

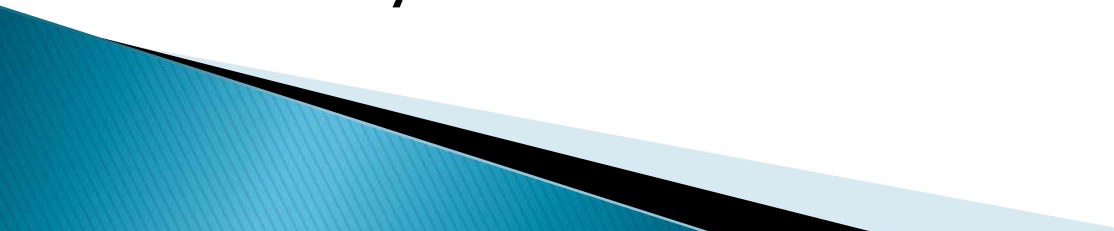
# EBOLA



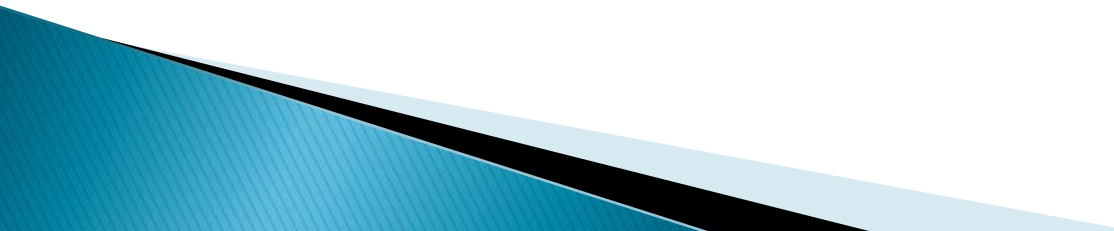
## **Municipal Police Training Committee First Responder Ebola Response Training**

In collaboration with Dr. Daniel  
Muse, Brockton Hospital  
Brockton, Ma.

# WHAT IS EBOLA

- Ebola Virus Disease is a severe and often fatal disease in humans and primates.
  - Caused by infection with a virus from the Filoviridae family.
  - Five species are known, with four causing disease in humans.
  - Four species are from Africa and one from the Philippines.
  - The Sudan species is considered the most deadly.
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# WHAT ARE THE SYMPTOMS?

- ▶ Many signs and symptoms are also symptoms of other diseases endemic to Africa (malaria) or the United States (influenza).
  - ▶ This is a complicating factor during influenza season in the US, which typically occurs from October through March.
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# WHAT ARE THE SYMPTOMS?

- ▶ Early on, symptoms are flu-like....
  - Fever of 100.4° F (38° C) or greater
  - Severe headache
  - Muscle pain
  - Vomiting
  - Diarrhea
  - Abdominal pain
  - Unexplained hemorrhage

# WHAT ARE THE SYMPTOMS?

- ▶ Hemorrhagic symptoms can begin 4–5 days after onset....
  - Bleeding from gums and conjunctiva (whites of the eyes)
  - Vaginal bleeding.
  - Hematuria (blood in the urine)
  - GI bleeding.
- ▶ Untreated, late stages of the disease will bring multi-organ failure and death.

