



# DISASTER MEDICINE FELLOWSHIP

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## Program Description

### BIDMC Fellowship in Disaster Medicine

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HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

## Fellowship in Disaster Medicine

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### Introduction

BIDMC Fellowship in Disaster Medicine is designed to provide qualified fellows the opportunity to develop an expertise in the related fields of Disaster Medicine (DM) and Emergency Management (EM). This is accomplished through didactic lectures, seminars, readings, goal-related research in a specific area of DM and EM, and participation in hospital-based, local, regional, national, and international Disaster Preparedness agencies and response organizations.

The Fellow will also complete fieldwork-related research resulting in a thesis or publication. Upon completion of this Fellowship, fellows will be skilled in all aspects of the disaster cycle and have the ability to assume a leadership role on the local, regional, federal, or international level in the area of Disaster Medicine and Emergency Management.

It is assumed that after graduation fellows will take a leadership position and be active in research and academics, leading to a career as an internationally noted expert in these fields. BIDMC Fellowship in Disaster Medicine allows for graduating Fellows to remain as faculty to the Fellowship, fostering collaboration and academic advancement.

### Program Objectives

The program will help fellows achieve the following:

- Develop a knowledge base and skillset to be expert in all phases of the disaster cycle
- Participation in local, regional, federal, and international DM activities
- Develop a comprehensive knowledge base of United States' Preparedness and Response System
- Develop skills to take leadership roles in their community
- Develop a competency in DM research and teaching skills

## Didactic Education

The didactic component of the training occurs throughout the duration of the fellowship and consists of textbook readings, small group lessons, on-line and classroom courses and lecture series. Many of these lectures are lead by Harvard Medical School Faculty as well as other national and international experts in the areas of disaster and EMS medicine.

Fellows will have access to the Harvard Medical School library and will participate in a variety of continuing education programs. Fellows will also work with the DeValle Institute for Emergency Preparedness, both attending online and classroom coursework as well as in curriculum development and implementation.

## Committee Participation

Throughout the fellowship the fellow will participate in both HMFP and Boston disaster-related committees/activities, including the HMFP Emergency Management Committee, The Longwood Medical Area Emergency Management Committee, Center for Public Health Preparedness at Harvard School of Public Health, the Conference of Boston Teaching Hospitals (COBTH) Medical Academic and Scientific Community Organization (MASCO), Boston EMS, Boston MedFlight, and the Boston Metropolitan Medical Response System.

## Research

The research and projects development portion of the training will span the entire fellowship period. The fellow will be asked early on to define a research goal and to begin designing his thesis. The research and subsequent thesis will focus on a specific area of Disaster Medicine or Emergency Management and will be approved by the Fellowship Director. The goal of the thesis is for it to be published in the specialty literature.

## Rotations

The fieldwork phase will be in 2 parts. The fellow will perform fieldwork either within the United States, through the National Disaster Medical System/ Disaster Medical Assistance Teams (DMAT) (arranged by the fellowship), or his/her country of origin. A six-week rotation at the Centers for Disease Control and Prevention (CDC) is included in the Fellowship program as an elective.

Current clinical observation sites include: Boston EMS, Boston MedFlight, RI-DMAT, Medical Care at the Boston Marathon, Medical Care at major Boston sporting venues including the Boston Red Sox, Boston Bruins, Boston Celtics and New England Patriots, Goodyear Arizona Fire Department HAZMAT, King County ALS in Seattle, Washington, as well as international EMS, search and rescue, disaster resilience and humanitarian experiences in Iceland, Italy, Denmark and in Haiti.

## CORE CURRICULUM

### THE SCIENCE OF DISASTER

- Evolution of Emergency Management
- Crisis Management
- The Disaster Cycle
- The Planning Stage
- Complex Emergencies
- Disaster Finance
- Disaster Research

### DISASTER MEDICINE

- Introduction to Disaster Medicine
- Overview of Disaster Response
- Disaster Medicine in the field
- EMS Disaster Operations
- Hospital-based Disaster Operations
- Psychology of Terrorism

**MITIGATION**

- Community-based Disaster Resiliency
- Organization-based Disaster Resiliency
- Target Hardening
- Hospital Mitigation
- Operational Continuity

**PREPAREDNESS**

- Disaster Planning-Hazard Vulnerability Analysis
- Tabletop Drills
- Building Surge Capacity
- Personal Protective Equipment
- Hospital Preparedness
- Individual Preparedness
- Organization Preparedness
- Local Preparedness
- National Preparedness
- International Preparedness

**RESPONSE**

- Command and Control
- Scene Safety
- Search and Rescue
- Communications,
- Operations and Logistics
- Security
- Interagency Response to an Intentional Event
- Principles of Disaster Triage
- Collection/Medical Stabilization Area
- Acute Trauma Care

**RESPONSE (CONT..)**

- Mass Casualties
- HAZMAT Event: Quarantine
- HAZMAT Event: Decontamination
- Post-Disaster Infectious Disease Outbreak
- Complex Disaster Response

- Tactical EMS
- Staying Healthy in Austere Environments
- Media Relations
- Thinking Outside of the Box
- Psychology of Terrorism

## **SPECIFIC DISASTER SCENARIOS**

- Natural Disasters
  - Hurricane
  - Tornado
  - Earthquake
  - Flood
  - Tsunami
  - Fires
- Pandemics
- Complex Humanitarian Crises
- Specific Disaster Scenarios
- Manmade Disasters
  - Explosions/Bombings
  - Stampede
  - Building Collapse
  - Wars and Violent Conflict
- Terrorist Events
- Weapons of Mass Destruction
  - Radiation
  - Chemical
  - Biologic

## **RECOVERY**

- Lessons Learned- Pearls for the 21st Century
- Building Disaster Resiliency
- Disaster Modeling and Simulation

## Concentration

BIDMC Fellowship in Disaster Medicine also offers educational experiences in specific areas of interest within Disaster Medicine and Emergency Management. These are one to six month concentrations that include both didactic and practical training. In the classroom the student will learn the knowledge and evidence-base for the specific area of interest and then have the opportunity to apply those principles through fieldwork and real-time applications.

