Emergency Preparedness and Management

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Emergency Preparedness and Management

- Emergence of Healthcare Emergency Management
- Incident Command System
- Disaster Declaration
- Emergency Management Plan
- TJC Requirements
- National Response Framework
- Infectious Disease and Ebola
- Altered Standards of Care
- Mechanical Ventilation in Public Health Emergency
Emergence of Healthcare Emergency Management

- Hospitals have always been prepared for calamities
- Originally “Disaster Plans” addressing internal fire and external mass casualty
- Since Fall 2001, renewed interest in disaster readiness
- Must be prepared for events that rarely occur
- Mitigate likelihood that they will occur
Emergence of Healthcare Emergency Management

- OK City bombing
- 9/11 (WTC, Pentagon)
- Anthrax attacks (2001)
- Northeast blackout of 2003
- Hurricane Katrina
- H1N1 Pandemic
- Joplin, MO tornado
- Super Storm Sandy
- Boston Marathon bombing
- Ebola
Emergence of Healthcare Emergency Management

- “All hazards” approach
- Organization-wide program
- Integration with community
- Four phases of emergency management
  - Mitigation
  - Preparedness
  - Response
  - Recovery
Incident Command System (ICS)

- **Purpose of ICS:**
  - Ensure safety of responders and others
  - Achieve tactical objectives
  - Efficient use of resources

- **Adopted by several federal agencies (EPA, OSHA, DHS)**

- **California EMS Authority adapted ICS for hospitals - HICS**
Standard ICS Structure

Figure XX. Incident Command Structure

- **Incident Command**
- **Command Staff**
  - Public Information Officer
  - Safety Officer
  - Liaison Officer
- **General Staff**
  - Operations Section Chief
  - Planning Section Chief
  - Logistics Section Chief
  - Finance/Administration Section Chief
ICS Key Concepts

- **Span of Control**
  - Supervise 3-7 direct reports, ideally 5

- **Unity of Command**
  - Report to one boss

- **Clarity of text**
  - Simple language, plain English

- **Interoperability**
  - Compatibility of equipment and resources across agencies and jurisdictions
Situational Awareness

What HAS happened

What IS happening

What MIGHT happen

SA
Scale of Events

- Emergency – Handled by local resources
- Disaster – Needs exceed local resources
- Multiple casualty incident – Resources strained, not overwhelmed
- Mass casualty event – Requires additional medical assets
- Catastrophic medical disaster/Complex humanitarian emergency – Effects public and personal health. Medical assets exceeded locally and regionally
Disaster Declaration

Stafford Act

- Major Disasters
- Emergencies
- Wildfires
- Federal response required
- State/Local response is sufficient

Severity threshold
Disaster Declaration

- Stafford Act (Disaster Relief and Emergency Assistance)
- Statement by a public official recognizing that a disaster exists
- President has the authority to declare a disaster after requested by a governor
  - Governor must find emergency or disaster beyond capabilities of state and local government
# Disaster Declaration

## Total FEMA Disaster Declarations by Administration

<table>
<thead>
<tr>
<th>President</th>
<th>Total</th>
<th>Yearly Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ronald Reagan</td>
<td>224</td>
<td>28.0</td>
</tr>
<tr>
<td>George H. W. Bush</td>
<td>174</td>
<td>43.5</td>
</tr>
<tr>
<td>William J. Clinton</td>
<td>716</td>
<td>89.5</td>
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<tr>
<td>George W. Bush</td>
<td>1,037</td>
<td>129.6</td>
</tr>
<tr>
<td>Barack Obama</td>
<td>654*</td>
<td>139.3</td>
</tr>
</tbody>
</table>

* As of September 30, 2013.

Emergency Management Plan

- Maximize ability to provide and sustain core services
- Provide guidance before, during, and after incident
- Concise set of documents to provide macro- and micro-level information
- Comprehensive, flexible, and scalable
Emergency Management Plan

- Hazard Vulnerability Analysis (HVA)
  - First step in developing plan
  - Tool to screen for risk
  - Plan for strategic use of limited resources
  - Comprehensive list of types of emergencies
  - Assign scoring value:
    - Likelihood of occurrence
    - Impact on organization
    - Organization’s readiness to handle
Emergency Management Plan

- HVA – Natural Events
  - Hurricane
  - Tornado
  - Blizzard
  - Earthquake
  - Temperature extremes
  - External flood
  - Wildfire
  - Volcano
Emergency Management Plan

- HVA – Technological Events
  - Power failure
  - Telephone failure
  - Water failure
  - Medical gas failure
  - HVAC failure
  - Fire
  - Internal flood
  - Information systems failure
Emergency Management Plan

- HVA – Human (Intentional) events
  - Terrorism (CBRNE)
  - Hostage situation
  - Bomb threat
  - Infant abduction
  - Patient elopement
  - Civil disturbance
  - Staff illness
  - Labor action
Emergency Management Plan

THE DISASTER MANAGEMENT CYCLE

Preparedness
Disaster
Rescue/Relief
Mitigation
Development
Rehabilitation
Prevention
Planning
Reconstruction
Mitigation Measure