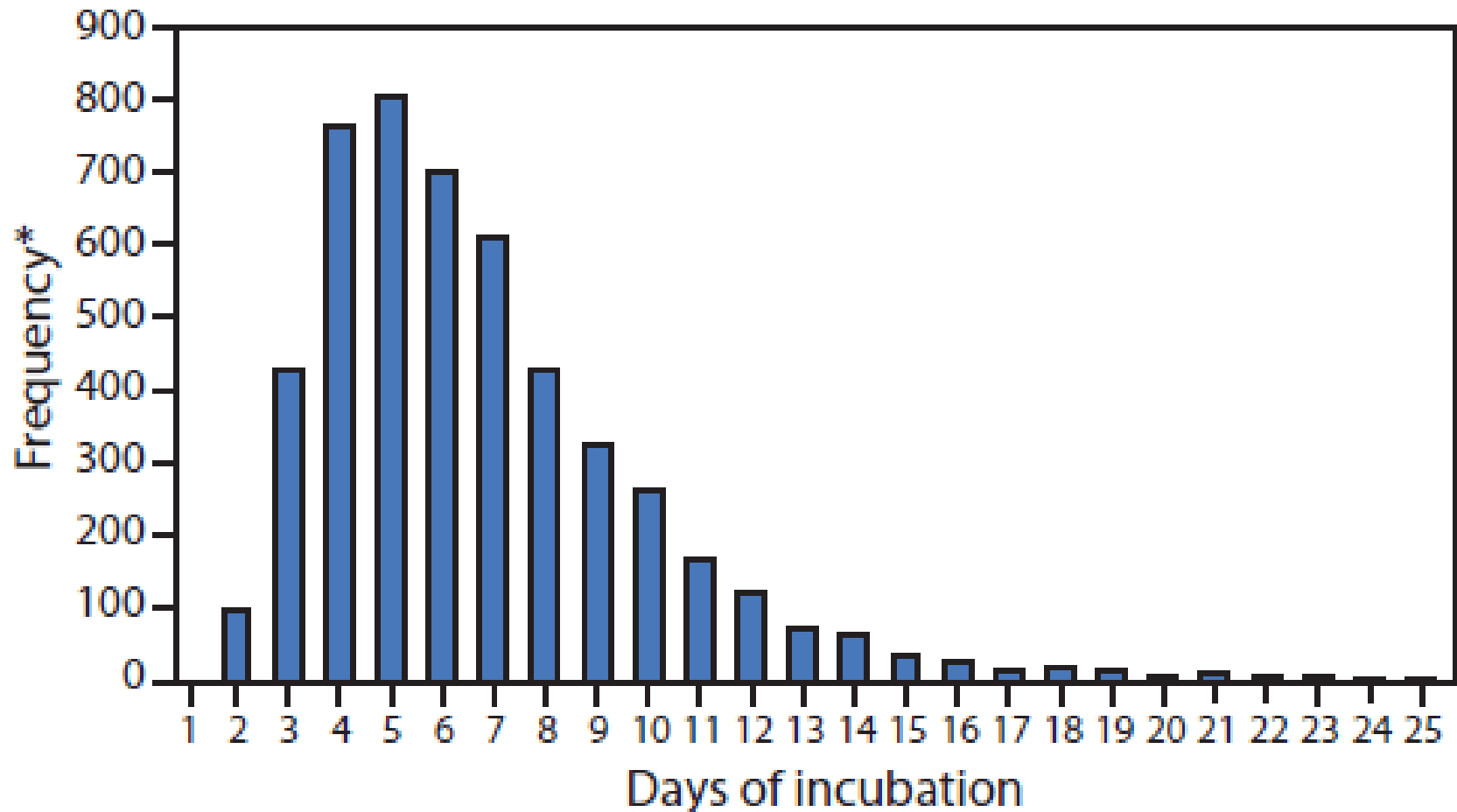
# HOW IS IT TRANSMITTED

- The virus cannot be contracted through the air, water or casual contact.
  - Only people who are actively sick with Ebola can spread the infection to others.
  - The virus can be transmitted only when the blood or bodily fluids (vomit, stool, saliva, urine) of a person actively sick with Ebola comes into contact with another person's skin or mucous membranes (mouth, eyes). This includes exposure to contaminated sharp objects, such as needles.
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# WHAT IS THE INCUBATION?


- ▶ Individuals with Ebola will become symptomatic 2 to 21 days after exposure.

