



Current Pandemic Preparedness Plans and Their Challenges

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Learning Objectives

- Recognize financial and organizational challenges to developing a pandemic flu plan
- Identify key stakeholders in planning process
- Identify resources that can help the planning process
- Learn how states and healthcare institutions have developed and implemented effective pandemic plans

Impact on US Hospitals

	Moderate (1968-like)	Severe (1918-like)
Illness	90 million (30%)	90 million (30%)
Outpatient Medical Care	45 million (50%)	45 million (50%)
Hospitalization	865,000	9,600,000 (10x)
ICU Care	128,750	1,485,000 (11x)
Mechanical Ventilation or Respiratory Failure	64,875	745,500 (11x)
Deaths	209,000	1,903,000 (9x)

Priorities for Hospitals

- Comprehensive and realistic planning
- Collaboration among internal and external entities
- Maintaining and augmenting hospital workforce
- Allocating limited healthcare resources in a rational, ethical, transparent and organized way

Hospital Roles and Responsibilities in Pandemic Planning

- Development of planning and decision-making structures for responding to pandemic influenza
- Development of written plans to address
 - Disease surveillance
 - Triage and clinical evaluation
 - Surge capacity
 - Facility access
 - Distribution and use of antiviral drugs
 - Internal communication
 - Coordination with external entities
 - Business planning
 - Education and training
- Evaluate the adequacy of these plans through simulation events

Major Challenges in Pandemic Planning Remain Inadequately Addressed

- Financial strain on hospitals
- Resource shortages (both human and medical)
- Guidelines for resource allocation
- Gap between planning “checklists” and practical implementation
- Inadequate regional integration of assets across agencies
- Liability issues around scarce resources and altered standards of care

Pandemic Planning: Million Dollar Price Tag per Hospital

Estimated costs to develop and implement a Pandemic Influenza Preparedness Plan for an average hospital (164-beds)

- Development of plan — \$ 200,000
 - Staff training — \$ 160,000
 - Obtain personal protective equipment — \$ 400,000
 - Obtain basic supplies — \$ 240,000
- \$1,000,000 per hospital

Financial Challenges: Pandemic Influenza Would Severely Strain Most Hospitals

- 30% of US hospitals currently lose money
 - Especially on admissions for complications of influenza, eg, pneumonia
- Pandemic would disrupt ability to offset losses with income from higher revenue from elective procedures

Pandemic Influenza Would Severely Strain Most Hospitals (cont'd)

- Average hospital has only 41 days of cash on hand
- Staff and supplies will be in short supply and expensive

Pandemic Influenza Would Severely Strain Most Hospitals (cont'd)

- Need for surge capacity
 - Mathematical models estimate nationwide need for:
 - 2X currently available non-ICU beds
 - 5X currently available ICU beds
 - 2X currently available ventilators

Pandemic Influenza Would Severely Strain Most Hospitals (cont'd)

- Hospitals must still maintain continuity for routine, non-pandemic hospital services

Planning for Financial Challenges

- Sources of funding needed for obtaining equipment, vaccine and antiviral medications
 - Grant funding
 - Burden to hospital itself
- If sources of reimbursement are developed, hospitals must know in advance what data to collect to support requests for reimbursement

Critical Shortage of Medical and Human Resources

- High absenteeism of all hospital staff due to illness, family responsibilities, or fear of contagion
- Many demands on available volunteers
- Deployable federal medical assets unlikely to be available, or of much utility

