



# INDUSTRIAL DISASTER MEDICINE

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## Program Description

### BIDMC Fellowship in Disaster Medicine

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HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

## Fellowship in Disaster Medicine

# BIDMC Fellowship in Disaster Medicine Fellowship in Industrial Disaster Medicine

## Introduction

Due to the increasing frequency of disasters like Deep Water Horizon, the Fukushima reactor melt-down, and the Bhopal gas leak, it is imperative that educational programs in Disaster Medicine and Emergency Management address the unique aspects of industrial events. Industrial disasters are large-scale incidents which often lead to an immediate threat to human life, and may cause a disruption in the healthcare system, impacting the community's ability to care for its injured and vulnerable populations.

Comprehensive disaster medicine and emergency management training programs for such disasters must include the systematic integration of the technical, administrative, healthcare, and legal infrastructure that is unique to large industrial operations. Many industrial accidents are preventable, making mitigation efforts a very significant part of overall preparedness. In addition, preparedness training should include building strong relationships with stakeholders, effective hazard mapping, and instruction on how to conduct evidenced-based evaluation of pre-existing conditions.

The BIDMC Fellowship in Disaster Medicine has evolved into a national and international leader in cutting-edge, innovative educational programs. The Industrial Disaster Medicine program seeks to enhance the knowledge and skill sets of personnel who participate in the disaster preparedness and response infrastructure in areas where industrial disasters are a risk. The audience for these programs should include the wide range of responding sectors, with coursework designed to promote inter-agency cooperation.

## Program Objectives

The program will help fellows achieve the following:

- Build a strong knowledge base in IDMM based on structured scientific method
- Learn the National Emergency Support Functions (15 Elements)
- Develop IDMM hazard vulnerability analysis skills of each subtype of industry
- Build a strong knowledge in IDMM classifications and associated health, safety and security measures
- Learn the IDMM Disaster Cycle and the pre and post event percentages of each section
- Develop skills in performing IDMM mitigations strategies
- Develop the skills to establish IDMM Preparedness Program
- Develop the skills to execute IDMM response and recovery strategies
- Learn how to build IDMM Programs and build the administrative skills based on different industries
- Establish relationships with different sectors of each industry and consultation experts and field rotation
- Establish a database for research, academic improvements and risk management

## 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 led 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.

## Research

Research is important to validate educational programs and build IDDM as an evidence-based field. As the importance of risk management in the world of industry grows, the need has grown for disaster management that ensures the performance of critical activities at different stages of the disaster cycle, with the goal of providing emergency healthcare as early as possible, followed by a speedy recovery from the event back to normal operations.

The BIDMC Fellowship in Disaster Medicine is establishing the first educational program of its kind as part of a global initiative to increase industrial disaster resiliency. The goal is to identify industry-specific disaster preparedness and response needs and implement evidence-based best practices through robust educational programs.

## Rotations

Throughout the fellowship, there are five individual exercises that correspond to specific course material. These exercises give fellows the opportunity to apply their knowledge on:

- Military Industrial Disaster Case Scenario
- Oil and Gas Industrial Disaster Case Scenario
- Transportation Industrial Disaster Case Scenario
- Nuclear Plant Industrial Disaster Case Scenario
- General Manufacture FDA Case Scenario

Rotations will be organized with the fellow and can be initiated by the fellow and approved by the fellowship Faculty.

# CORE CURRICULUM

## THE SCIENCE OF DISASTER

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

## INTRODUCTION TO INDUSTRIAL DISASTERS

- Public Information Management
- Medical Simulation in Disaster Preparedness
- Occupational Medicine: An Asset in Time of Crisis
- Worker Health and Safety in Disaster Response
- Accidental versus Intentional Event
- Crisis Leadership in Public Health Emergencies
- Scene Safety and Situational Awareness in Disaster Response
- Needs Assessment
- Operations and Logistics
- Disaster Communications
- Mobile Disaster Applications
- The Role of Social Media in Disasters
- Volunteers and Donations
- Personal Protective Equipment
- Role of Bystanders in Disasters
- Surveillance
- Geographic Information Systems in Crises
- Urban Search and Rescue
- Medical Care in Remote Areas
- Practical Applications of Disaster Epidemiology
- Chemical, Biologic, Radiological, and Nuclear Quarantine
- Preventative Medicine for Responders in High Threat Environments

## **MILITARY INDUSTRY RELATED DISASTERS**

- Military and defense Industrial Disasters
- Submarine or Surface Vessel Accident

## **REFINERY AND CHEMICAL INDUSTRY/OIL AND GAS DISASTERS**

- Liquefied Natural Gas Explosion
- Liquefied Natural Gas Tanker Truck Explosion
- Petroleum Distillation/Processing Facility Explosion
- Introduction to Chemical Disasters
- Industrial Chemical Disasters
- Chemical Decontamination

## **DISASTERS INVOLVING THE POWER GRID**

- Massive Power System Failures

## **NUCLEAR POWER AND RADIATION DISASTERS**

- Introduction to Nuclear and Radiologic Disasters
- Nuclear Disaster Management
- Radiation Decontamination
- Nuclear Detonation
- Radiation Accident - Isolated Exposure
- Radiation Accident - Dispersed Exposure
- Nuclear Power Plant Meltdown
- Conventional Explosion at a Nuclear Power Plant
- Explosion at a Nuclear Waste Storage Facility

## **MINING DISASTERS**

- Mining Accident

## **MANUFACTURING DISASTERS**

- Explosions: Conventional
- Explosions: Fireworks
- Conventional Explosion in a High-Rise Building
- Structure Fires
- Introduction to Structural Collapse (Crush Injury and Crush Syndrome)
- Building Collapse

## **TRANSPORTATION DISASTERS: AIR TRANSPORTATION**

- Aircraft Crash Preparedness and Response

- Air Show Disaster
- Aircraft Crash into a High-Rise Building
- Airliner Crash into a Nuclear Power Plant

#### **TRANSPORTATION DISASTERS: GROUND & WATER TRANSPORTATION**

- Cruise Ship Infectious Disease Outbreak
- Tunnel Explosion
- Tunnel Fire
- Train Derailment
- Subway Derailment
- Bus Accident
- Bridge Collapse
- Maritime Disasters

#### **FOOD AND AGRICULTURAL DISASTERS**

- Intentional Contamination of Water Supplies
- Food Supply Contamination
- Disaster Management of Animals

#### **TELECOMMUNICATIONS DISASTERS**

- Informatics and Telecommunications in Disaster
- Computer and Electronic failure

## Eligibility and Application

We accept applications from qualified individuals in the following fields:

- Emergency Medicine Specialist / Emergency Physician
- Occupational Medicine Specialists
- Environmental Specialist
- Industrial Safety officers
- Industrial Health and Safety Personnel: Nurse / Technician / Administrator

We will require a CV, letter of intent, and three letters of recommendation to complete an initial application. Visit our website for further information.