EBOLA VIRUS

- A hemorrhagic fever virus native to Africa with bats serving as the likely reservoir.
- Transmission events to humans associated with “bush meat” preparation or consumption.
EBOLA VIRUS DISEASE

Ebola virus is spread person-to-person through direct contact with bodily secretions of infected patients. It takes 2-21 days after contact to develop the disease (average 8-10 days). Patients are not contagious while asymptomatic.
SYMPTOMS OF EBOLA VIRUS DISEASE

- Early symptoms include
  - Fever
  - Muscle pain
  - Vomiting, diarrhea and abdominal pain

- Late complications
  - Bleeding
  - Swelling
  - Coma
  - Death (~70% in current outbreak)
TREATMENT OF EBOLA

• Supportive
• Experimental
  – ZMapp
  – Brincidofovir
HOW CONTAGIOUS IS EBOLA?

The number of people that one sick person will infect (on average) is called $R_0$. Here are the maximum $R_0$ values for a few viruses.

- Hepatitis C: 2
- Ebola: 2
- HIV: 4
- SARS: 4
- Mumps: 10
- Measles: 18

Adam Cole/NPR
PREVENTING EBOLA TRANSMISSION

• Early identification of suspects
  – Recent travel to Guinea, Liberia or Sierra Leone
  – Direct contact with confirmed case

• Prompt isolation

• Use of Personal Protective Equipment
Major Ebola Outbreaks

Confirmed cases and years

- Guinea (2014)
- Liberia (2014)
- Côte d’Ivoire (1994)
- Democratic Republic of Congo
- Sudan, South Sudan (2004, 1979, 1976)
- South Africa (1996)

Legend:
- Total infections
- Total deaths
EBOLA IN AFRICA

Totals for Guinea, Liberia & Sierra Leone
• Total Case Count: 8376
• Total Deaths: 4024

Guinea
• Total Case Count: 1350
• Total Deaths: 778

Liberia
• Total Case Count: 4076
• Total Deaths: 2316

Sierra Leone
• Total Case Count: 2950
• Total Case Deaths: 930

Nigeria
• Total Case Count: 20
• Total Case Deaths: 8

Senegal
• Total Case Count: 1
• Total Case Deaths: 0

* All as of October 8, 2014

Total cases worldwide: 8400
EBOLA IN THE U.S.

- Transported from Africa following illness: 5
- Arrived in U.S. from Liberia (asymptomatic) and developed symptoms in U.S.: 1
- Transmission to HCW in US: 2
U.S. Travel Associated Ebola Case

Incubation period – 9 days

9/15/2014: Unprotected contact with Ebola case in Liberia

9/19: Departs Liberia for U.S. but denies contact with Ebola

9/20: Arrives in Dallas

9/24: Onset of symptoms

9/25: Seeks medical care at ER but discharged

9/28: Returns to hospital by ambulance, critically ill

9/30: Tests positive for Ebola

10/8: Died
Contact Tracing and Quarantine

- **Case**
  - Hospitalized on Isolation

- **Household Contacts (4)**
  - 21 day strict quarantine

- **Direct Contacts**
  - Monitoring with twice daily fever checks

- **Secondary Contacts**
  - Database
KEYS TO PREVENTING EBOLA IN MS

- Early Identification of Ebola suspects
  - Currently only individuals who have personally travelled to Liberia, Guinea or Sierra Leone; or are direct contacts to Texas case are at potential risk of Ebola

- Immediate isolation of Ebola suspects

- Immediate consultation with MSDH and activation of response plans
Ebola Information for Public Health and Medical Professionals in U.S. Healthcare Settings

The resources provided here are intended to help healthcare professionals better detect a patient that may be infected with Ebola; protect yourself, your colleagues, and other patients from exposure; and respond with appropriate patient care. These resources include clinical definitions, practical checklists and more that you can use to help educate your colleagues or your community.

