



Kentucky Public Health
Prevent. Promote. Protect.

November 6, 2014

Guidelines for the Initial Management of Patients in Emergency Departments with Suspected Ebola Virus Disease (EVD)

<http://www.cdc.gov/vhf/ebola/hcp/ed-management-patients-possible-ebola.html>

- A. Ensure that a protocol is in place to rapidly identify a potential patient with EVD and immediately isolate that patient in a private room to reduce potential risks to staff, visitors and other patients.**

Personal Protective Equipment (PPE) recommended by the CDC can be found at <http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>

Training

- Healthcare workers should be trained on how to properly use PPE. The training must allow the healthcare workers the opportunity to practice donning and doffing procedures. During the training, healthcare workers must demonstrate the ability to effectively care for a confirmed EVD patient prior to doing so.
- A trained observer who is knowledgeable about all PPE recommendations must be utilized to ensure donning and doffing procedures are followed correctly in order to prevent disease exposure. The trained observer will monitor, guide and provide technique assistance as needed.
- Healthcare workers should maintain proficiency in the proper donning and doffing of PPE. Detailed guidance is available at: <http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>

Donning and Doffing

- Adequate time should be allowed for healthcare workers to properly don and doff PPE without any disturbances. Facilities should have a separate area designated for donning and doffing procedures. Recommended donning and doffing procedures should be appropriately followed including but not limited to the following:

Donning

- A trained observer should supervise the process using a **checklist** and verify that it was successfully completed.
- Personal clothing items should be removed.
- PPE should be inspected prior to donning.
- Proper hand washing techniques should be completed.
- PPE should be put on to ensure the healthcare worker does not have any skin or hair visible.

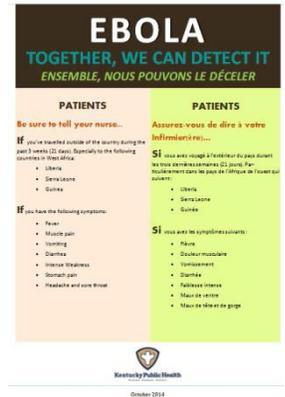
Doffing

- A trained observer should inspect each clinician's PPE for contamination upon exit of the patient's room to the doffing station.
- The trained observer should supervise/direct the clinician when doffing and visually confirm that the PPE was removed properly. The observer should use a checklist and read aloud each step of the donning procedure to be followed. Gloves should be disinfected and removed when directed.
- Proper hand washing techniques should be completed at each step of doffing.
- Healthcare workers should shower carefully after high-risk patient care.

B. Healthcare personnel should take a thorough travel history for any suspect EVD patient and determine risk factors for EVD transmission

1. Place posters in various areas, especially waiting rooms, to remind patients to inform staff of their travel history.

- Posters are available that ask patients to immediately inform staff if they are ill and have recently traveled internationally. The Kentucky Department for Public Health's Kentucky Health Alerts website has posters available in English, Spanish and French.
- Place posters at the entrance, in triage areas, and in patient care areas to serve as reminders.



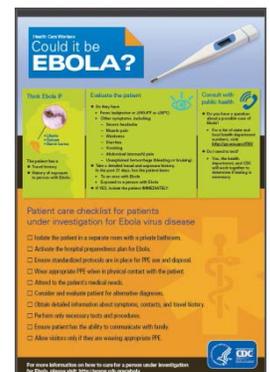
2. Develop tools to cue staff to identify patients with EVD risk factors

- Triage and clinical staff should be familiar with the West African countries currently affected by the EVD outbreak. As of October 23, 2014, affected countries are Sierra Leone, Liberia and Guinea. Current information is available from the Centers for Disease Control and Prevention (CDC) at <http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/distribution-map.html>.
- Any symptomatic patient identified with travel from an affected country within 21 days of illness onset should be **immediately isolated in a private room with private bathroom**, and clinical staff should be notified.
- When evaluating patients who may have EVD, healthcare workers should use standard, contact and droplet precautions, including eye protection. Clinicians should **collect a travel history for all patients presenting with fever or potential symptoms of Ebola**. Asking about travel is very important in acute care settings to rapidly recognize any potential communicable disease associated with an overseas outbreak.
- **Develop a stamp, sticker, or screening tool form** which can be used as a prompt for staff to ask EVD screening questions throughout the triage, registration, and patient evaluation process. See Example below:

PLACE ON CHART OF ALL PATIENTS PROCESSED THROUGH THE EMERGENCY DEPARTMENT

- Have you traveled from Africa?
 - If Yes, what country or countries? _____
 - Date of return to U.S.A.: _____
- If Yes, Ask about and circle any positive symptoms: Do you have any fever, vomiting, and diarrhea, muscle weakness or pain, abdominal pain, or bleeding/bruising?
 - Date of start of symptoms: _____

- CDC has published a quick reference guide located at <http://www.cdc.gov/vhf/ebola/pdf/could-it-be-ebola.pdf> Please see attached.



1. Determine whether travel from affected West African countries has occurred within 21 days of symptom onset.
2. If yes, ask the patient if any of the following exposures occurred:
 - Contact with a person with known or suspected EVD
 - Worked or spent time in a health facility where EVD patients were being treated
 - Worked in a laboratory where specimens from EVD patients were being processed or analyzed
 - Participated in a funeral of a person who may have died of Ebola in an affected area of Africa

C. Evaluate History and Exposure Risk

Refer to the following attached CDC documents:

- Algorithm Identify, Isolate, Inform: Emergency Department Evaluation and Management of Patients with Possible Ebola Virus Disease <http://www.cdc.gov/vhf/ebola/pdf/ed-algorithm-management-patients-possible-ebola.pdf>
- Checklist for Patients Being Evaluated for Ebola Virus Disease in the United States <http://www.cdc.gov/vhf/ebola/pdf/checklist-patients-evaluated-us-evd.pdf>

D. Clinical Evaluation

1. All patients should be asked detailed questions about risk exposures in an affected country or countries, as described above in B-2.
2. The differential diagnosis should consider the most common causes of fever in travelers returning from sub-Saharan Africa, including malaria, dengue, cholera, acute gastroenteritis, typhoid fever, influenza and rickettsial infection.

E. Contact your local and state health department (1-888-9REPORT 24/7) immediately if the following EVD criteria are met:

1. Travel from an Ebola-affected country or direct contact with an Ebola patient in the last 21 days (see B-2).
2. Fever (subjective or documented) or headache, weakness, muscle pain, vomiting, diarrhea, abdominal pain or hemorrhage (bleeding gums, blood in urine, nose bleeds, coffee ground emesis or melena)

Note: If the above criteria are met, place patient in Standard, Contact and Droplet precautions in a private room with a private bathroom. Call local and state health department for consultation and ensure notification to the appropriate departments in your facility:

- Infection Control
- Hospital Epidemiologist
- Administration
- Public Relations or Media Consult

F. Routine Clinical Laboratory Testing

1. Procedures for the collection, handling, and testing of specimens for EVD have been recommended by the CDC: [Interim Guidance for Specimen Collection, Transport, Testing, and Submission for Persons Under Investigation for Ebola Virus Disease in the United States](http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-specimen-collection-submission-patients-suspected-infection-ebola.html). [\[http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-specimen-collection-submission-patients-suspected-infection-ebola.html\]](http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-specimen-collection-submission-patients-suspected-infection-ebola.html). Recently the CDC issued a supplementary guideline as well: [How](#)

[U.S. Clinical Laboratories Can Safely Manage Specimens from Persons Under Investigation for Ebola Virus Disease.](http://www.cdc.gov/vhf/ebola/hcp/safe-specimen-management.html) [<http://www.cdc.gov/vhf/ebola/hcp/safe-specimen-management.html>]