- Lessen likelihood and impact of hazards
- Disaster resistant construction
- Structural modifications
- Detection systems
- Regulatory measures
- Staff awareness and education
Response Phase

- Most visible phase of emergency mgmt.
- Well supported by hospital leadership
- Response includes “all hazards”
- Involves all hospital departments and employees
- In place for duration of event
Recovery Function

- Restore core services and normal operations
- Address human resources, financial, and support services
- Damage assessment
  - Insurance claims
  - FEMA funding
  - Business interruption
The Joint Commission requirements

- Scalable approach
  - Combination of escalating events
  - Self-sustain for up to 96 hours
- Address following areas:
  - Communication
  - Resources and assets
  - Security and safety
  - Staff responsibilities
  - Utilities management
  - Patient clinical and support activities
  - Disaster Volunteers
The Joint Commission requirements

- Evaluation of Emergency Management plan
  - Actual event evaluation
  - Exercises
    - Tabletop
    - Drill
    - Functional exercise
    - Full scale exercise
National Response Framework

- Department of Homeland Security
- Structure for all-hazards response
- Overview of response integration
- Key principles:
  - Partnerships
  - Tiered response
  - Flexible emergency management
  - Unified command
  - Readiness to act
Strategic National Stockpile

- Comprised of medications, equipment and supplies
- Overseen by CDC
- Maintained at 12 secure locations across the country
- SNS provides “push package” to any location within 12 hours of request of a governor
Education

ICS/NIMS Training Pyramid

- Basic Awareness
  - ICS 100
  - IS 700
  - Responders

- Crew Supervision Initial Management
  - ICS 200
  - Unit Leaders Single Resource Leaders

- Tactical Level Management
  - ICS 300
  - IS 800
  - Strike Team/Task Force Leaders EOC Staff

- Area Command Functions Multiagency Coordination Leadership
  - ICS 400
  - Command and General Staff EOC Managers

Division/Group Supervisors Branch Directors
Infectious Diseases

- WHO reports threat of emerging infectious diseases greater since 2000
- Hospitals are front-line for providing care
- Hospital administrators must:
  - Prepare & maintain physical readiness
  - Ongoing training of staff
  - Partner with public health officials
Infectious Diseases
Infectious Diseases

- Form/activate internal planning committees
- Develop partnerships and goal-driven local protocols
- Memorandum of Agreement (MOA) between partnering organizations
- Internal surveillance/early recognition
- Enhance communication capabilities
- Staffing concerns
- Concern for routine patients
Infectious Diseases

- Universal (standard) precautions
- Respiratory hygiene/etiquette
- Isolation
- Quarantine
- Cohorting patients
- Additional/dedicated equipment
- Surge capacity
- Limiting visitors
- Security concerns
Ebola Preparedness

- Prepare to Detect
  - Review risk and signs and symptoms
  - Review case definition on who meets criteria
  - Ensure EMS are aware of current guidance
  - Review ED triage procedures
    - Patient placement
    - Screening criteria
  - Post screening criteria
  - Designate points of contact
Ebola Preparedness (cont.)

- Prepare to Detect (cont.)
  - Ensure triage staff and leadership are familiar with notification of points of contact
  - Conduct spot checks (screening, notification, isolation, PPE procedures)
  - Communicate with state and local authorities
  - Ensure lab personnel are aware of guidelines for specimen collection, transport, testing, and submission
Ebola Preparedness (cont.)

- Prepare to Protect
  - Review CDC Guidelines for Environmental Infection Control
  - Treat all symptomatic travelers from affected West African countries as potential cases
  - Conduct inventory of PPE
    - Impermeable gowns
    - Gloves
    - Shoe covers, boots, and booties
    - Eye protection, facemasks, N95 respirators
    - Hand hygiene supplies
Ebola Preparedness (cont.)

- Prepare to Protect (cont.)
  - Ensure PPE is maintained in triage, ED, etc.
  - Verify staff:
    - Trained on PPE and infection control
    - Competent at donning and doffing PPE
    - Proper medical clearance
    - Properly fit-tested for respirator
    - Trained on management/exposure to Ebola
  - Staff us “buddy system”
  - Spot-check to ensure appropriate precautions are being followed
Ebola Preparedness (cont.)

- Prepare to Protect (cont.)
  - Limit access by non-clinical staff
  - Review sharps safe practices
  - Emphasize proper hand hygiene
  - Post appropriate signage
  - Develop contingency plans (staffing, logistics, budget, procurement, security)
  - Review handling of linens, supplies, equipment
  - Review environmental cleaning procedures
Ebola Preparedness (cont.)

- Prepare to Protect (cont.)
  - Distribute guidelines for specimen handling
  - Review P&P for screening and work restrictions for exposed employees
  - Ensure staff have ready access to medical consultation
  - Ensure Airborne Isolation rooms are functioning correctly (monitor airflow and exhaust handling)
Ebola Preparedness (cont.)

