The Next Challenge in Healthcare Preparedness—Catastrophic Health Events

EMForum
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HHS Contract # O100200700038C
Contracted by HHS to Assess the Hospital Preparedness Program (HPP), Past and Future

1. Define key elements of healthcare preparedness for mass casualty events (Descriptive Framework: delivered 12/07)

2. Use the Descriptive Framework to review the first 5 years of the HPP and assess the current state of healthcare preparedness and the impact of the HPP (Evaluation Report: delivered 1/09)

3. Evaluate the Healthcare Facilities Partnership Program (HFPP) and Emergency Care Partnership Program (ECP) grants (HFPP/ECP Report: delivered 11/09)


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Hospitals Rising to the Challenge: The First Five Years of the U.S. Hospital Preparedness Program and Priorities Going Forward
Evaluation Report
March 2009

• Purpose
  – Assessment of the progress in healthcare preparedness for mass casualty disasters achieved as a result of the first 5 years (2002-2007) of the HPP

• Methodology
  – Comprehensive literature review
  – Interviews with 133 individuals involved in public health and hospital preparedness in 91 locations (all states and major cities)

  • Assessment criteria based on the Descriptive Framework designed to evaluate progress toward achieving key capabilities and performance measures

  • Issue Analysis Meeting (6/24/08) review of findings

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Evaluation Report: Interview Distribution

<table>
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<tr>
<th>Sector</th>
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<td><strong>Total</strong></td>
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Evaluation Report: Findings

• The state of preparedness of individual hospitals has significantly improved over the last 6 years

• Nascent coalitions, consisting of healthcare institutions and local and state agencies, are emerging across the country
  – Healthcare Coalitions are essential to effective regional responses to commonly occurring mass casualty events that overwhelm an individual hospital
  – Healthcare Coalitions are creating a foundation for local and national healthcare preparedness

• Planning for catastrophic health events, including crisis standards of care, is in its early stages
Healthcare Coalitions (MSCC Tiers 2-3)

Federal response (regional and national)

State A

State B

State A

Jurisdiction I
(PH/EM/public safety)

Jurisdiction II
(PH/EM/public safety)

Medical support

HCFA

HCF B

HCF C

Non-HCF providers

HCFA

Federal response (support to State and locals) Tier 6

Interstate regional coordination (management coordination and mutual support) Tier 5

State response and coordination of intrastate jurisdictions (management coordination and support to jurisdictions) Tier 4

Jurisdiction incident management (medical IMS and emergency support—EOC) Tier 3

Healthcare “coalition” (info sharing; cooperative planning; mutual aid) Tier 2

Healthcare asset management (EMP+EOP using incident management) Tier 1

EMP = Emergency Management Program
EOP = Emergency Operations Plan
PH = Public Health
EM = Emergency Management

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Important Characteristics of Healthcare Coalitions

• Include at least all hospitals, public health and emergency management agencies, and EMS; formally linked (e.g., by MOUs)

• Conduct joint threat assessment, planning, purchasing, training, and drills

• Serve as information clearinghouse with systems for tracking patient load and assets

• Have a formal role in local/state incident command system

• Coordinate volunteers in healthcare settings

• Provide forum for decisions regarding allocation of resources

• Coordinate alternate care facilities
Events Where Coalitions Improved Response to Common Disasters

- Minnesota bridge collapse (2007): Regional Hospital Resource Center
- Tulsa tornados & ice storm: Medical Emergency Response Center
- Seattle snow storm (2008): Seattle-King County Healthcare Coalition
- Hurricanes Gustav & Ike (2008): Galveston, Texas
- Alaska RSV outbreak (2008): All Alaska Pediatric Partnership
- Southern California wildfires (2005): Disaster Resource Centers
- Florida hurricanes, wild fires, & race horse poisoning: Palm Beach, FL, Healthcare Emergency Response Coalition
Preliminary Evidence of Coalition Value: H1N1 (2009)

- **Seattle, Northern Virginia, NYC, Los Angeles, and Connecticut** activated medical coordination centers
  - Collected healthcare situational awareness data
  - Coordinated plans to distribute/use stockpiled antivirals
  - Translated, coordinated, and distributed clinical guidance
  - Coordinated messages to media

- **UC Davis Emergency Care Coalition**
  - Initiated rural telemedicine connection to coalition hospitals to support care of critically ill H1N1 patients
Preparedness Report
(Direction for the Future)

• **Purpose:** To build on the previous work to propose a definition and strategy for healthcare preparedness for the future.

• A key finding of the *Evaluation Report* was that, while much progress has been made in healthcare preparedness for common medical disasters, the U.S. healthcare system is ill prepared for **catastrophic health events** (CHE), and there is as yet no clear strategy that will enable an effective response to such an event.