# Distribution of Ebola Virus Incubation Period by Days of Incubation





# Occurrences

- ▶ As of October 8, 2014 there have been 8,033 reported cases worldwide
  - ▶ 3,879 Fatalities
  - ▶ There has been 1 case of Ebola arriving in the US by someone who had traveled to an at-risk African country and been exposed to an individual actively sick with Ebola. This case resulted in death.
  - ▶ There have been 2 cases of Ebola which have been contracted in the US (healthcare workers in direct contact with first Ebola patient).
  - ▶ All other cases of Ebola in the US were individuals who had been medically-evacuated from at-risk African countries to the US.
  - ▶ There are no cases of Ebola in Massachusetts.
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# PATIENT EVALUATION

Ebola is a virus and early on looks and sounds like the flu or any other nonspecific virus.

# PATIENT EVALUATION

For an individual to be considered at risk for Ebola, he or she must:

- ▶ Have traveled in the past 21 days to one of the currently affected countries: **Guinea, Liberia, Sierra Leone**

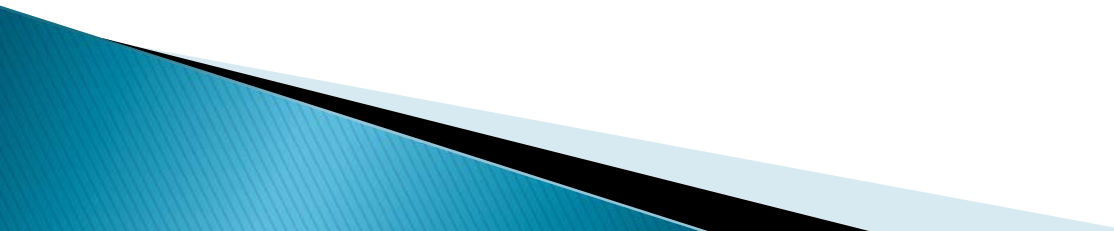
**AND/OR**

- ▶ Have had direct contact with the blood and/or body fluids of a person sick with Ebola

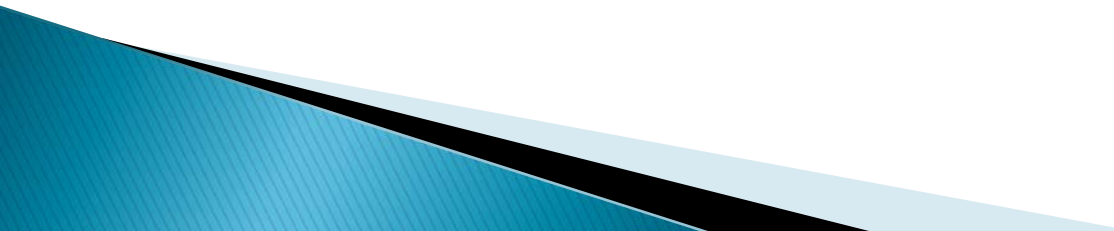
**AND**

- ▶ Have a fever of 100.4° F (38° C) or higher and have severe headache, muscle pain, vomiting, diarrhea, abdominal pain, and/or unexplained hemorrhage

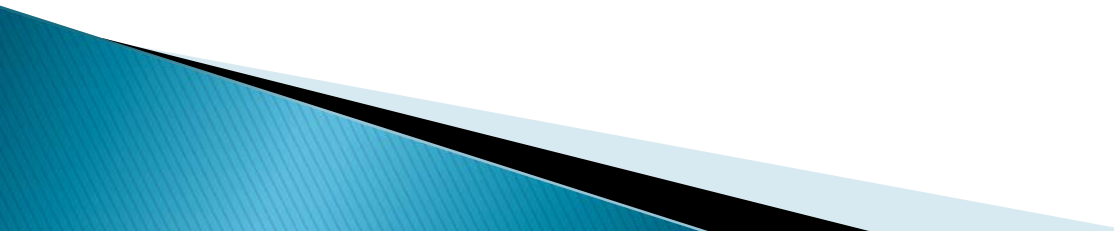
# PATIENT APPROACH

- ▶ Remember the call is going to sound like a viral illness.
  - ▶ The chance of Ebola is slim but possible.
  - ▶ The case will most likely be a typical viral illness.
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# PATIENT APPROACH