Through our many partners the student will participate in disaster preparedness and response activities as they are applied daily on the local, regional, national, and international level. It is this hands-on approach and real-time application that makes the BIDMC Fellowship in Disaster Medicine Concentrations so appealing to students. The Concentrations are designed for both novice and seasoned personnel, with the focus being participation in real-world disaster preparedness activities. Programs can be tailored designed to meet the needs of the individual student.

### AVAILABLE CONCENTRATIONS:

- Command and Control
- Disaster Operations and Logistics
- EMS Disaster Operations
- Hospital-based Emergency Management
- Regional Emergency Management
- Humanitarian Disaster Operations
- Weapons of Mass Destruction
- Chemical and Biological exposures
- Air-medical operations and safety
- Nursing in Mass Casualty and Disasters

# Hospital-based Emergency Management Curriculum

## MODULE 1: HAZARD VULNERABILITY ANALYSIS

- Introduce concept
- Introduce tool, scale
- Facilitating the completion of the HVA
- How you use the data and who it should be shared with
- Planning around the top tickers
- Complete an HVA

## MODULE 2: HOSPITAL INCIDENT COMMAND SYSTEM

- How HICS differs from ICS
- HICS training
- Job action sheets
- HICS forms
- Tabletop exercise

## MODULE 3: EMERGENCY OPERATIONS PLAN

- Development of the plan
- Supporting annexes
- Vetting the plans
- Educating the plans
- Training the plans

## MODULE 4: COMMAND CENTER OPERATIONS

- Activation
- Picking the team
- Organizing information
- Communications
- Developing the Incident
- Action Plan
- Facilitating briefings
- Radio exercise

## MODULE 5: COMMUNITY INTEGRATION

- Trip to Boston Medical Intelligence Center
- Observe Boston Healthcare Preparedness Coalition

- Presentation to group by healthcare partners and their role in response- Public Health, EMS, Long term care, Neighborhood health centers

#### **MODULE 6: INFORMATION MANAGEMENT/COMMUNICATIONS**

- The pull and push of information
- Target audiences
- Sharing information
- Coordinating messaging
- Unified command center
- Communication exercise

#### **MODULE 7: PLANNING FOR MASS CASUALTIES**

- Surge
- Triage
- Staffing
- Space
- Prioritization and allocation of resources
- Alternate sites
- Command center MCI exercise

#### **MODULE 8: DRILL DESIGN**

- Goals
- Objectives
- Scenario development
- Participants
- Operational areas
- MSEL development
- Facilitators, Controllers and evaluators

**CAPSTONE:** Full scale exercise for fellows

# Bioterrorism and CBRN: Preparedness, Response, and Capacity Concentration

## DESCRIPTION

The concentration in Bioterrorism and CBRNE is available to all fellows and is focused on exploring the medical effects and response to biological, chemical, and nuclear/radiological threats with a special emphasis on bioterrorism attacks. The concentration will include a current analysis of surge capacity and the potential effects of a major bioterrorism/CBRN attack. It will also evaluate the content area of modern Pandemics using both Pandemic Influenza and Ebola as case studies for bioterrorism preparedness.

This concentration will move from addressing the threats to individuals through the spectrum of the threats facing communities and evaluate the potential medical and system outcomes for both. Specifically, we will address both individual treatment strategies of disease, and larger community and national outcomes and response strategies.

## OBJECTIVES

- Understand medical effects and therapeutics for Biological, Chemical, and Nuclear/Radiation threats; special emphasis on bioterrorism
- Evaluate novel detection approaches and therapies for biothreats
- Analyze bioterrorism preparedness strategies
- Analyze surge capacity and how it impacts the threat potential within biodefense
- Evaluate novel approaches to expanding surge capacity and response capabilities
- Evaluate modern day pandemics and pandemic response strategies

## STRUCTURE

The structure will broadly consist of a guided study through a modular topic review. We will follow the module outline below to cover the topics and will typically focus on one topic a month. We will plan to meet once per month for discussion, review, and case studies. This concentration is designed to be helpful and informative to the Fellow and therefore is flexible to meet his/her needs or interests as they arise.

## **CURRICULUM**

### **MODULE 1 & 2: BIOTERRORISM**

- Medical Effects and Therapeutics: Biological Threats
- Novel Detection and Therapies for Biothreats
- Case Study: 2001 Anthrax Attack (Amerithrax)
- Identify presentations of medical effects

### **MODULE 3: CHEMICAL AND RAD / NUC TERRORISM**

- Medical Effects and Therapeutics: Chemical Threats
- Medical Effects and Therapeutics: Radiation/ Blast Injuries Threats
- Case Study: Tokyo Sarin Attacks
- Case Study: Japan Reactor Criticality Accident 2011; Chernobyl Reactor Criticality Accident

### **MODULE 4: SURGE CAPACITY FRAMEWORK FOR BIOTERRORISM**

- Surge Capacity: What is it? Why is it important to CBRNE Threats? How do we achieve it?
- Novel Approaches to Surge and Response Capacity
- Community and National Preparedness Efforts
- Case Study: Hurricane Katrina and Sandy
- Case Study: Tokyo Sarin Attacks Revisited

### **MODULE 5: MODERN DAY THREATS / PANDEMICS**

- Influenza: Preparation, Response, and Outcomes
- Ebola: Preparation, Response and Outcomes