Appendix 2. Hospital Preparedness Checklist

Preparedness Subject	Actions Needed
1. Structure for planning and decision making	
<ul style="list-style-type: none"> ● An internal, multidisciplinary planning committee for influenza preparedness has been created. 	
<ul style="list-style-type: none"> ● A person has been designated as the influenza preparedness coordinator. (Insert name) _____ 	
<ul style="list-style-type: none"> ● Members of the planning committee include the following hospital staff members (insert names) <ul style="list-style-type: none"> ○ Administration _____ ○ Legal counsel _____ ○ Infection control _____ ○ Hospital disaster coordinator _____ ○ Risk management _____ ○ Facility engineering _____ ○ Nursing administration _____ ○ Medical staff _____ ○ Intensive care _____ ○ Emergency Department _____ ○ Laboratory services _____ ○ Respiratory therapy _____ ○ Psychiatry _____ ○ Environmental services _____ ○ Public relations _____ ○ Security _____ ○ Materials management _____ ○ Staff development _____ ○ Occupational health _____ ○ Diagnostic imaging _____ ○ Pharmacy _____ ○ Information technology _____ ○ Other members _____ ○ Other members _____ 	
<ul style="list-style-type: none"> ● A state or local health department person has been identified as a committee liaison. (Insert name) _____ 	
<ul style="list-style-type: none"> ● A linkage with local or regional emergency preparedness groups has been established (Planning organization) _____ 	
2. Development of a written pandemic influenza plan	
<ul style="list-style-type: none"> ● A written plan has been completed or is in progress that includes the elements listed in #3 below. 	
<ul style="list-style-type: none"> ● The plan specifies the circumstances under which the plan will be activated. 	

“Checklists” for Planning have been propagated, but these have limitations.

Limitations of Pandemic Planning by Checklist

- They are nonspecific and do not address prioritization
- They do not assess coordination with other organizations regionally as mandated by HHS
 - Resource allocation
 - Patient redistribution
 - Alternative care sites
 - Recruitment, training, credentialing, and deployment of volunteer health workers
- They do not evaluate actual implementation

Regional Pandemic Planning has Significant Gaps

- Most states are inadequately prepared
 - 25 states would run out of hospital beds within 2 weeks of moderate pandemic flu outbreak
 - 40 states do not test for influenza year-round
 - Only 15 states rated highly prepared to provide vaccines and supplies from Strategic National Stockpile

Getting Started While Being Mindful of the Challenges

- Contact state and local health departments to determine what infrastructure exists and what are the plans for a coordinated response
- Form multidisciplinary pandemic planning committee
- Evaluate your current preparedness levels
- Leverage existing hospital knowledge and resources for emergency preparedness
- Use existing checklists and pandemic plans as models, while being aware of their limitations

First Steps: Identify Key Stakeholders

- Senior administration
- Disaster management
- Medical staff leadership
- Disaster management
- Emergency services
- Hospital epidemiology
- Pharmacy
- Laboratory services
- Facilities director
- Risk management
- Pathology/morgue
- Environmental services
- Public relations
- Human resources
- Nursing
- Information management
- Occupational health
- Nutrition/food services
- Respiratory therapy
- Security
- Fiscal services
- Ethics

First Steps: Evaluate Current Preparedness

Pre Pandemic Assessment

- Number of available hospital beds _____
- Number of HEPA filters not being used _____
- Pharmaceutical Cache inquiry (per State Epidemiologists request)
- Number of N95 masks available _____
- Number of SMATs able to deploy from unaffected areas _____
- Bed capacity of those SMATs _____
- Number of Oxygen cylinders available for use _____
- Hospitals identified with highest populations of flu
- University involvement **assessment (sit report)**
- Number of Community Health Centers available to assist (begin designation of liaisons for each center) _____
- Regional Advisory Committee assessment

First Steps:

Define Goals, Make Assumptions

- Determine whether local/state authorities have set targets or made assumptions
- Develop goals for surge capacity
 - FluSurge (available as a download from CDC) an important tool
 - Include assumptions for
 - Outpatients
 - Inpatients
 - ICU patients
 - Ventilator-supported patients
- Plan for resource constraints
 - Size of stockpile needed
 - Degree of personnel shortage
- Understand expectations for providing care in alternative care facilities

Alternative Care Facilities

- May be located within the hospital or externally
- Managed by one entity or as a coordinated effort
- Serves as alternate point of presentation and care
- Can be scaled to need



**PMAC – Hurricane Katrina 2005
(Compliments New Mexico Modular
Emergency Management System)**

Challenges Associated With Alternative Care Facilities

- Levels of planning, coordination, and support vary by state
- Realistic staffing models are needed, especially given work shortages
- Licensure issues
- Liability issues
- Models for assuming costs and receiving reimbursement

Pandemic Planning Checklists Offer Structure and Guidance, Despite Their Limitations