2. Laboratory testing should be limited to testing which is essential for diagnostic evaluation and patient care (from the August 5, 2014 Clinician Outreach and Communication Activity (COCA) call: "[What U.S. Hospitals Need to Know to Prepare for Ebola Virus Disease](http://emergency.cdc.gov/coca/transcripts/2014/call-transcript-080514.asp)" [<http://emergency.cdc.gov/coca/transcripts/2014/call-transcript-080514.asp>]).
3. When it is feasible, laboratory testing should be performed inside the patient's isolation room, using Point-of-Care (POC) instruments and testing methods, including routine blood chemistry, blood gases, hematology, and urinalysis. For further information, please refer to the American Society for Microbiology recently issued, "[Interim Laboratory Guidelines for Handling/Testing Specimens from Cases or Suspected Cases of Hemorrhagic Fever Virus \(HFV\)](http://www.aruplab.com/Testing-Information/resources/LTD/ASM-HFV-Ebola-Laboratory-Interim-Guidance.pdf)." [<http://www.aruplab.com/Testing-Information/resources/LTD/ASM-HFV-Ebola-Laboratory-Interim-Guidance.pdf>]
4. Testing which requires transport of samples to labs outside the patient's isolation room should be kept to a minimum.
5. When clinical laboratories are manipulating primary patient specimens in the laboratory, staff should use an appropriate combination of PPE and physical containment devices to protect their mouth, nose, eyes and bare skin from coming into contact with patient specimens. This could include: Use of a certified Class II biosafety cabinet or Plexiglass splash guard, if a biosafety cabinet is not available, and
 - Gloves
 - Gowns that are fluid resistant or impermeable
 - Mask to cover all of nose and mouth
 - Eye protection such as full face shield or goggles

If a certified class II biosafety cabinet or Plexiglass splash guard is not available, clinical laboratorians should wear:

- Gloves
 - Gowns that are fluid resistant or impermeable
 - Mask to cover all of nose and mouth
 - Full face shield
6. Laboratory and HCP should:
 - Label all specimens to indicate that they originate from a suspected EVD patient.
 - When it is necessary to transport specimens outside the patient's room, the specimens should be double-bagged and placed in a biohazard transportation container.
 - The container should be wiped down with 10% bleach solution, hand-carried to the laboratory, and opened inside a biosafety cabinet.
 - HCP **should not** use a pneumatic tube system to send specimens.
 - Maintain a log of all personnel handling any specimen from suspected or confirmed EVD patients, including dates and times when the specimen was handled by each staff member and the identity of the patient (i.e., medical record number).
 7. Testing for Ebola virus in suspected patient:
 - Ebola virus can only be reliably detected by real-time PCR **3 days after symptom onset**.
 - If a specimen is taken and it has been less than 3 days since symptom onset, the test may be negative, and the patient might need to be tested again to rule out infection with Ebola virus.
 - Clinicians should call the local health department or state health department (502-564-5461 during normal business hours) when trying to determine the need for Ebola testing and prior to sending a specimen to the CDC for testing. **The state health department will facilitate testing by CDC based on exposure and travel history.** Afterhours, weekends, and holidays, telephone reports can be made to 888-9REPORT (888-973-7678). When contacting the local or state health departments, please make sure that you speak to a person and avoid leaving a voice message.

Category A boxes will be made available from the Kentucky Division of Laboratory Services. Boxes will be pre-positioned regionally across the state. Local and state health departments will ensure Category A boxes are available if needed.

8. CDC has issued guidelines on how to collect, store, and transport specimens to the CDC. Please refer to: [Interim Guidance for Specimen Collection, Transport, Testing, and Submission for Patients with Suspected Infection with Ebola Virus Disease | Ebola Hemorrhagic Fever | CDC](http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-specimen-collection-submission-patients-suspected-infection-ebola.html) [<http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-specimen-collection-submission-patients-suspected-infection-ebola.html>]

G. Environmental Isolation and Infection Control Principles and Practices.

Patients with suspected or confirmed EVD can be managed safely using established infection control principles and precautions:

1. All suspect and confirmed EVD patients should be isolated in a single room with a private bathroom that contains dedicated medical equipment. Airborne infection isolation rooms (negative pressure) are acceptable, but not required.
 - Use only a mattress and pillow with plastic or other covering that fluids cannot pass through.
2. Do not place EVD patients in carpeted rooms. Remove all upholstered furniture and decorative curtains. Healthcare workers entering this room must use standard, contact, and droplet precautions: gloves, gowns, mask, and eye protection.
3. Avoid aerosol-generating procedures, such as open suctioning of airways and intubation. If intubation or other aerosol-generating procedures are required, airborne precautions are needed as well, and should be performed in an airborne infection isolation room (negative pressure). Patients with pulmonary disease should be placed in airborne isolation to avoid the potential for droplet spread.
4. Use disposable medical equipment whenever possible.
5. Hand hygiene with soap and water or alcohol-based hand rubs must be performed diligently by all healthcare personnel after removing protective gear.
6. Restrict entry to a patient's room to healthcare personnel; visitors should usually not be permitted within the patient's room, with exceptions considered on a case-by-case basis and only when essential for patient care.
7. Limit the number of healthcare personnel who enter the patient's room to the minimum necessary to provide proper care. Consider a dedicated team to work exclusively with the patient.
8. Maintain a log of all persons who have contact with the EVD patient since arrival at the facility.
9. Implement diligent environmental cleaning processes and procedures, using EPA-registered hospital disinfectants.
 - As a precaution, selection of a disinfectant product with a higher potency than what is normally required for an enveloped virus is being recommended at this time. EPA-registered hospital disinfectants with label claims against non-enveloped viruses (e.g., norovirus, rotavirus, adenovirus, and poliovirus) are broadly antiviral and capable of inactivating both enveloped and non-enveloped viruses.
 - The Ebola virus is susceptible to 3% acetic acid, 1% glutaraldehyde, alcohol-based products, and dilutions (1:10-1:100 for ≥ 10 minutes) of 5.25% household bleach (sodium hypochlorite), and calcium hypochlorite (bleach powder).
 - The WHO recommendations for cleaning up spills of blood or body fluids suggest flooding the area with a 1:10 dilution of 5.25% household bleach for 10 minutes for surfaces that can tolerate stronger bleach solutions (e.g., cement, metal). For surfaces that may corrode or discolor, they recommend careful cleaning to remove visible stains followed by contact with a 1:100 dilution of 5.25% household bleach for more than 10 minutes.
10. Discard all linens, non-fluid-impermeable pillows or mattresses, and textile privacy curtains. Linen should be placed in clearly-labeled, leak-proof bags (double-bagged) at the site of use and discarded as regulated medical waste. See the CDC website for more detailed guidance at <http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html>

H. Treatment for Patients with EVD

1. Patients with EVD are provided symptomatic treatment. There is no FDA-approved vaccine or medicine for treating Ebola. Chances of survival improve with:
 - Provision of intravenous fluids and balancing of electrolytes
 - Maintenance of oxygen status and provision of supportive oxygen therapy if needed
 - Maintenance of blood pressure
 - Treatment of other infections if needed
2. Experimental Treatments and Vaccines for Ebola

- Please refer to CDC website [Questions and Answers on Experimental Treatments and Vaccines for Ebola | Ebola Hemorrhagic Fever | CDC \[http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/ga-experimental-treatments.html\]](http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/ga-experimental-treatments.html)
- ZMapp is being developed by Mapp Biopharmaceutical and is an experimental treatment.
 - It has not been tested in humans for safety or effectiveness.