- Prepare to Respond:
  - Review and exercise:
    - ID protocols, including PPE donning and doffing
    - Appropriate triage techniques
    - Disease identification, specimen collection and transport
    - Isolation, quarantine, and security procedures
    - Communications and reporting procedures
    - Cleaning and disinfection procedures
  - Review protocols for sharing info with public health, coalition partners, etc.
Ebola Preparedness (cont.)

- Prepare to Respond (cont.)
  - Review and implement plans:
    - Palliative care
    - Adequate ventilator management
    - Safe administration of medication
    - Sharps procedures
    - Biohazard containment and disposal
  - Ensure appropriate IC procedures by lab, food services, environmental services, and other support personnel
Ebola Preparedness (cont.)

- Prepare to Respond (cont.)
  - Ensure administrators are familiar with responsibilities during public health emergency
  - Identify public information officer
  - Plan for regular situational briefs
  - Maintain situational awareness of Ebola case locations, travel restrictions, etc.
  - Incorporate Ebola info into educational activities
Altered Standards of Care

- **Standard of care:**
  - Care provided by prudent clinician
  - Comply with law and regulation
  - Following local standards and protocols
  - How another individual would act

- To remain viable and effective, resource changes must occur

- Modification in level of healthcare provided under austere conditions
Altered Standards of Care

• Clinical alterations in standards of care:
  ◦ Limitations on certain procedures
  ◦ Modifications in formularies
  ◦ Less care by attending-level physicians
  ◦ Triage of scarce resources (ventilators)
  ◦ Expanded/modified scope of practice
Altered Standards of Care

- Operational Standards of Care:
  - Higher patient to staff ratios
  - Extended shifts
  - Early discharges
  - Canceling outpatient and elective procedures
  - Ambulance diversion and/or bypass
  - Changes in triage or admission criteria
  - Rationing of medical equipment, medical gases and other supplies including pharmaceuticals
Mechanical Ventilation in Public Health Emergency

- Ventilator shortage during surge
  - Approximately 110,000 vents in U.S.
  - Estimated 62,000 full feature, 46% peds/neo
  - Estimated 100,000 in use daily
  - Projected need of over 700,000 during public health emergency

- Ventilator availability through NRF
  - Stockpile
  - Increase # of vents at hospitals
Mechanical Ventilation in Public Health Emergency

Pros and Cons of Stockpiling Vents

**PROS**

- Accurate count of functioning vents
- Can be delivered to hospitals for isolated event
- Ensure timely repairs
- Ensure optimal distribution
- Decrease vent maintenance costs

**CONS**

- Costs to warehouse, transport, education of staff
- Clinician familiarity with vent
- Time delay and logistics to deliver vents to hospitals
- Depend on govt. for service and repair
Mechanical Ventilation in Public Health Emergency

Pros and Cons of Distributing Vents

- Staff maintain competency
- Improve troubleshooting skills
- Cost of disposables absorbed by hospital
- Becomes hospital asset
- Eliminates delivery issues
- Vents ready for use

- Increase wear and tear and maintenance by routine usage
- Difficult to deliver for isolated event
- Need guidelines for acquisition and return of vents
- Difficult to keep current inventory
Mechanical Ventilation in Public Health Emergency

- Ethical Decisions with Allocation of Vents
  - When to implement?
    - Surge capacity fully employed
    - Conservation, reutilization, adaption, and substitution performed maximally
    - Identification of critically limited resources
    - Identification of limited infrastructure
    - Requests for resources from local, region, and state
  - Competing priorities for vent usage
Mechanical Ventilation in Public Health Emergency

- Ethical Decisions with Allocation of Vents
  - Sickest first?
  - First come, first served?
  - Most likely to recover?
  - Preserving the functioning of society?
  - Maximize the number that will survive to hospital discharge
# Mechanical Ventilation in Public Health Emergency

<table>
<thead>
<tr>
<th>Tier 1</th>
<th>Do not offer, and withdraw ventilator support, for patients with any one of the following: Multisystem organ failure, failure to respond to mechanical ventilation and antibiotics after 72 hours in context of a biological pathogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 2</td>
<td>Do not offer, and withdraw ventilator support, from patients in respiratory failure requiring intubation with the following conditions, in addition to those in Tier 1: Renal failure requiring hemodialysis, irreversible neurologic impairment that makes patient dependent for personal care.</td>
</tr>
<tr>
<td>Tier 3</td>
<td>Specific protocols to be agreed upon with input from the ethics committee.</td>
</tr>
</tbody>
</table>
References

- The Joint Commission Hospital Accreditation Standards
- Reilly and Markenson, Healthcare Emergency Management Principles and Practices, Jones and Barlett Learning, 2010
- John Wilgis, Strategies for Providing Mechanical Ventilation in a Mass Casualty Incident, Respiratory Care, 2008
- Ethical Considerations for Decision Making Regarding Allocation of Mechanical Ventilators during a Severe Influenza Pandemic or Other Public Health Emergency
- CDC, Detailed Hospital Checklist for Ebola Preparedness
Questions