- Checklists with necessary elements of pandemic plan available:
 - For hospitals
 - www.hhs.gov/pandemicflu/plan/sup3.html#app2
 - For long-term care facilities
 - <http://www.pandemicflu.gov/plan/healthcare/longtermcarechecklist.html>
 - For medical offices and clinics
 - <http://www.pandemicflu.gov/plan/pdf/medofficesclinics.pdf>

Planning: Hospital Epidemiologist in the Lead

- Develop written infection control protocol
 - Case definition
 - Isolation and quarantine rules
- Develop surveillance strategy
 - Develop written protocols to assure standardization of hospital surveillance methods
 - Develop data collection and periodic reporting mechanisms
 - Collate information to report to state DOH
- Implement mechanism for appropriate precautions with pandemic influenza patients

Planning: Hospital Epidemiologist in Collaboration

- Coordinate environmental decontamination (with Environmental Services)
- Coordinate distribution of antivirals (with pharmacy)
- Coordinate universal seasonal flu vaccination of staff (with Occupational Health and Pharmacy)
- Champion ongoing infection control measures (such as hand hygiene) with hospital clinical leadership

Evaluating Through Simulation

- **Models for Drills**
 - Computer simulation
 - Tabletop exercise
 - Operational drill
- **Develop Goals to be Assessed**
 - Implementation of a leadership (command) structure
 - Adequacy of communication
 - Ability to track patients
 - Mobilization of equipment and resources
- **Develop Assessment strategy**
 - Formalized assessment tools
 - Observers record the action
- **Document the learning in an after-action report**

Pandemic Plan Development: What Is Working — State Level

- Pandemic plans have been developed at the state level for all 50 states
- Links to all state plans are available:
 - <http://ohden.sph.unc.edu/pandemic/community.htm>

Example of Successful Planning at State Level: Arizona Partnerships

- All acute care hospitals have received funding, training and equipment
 - Personal protective equipment, satellite communications, pharmaceutical caches, surge beds
- Arizona enjoys excellent relationships among:
 - City, county, state and federal partners
 - Public Health, EMS, Fire, Emergency Mgmt, Law Enforcement

Pandemic Plan Development: What Is Working — Institutional Level

- Model pandemic plans at the institutional level have been disseminated by several hospitals
- Links to some hospital plans available to members of Society for Healthcare Epidemiology of America (SHEA):
<http://www.shea-online.org/news/avianflu.cfm>
 - Dartmouth-Hitchcock Medical Center
 - Children's Hospital Los Angeles
 - Miami VA Medical Center
 - Parkland Hospital – Dallas

Sample: Dartmouth Hitchcock Medical Center Plan for Epidemic Respiratory Illness

- Matrix defines parameters for determining different levels of alert
- Strategies at each level for access control, surveillance, screening and triage, infection control/precautions, communication/education, preparedness

Level: ORANGE

There is evidence of nosocomial transmission of ERI from known infected patients to other patients, employees, or visitors at DHMC, OR there is human-to-human transmission in the Upper Valley region, or nearby.

Summary: "ORANGE" indicates a high level of alert, with restrictions on access to DHMC, much more active screening, and a shift away from normal operations throughout the institution. At the ORANGE level, the Readiness Committee will consider implementing each of the following additional actions.

Access Control

- All entrances to medical center will be locked except the Main Entrance, the entrance from Parking Garage, and the Emergency Department entrance.
- Security guards will be stationed at open entrances.
- Entry into facility will be restricted to the following:
 - Staff, and students with valid ID
 - Patients with appointments
 - A single adult accompanying a patient
 - A single parent of hospitalized child
- Those allowed into the facility must be screened for fever or cough (**see Surveillance, screening and triage** below) and have their temperature taken and if cleared, given something to indicate that they have been cleared to enter the facility (eg, a sticker, a card, a stamp on their hand).
- Activities of Food Court eateries and shops, hair salon, optical shop, etc will be suspended.
- Activities of vendors, volunteer activities, continuing education programs, except those related to the epidemic disease will be suspended.
- There will be some degree of suspension of elective surgeries, elective admissions, elective outpatient appointments as determined by the Readiness Committee.
- There will be some level of suspension of medical student rotations, construction as determined by the Readiness Committee.

