

Goals and Educational Objectives for the Brown Advanced Emergency Medicine Academies Fellowship Program in Disaster Medicine and Emergency Preparedness

The fellowship program will consist of modules with distinct educational objectives and learning modalities. These modules or sections will not be taught linearly, but the trainee will be engaged in several of the modules at any given time. Some modules rely on lectures to convey content while others utilize self-learning (internet-based content), team activities and participation in working groups as well as the conduct of research or a scholarly project. There is supervision from the program director and faculty during each module either by direct supervision or through feedback from the trainee.

Hospital Emergency Management Planning: Disaster and emergency preparedness, planning, drilling and execution for the hospital.

The rationale for the inclusion of this module is the necessity of understanding of the elements of the planning process, which forms the foundation by which response to all hazards are shaped. Developing and maintaining an active and continually evolving Emergency Management Plan is a vital process in hospital preparedness and planning.

The core competencies associated with this learning objective will be:

- a. To demonstrate the ability to conduct hospital disaster planning and effectively partnering with disaster planning efforts in the community within the Joint Commission framework.
- b. Be able to design and run a disaster exercise
- c. Develop a framework to implement surge capacity
- d. Be able to identify appropriate location, staffing and security for Alternate Care Sites.
- e. Manage supplies, pharmaceuticals, equipment, and other resources for an effective response
- f. Be able to understand nuances of volunteer, crowd, media and patient family management
- g. Perform evacuation, as needed, using pre- event evacuation plans and maintaining essential medical information with each patient

The specific performance objectives are:

Demonstrate a working knowledge of:

The planning process including the principles of hospital disaster planning, understanding barriers including the overall apathy developed plans sitting on shelves.

Occupational medicine and worker health and safety during response (particularly with regard to PPE use and exposure to toxins)

Surge capacity planning

Hazard Vulnerability Analyses and Assessment tools

The basic Hospital Emergency Management Plan

Annexes and appendices for the Hospital Emergency Management plan
Implementing educational activities related to the Plan
Current Joint Commission Emergency Management Elements of performance
Strategies to effectively implement Joint Commission compliant Emergency
External coordination (how to coordinate care with the local community emergency resources; partnerships between academic medicine and public health)
Internal coordination with key hospital personnel
National Response Framework
Regional and State emergency preparedness initiatives / activities (such as LPEC and MMRS). Community hazard vulnerability analysis
Financial costs associated with disasters on the governmental level
A comprehensive exercise program
The exercise process
Exercise design steps
Tabletop, Functional, and Full-scale exercises
Exercise evaluation, methods of feedback and communicating lessons learned
Exercise enhancements
Designing a Functional exercise
Role of advanced medical simulation in enhancing disaster exercises.
Explain the difference between surge capacity and capability
Identify and define the components of surge capacity
Describe the capabilities and limitations of the response system
Understand the different levels of surge built within the Lifespan Hospital System
The potential need for Alternate Care Sites
The planning, activation and implementation process for Alternate Care Sites
Describe the management of local and regional resources and how to call for additional pharmaceuticals and supplies and personnel.
Describe the change in patient management during times of increased resource demand and decreased resource supply.
Formulate a management plan in a situation, without an influx of additional resources for 96 hours
Explain the need for mutual aid and interoperability, including memorandums of understanding
Explain why emergency credentialing of volunteers is important
Identify appropriate tasks that can be delegated to volunteers according to their skills and licensure level
Describe the process of deploying volunteers to appropriate tasks
Understand the role of media during disasters
Devise strategies to deal with issues related to media communications
Understand the importance of accurate communication with families of victims
Identify situations that require evacuation Identify need for and reasons to shelter in place
Identify differences and techniques and indications for immediate versus delayed evacuation.
Explain how to keep essential medical information with patients.
Explain how to track patient location during and after evacuation

Demonstrate a working knowledge of:

- The key components of a Hospital Evacuation Plan
- The training and resources needed for an effective evacuation
- Indication for a full or partial evacuation

These objectives will be accomplished with short seminars, on-line courses developed by FEMA (ICS 100, 300, 400, 800 and FEMA EMI course: Emergency Planning (IS-00235) [10 hours]) and by participation in the Rhode Island Hospital Emergency Preparedness Committee and subcommittee meetings, participating in planning activities, drills and activations of the Hospital Incident Command System, involvement in the Lifespan Emergency Preparedness Office. Also, participation in the Providence Emergency Management exercises, the Providence Metropolitan Medical Response System, the RI Hospital Planning and Preparedness Committee meetings and the RI Emergency Management Agency meetings will be encouraged.