- ▶ Maintain *at least a 6-foot distance* from the individual until an assessment can be made.
  - ▶ If the individual is assessed as being at risk for Ebola, leave the room or dwelling until emergency medical personnel arrive, who can respond in appropriate PPE.
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# PATIENT APPROACH

- ▶ Remember: Most cases will not be emergent. There is adequate time to wait for emergency medical personnel to arrive and respond to the individual in appropriate personal protective equipment (PPE).
  - ▶ As a first responder, you are not prepared to care for this type of patient.
  - ▶ More importantly, you do not have the personal protective equipment to closely interact with the patient.
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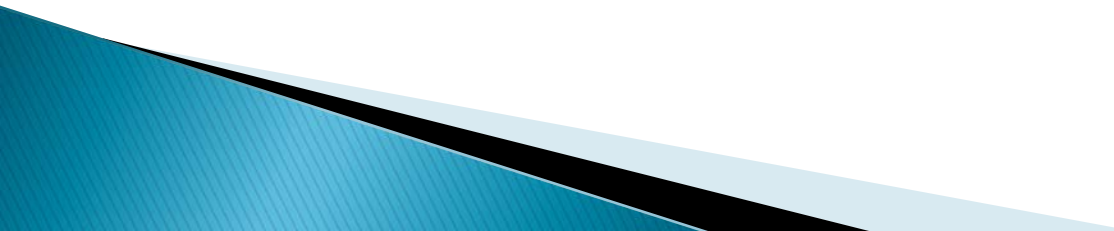
# PATIENT APPROACH

- ▶ If the patient has early symptoms, there is nothing medically that you would need to do.
- ▶ If the patient has late symptoms and is very ill, there is nothing medically that you could do.

# PATIENT APPROACH

If a first responder must be in direct contact with or be within six feet of a person who has been assessed to be at risk for Ebola, has a suspect case of Ebola, or has been diagnosed with Ebola, appropriate personal protective equipment (PPE) must be donned prior to approaching the individual.

Therefore, ONCE EBOLA IS SUSPECTED, ANY FURTHER CARE AND CLOSE PATIENT ENCOUNTERS ARE TO BE PERFORMED BY EMS PERSONNEL IN APPROPRIATE PPE.

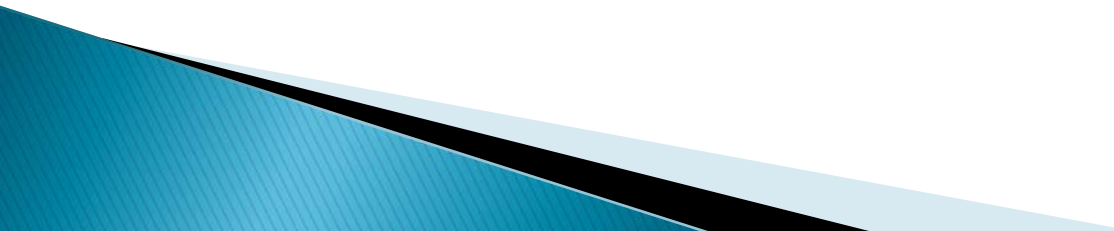




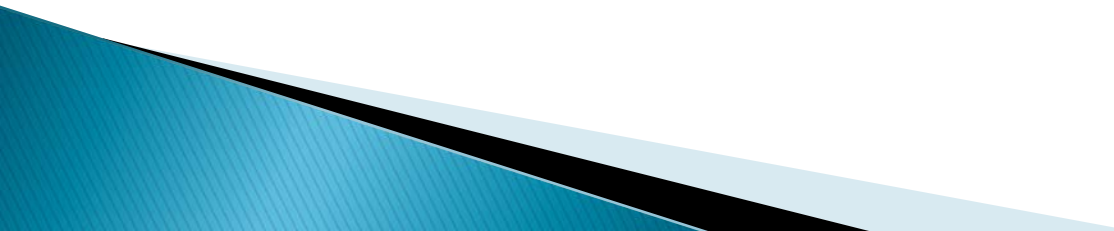
# State-Recommended PPE for First Responders

