botulism toxin, anthrax, and plague, and provides information on the unique characteristics, specific recommendations, management, and follow-up for each agent

Chemical Agents

- These agents are toxic substances that cause incapacitation or death upon exposure
- These agents are classified into general categories of blood, blister, choking, irritating, and nerve classifications
- The toxicity, mode of action, and effects can vary depending on the agent
- Chemical agents act within minutes and people exposed will develop symptoms immediately
- Consider inhalation as the primary route of exposure

Chemical Agents, Continued



- Toxicity of an agent depends on the size of the particles and the water solubility of the gas
- Large particles and highly water-soluble gases become trapped in the nasal and pharynx
- Small particles and gases with low solubility enter more deeply into the lungs
- Quick decontamination and immediate administration of an antidote are the best response to some agents

Blood Agents

- These agents interfere with the ability of the blood to transport oxygen
- Consider all blood agents as toxic at high concentrations
- Exposure can lead to rapid asphyxiation and death
- Symptoms can include respiratory distress, vomiting, diarrhea, vertigo, and headaches
- Fresh air and respiratory therapy may help some victims
- An example of a blood agent is hydrogen cyanide

Blister Agents (Vesicants)

- These agents cause burns to the eyes, skin and respiratory tract tissues
- They can penetrate clothing and be absorbed into the skin
- Symptoms vary but can include the following: tears, swollen eyelids, itching, burning pain, and blisters in moist areas like the groin
- Watch for burning sensation in the nose and throat, hoarse voice, shortness of breath, cough, abdominal pain, and diarrhea
- Mustard is an example

Choking Agents

- These agents stress the respiratory tract and can result in asphyxiation
- An edema can develop in the lungs and patient symptoms may resemble those of a drowning victim
- Symptoms include eye irritation, choking & coughing, and respiratory distress
- Victims may smell like chlorine or newly cut hay (phosgene)
- An example of a choking agent is phosgene

Irritating Agents

- These agents cause respiratory distress and tearing with the intention of incapacitating the victim
- Symptoms include severe pain to the skin, burning and irritation of the eyes and throat, respiratory distress, coughing, choking, nausea, and vomiting
- Most exposed people smell of pepper spray or tear gas

Nerve Agents

- They remain the most toxic chemical agents and can cause death in minutes
- They can be inhaled or absorbed through the skin
- Nerve agents affect organs as smooth muscles and glands
- Watch for increased saliva and tears

Nerve Agents, continued

- Other symptoms include secretions from airways along with sweating, muscle contractions, and hyperactivity of the digestive tract
- Some victims demonstrate symptoms of twitching, weakness, and hypertension
- An example would be Sarin

Industrial Chemical Agents

- There are a wide variety of potential chemicals that could be used for malicious purposes including organic-phosphate pesticides such as parathion
- Chemically related to nerve agents but not as toxic
- These compounds disrupt the acetyl cholinesterase enzyme just like nerve agents
- Arsenic trioxide is an example

Nuclear Devices

- A nuclear terrorist incident can involve the detonation or threatened detonation of a nuclear bomb or of an explosive device that contains nuclear materials
- Terrorists could also cause a nuclear incident by detonating an explosive device near a nuclear power plant or attacking nuclear cargo during transport
- Terrorists could contaminate food or other products with radioactive materials
- Simple radiological devices such as an isotope could spread radiation without the use of an explosive device if placed in public

Dissemination Devices

- Agents can be distributed using simple containers such as glass bottles or modified aerosol generators
- The effects of chemical agents occur more rapidly and contaminate smaller areas than biological agents on a per weight basis
- Biological agents however, can cover vast areas, resulting in large numbers of indiscriminate casualties comparable to that of nuclear devastation

Dissemination Devices, Continued



- An incendiary device can be mechanical, electrical or chemical and can be used to start combustion to intentionally set fire to something
- These devices can be simple or complex, but usually consist of three basic parts: (1) a fuse or igniter, (2) a container (glass, metal, plastic or paper), and (3) incendiary material
- An explosive device is any substance or article designed to explode, either by a rapid release of gas and heat or by a chemical reaction. Examples are: homemade bombs, pipe bombs, letter bombs, dynamite and military ordinances, and fertilizer bombs



NIOSH Publication Number 2002-139

- This document identifies actions that a building owner or manager can implement without undue delay to enhance occupant protection from an airborne chemical, biological, or radiological attack



Pandemic Planning

- DHHS Supplement 3 provides healthcare partners with recommendations for developing plans to respond to a pandemic
- The focus is on planning during the Inter-Pandemic Period for issues such as surveillance, decision-making structures, communications, education and training, patient triage, clinical evaluations, admission, facility access, occupational health, distribution of vaccines, antiviral drugs, surge capacity, and mortuary issues

Healthcare Facility Pandemic Responsibilities



- Develop planning and decision-making structures for responding to pandemic
- Develop written plans that address: disease surveillance, hospital communications, education and training, triage and clinical evaluation, facility access, occupational health, use and administration of vaccines or antiviral drugs, surge capacities, supply chain and access to critical inventory needs, staff absenteeism, and mortuary issues

Healthcare Facility Pandemic Responsibilities, Continued



- Participate in pandemic influenza response exercises and drills, and incorporate lessons learned into response plans
- Develop triggers to help activate institutional pandemic influenza plans
- Identify and isolate all potential patients with pandemic influenza
- Implement infection control practices for preventing influenza transmission

Healthcare Facility Pandemic Responsibilities, Continued



- Assure that staff receives flu shots
- Ensure rapid and frequent communication within healthcare facilities and between healthcare facilities and health departments
- Implement surge-capacity plans to sustain healthcare delivery



Application

<http://www.chcm-chsp.org/application.html>

Questions?



Now for the
Real Fun!



Practice Exam Review