EMS Providers
EMS personnel, agencies and systems can take steps now to prepare for a patient that may be infected. These resources can help EMS professionals better evaluate risks, identify potentially infected patients, identify concrete steps that you can take to prepare to handle issues related to patient management, and more. Learn More >>

Clinicians & Healthcare Workers
Clinicians and healthcare workers need to take the time now to learn what they need to do to most effectively manage an Ebola patient. These resources can help you diagnose and treat a patient; collect, transport, test and submit specimens; safely monitor and transport a patient; and protect staff. Learn More >>

Hospitals & Healthcare Facilities
Hospitals and healthcare facilities can more effectively manage an incident in their hospitals if they plan ahead. This section includes information to enhance emergency management, infection control, patient management, communication procedures and more. Learn More >>

Healthcare Coalitions & Systems
Healthcare coalitions and systems can help keep everyone safe by working together effectively. The resources in this section highlight concrete activities that can help detect possible Ebola cases, protect employees, improve coordination, and respond appropriately. Learn More >>

Subscribe & Stay Informed
Frequently monitor CDC’s Ebola website and subscribe to updates from CDC for the most current information. CDC is available 24/7 for consultation. State and local health departments with questions should contact the CDC Emergency Operations Center (EOC) at 770-488-7100 or via email at eocreport@cdc.gov.

Join the Conversation
Join the Hospital Preparedness Call
Preparing your Healthcare System for Ebola

In the Spotlight
- From the HHS Assistant Secretary for Preparedness and Response: An Open Letter to All U.S. Healthcare Professionals
- Webinar: Ebola Preparedness for the U.S. Healthcare System

Checklists for:
- EMS Personnel, Agencies and Systems
- Healthcare Providers
- Hospitals
- Healthcare Coalitions

www.phe.gov/ebola
Who is this for?

Managers of:

- 9-1-1 Public Safety Answering Points (PSAPs)
- EMS Agencies
- EMS Systems
- Law Enforcement Agencies
- Fire Service Agencies
- EMS Providers and Medical First Responders
Guidance for handling inquiries and responding to patients with suspected Ebola symptoms, and for keeping workers safe.
Likelihood of contracting Ebola is extremely low unless a person has direct unprotected contact with the blood or body fluids (like urine, feces, vomit, sweat, and semen) of a person who is sick with Ebola.
When risk of Ebola is elevated in your community, it is important for PSAPs to question callers about:

- Residence in, or travel to, a country where an Ebola outbreak is occurring
- Signs and symptoms of Ebola (such as fever, vomiting, diarrhea) and
- Other risk factors, like having physical contact with body fluids of someone who is sick with Ebola
KEY POINTS

• PSAPs should tell EMS and medical first response personnel this information **before** they get to the location so they can put on the correct personal protective equipment (PPE)
KEY POINTS

• EMS should check for symptoms and risk factors for Ebola. Staff should notify the receiving healthcare facility in advance when they are bringing a patient with suspected Ebola, so that proper infection control precautions can be taken.
RECOMMENDATIONS FOR 9-1-1 PSAP

• Call takers should consider screening for symptoms/risk factors of Ebola
• If call taker suspects caller is reporting symptoms of Ebola, they should screen for risk factors within the past 3 weeks before onset of symptoms. Risk factors include:
  – Contact with blood/body fluids of a patient known to have or suspected to have Ebola;
  – Residence in - or travel to – a country where Ebola outbreak is occurring (www.cdc.gov/vhf/ebola/outbreaks)
  – Direct handling of bats or nonhuman primates from disease-endemic areas
If PSAP call takers have information alerting them to a person with possible Ebola, they should make sure any first responders and EMS personnel are made confidentially aware of the potential for Ebola before the responders arrive on scene.
Interim recommendations for response to a suspected Ebola patient:

- Patient Assessment
  - Address scene safety
    - Proper PPE
    - Keep the patient separated from other persons as much as possible
    - Use caution when approaching
– During Patient Assessment
  • Assess for symptoms
  – Fever greater than 101.5 degrees Fahrenheit
  – Additional symptoms
    » Severe headache
    » Muscle pain
    » Vomiting
    » Diarrhea
    » Abdominal pain
    » Unexplained hemorrhage
If the patient has symptoms of Ebola, then ask the patient about risk factors within the past 3 weeks before onset of symptoms. Risk factors include:

- Contact with blood or body fluids of a patient known to have or suspected to have Ebola;
- Residence in-or travel to – a country where Ebola outbreak is occurring (www.cdc.gov/vhf/ebola/outbreaks)
- Direct handling of bats or nonhuman primates from disease-endemic areas
Based on the presence of symptoms and risk factors, put on or continue to wear appropriate PPE and follow the scene safety guidelines for suspected case of Ebola.

If there are no risk factors, proceed with normal EMS care.
Mississippi Screening Tool

Yes  No  Caller reporting febrile illness (or nausea, vomiting, abdominal pain or unexplained bleeding)?

Presentation not consistent with Ebola Virus Disease. Dispatch EMS as appropriate.

Yes  No  Travel to Guinea, Sierra Leone, or Liberia in past 21 days* (or known direct contact to confirmed Ebola Virus case in the U.S.)?

Not at risk of Ebola Virus Disease.

Possible Ebola Virus Disease. Instruct caller to remain in place and avoid physical contact with others. Dispatch EMS as appropriate, and inform EMS that caller is potential Ebola case and that appropriate precautions are required. Notify MSDH Office of Epidemiology at 601 576-7725 (601 576-7400 after hours).

*Returning travelers from other countries in Africa are not at risk of Ebola at this time.
EMS personnel should notify the receiving healthcare facility when transporting a suspected Ebola patient, so that appropriate infection control precautions can be prepared prior to patient arrival.
EMS personnel can safely manage a patient with suspected or confirmed Ebola by following recommended isolation and infection control procedures, including standard contact, and droplet precautions.
Particular attention should be paid to protecting mucous membranes of the eyes, nose, and mouth from splashes of infectious material, or self-inoculation from soiled gloves.
Early recognition and identification of patients with potential for Ebola is critical. An EMS agency managing a suspected Ebola patient should follow these CDC recommendations:

• Limit activities, especially during transport, that can increase the risk of exposure to infectious material (e.g., airway management, CPR, use of needles)
Limit the use of needles and other sharps as much as possible.

Phlebotomy procedures, and laboratory testing should be limited to the minimum necessary for essential diagnostic evaluation and medical care.
PERSONAL PROTECTIVE EQUIPMENT (PPE)

• Standard contact, and droplet precautions
  – Gloves
  – Gown (fluid resistant or impermeable)
  – Eye protection (goggles or face shield that fully covers the front and sides of the face)
  – Facemask
  – Additional PPE might be required in certain situations (e.g., large amounts of blood and body fluids present in the environment)
    • May include double gloving, disposable shoe covers and leg coverings.

HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE)

1. GLOVES
   - Remove gloves one at a time
     - Grasp the inner surface of your gloves with your opposite hand
     - Lift up and remove gloves
     - Avoid touching outer surface of gloves with your opposite hand

2. GOGGLES OR FACE SHIELD
   - Remove goggles or face shield one at a time
     - Avoid touching inner surface of your goggles or face shield
     - Lift up and remove goggles or face shield
     - Avoid touching outer surface of your goggles or face shield

3. GOWN
   - Remove gown one at a time
     - Avoid touching inner surface of your gown
     - Lift up and remove gown
     - Avoid touching outer surface of your gown

4. MASK OR RESPIRATOR
   - Remove mask or respirator one at a time
     - Avoid touching inner surface of your mask or respirator
     - Lift up and remove mask or respirator
     - Avoid touching outer surface of your mask or respirator