Regional Surge Planning: What Is Working

- New Mexico Modular Emergency Medical System (NM-MEMS)
 - Details structure and process involved in developing a state-wide pandemic flu plan
 - <http://www.unm.edu/~medbow/panflu/>

What Is Working?

MEMS Components

BACKBONE MODULES

NEHC – Neighborhood Help Center

ACC – Acute Care Center

KEY MODULES

MCC – Medical Command and Control

CTS – Casualty Transport System

CO – Community Outreach

MP – Mass Prophylaxis

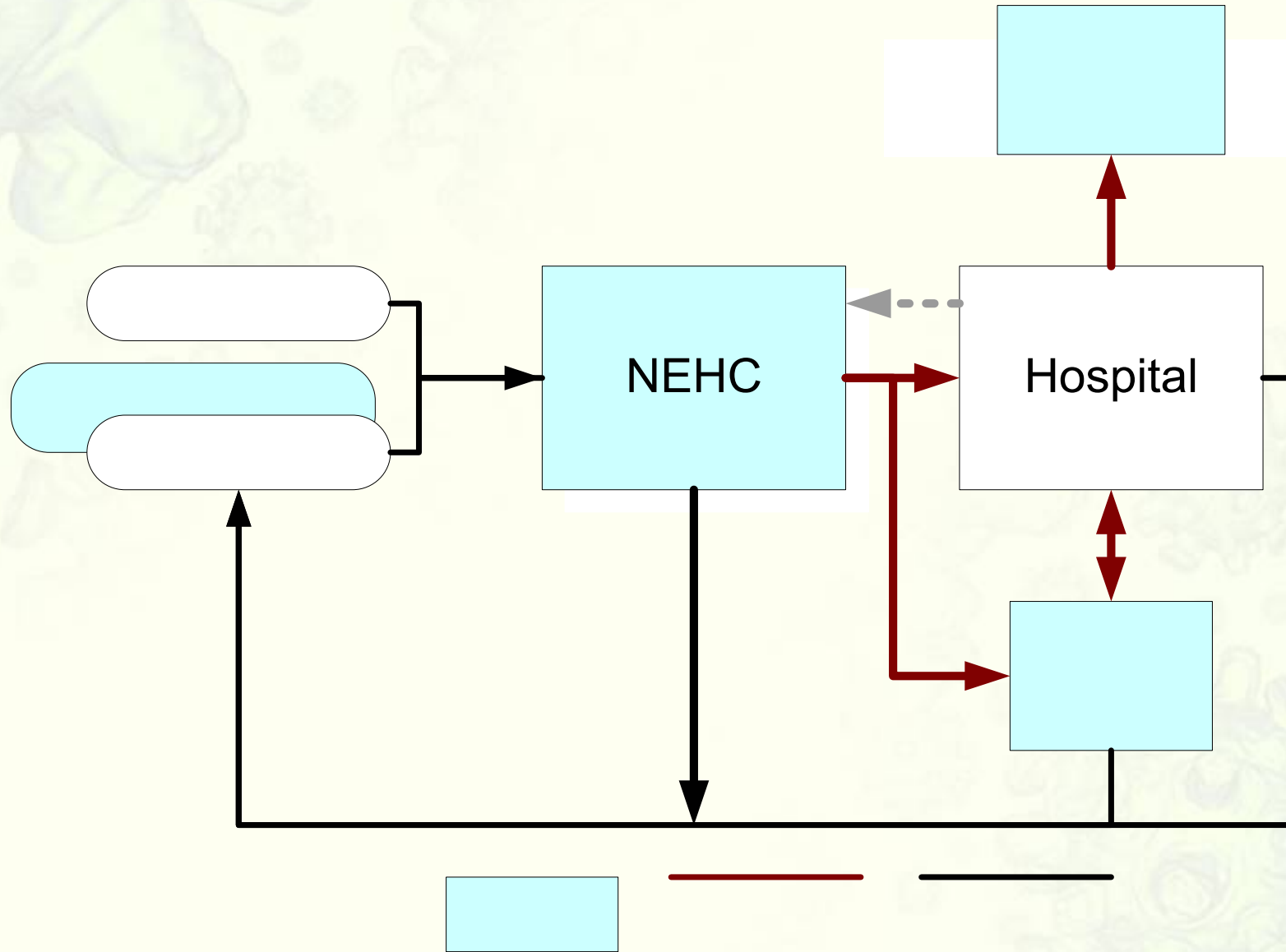
ADDITIONAL ELEMENTS

PI - Public Information

Fatality Management

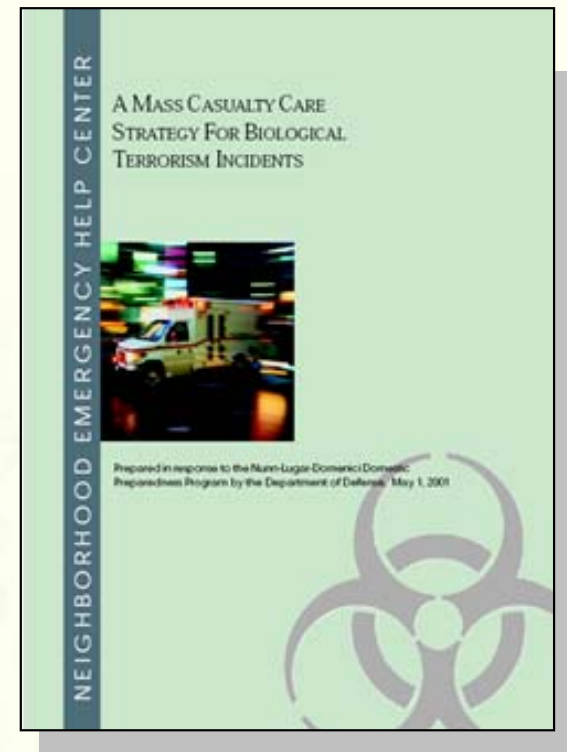
- Adaptation of “All Hazards” Approach
- NEHC & ACC are scaled to care for 1000 patients/day
- Community outpatient centers provide the most efficient care model
- Adjusted “standard of care”

MEMS Flow Map



NEHC – Neighborhood Help Center

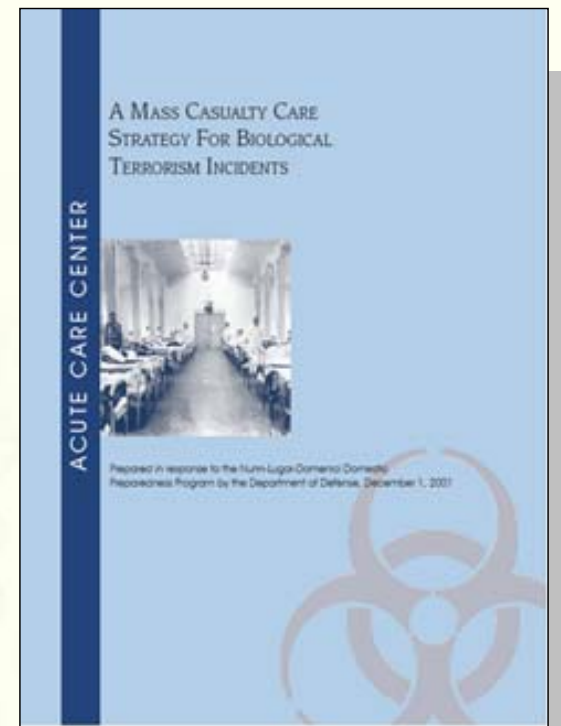
- Primary triage and evaluation site designed for “high volume” (1000/24 hr)
- Services:
 - *Outpatient/ambulatory care*
 - Limited treatment scope
 - Prophylaxis
 - Self-help information
- Patients arrive by their own means
- Referrals to hospital or ACC with transport by CTS



“Green Book”

ACC – Acute Care Center

- Expansion of *inpatient/hospital ward* for patients requiring admission
- Located near hospital
- “Level of Care Philosophy”
 - Agent-specific and supportive care
 - No advanced life support
 - Limited triage function (admissions)



“Blue Book”

Conclusions

- Robust pandemic flu planning would cost \$1 million or more per hospital
- Facilities need to have comprehensive, realistic plans and test those plans
- Regional cooperation is a mandate, but models differ
 - Understand the resources and models in your area
- Many resources are available so healthcare institutions can avoid reinventing the wheel