



Ebola Basics for Health Care Providers

Ebola is also known as Ebola Virus Disease (EVD) or Ebola Hemorrhagic Fever (EHF). There are five Ebola subspecies, four of which are known to cause the disease. A large outbreak of Ebola Virus Disease is currently occurring in West Africa with ongoing local transmission. Visit www.adph.org/ebola and <http://www.cdc.gov/vhf/ebola/index.html> for the most current information and guidance.

Transmission

Ebola is spread through direct contact (through broken skin or mucous membranes in, for example, the eyes, nose, or mouth) with:

- blood or body fluids (including but not limited to urine, saliva, sweat, feces, vomit, breast milk, and semen) of a person who is sick with Ebola
- objects (like needles and syringes) that have been contaminated with the virus
- infected animals
- Ebola is not spread through the air or by water, or in general, by food. However, in Africa, Ebola may be spread as a result of handling bushmeat (wild animals hunted for food) and contact with infected bats. There is no evidence that mosquitos or other insects can transmit Ebola virus. Only mammals (for example, humans, bats, monkeys, and apes) have shown the ability to become infected with and spread Ebola virus.

Healthcare providers caring for Ebola patients and the family and friends in close contact with Ebola patients are at the highest risk of getting sick because they may come in contact with infected blood or body fluids of sick patients.

Signs and Symptoms

Symptoms of Ebola typically include:

- Fever
- Headache
- Joint and muscle aches
- Weakness
- Diarrhea
- Vomiting
- Stomach pain
- Lack of appetite

Some patients may experience:

- A rash
- Red Eyes
- Hiccups
- Cough



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- Sore throat
- Chest pain
- Difficulty breathing
- Difficulty swallowing
- Internal or external bleeding

Symptoms may appear anywhere from 2 to 21 days after exposure to Ebola virus; 8-10 days is most common.

Identifying Persons at High Risk for Ebola in the US

Early recognition is critical for infection control. Health care providers should be alert for and evaluate any patients suspected of having EVD. The patient's travel history should be collected and EVD should be considered in patients who present with fever, myalgia, severe headache, abdominal pain, vomiting, diarrhea or unexplained bleeding or bruising.

Ebola Virus Disease should be considered in patients with FEVER (subjective or $\geq 101.5^{\circ}\text{F}$ or 38.6°C) or compatible EVD symptoms in a patient who has:

- Traveled to an Ebola-affected area in the 21 days before illness onset
- Percutaneous (e.g., needle stick) or mucous membrane contact with blood or body fluids from an EVD patient
- Direct skin contact with, or exposure to blood or body fluids of an EVD patient
- Processing blood or body fluids from an EVD patient without appropriate personal protective equipment (PPE) or biosafety precautions
- Direct contact with a dead body (including during funeral rites) in an Ebola affected area without appropriate PPE

Triage Guidance

Complete guidance for triage of patients presenting with symptoms of EVD may be found in the ADPH EVD Hospital Toolkit. The current forms and information will be updated on the ADPH Ebola website.

Confirmed or suspect cases of any viral hemorrhagic fever, including EVD, must be reported **immediately** to the Alabama Department of Public Health (ADPH) as required under Title XXII of the Code of Alabama.

Complete the [ADPH Ebola Virus Disease Consultation Record](#), submit the completed form via fax to 1-334-206-3734 or email to cdfax@adph.state.al.us and call ADPH at 1-800-338-8374.

Refer to the following resources included in the ADPH EVD Hospital Toolkit:

- Ebola Virus Disease (EVD) Screening Criteria
http://www.adph.org/ebola/assets/ADPH_EVD_ScreeningCriteria.pdf



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- Ebola Virus Disease (EVD) Algorithm for Evaluation of the Returned Traveler
<http://www.cdc.gov/vhf/ebola/pdf/ebola-algorithm.pdf>
- Checklist for Patients Being Evaluated for Ebola Virus Disease (EVD) in the United States
<http://www.cdc.gov/vhf/ebola/pdf/checklist-patients-evaluated-us-evd.pdf>
- ADPH Ebola Virus Disease Consultation Record
http://www.adph.org/ebola/assets/AL_EVD_Consultation_Form.pdf
- Sequence for Putting On and Removing Personal Protective Equipment
<http://www.adph.org/ebola/assets/PPEPoster.pdf>

Infection Control Guidelines

Key Components: Standard, contact, and droplet precautions are recommended for the management of hospitalized patients with known or suspected Ebola Viral Disease.