I. Ebola and Regulated Medical Waste

1. The Ebola virus is classified as a Category A infectious substance and regulated by the U.S. Department of Transportation's (DOT) Hazardous Materials Regulations.
2. Any item transported offsite for disposal that is contaminated or suspected of contamination with Ebola must be packaged and transported in accordance with HMR.49 C.F.R., Parts 171-180. This includes:
 - Medical Equipment
 - Sharps
 - Linens
 - Used healthcare products (soiled absorbent pads or dressings, emesis pans, portable toilets)
 - PPE
 - Byproducts of cleaning

J. Handling of Human Remains

CDC has provided detailed guidance on the safe handling of human remains that may contain EVD for U.S. hospitals and mortuaries. This guidance is available at: <http://www.cdc.gov/vhf/ebola/hcp/guidance-safe-handling-human-remains-ebola-patients-us-hospitals-mortuaries.html>

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- CDC (2014). *Guidance on Personal Protective Equipment To Be Used by Healthcare Workers During Management of Patients with Ebola Virus Disease in U.S. Hospitals, Including Procedures for Putting On (Donning) and Removing (Doffing)*. Retrieved from <http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>
- New York City Department of Health and Mental Hygiene (August 11, 2014). *2014 Alert #22: Evaluating Patients for Ebola Virus Disease in New York City*. Retrieved from https://a816health29ssl.nyc.gov/sites/NYCHAN/Lists/AlertUpdateAdvisoryDocuments/NYC%20DOHMH%20Ebola%20Health%20Alert_8_11_14%20Final.pdf
- New York City Department of Health and Mental Hygiene (2014). *Guidelines for the Initial Management of Patients in Emergency Departments Who May have Ebola Virus Disease (EVD)*. Retrieved from <http://www.nyc.gov/html/doh/downloads/pdf/cd/ebola-guidlines-emergency-dptmts.pdf>



Upon arrival to clinical setting/triage

- %o Assess the patient for a fever (subjective or $\geq 100.4^{\circ}\text{F} / 38.0^{\circ}\text{C}$)
- %o Determine if the patient has symptoms compatible EVD such as headache, weakness, muscle pain, vomiting, diarrhea, abdominal pain or hemorrhage
- %o Assess if the patient has a potential exposure from traveling to a country with widespread Ebola transmission* or having contact with an Ebola patient in the 21 days before illness onset

Suspect Ebola if fever or compatible Ebola symptoms and an exposure are present

See next steps in this checklist and the Algorithm for Evaluation of the Returned Traveler for Ebola at

<http://www.cdc.gov/vhf/ebola/pdf/ebola-algorithm.pdf>

Upon initial assessment

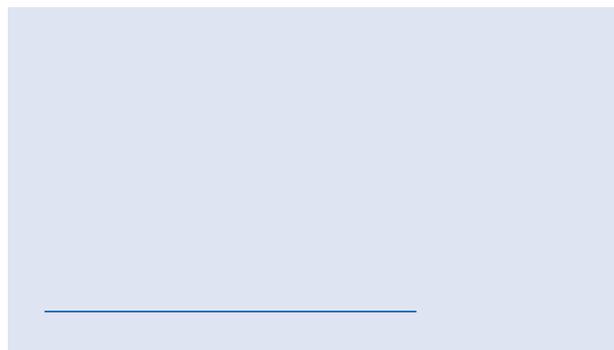
- %o Isolate patient in single room with a private bathroom and with the door to hallway closed
- %o Implement standard, contact, & droplet precautions
- %o Notify the hospital Infection Control Program at _____
- %o Report to the health department at _____

Conduct a risk assessment for: High-risk exposures

- %o Percutaneous (e.g., needle stick) or mucous membrane exposure to blood or body fluids from an EVD patient
- %o Direct skin contact with skin, blood or body fluids from an EVD patient
- %o Processing blood or body fluids from an EVD patient without appropriate PPE
- %o Direct contact with a dead body in an Ebola-affected area without appropriate PPE

Low-risk exposures

- %o Household members of an EVD patient or others who had brief direct contact (e.g., shaking hands) with an EVD patient without appropriate PPE
- %o Healthcare personnel in facilities with EVD patients who have been in care areas of EVD patients without recommended PPE



During aerosol-generating procedures

- %o Limit number of personnel present
- %o Conduct in an airborne infection isolation room
- %o Don PPE as described in the *Guidance on Personal Protective Equipment To Be Used by Healthcare Workers During Management of Patients with Ebola Virus Disease in U.S. Hospitals, Including Procedures for Putting On (Donning) and Removing (Doffing)* (hyperlink: <http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>)