- ▶ **Non-permeable coverall with hood/head covering that meets one of the following standards:**
  - Splash protection standards of NFPA 1992-2013
  - NFPA 1999-2013
  - American Society of Testing and Materials (ATSM) F1671 material with sealed or taped seams
  - NFPA 1994-2012 (CBRN protective ensembles certified to Class 2, Class 3 or Class 4)
- ▶ **Gloves:**
  - Inner gloves: double layer of Nitrile gloves, equating to at least 10ml thickness
  - Outer gloves: over-the-cuff length Nitrile gloves, preferably 21 ml or greater thickness
- ▶ **Shoe covers:** calf-length booties/covers
- ▶ **N95 respirator or PAPR**
- ▶ **Full Face Shield**


# PERSONAL PROTECTIVE EQUIPMENT (PPE)

- ▶ Centered on 3 principles:
    - No skin exposure when PPE is worn.
    - Rigorous training and practice on use of PPE, including consistent procedures for donning and doffing to ensure competence in use.
    - Donning and doffing of PPE is supervised by a trained individual who monitors the process of each worker putting on and taking off their PPE.
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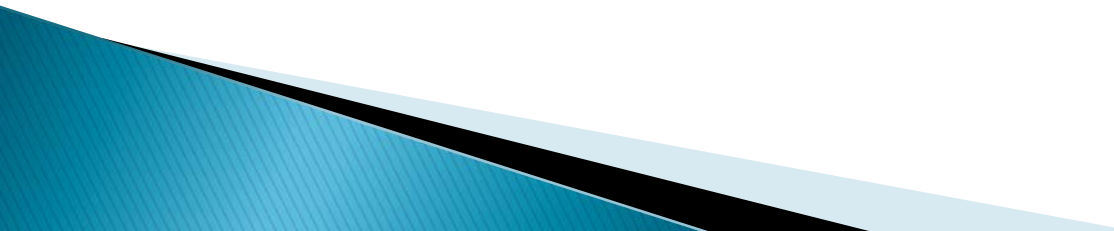
# DONNING, DECON, DOFFING AND DISPOSAL OF PPE

- ▶ Responders who wear PPE must be appropriately trained and practiced in donning, decontamination, doffing and disposal of PPE.
  - ▶ The Department of Fire Services is currently offering training on donning, decontaminating, doffing and disposal of PPE.
  - ▶ If an officer is in a situation where PPE is required, it is recommended guidance be sought from on-scene emergency medical services personnel who are more experienced with PPE.
  - ▶ On-scene EMS personnel can serve as the trained donning, decontamination and doffing supervisor/observer.
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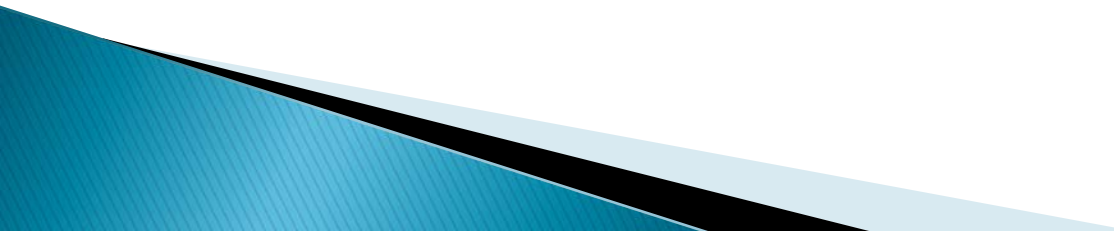
# FIRST RESPONDER ROLE

- ▶ Once it is established that the patient may have or is at risk for Ebola, your role reverts from medical assistance to providing scene safety.
  - ▶ You should NOT have any direct patient contact even if assistance is requested by EMS personnel.
  - ▶ EMS personnel have the manpower and expertise in managing the medical condition.
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# VIOLENT ENCOUNTER