Patient Placement: Suspect patients should be placed in private isolation rooms. Use of rooms with ante-rooms can facilitate donning and disposal of required Personal Protective Equipment (PPE). Facilities should maintain a log of all persons entering the patient's room.

Personal Protective Equipment: All persons entering the patient room should wear at least:

- Gloves
- Gown (fluid resistant or impermeable)
- Eye protection (goggles or face shield)
- Facemask

Additional PPE may be required in certain situations (e.g., copious amounts of blood, other body fluids, vomit, or feces present in the environment), including but not limited to:

- Double gloving
- Disposable shoe covers
- Leg coverings

Patient Care Equipment: Dedicated medical equipment (preferably disposable, when possible) should be used for the provision of patient care. All non-dedicated, non-disposable medical equipment used for patient care should be cleaned and disinfected according to manufacturer's instructions and hospital policies.

Patient Care Considerations

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. All needles and sharps should be handled with extreme care and disposed of in puncture-proof, sealed containers. Avoid Aerosol Generating Procedures (AGPs) if possible.



Healthcare personnel should perform hand hygiene frequently, including before and after all patient contact, contact with potentially infectious material, and before putting on and upon removal of PPE, including gloves. Healthcare facilities should ensure that supplies for performing hand hygiene are available.

Environmental Control Guidelines

Diligent environmental cleaning, disinfection and safe handling of potentially contaminated materials particularly: blood, sweat, emesis, feces and other body secretions which represent potentially infectious materials.

Use EPA-registered hospital disinfectants to disinfect hard non-porous surfaces. For additional information on Environmental Infection Control visit http://www.cdc.gov/hicpac/pdf/guidelines/eic_in_hcf_03.pdf for the Guideline for Environmental Infection Control in Healthcare Facilities.

Health care personnel performing environmental cleaning and disinfection should wear recommended PPE and consider use of additional barriers (shoe and leg coverings, etc.) if needed. Face protection (face shield or facemask with goggles) should be worn when performing tasks such as liquid waste disposal that can generate splashes.

Follow standard procedures, per hospital policy and manufacturers' instructions, for cleaning and/or disinfection of:

- Environmental surfaces and equipment
- Textiles and laundry
- Food utensils and dishware

Laboratory Procedures

Recommendations for specimen collection: full face shield or goggles, masks to cover all of nose and mouth, gloves, fluid resistant or impermeable gowns. Additional PPE may be required in certain situations.

Recommendations for laboratory testing: full face shield or goggles, masks to cover all of nose and mouth, gloves, fluid resistant or impermeable gowns AND use of a certified class II Biosafety cabinet or plexiglass splash guard, as well as manufacturer-installed safety features for instruments.

When obtaining samples and performing laboratory testing it is expected that all laboratorians and other healthcare personnel collecting or handling specimens follow established standards compliant with the OSHA bloodborne pathogens regulations which encompasses blood and other potentially infectious materials:

https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=10051&p_table=STANDARDS.



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This includes wearing appropriate PPE and adhering to engineered safeguards, for all specimens regardless of whether they are identified as being infectious.

Suspect Ebola Specimens Handling Recommendations

- Do not use glass containers.
- Specimens should be packaged and shipped without attempting to open collection tubes or aliquot specimens.
- The entire outside surface of each specimen container should be wiped with an Environmental Protection Agency (EPA)-registered disinfectants routinely used to inactivate enveloped viruses, such as influenza, hepatitis C, and Ebola viruses in accordance to the manufacturer's instructions and a label with standard identifiers attached (patient's name, hospital identification code, patient's date of birth and specimen date of collection).
- Specimens should each be placed into separate sealed plastic biohazard bags that are wiped with a disinfectant solution before leaving the patient's room.
- The sealed biohazard bags must be placed into a durable, leak-proof secondary container for transport within a facility.
- Laboratory staff should be alerted to the nature of the specimens and specimens should remain in the custody of a designated person until delivered to the laboratory.
- Automated delivery (pneumatic tube) systems should not be used for the transport of suspected Ebola specimens due to the potential of a spill or breakage.