Patient placement and care considerations

- %o Maintain log of all persons entering patient's room
- %o Use dedicated disposable medical equipment (if possible)
- %o Limit the use of needles and other sharps
- %o Limit phlebotomy and laboratory testing to those procedures essential for diagnostics and medical care
- %o Carefully dispose of all needles and sharps in puncture-proof sealed containers
- %o Avoid aerosol-generating procedures if possible
- %o Wear PPE (detailed in center box) during environmental cleaning and use an EPA-registered hospital disinfectant with a label claim for non-enveloped viruses**

Initial patient management

- %o Consult with health department about diagnostic EVD RT-PCR testing***
- %o Consider, test for, and treat (when appropriate) other possible infectious causes of symptoms (e.g., malaria, bacterial infections)
- %o Provide aggressive supportive care including aggressive IV fluid resuscitation if warranted
- %o Assess for electrolyte abnormalities and replete
- %o Evaluate for evidence of bleeding and assess hematologic and coagulation parameters
- %o Symptomatic management of fever, nausea, vomiting, diarrhea, and abdominal pain
- %o Consult health department regarding other treatment options

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.

* See 2014 Ebola Outbreak in West Africa—Case Counts or <http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html> to determine if a country has widespread Ebola transmission

** See Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus or <http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html>

*** See Interim Guidance for Specimen Collection, Transport, Testing, and Submission for Persons Under Investigation for Ebola Virus Disease in the United States or <http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-specimen-collection-submission-patients-suspected-infection-ebola.html>



- **Identify exposure history:**
Has patient lived in or traveled to a country with widespread Ebola transmission or had contact with an individual with confirmed Ebola Virus Disease within the previous 21 days?

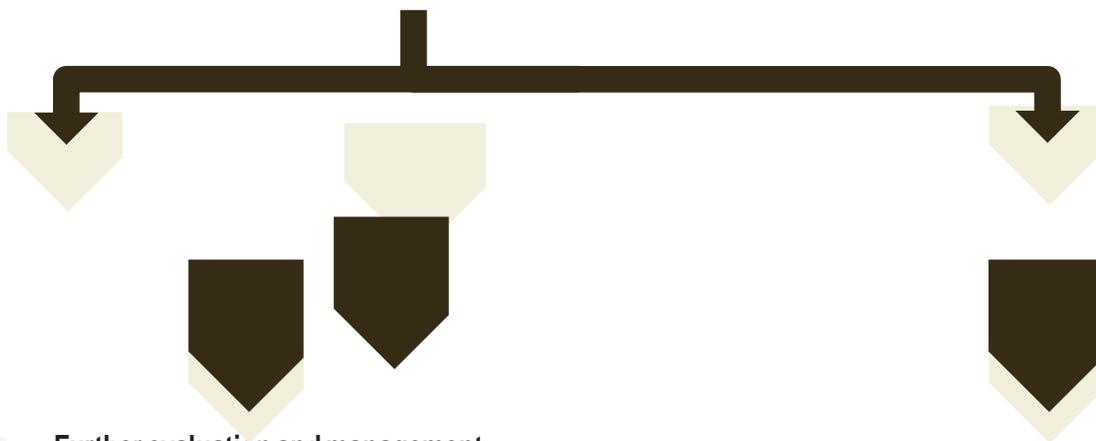


Continue with usual triage and assessment



Inform

IMMEDIATELY notify the hospital infection control program and other appropriate staff
IMMEDIATELY report to the health department



- **Further evaluation and management**
Complete history and physical examination; decision to test for Ebola should be made in consultation with relevant health department
- B. Perform routine interventions (e.g. placement of peripheral IV, phlebotomy for diagnosis) as indicated by clinical status
- C. Evaluate patient with dedicated equipment (e.g. stethoscope)



U.S. Department of
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