



EMS Biosafety Transport for Operators

This eight hour program of instruction is led by Dr. Alex Isakov, an emergency medicine and EMS physician, who is the medical director for the Emory-Grady EMS Biosafety Transport Program. The target audience for the course is EMS providers of all types/levels/certifications. Many of the learning modules will also be of value for other clinical personnel who may be exposed to patients with serious communicable diseases. The course aims to increase understanding about standard and transmission based infection control practices, and provides education about serious communicable diseases like Ebola Virus Disease, Smallpox, SARS (Severe Acute Respiratory Syndrome), MERS (Middle Eastern Respiratory Syndrome), novel influenza viruses, like H7N9, and seasonal as well as pandemic influenza. Education about these diseases, specifically the clinical course of the disease, the availability of vaccines, prophylaxis and treatment, and appropriate infection control measures is essential for developing the competencies and the confidence to manage and transport patients with serious communicable diseases. The course also describes operational considerations for management and transport of patients with serious communicable diseases, to include, selection of PPE, donning and doffing of PPE, modification of the ambulance, destination considerations, decontamination and disinfection, waste management and post-mission medical surveillance. Fours hours of didactics is followed by a 4 hour face-to-face hands-on training, delivered by personnel who have managed and transported patients with confirmed Ebola Virus Disease. The training will allow the learner to demonstrate the proper donning and doffing of PPE and examine the modification of the ambulance to protect environmental surfaces and prevent unintended contact with infectious bodily fluids. By increasing understanding and developing the necessary competencies healthcare workers can better protect themselves and others in the workplace when having to manage patients with serious communicable diseases.



Course Learning Objectives

1. Increase healthcare worker knowledge and understanding of serious communicable diseases (smallpox, SARS, MERS, Ebola, novel influenza).
2. Increase understanding of standard and transmission-based infection control procedures
3. Describe administrative and environmental controls that will decrease the likelihood of inadvertent exposure to infectious bodily fluids to include donning and doffing of PPE, configuration of the ambulance to protect environmental surfaces and facilitate decontamination and disinfection of the vehicle.
4. Describe waste management and post-mission health monitoring.
5. Allow learners to practice the donning and doffing of PPE under the direct supervision of faculty that have experience with transport and management of patients with serious communicable disease.

Module 1 – Introduction

Upon completion of this module, the learners should be able to:

1. Describe attributes that are unique about preparing for the transport of patients with serious communicable diseases.
2. Describe the framework of education and training that is required for the development of competencies and the development of confidence to safely perform duties required for transport and management of patients with serious communicable diseases.
3. Provide an overview of the modified concept of operations required for transport and management of patients with serious communicable diseases.

Module 1 Readings and Resources

Guidance for Emergency Medical Services for Managing Patients with Suspected Ebola Virus Disease

*This course is supported by the National Institute of Environmental Health Sciences – Worker Training Program
Grant UH4 ES027093-01 (Ebola Biosafety and Infectious Disease Response)*



Transport and Management of Patients with Confirmed or Suspected Ebola Virus Disease

Module 2 – Infection Control

Upon completion of this module, the learners should be able to:

1. Distinguish between standard and transmission-based precautions for infection control.
2. Understand the tenets of standard and transmission-based infection control procedures that include environmental controls, engineering controls and personal protective ensembles.
3. Recognize infectious pathogens that require transmission based precautions: contact, droplet, and airborne.

Module 2 Readings and Resources

Precautions to Prevent Transmission of Infectious Agents

Key Tips to Washing Hands

Module 3 – Smallpox

Upon completion of this module, the learner should be able to:

1. Describe the clinical characteristics of smallpox
2. Describe how smallpox is transmitted from person to person
3. Describe the treatment options for smallpox
4. Recommend precautions to interrupt transmission of smallpox and to protect the healthcare worker in the occupational setting
5. Describe the effectiveness of smallpox vaccination, pre-exposure and post-exposure
6. Describe the complications associated with the smallpox vaccine



Module 3 Readings and Resources

[Smallpox Disease Overview](#)

[Smallpox: Basics and Specific Topics](#)

Module 4 – Novel Coronavirus SARS and MERS

Upon completion of this module, the learners should be able to:

1. Describe the symptoms and methods of person-to-person transmission of the novel coronaviruses causing SARS and MERS.
2. Describe factors that increase the likelihood of human-to-human transmission of SARS and MERS in clinical settings.
3. Identify ways to recognize patients who are at risk of having MERS.
4. Describe the importance of prescribed donning and doffing procedures for PPE and how these procedures protect the healthcare worker.
5. Identify aerosol-producing procedures and describe their role in transmission of disease.
6. Describe appropriate infection control measures that protect healthcare workers caring for patients suspected of having MERS.

Module 4 Readings and Resources

[SARS](#)

[MERS](#)

[News Report: SARS Outbreak Among Protected Health-Care Workers in Toronto, Canada](#)

Module 5 – Viral Hemorrhagic Fevers and Ebola

Upon completion of this module, the learner should be able to:

1. Describe the clinical characteristics of viral hemorrhagic fevers.



2. Describe how viral hemorrhagic fevers are transmitted from person to person
3. Describe the clinical characteristics of Ebola
4. Describe how to interrupt transmission of Ebola Virus Disease from person to person
5. Recommend appropriate personal protective equipment (PPE) when caring for patients with suspected EVD, both stable and unstable.

Module 5 Readings and Resources

Emergency Services

Ebola Virus Disease Overview

Module 6 – Novel Influenza and Pandemic

Upon completion of this module, the learner should be able to:

1. Distinguish between seasonal and pandemic influenza viruses.
2. Identify medical conditions that increase the chance of complications in patients acquiring influenza.
3. Discuss strategies to prevent transmission of the flu, including the benefit of vaccines.
4. Describe the rationale for selection of PPE to protect against novel influenza viruses.
5. Describe treatment options for management of the flu.

Module 6 Readings and Resources

Pandemic Basics

Influenza (Flu)

Module 7 – EMS Operational Considerations

Upon completion of this module, the learner should be able to:



1. Describe the unique operational characteristics of serious communicable disease transports.
2. Describe factors that impact the selection of an appropriate PPE ensemble.
3. Describe the importance of a regimented doffing procedure
4. Describe the methods used to protect environmental surfaces from contamination and to facilitate decontamination and disinfection of the ambulance
5. List equipment and supplies needed to safely transport a patient with a serious communicable disease
6. Identify practices accepted for transport of a patient with a serious communicable disease including patient destination, decontamination, disinfection, waste removal and post-mission surveillance.
7. Describe how treatment guidelines may be modified to protect healthcare workers and others from becoming exposed to infectious body fluids

Module 7 Readings and Resources

Donning and Doffing Personal Protective Equipment (PPE)

Developing a Plan for Transport of Patients with Suspected or Confirmed EVD

Transport and Management of Patients with Suspected or Confirmed EVD



Hands-on training (4 hours)

Upon completion of this module, the learner should be able to:

1. Describe and demonstrate the donning of a personal protective ensemble using a checklist
2. Describe and demonstrate the doffing of a personal protective ensemble using a checklist
3. Describe the merits of having a trained observer assist with PPE doffing
4. Describe and demonstrate the methods used to protect environmental surfaces from contamination and to facilitate decontamination and disinfection of the ambulance
5. List equipment and supplies needed to safely transport a patient with a serious communicable disease

Contact the Section of Prehospital and Disaster Medicine at prehospital.disaster@emory.edu to inquire about how to participate in this training.