• The definition of “**catastrophic health event**” used: an event that could result in tens or hundreds of thousands of sick or injured individuals who would require access to healthcare resources.(HSPD-21)
Our proposal for a national strategy for healthcare preparedness for catastrophic health events, including:

– Description of capabilities of a prepared healthcare system
– Analysis of current response strategy and structure
– Recommendations built on current successes and existing structures to make all-hazards healthcare preparedness and response scalable to include catastrophic health events
– Provisional assessment criteria for ongoing assessment of progress towards these national preparedness and response capability goals
Preparedness Report:
Methods

- Literature review on disaster preparedness and response and the current disaster health system 1995-2009
- Review of previous Center for Biosecurity working groups: mass critical care, pandemic influenza, Katrina, mega-disasters, regional hospital coalitions, alternate care facilities, disaster standards of care, NDMS
- Complex systems theory literature
- Consideration of catastrophic health event scenarios derived from National Planning Scenarios
- Input and peer review: Second Issue Analysis Meeting 2.24.09 (20 experts from around the country)
Vision of Success: A Healthcare System Prepared for Catastrophic Events is Able to…

- Provide care for disaster victims, protect the well, and maintain essential healthcare services for the general population
- Respond quickly and agilely to mass casualty events of all sizes and causes, including those that cross jurisdictional boundaries
- Function under a variety of adverse circumstances, including:
  - a prolonged surge of patients
  - patients needing prolonged care
  - a contaminated or contagious environment
  - loss of infrastructure
  - imperfect situational awareness and disruption of incident management
- Harness all useful national resources, public and private
- Recover quickly after a disaster, still providing essential healthcare to the population
Example of a CHE

• Anthrax National Planning Scenario
  – 330,000 individuals “exposed” in covert aerosol release in large city (let’s say DC)

  – Scenario projects 13,000 cases of inhalational anthrax, most requiring critical care
Hospital Surge Capacity Is Limited

• Expected need
  – ~13,000 critical care beds
• ~40 hospitals within 20 miles of Capital
  – If assume 30% surge capacity
    • 3000 beds, 400 critical care beds
• To get to 13,000 would need the surge capacity of all hospitals from Philadelphia to Norfolk
Massive Screening Challenge

- In addition, to the thousands of obviously sick people there would be many more who have some symptoms but may or may not be infected—early symptoms may be very nonspecific
  - To limit the crushing demand on hospitals it is essential to screen out those not infected
  - No rapid diagnostic test for any bioagent and no system for screening on this scale
- Need more R&D into rapid diagnostics
- Need to develop clinical triage protocols for use when resources are overwhelmed
Response Options for a Catastrophic Health Event

- There are 3 basic options:
  - **Bring stuff in** (concentrate deployable resources near the affected site)
    - How many resources are available and how quickly can they be deployed?
  - **Move patients out**
    - By what means? How far? How to track? Families?
  - **Limit the medical care provided** (crisis standards of care)
    - Process for triggering, coordination, implementation?

*All are needed – a multilayered response*
Bring Stuff In: Limited State and Federal Healthcare Resources

- Personnel
  - 50 DMATs, 6,000 Public Health Service Commissioned Corps, DoD, and VA
  - State MRC and medical volunteers

- Mobile facilities:
  - Federal Medical Stations, a few mobile hospitals

All take days/weeks to deploy and have limited capacity

**All are useful, but collectively insufficient for a catastrophic health event**
Move Patients Out: Limited Medical Transport

- While surge capacity in any one hospital or city may be very limited, across multistate regions or the country as a whole medical surge capacity is substantial
- The problem is getting the patients to the beds
- Transportation:
  - NDMS/USTRANSCOM (3,300 patients in 54 hours, many fewer if critically ill)
  - National Ambulance Contract (100s)
  - Both take days/weeks to deploy
  - Useful, but insufficient for a very large event
- Massive transportation resources exist in the private sector, but these are not traditional medical vehicles—require a different approach to standard of care
Limit the Medical Care Provided: Requires Different Approach to Standards of Care

“Crisis Standards of Care”

• Doing what is best both for the population and the individual patient
• In a catastrophic event, very resource-intensive care detracts from the care of others and may harm the individual if needed follow-on care is not available
• Applies to triage, transportation, and treatment
• Must be coordinated, and applied fairly and uniformly
Optimal Response Requires Effective Coordination—the Healthcare Coalition

- All three response options require multi-tiered coordination
- At the local level hospitals and other healthcare entities (mostly privately owned and fiercely competitive) must share and coordinate:
  - Real time information, resources (supplies, equipment, and personnel) and distribution of patients
- Requires joint planning, joint exercises, and a mechanism for coordinated healthcare response—closely integrated with public health, EMS and emergency management (the Healthcare Coalition)
- Coalitions are evolving across the country prompted by the HPP and Joint Commission
- In very large events, coordination must extend beyond local jurisdictional borders, both vertically and horizontally
Major Challenges to Catastrophic Health Response

• Many hospitals and other healthcare organizations do not yet participate in fully functional healthcare
• Most existing coalitions do not yet have the ability to share information, resources, and decision-making directly with neighboring coalitions
• There are inadequate systems to perform the necessary triage, immediate treatment, and transport of patients outside of the immediate area stricken by a CHE
• Existing plans and resources for patient transport are inadequate for moving the expected numbers of patients
• There is not enough guidance on the crisis standards of care that will be necessary throughout all stages of a CHE
• There is no plan that sufficiently outlines healthcare roles, responsibilities, and actions during the response to a CHE
Recommendations for Improving U.S. Healthcare Response to Mass Casualty Events of All Sizes

- Every U.S. hospital should participate in a healthcare coalition that prepares and responds collaboratively to common medical disasters and CHEs.
- Links should be established between neighboring healthcare coalitions to enable regional exchange of healthcare information and assets during a CHE.
- Out-of-hospital triage sites should be established and healthcare responders should be trained in CHE triage.
- A patient transportation system that harnesses alternative, private sector resources should be created.
- Development of crisis standards of care should be expanded, and their consistent implementation within and across states should be promoted.
- A national framework for healthcare response to CHEs should be developed to guide states, jurisdictions, and local entities in developing ConOps for medical and public health activities.

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Thank you!

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