Specialized topics related to Disaster Medicine: The rationale for inclusion of this section is that there are specialized disease entities and pathology specifically related to disaster medicine. These topics are often not covered in depth or at all during medical school or post-graduate education. It is essential for specialists in disaster medicine to have an in-depth understanding of unique pathology associated with disasters.

The core competencies associated with this learning objective will be:

Manage patients with presentations that commonly occur during specific types of disasters, eg, environmental illnesses; burns; blast and crush injuries; nuclear, biologic, and chemical exposure.

The specific performance objectives are:

Demonstrate a working knowledge for the following:

- a. Epidemiology of disasters
- b. Clinical problems faced; Shock in the field; Emergency medicine concepts; Trauma; Crush syndrome; Compartment syndrome; Burns; Pulmonary casualties
- c. Pediatric casualties
- d. Health problems specific to the type of disaster
- e. Managing disasters in austere environments
- f. Natural Disasters (e.g., Earthquake, Flood, Hurricane, Fire, Tornado, Volcanic Eruption, Heat Wave, Cold Wave, Pandemic / Epidemic).
- g. Building collapse. Building design, destruction. Engineering concepts.
- h. Accidents (e.g., Transportation Accidents [e.g. airplane, bus, train], Agricultural or Industrial Accident [e.g. insecticides, pesticides], Chemical or Biological Contamination, Nuclear Accident)
- i. Mass gathering medicine
- j. Complex Humanitarian Emergencies
- k. Famine, Droughts, Flooding
- l. Mass fatality incidents
- m. Blast injuries (e.g., open and closed space blast injuries; primary, secondary and tertiary injuries; mechanisms and actual injury patterns). Thermal injuries
- n. Intentional Acts of Violence and Weapons of Mass Destruction
- o. Physical Attack (e.g., Bombing, Mass Shooting)
- p. Acts of Terrorism
- q. Nuclear and Radiological Agents
- r. Biological Agents
 - a. Bacteria (e.g., Anthrax, Plague, Tularemia, Q fever)
 - b. Virus (e.g., Smallpox, Viral Hemorrhagic Fevers)
 - c. Toxin (e.g., Botulinum, Staphylococcal Enterotoxin B)
- s. Chemical Agents:
 - a. Nerve Agent (e.g. Sarin, VX)
 - b. Blister Agent (e.g. Lewisite, mustard)
 - c. Choking Agents (e.g. Phosgene, Chlorine)
 - d. Blood Agents (e.g. Hydrogen Cyanide, Cyanogen Chloride)

e. Riot Control Agents (e.g. tearing agents, vomiting agents)
Management and use of Pharmaceuticals and Related Supplies:
Antibiotics; Cyanide Antidote Kits; Nerve Agent Antidotes.
National Pharmaceutical Stockpile

These objectives will be met utilizing a series of lectures and videos and readings from textbooks (Disaster Medicine, ed. Ciattono et al. Mosby) and current literature. Course material from several courses developed earlier by the fellowship director will be offered to the fellows. (BioMed 348: Nuclear, Biological, Chemical Weapons of Mass Destruction: Domestic Preparedness Training; International Trauma Care and International Trauma Anesthesia and Critical Care Society, Weapons of Terrorism Seminar; Simulation-based Training for Emergency Preparedness (STEP) regional seminar, The Rhode Island Hospital Medical Simulation Center. Lectures include: Introduction to weapons of destruction, Bomb blast and burns, Bioterrorism, Chemical agents, Personal protective equipment).

