

Emergency Medicine Residency Disaster Curricula Model *An Information Paper*

Identifiers:

- * Core material
- ** Core material available as online courses
- # Core material that should be covered in other residency lectures

I. Common Challenges in Response to Disaster *

A. Definitions and Common Problems (overview)

1. Disaster vs. mass casualty event
 - a. Resource availability vs. scarcity
2. “All Hazards” approach
3. Issues common to all disasters
 - a. Sociological, political, and economic considerations in planning
 - b. Impact of disasters on communication
 - i. Mitigation strategies
 - c. Trained and untrained volunteers
 - i. National Disaster Medical System (NDMS)
 - ii. Disaster Medical Assistance Teams (DMAT)
 - iii. Volunteer medical staff; Medical Reserve Corps (MRC)
 - iv. Emergency System for Advanced Registration of Volunteer Health Professionals (ESARVHP)
 - d. Crisis and emergency risk communication to the public
 - e. The media
 - f. At risk populations

B. The National Incident Management System (NIMS) **

1. http://www.fema.gov/media-library-data/20130726-1853-25045-0014/nims_overview.pdf
1. 14 Essential hospital response steps in NIMS **
http://www.fema.gov/pdf/emergency/nims/imp_hos.pdf
2. 15 Essential support functions in the National Response Framework (NRF)
ESF 8- Health and Medical
ESF 6- Mass care (sheltering)

II. Emergency/Disaster Management *

A. Planning Cycle

1. Mitigation
2. Planning
3. Response
4. Recovery

B. The Emergency Management Program

1. Hazard Vulnerability Analysis (HVA)

2. Emergency operations plan
3. Declaration of incident
4. Personnel notification
 - a. Response to incident
 - b. Integration of medical staff into the operational response
 - c. Recovery from incident
 - d. Incident specific annexes
 - e. Workforce hardening (psychological first aid etc.)
5. Training and exercise plan
 - a. Homeland Security Exercise and Evaluation Plan (HSEEP)
 - b. Drills
 - c. Tabletop exercises
 - d. Functional exercises
 - e. Full-scale exercises
 - f. After action conference and improvement plan

III. Command and Control of Incidents

- A. Incident Command Systems **
 1. ICS and Hospital ICS (HICS)
 2. Basic ICS functions (IS 100, 200, 700)
 3. Command and general staff roles - <http://www.training.fema.gov/IS/crslist.aspx>
- B. Unified Command Concepts in Hospital Centric Events
- C. Role of the Emergency Operations Center (EOC) and the Multiagency Advisory Committee (MAC)
- D. Resource Sharing and the Strategic National Stockpile (SNS)
 1. Activation
 2. Types of materials

IV. Public Health in Emergency Planning and Response

- A. Public Health as an ESF-8 Lead Agency
- B. Role of Public Health
 1. Direction of mass care
 - a. Challenges related to standards of care
 2. Infection surveillance and control, quarantine, isolation
 3. Logistics and supplies
 - a. Vaccination and prophylaxis
 4. Health investigations
- C. Medical Facilities and Private Practitioners
 1. Medical facility planning
 2. Responsibilities, liabilities
- D. Ethics and Legalities of Medical Response in Disaster
 1. Regulation of medical care
 - a. EMTALA and HIPAA
 - b. Standards of care in disaster
 2. Personnel issues

- a. Workplace safety
- b. Liability/malpractice
- c. Worker's compensation

V. Special Populations

- A. Identification and Planning for Vulnerable Populations
 1. Children
 2. Elderly/deaf/visual impairment
 3. Individuals with mental illness
 4. Device dependent: dialysis, ventilators, LVAD
 5. The poor/non-English speaking/lack of mobility
 6. Religious and cultural factors
- B. Unique Issues Related to Medical Care
 1. Appropriate medical equipment and expertise at hospitals
 2. Transfer agreements with other institutions (pediatric and psychiatric hospitals)
- C. Social Issues
 1. Family reunification/patient tracking
 2. Challenges related to language, disability, culture
 3. Sheltering - special needs populations mainstreaming in general population shelters
 4. Pets and service animal's co-location
 5. Behavioral/psychological support for population and workforce
- D. Evacuation
 1. Hospital
 2. Congregate facilities (nursing homes, child welfare facilities, etc.)
 3. Medical needs of other vulnerable populations during evacuation
 4. Deconffliction of resources needed to evacuate everyone (local emergency management interface)

