

# Infection Prevention and Control Recommendations for Hospitalized Patients Under Investigation for Ebola Virus Disease in U.S. Hospitals

## Page Summary

**Who this is for:** Healthcare personnel in any healthcare setting. The guidance is most relevant for hospital staff caring for a patient under investigation (PUI) for or with confirmed Ebola virus disease (EVD).

**What this is for:** Guidance to help healthcare personnel follow standard, contact, and droplet precautions when caring for a PUI or patient with confirmed EVD.

**How this relates to other Ebola guidance:** This guidance is from the [2007 CDC's HICPAC Isolation Guidelines \(https://web.archive.org/web/20150126042825/http://www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html\)](https://web.archive.org/web/20150126042825/http://www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html). This content is found in appendix A and covers EVD. In October 2014, CDC updated the PPE portion of this guidance based on the experience of treating patients with EVD in U.S. hospitals.

## Key points

1. CDC recommends staff members use standard, contact, and droplet precautions to care for a PUI or patient with confirmed EVD.
2. Staff members might need to take additional infection control steps if a PUI or patient with confirmed EVD has other conditions or illnesses, such as tuberculosis, or requires care involving aerosol-generating procedures.
3. Healthcare personnel can be exposed to Ebola virus by touching a patient's body fluids, contaminated medical supplies and equipment, or contaminated environmental surfaces. Splashes to unprotected mucous membranes (for example, the eyes, nose, or mouth) are particularly hazardous. Procedures that can increase environmental contamination with infectious material or create aerosols should be minimized.

Standard, contact, and droplet precautions are recommended for management of a hospitalized PUI or patient with confirmed EVD (See Table below). Note that this guidance outlines only those measures that are specific for EVD; additional infection control measures might be warranted if an EVD patient has other conditions or illnesses for which other measures are indicated (e.g., tuberculosis, multi-drug resistant organisms, etc.).

Though these recommendations focus on the hospital setting, the recommendations for [personal protective equipment \(PPE\)](#) and [environmental infection control](#) measures are applicable to any healthcare setting\*. In this guidance healthcare personnel (HCP) refers all persons, paid and unpaid, working in healthcare settings who have the potential for exposure to patients and/or to infectious materials, including body substances, contaminated

medical supplies and equipment, contaminated environmental surfaces, or aerosols generated during certain medical procedures. HCP include, but are not limited to, physicians, nurses, nursing assistants, therapists, technicians, emergency medical service personnel, dental personnel, pharmacists, laboratory personnel, autopsy personnel, students and trainees, contractual personnel, home healthcare personnel, and persons not directly involved in patient care (e.g., clerical, dietary, house-keeping, laundry, security, maintenance, billing, chaplains, and volunteers) but potentially exposed to infectious agents that can be transmitted to and from HCP and patients. **This guidance is not intended to apply to persons outside of healthcare settings.**

As information becomes available, these recommendations will be re-evaluated and updated as needed. These recommendations are based upon available information (as of July 30, 2014) and the following considerations:

- High rate of morbidity and mortality among infected patients
- Risk of human-to-human transmission
- Lack of FDA-approved vaccine and therapeutics

For full details of standard, contact, and droplet precautions see 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Setting ([https://web.archive.org/web/20150126042825/http://www.cdc.gov/hicpac/2007IP/2007ip\\_part2.html#e](https://web.archive.org/web/20150126042825/http://www.cdc.gov/hicpac/2007IP/2007ip_part2.html#e)).

For information on symptoms of EVD infection and modes of transmission, see the CDC Ebola Virus Disease Website.

## Key Components of Standard, Contact, and Droplet Precautions Recommended for Preventing EVD Transmission in U.S. Hospitals

Component	Recommendation	Comments
Patient Placement	<ul style="list-style-type: none"> <li>• Single patient room (containing a private bathroom) with the door closed</li> <li>• Facilities should maintain a log of all persons entering the patient's room</li> </ul>	<ul style="list-style-type: none"> <li>• Consider posting personnel at the patient's door to ensure appropriate and consistent use of PPE by all persons entering the patient room</li> </ul>
Personal Protective Equipment (PPE)	<u>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).</u>	

Component	Recommendation	Comments
Patient Care Equipment	<ul style="list-style-type: none"><li>• Dedicated medical equipment (preferably disposable, when possible) should be used for the provision of patient care</li><li>• All non-dedicated, non-disposable medical equipment used for patient care should be cleaned and disinfected according to manufacturer's instructions and hospital policies</li></ul>	
Patient Care Considerations	<ul style="list-style-type: none"><li>• Limit the use of needles and other sharps as much as possible</li><li>• Phlebotomy, procedures, and laboratory testing should be limited to the minimum necessary for essential diagnostic evaluation and medical care</li><li>• All needles and sharps should be handled with extreme care and disposed in puncture-proof, sealed containers</li></ul>	