Procedural and methodological techniques utilized in Disaster Medicine and Emergency Preparedness. This module will cover certain procedures and techniques unique to or commonly utilized in Disaster Medicine and Emergency Preparedness. These procedures or methodologies may be specific to disaster medicine or common to other disciplines but utilized widely for application in disaster medicine and emergency preparedness. Knowledge of these procedures and methodologies is essential to gain expertise in this field.

The core competencies associated with this learning objective will be:

- Decontaminate patients or staff, following appropriate procedures in appropriately designated facilities
- Respond appropriately to stress- induced and other behaviors in patients, responders, and others during a disaster.
- Understand PTSD in disaster responders.
- Understand the different techniques for performing syndromic surveillance and their limitations
- Prevent and mitigate risks to self and others by performing mass immunization and other infectious disease control measures.
- Communicate effectively during any disaster

The specific performance objectives are:

- List factors necessary for the provision of a safe, clean, and structurally sound area for medical care
- Demonstrate the appropriate donning, doffing, and disposal of level C (Personal Protective Equipment) PPE
- List the indications for use of PPE
- List common limitations and troubleshooting techniques for PPE .
- Describe the process of establishing a perimeter to provide patients, medical personnel, and supplies with adequate protection
- Demonstrate a working knowledge of the theory, strategy and implementation of mass decontamination, including:
 - a. Familiarity with the various types and levels of PPE
 - b. Emergency procedures for PPE equipment failure
 - c. Maintenance, set up and use of PPE equipment
 - d. Concept of clean and dirty areas
 - e. Cleaning agents
 - f. Monitoring safety of personnel in PPE
- Prevention and management of secondary contamination
- Identify other human behaviors which put individuals at risk during a disaster (eg, refusing vaccinations, refusing to evacuate)
- Identify common human stress reactions during a disaster response.

List the acute and long-term consequences of exposure to austere or overwhelming situations

Recognize the need for psychological first aid for responders, patients, and other victims

List the appropriate steps for requesting psychological first aid for responders, patients, and other victims

Demonstrate a working knowledge of the mental health issues facing victims and responders after an incident, including:

- a. Theory and practice of Critical Incident Stress Debriefing (CISD)

Resources available

Demonstrate a working knowledge of:

- a. The theory and practice of syndromic surveillance

The active, ongoing syndromic surveillance projects at the local, regional, state and federal levels

Demonstrate a working knowledge of:

- a. Self protection measures using airborne, contact, droplet and standard precautions
- b. The rationale behind, implementation of and laws regulating quarantine and isolation
- c. The general principles of mass prophylaxis and mass immunization
- d. Environmental health management after disasters
 - Sanitation & shelter
 - Tent cities vs. sheltering in place.
 - Population displacement.
 - Water & sewage
 - ID outbreaks
 - Food control & distribution
 - ID risk factors

Vector control

Explain the role and function of a joint information center

Define and give an example of an effective communication and radio protocol

Identify alternative methods of communication (eg, runners, walkie-talkies, ham radio) and list the pros and cons for each method or device

Identify 3 principles of crisis and emergency risk communication and explain their importance

Demonstrate a working knowledge of:

- a. The Disaster Medicine specialist's role in using risk communication skills in a public health emergency
- b. The steps in preparing and delivering a message and the consequences of the message
- c. Role of the Public Information Officer
- d. Identification of hospital- and community-specific communication issues
- e. Using technology as a communication tool

Effective oral communication

These objectives will be met utilizing courses offered by the Lifespan Emergency Preparedness office (PPE), online courses offered by the Emergency Management Institute (FEMA EMI course Effective Communication (IS-000242) [8 hours]) and

those offered by the Rhode Island Emergency Management Agency, as well as lectures and seminars.

Clinical Care of Emergency Department Patients. This module will cover routine Emergency Department operations and allow the fellow continued proficiency in Emergency Care. In the best-case scenario, operations during times of disaster mirror every-day operations. Understanding every-day operations and patient care dynamics in an emergency department will enhance skills necessary for preparation for disasters. Also, many of the conditions encountered during disasters are seen in the emergency department.