Suspect Ebola Specimen Shipping

Collect serum, plasma, or whole blood. A minimum sample volume of 4 mL should be shipped refrigerated or frozen on ice pack or dry ice (no glass tubes), in accordance with IATA guidelines as a Category B diagnostic specimen.

Testing for Ebola virus is currently available through the CDC's Viral Special Pathogen Branch. Specimens will NOT be accepted without prior approval by ADPH.

IMMEDIATELY Report Person Under Investigation for Ebola:

- Notify Hospital Leadership
- Complete Ebola Consultation Record (http://www.adph.org/ebola/assets/AL_EVD_Consultation_Form.pdf) and fax to 334-206-3734 or email to CDFax@ADPH.state.al.us
- Notify Alabama Department of Public Health: 1-800-338-8374 to report an Immediate Extremely Urgent 4-hour Notifiable Disease



Appropriate Ebola Virus Specimen Collection, Handling and Shipping

Specimen	Testing Available	Collection Device/Info	Quantity	Transport
Whole blood (preferred)	PCR/Virus Isolation	Purple, yellow or blue top plastic blood collection tube	≥ 4mL	Frozen on dry ice in a plastic tube
*Fresh Frozen Tissue	PCR/Virus Isolation	Plastic tube/cup with screw cap	1cm ³ (except for biopsies)	Frozen on dry ice in a plastic tube
*Serum	PCR/Virus Isolation	Red top tube or serum separator	≥ 4mL	Frozen on dry ice in a plastic tube
*Serum	Serology	Red top tube or serum separator	≥ 4mL	Refrigerated (4°C) on cold packs if shipment is to be received within 72 hours or frozen on dry ice if transport delay anticipated
Whole blood	Serology	Purple, green or blue top plastic blood collection tube	≥ 4mL	Refrigerated (4°C) on cold packs if shipment is to be received within 72 hours or frozen on dry ice if transport delay anticipated
*Paraffin-embedded Tissue blocks. If not available, Formalin-treated tissue can be submitted	Immunohistochemistry	Lung, kidney, liver, and spleen are preferred. Lymph nodes, heart, pancreas, pituitary, brain, or liver may be sent.	N/A	Ship at room temperature Note: An autopsy or surgical report must accompany the specimen

* Specimens other than whole blood may be submitted upon consult with the ADPH EPI division.



Important Links and Resources

Alabama Department of Public Health

General information: www.adph.org/ebola

Healthcare Providers: <http://adph.org/ebola/Default.asp?id=6785>

ADPH Ebola Virus Disease Screening Criteria:

<http://adph.org/ebola/assets/ADPHEVDScreeningCriteria.pdf>

ADPH Ebola Consultation Record: <http://adph.org/ebola/assets/EbolaConsultationRecord.pdf>

ADPH Ebola Self Monitor Chart: <http://www.adph.org/ebola/assets/ADPHSelfMonitorChart.pdf>

International Travel Poster:

<http://adph.org/ebola/assets/AttentionPatientsInternationalTravel.pdf>

Ebola Fast Facts Flyer: <http://www.adph.org/ebola/assets/EbolaFlyer.pdf>

Centers for Disease Control and Prevention

General information: <http://www.cdc.gov/vhf/ebola/index.html>

Healthcare Providers: <http://www.cdc.gov/vhf/ebola/hcp/index.html>

Detailed Hospital Checklist for Ebola Preparedness:

<http://www.cdc.gov/vhf/ebola/pdf/hospital-checklist-ebola-preparedness.pdf>

Algorithm for Evaluation of the Returning Traveler: <http://www.cdc.gov/vhf/ebola/pdf/ebola-algorithm.pdf>

Checklist for Patients Being Evaluated for Ebola Virus Disease in the US:

<http://www.cdc.gov/vhf/ebola/pdf/checklist-patients-evaluated-us-evd.pdf>

Personal Protective Equipment Poster: <http://www.cdc.gov/vhf/ebola/pdf/ppe-poster.pdf>