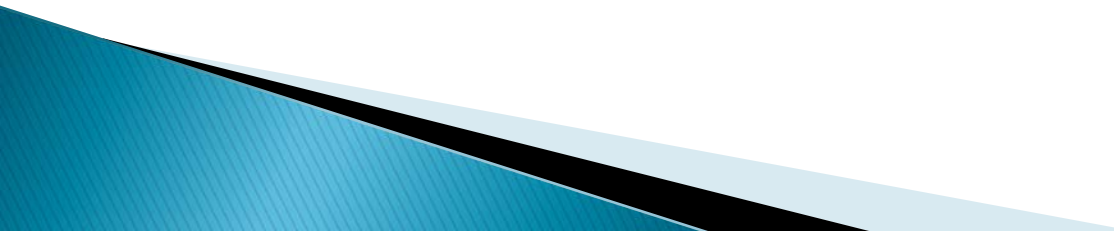
- ▶ Scene safety may require intervening with emotionally charged family, friends and even the patient.
  - ▶ Remain calm and use your communication skills to restore order to the situation.
  - ▶ Do not physically engage anyone who may have or be at risk for the Ebola virus unless in appropriate PPE.
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# VIOLENT ENCOUNTER

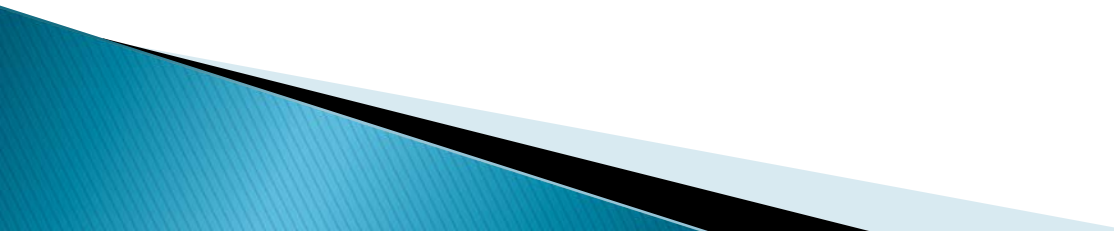
- ▶ The Ebola virus, because of its lethal nature, could be being used as a potential weapon.
  - ▶ While it is your responsibility and duty to protect yourself and others from it, please remember that unprotected contact with someone actively sick with Ebola places you at risk for contracting the disease.
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# VIOLENT ENCOUNTER

Tactics taken to control the situation may require forceful measures, not normally used in these types of instances but ones that keep you at a protective distance from the person.



# List of Regulations Associated with the Ebola Response

- ▶ OSHA Bloodborne Pathogens Standard (29 CFR 1910)
  - ▶ CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th Ed.
  - ▶ Department of Transportation (DOT) Hazardous Materials Regulations (Division 6.2 Biological Agents)
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# List of Regulations Associated with the Ebola Response

- ▶ National Science Foundation (NSF)/American National Standards Institute (ANSI) 49 (Biosafety Cabinetry Certification)
  - ▶ Georgia Environmental Protection Division (EPD)
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# REFERENCES

- ▶ Massachusetts Department of Public Health: [www.mass.gov/ebola](http://www.mass.gov/ebola)
- ▶ Massachusetts Emergency Management Agency:  
<http://www.mass.gov/eopss/agencies/mema/ebola-preparedness.html>
- ▶ CDC: [www.cdc.gov/vhf/ebola](http://www.cdc.gov/vhf/ebola)
- ▶ CDC: PSAP and EMS Guidance:  
<http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-emergency-medical-services-systems-911-public-safety-answering-points-management-patients-known-suspected-united-states.html>
- ▶ CDC: Monitoring patients in transport:  
<http://www.cdc.gov/vhf/ebola/hcp/monitoring-and-movement-of-persons-with-exposure.html>

# REFERENCES

- ▶ Pathogen data sheet, Canadian Health Dept:  
<http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/ebola-eng.php>
- ▶ OSHA: Cleaning and decontamination.  
[https://www.osha.gov/Publications/OSHA\\_FS-3756.pdf](https://www.osha.gov/Publications/OSHA_FS-3756.pdf)