The specific performance objectives are:

- 1-Understand the layout and organization of a large Emergency Department
- 2-Be familiar with patient tracking and electronic medical records used in the Emergency Department.
- 3-Understand the communications structure with outside agencies and EMS.
- 4-Be familiar with patient care techniques used in Emergency Departments in the US.

These objectives will be covered by assigning weekly observation shifts in the Emergency Department at Rhode Island Hospital, a tertiary care regional Trauma Center and Burn Center. The fellow will work along clinicians who evaluate and care for patients in this setting.

Research, education and leadership development. Specialists in Disaster Medicine and Emergency Preparedness must have an understanding of how scientific research is conducted and how a manuscript is constructed. They must be able to critically review research published in the literature. Fellows must also have the skills necessary to be effective educators as they will be called upon to educate colleagues and often the lay public and demonstrate leadership skills which are essential to manage disaster situations or lead preparedness efforts.

The core competencies associated with this learning objective will be:

- Conduct research or complete a scholarly project in the area of disaster medicine and emergency preparedness
- Demonstrate understanding of the anatomy of a scientific manuscript
- Demonstrate abilities as an effective educator
- Develop effective leadership skills

The specific performance objectives are:

- Complete the human subjects protection module
- Understand the role and responsibilities of the Institutional Review process
- Understand and implement design of a research project and IRB application
- Understand data collection, storage and analysis strategies
- Implement data analysis and manuscript submission process
- Understand the specific components of a scientific manuscript, such as introduction, methods, results and discussion.
- Demonstrate ability to critically review research manuscripts
- Demonstrate abilities as an effective educator
- Demonstrate a working knowledge of:
 - The decision-making process
 - Various decision-making styles
 - Attributes of an effective decision maker
 - Ethical decision-making and problem solving
 - Developing leadership from within;
 - How to facilitate change
 - How to build and rebuild trust
 - Fostering an environment for leadership development
 - Staying calm and focused under pressure
 - Using the rest of the team effectively
 - Utilization of different communication systems
 - Speaking hospital staff, media or community
 - Rumor control

These objectives will be met utilizing courses offered by the Department of Emergency Medicine for research faculty, Department of Emergency Medicine monthly Journal Club, online courses offered by the Emergency Management Institute (FEMA EMI course EMI course Decision Making and Problem Solving (IS-00241) [8 hours] and EMI course Leadership and Influence (IS-00240) [9 hours]), CITI training for Human Subject Protection and Research Ethics well as lectures and seminars.

These goals and educational objectives were compiled utilizing various sources and materials including: the course curriculum for the University of Massachusetts Disaster Medicine Fellowship program, Harvard Affiliated Disaster Medicine program, websites of similar programs listed in attachment 1 and the following manuscripts.

ACEP, 2010. Disaster Medicine Curriculum for Emergency Medicine Residents

Koenig KL Bey T, Schultz CH. International Disaster Medical Sciences Fellowship: Model Curriculum and Key Considerations for Establishment of an Innovative International Educational Program, Western Journal of Emergency Medicine 2009,

Schultz CH, Koenig KL, Whiteside M, Murray R, for the National Standardized, All-Hazard Disaster Core Competencies Task Force Development of National Standardized All-Hazard Disaster Core Competencies for Acute Care Physicians, Nurses, and EMS Professionals . 2012

Subbarao I, et al. A Consensus-based Educational Framework and Competency Set for the Discipline of Disaster Medicine and Public Health Preparedness

Suner S. Brown University Program in Disaster Medicine. 2005

Walsh L, et al. Core Competencies for Disaster Medicine and Public Health

The evaluations forms in this application were adapted from various sources on the internet including: Northwestern University fellow research evaluation, University of Minnesota 360 evaluation form, University of North Carolina UNC Geriatric Medicine Fellowship Attending Evaluation, Sample: ACR Fellowship Curriculum Rheumatology Fellowship Training Program Evaluation.