VI. Key Out-of-Hospital Operational Considerations

- A. Disaster Preparedness Plan/Planning
 1. Integration of public safety (police, fire, EMS, etc.), public works
 2. Private industry
- B. Interoperability and Mutual Aid
 1. Flexible, scalable strategies for use by EMS systems
- C. Triage of Calls
 1. Tiered response in disaster setting
- D. Field Triage and Treatment **/#
 1. Triage method appropriate to disease state, eg, SALT/MUCC, START; trauma; influenza; medical protocols
- E. Augmentation of Field Response Agencies with Staff and Material
- F. Aero Medical Evacuation: Fixed and Rotary Wing

VII. Critical Medical Knowledge

- A. Mass Trauma #
 - 1. Emergent life-saving procedures
 - 2. Blood supply management and alternatives

- B. Building Collapse *
 - 1. Identifying victim location, predicting outcome
 - 2. Compartment syndrome #
 - 3. Crush syndrome
 - 4. Renal preservation
 - 5. Field amputation

- C. Incendiary #
 - 1. Burn care
 - 2. Smoke inhalation
 - a. Cyanide treatment
 - b. Carbon monoxide treatment

- D. Blast Injury ** www.acep.org/blastinjury
 - 1. Primary injury patterns
 - 2. Secondary injury patterns
 - 3. Tertiary injury patterns
 - 4. Quaternary injury patterns

- E. Chemical-HAZMAT
 - 1. Hazardous Materials Operations Overview **
 - 2. HAZMAT PPE and response\OSHA “First Receivers” Standards
 - 3. Decontamination of responders and patients
https://www.osha.gov/dts/osta/bestpractices/html/hospital_firstreceivers.html
 - 4. Decontamination and surety
 - 5. Monitoring devices
 - 6. Specific agents
 - a. Caustics
 - b. Solvents
 - c. Metals
 - d. Cancer-causing
 - e. Organophosphates #
 - f. Chlorine-Phosgene
 - g. Chemical terrorism technologies and strategies

- F. Radiation Health Physics and Disaster Response *
 - 1. Decontamination
 - 2. Monitoring devices
 - a. Biologic dosimetry
 - 3. Acute Radiation Syndrome
 - a. Gastrointestinal syndrome
 - b. Hematopoietic syndrome
 - c. Neurologic syndrome
 - 4. Radiation dose estimation - both biological and measured
 - a. Absolute lymphocyte count
 - b. DNA analysis
 - 5. Surgical care: going to OR despite still being contaminated

- a. Surgical timing
- 6. Medical care
 - a. Supportive care, fluids, ALC levels, reverse isolation
 - b. Consult experts: Oak Ridge REAC/TS, state health department, bone marrow transplant
 - c. Use of colony stimulating factors
 - d. Bone marrow transplantation
 - e. Infection response measures
- G. Infectious Disease #
 - 1. Natural events
 - a. Vectors and vector control
 - b. Food borne
 - c. Communicable disease (Pandemic Influenza, SARS, etc.)
 - 2. Intentional events
 - a. Bioterrorism technologies and strategies
 - b. Smallpox, anthrax, and plague
 - i. Recognition
 - ii. Treatment and prophylaxis
 - c. Infection control

Alternative Training Methods

FEMA IS 100, 200, and 700 are federally mandated training courses and should be required independent study with the certificates turned into program manager. <http://www.training.fema.gov/IS/crslist.aspx>

The option of going to the Center for Domestic Preparedness in Anniston, Alabama should be an approved residency elective for the Health Care Leadership Course (HCL) and Hospital Emergency Response Training (HERT), both free one-week courses with travel, meals and lodging provided. <https://cdp.dhs.gov/>

Example: 3-Year Cycle

I. Didactic-Based Learning See Core Document (Three lecture series)

- 1. Common Challenges in Response to Disaster
Emergency/Disaster Management
- 2. Command and Control of Incidents
Public Health in Emergency Planning and Response
Special Populations
- 3. Key Out of Hospital Operational Considerations
Critical Medical Knowledge

II. Resident Asynchronous Learning Requirement

- 1. FEMA IS-100 (2 hours)
- 2. FEMA IS-200 (2 hours)
- 3. FEMA IS-700 (2 hours)

III. Simulation Opportunities

- 1. Tabletop or other (functional, full scale) exercise to tie concepts together