Component	Recommendation	Comments
Aerosol Generating Procedures (AGPs)	<ul style="list-style-type: none"> <li>• Avoid AGPs for patients with EVD.</li> <li>• If performing AGPs, use a combination of measures to reduce exposures from aerosol-generating procedures when performed on Ebola HF patients.</li> <li>• Visitors should not be present during aerosol-generating procedures.</li> <li>• Limiting the number of HCP present during the procedure to only those essential for patient-care and support.</li> <li>• Conduct the procedures in a private room and ideally in an Airborne Infection Isolation Room (AIIR) when feasible. Room doors should be kept closed during the procedure except when entering or leaving the room, and entry and exit should be minimized during and shortly after the procedure.</li> <li>• HCP should wear <u>appropriate PPE</u> during aerosol generating procedures.</li> <li>• Conduct environmental surface cleaning following procedures (see section below on environmental infection control).</li> </ul>	<ul style="list-style-type: none"> <li>• Although there are limited data available to definitively define a list of AGPs, procedures that are usually included are Bilevel Positive Airway Pressure (BiPAP), bronchoscopy, sputum induction, intubation and extubation, and open suctioning of airways.</li> <li>• Because of the potential risk to individuals reprocessing reusable respirators, disposable filtering face piece respirators are preferred.</li> </ul>
Hand Hygiene	<ul style="list-style-type: none"> <li>• HCP 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.</li> <li>• Healthcare facilities should ensure that supplies for performing hand hygiene are available.</li> </ul>	<ul style="list-style-type: none"> <li>• Hand hygiene in healthcare settings can be performed by washing with soap and water or using alcohol-based hand rubs. If hands are visibly soiled, use soap and water, not alcohol-based hand rubs.</li> </ul>
Environmental Infection Control	<u>Hospital Guidance</u>	<u>Hospital Guidance</u>

Component	Recommendation	Comments
Safe Injection practices	<ul style="list-style-type: none"><li>Facilities should follow safe injection practices as specified under Standard Precautions.</li></ul>	<ul style="list-style-type: none"><li>Any injection equipment or parenteral medication container that enters the patient treatment area should be dedicated to that patient and disposed of at the point of use.</li></ul>
Duration of Infection Control Precautions	<ul style="list-style-type: none"><li>Duration of precautions should be determined on a case-by-case basis, in conjunction with local, state, and federal health authorities.</li></ul>	<ul style="list-style-type: none"><li>Factors that should be considered include, but are not limited to: presence of symptoms related to EVD, date symptoms resolved, other conditions that would require specific precautions (e.g., tuberculosis, <i>Clostridium difficile</i>) and available laboratory information</li></ul>

Component	Recommendation	Comments
Monitoring and Management of Potentially Exposed Personnel	<ul style="list-style-type: none"> <li>Facilities should develop policies for monitoring and management of potentially exposed HCP</li> <li>Facilities should develop sick leave policies for HCP that are non-punitive, flexible and consistent with public health guidance               <ul style="list-style-type: none"> <li>Ensure that all HCP, including staff who are not directly employed by the healthcare facility but provide essential daily services, are aware of the sick leave policies.</li> </ul> </li> <li>Persons with percutaneous or mucocutaneous exposures to blood, body fluids, secretions, or excretions from a PUI should               <ul style="list-style-type: none"> <li>Stop working and immediately wash the affected skin surfaces with soap and water. Mucous membranes (e.g., conjunctiva) should be irrigated with copious amounts of water or eyewash solution</li> <li>Immediately contact occupational health/supervisor for assessment and access to postexposure management services for all appropriate pathogens (e.g., Human Immunodeficiency Virus, Hepatitis C, etc.)</li> </ul> </li> <li>HCP who develop sudden onset of fever, fatigue, intense weakness or muscle pains, vomiting, diarrhea, or any signs of hemorrhage after an unprotected exposure (i.e. not wearing recommended PPE at the time of patient contact or through direct contact to blood or body fluids) to a patient with EVD should               <ul style="list-style-type: none"> <li>Not report to work or should immediately stop working</li> <li>Notify their supervisor</li> </ul> </li> </ul>	

Component	Recommendation	Comments
	<ul style="list-style-type: none"> <li>◦ Seek prompt medical evaluation and testing</li> <li>◦ Notify local and state health departments</li> <li>◦ Comply with work exclusion until they are deemed no longer infectious to others</li> <li>• For asymptomatic HCP who had an unprotected exposure (i.e. not wearing recommended PPE at the time of patient contact or through direct contact to blood or body fluids) to a patient with Ebola HF               <ul style="list-style-type: none"> <li>◦ Should receive medical evaluation and follow-up care including fever monitoring twice daily for 21 days after the last known exposure.</li> <li>◦ Hospitals should consider policies ensuring twice daily contact with exposed personnel to discuss potential symptoms and document fever checks</li> </ul> </li> </ul>	

Component	Recommendation	Comments
Monitoring, Management, and Training of Visitors	<ul style="list-style-type: none"> <li>• Avoid entry of visitors into the patient's room               <ul style="list-style-type: none"> <li>◦ Exceptions may be considered on a case by case basis for those who are essential for the patient's wellbeing.</li> </ul> </li> <li>• Establish procedures for monitoring managing and training visitors.</li> <li>• Visits should be scheduled and controlled to allow for:               <ul style="list-style-type: none"> <li>◦ Screening for EVD (e.g., fever and other symptoms) before entering or upon arrival to the hospital</li> <li>◦ Evaluating risk to the health of the visitor and ability to comply with precautions</li> <li>◦ Providing instruction, before entry into the patient care area on hand hygiene, limiting surfaces touched, and use of PPE according to the current facility policy while in the patient's room</li> <li>◦ Visitor movement within the facility should be restricted to the patient care area and an immediately adjacent waiting area.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Visitors who have been in contact with the EVD patient before and during hospitalization are a possible source of EVD for other patients, visitors, and staff.</li> </ul>

\* For laboratory personnel, the recommendations for PPE only apply when in the patient care area. Laboratory personnel who are in the laboratory, not the patient care area, need to wear routine clinical laboratory PPE (gloves, face shield, impermeable gown).

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Division of High-Consequence Pathogens and Pathology (DHCPP)

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Viral Special Pathogens Branch (VSPB) (</web/20150126042825/https://www.cdc.gov/ncezid/dhcpp/vspb/index.html>)