5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER
   - Wash hands immediately after removing all PPE
     - Perform hand hygiene between steps if hands become contaminated and immediately after removing all PPE

PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE
PERSONAL PROTECTIVE EQUIPMENT (PPE)

- During pre-hospital resuscitation procedures (intubation, open suctioning of airways, CPR), in addition to recommended PPE, respiratory protection that is at least as protective as a NIOSH-certified fit-tested N95 filtering facepiece respirator or higher should be worn (instead of a facemask).
• If blood, body fluids, secretions, or excretions from a patient with suspected Ebola come into direct contact with the EMS provider’s skin or mucous membranes, then the EMS provider should immediately stop working. They should wash the affected skin surface with soap and water and report the exposure to their supervisor and/or occupational health provider for follow-up.

OCCUPATIONAL EXPOSURE
PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Should be worn upon entry into the scene and continued to be worn until personnel are no longer in contact with the patient.
- Should be carefully removed without contaminating one’s eyes, mucous membranes, or clothing with potentially infectious materials.

Should be placed in a medical waste container at the hospital or double bagged and held in a secure location.
Review CDC Guidelines “Sequence for Putting on and Removing PPE”.

- Hand hygiene should be performed immediately after removal of PPE.

- To reduce staff exposure, discard all linens, non-fluid-impermeable pillows or mattresses, and textile privacy curtains as a regulated medical waste.
• Use EPA registered disinfectant suitable for non-enveloped viruses.
  – Treat contamination/spills
  – Disinfect surfaces.
• If Commercial products are unavailable, use 1:10 solution of bleach to water.
• NEVER mix chemicals together.
ADDITIONAL CDC GUIDANCE

Detailed Emergency Medical Services (EMS) Checklist for Ebola Preparedness

The U.S. Department of Health and Human Services (DHHS) Centers for Disease Control and Prevention (CDC) and Office of the Assistant Secretary for Preparedness and Response (ASPR), in addition to other federal, state, and local partners, aim to increase understanding of

Ebola (Ebola Virus Disease)

Guidance on Air Medical Transport for Patients with Ebola Virus Disease

Who this is for: Operators of air medical transport (AMT) services that are considering transport of patients with Ebola virus disease (EVD) and healthcare providers who will be onboard. This guidance applies to AMT flights of any duration and using any type of aircraft. The guidance does not apply to
Emergency Medical Services (EMS)

The mission of Mississippi Emergency Medical Services (EMS) is to organize, regulate, and maintain a statewide program to improve emergency medical care. Mississippi EMS strives to maintain and promote the highest standards of prehospital care for the citizens and visitors of Mississippi.

Latest EMS News & Events

- Ebola Information for EMS Providers, Agencies and Systems
  October 13, 2014
- Guidance on Air Medical Transport for Patients with Ebola Virus Disease
  October 10, 2014
- Ebola Virus Disease Screening for EMS
  October 1, 2014
- Interim Guidance for EMS and 9-1-1 Answering for Patients with Known or Suspected Ebola Virus Disease
- Detailed Emergency Medical Services (EMS) Checklist for Ebola Preparedness
  October 1, 2014
- Free EMS Healthcare Coalition Training in Senatobia, MS
  June 23, 2014

Upcoming Meetings

- EMS Council Meeting
  10/22/2014 1:00 PM
- EMS Rules and Regulations
  11/5/2014 1:00 PM
- Medical Direction Training and Quality Assurance Committee
  11/12/2014 10:00 AM
- EMS Functionality
  11/19/2014 10:00 AM
- EMS Advisory Council
  2/11/2015 1:00 PM
- EMS Critical Care Paramedic Subcommittee
  3/18/2015 1:00 PM
- Calendar of all Mississippi public meetings
  Select Department of Health to see public meetings scheduled for MSDH

www.ems.ms.gov
QUESTIONS

Please provide:

• Your name
• Your organization

Thank you for being part of today’s call!