

University of Nevada, Las Vegas Ebola Prevention and Response Guidelines

Background/Introduction

The University of Nevada, Las Vegas is closely monitoring the U.S. Centers for Disease Control and Prevention (CDC) advice, official health advisories and other information related to the Ebola virus outbreak in West Africa. West Africa is comprised of 16 countries, they are: Benin, Burkina Faso, Ivory Coast, Cape Verde, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo. **Guinea, Liberia, and Sierra Leone are the major West African countries under alert at this as of October 22, 2014.**

The UNLV Student Wellness Center confirmed that no international students from Guinea, Liberia, or Sierra Leone are enrolled for fall 2014. As a precaution, however, an Ebola notice was sent to all students, faculty, and staff on August 25, 2014 outlining the outbreak, symptoms and transmission of Ebola, and how to report suspected exposure (**see appendix A**). No suspected exposures have been reported. The University does have students currently enrolled in study abroad programs in Ghana, but none in Guinea, Liberia, Sierra Leone, or Nigeria.

UNLV is following the CDC's "Advice for Colleges, Universities, and Students About Ebola in West Africa," available at: <http://wwwnc.cdc.gov/travel/page/advice-for-colleges-universities-and-students-about-ebola-in-west-africa>. However, please note, due to the dynamic nature of the evolving situation, these University guidelines will be revised as new information becomes available and the CDC issues updated advice.

CDC's Advice for Study Abroad, Foreign Exchange, or Other Education-related Travel

The CDC's recommendations against non-essential travel, including education-related travel, are intended to help control the outbreak and prevent continued spread in two ways: to protect the health of US residents who would be traveling to the affected areas; and, to enable the governments of countries where Ebola outbreaks are occurring to respond most effectively to contain the outbreak.

- The CDC has posted a **Warning – Level 3** Travel Notices recommending that people avoid non-essential travel to Guinea, Liberia, and Sierra Leone at this time.
- The CDC has updated its Level 2, Alert to a **Watch - Level 1** Travel Notice for Nigeria with recommendations for usual precautions. The purpose of this travel notice is to notify travelers that a small number of Ebola cases were recently reported, but this outbreak was contained to a small number of cases. Although the risk for Ebola in Nigeria is currently low, travelers should be aware that the outbreak continues in nearby countries and other importations of Ebola are possible.
- At this time, the CDC states that there is no risk of contracting Ebola in other countries in the West African region where Ebola cases have not been reported. However the situation could change rapidly.

- Travelers should visit the CDC Travel Health Notices page at <http://wwwnc.cdc.gov/travel/notices> for the most up-to-date guidance and recommendations for each country, including information about health screening of incoming and outgoing travelers and restrictions on travel within countries.

UNLV Advisory for Education-Related Travel

- All UNLV travelers are strongly advised to defer nonessential travel to Guinea, Liberia and Sierra Leone.. The CDC urges all US residents to avoid nonessential travel to Guinea, Liberia, and Sierra Leone because of an unprecedented outbreak of Ebola and the adverse impacts to healthcare and other infrastructure within these countries.
- The Student Wellness Center strongly cautions all UNLV students travelling to other West African countries until the current emergency in the region is over because in-country conditions, including travel and healthcare infrastructure support, could change very suddenly in event of Ebola cases occurring in those countries. In the event of an outbreak, any country has the right to enact measures (such as quarantine, isolation and screening) to protect its citizens and to prevent the spread of the outbreak to other countries. These measures may infringe on the individual rights of those who appear to be infected with or exposed to a disease of public health concern - including visiting US citizens. The ability of the U.S. Department of State to intervene in such situations is limited.

UNLV Management of Students and Faculty Who have Recently Returned to the US from Countries where the Ebola Outbreaks are Occurring

The CDC is not recommending that colleges and universities isolate or quarantine students, faculty, or staff based on travel history alone. Accordingly, the UNLV Student Wellness Center will conduct a risk assessment with identified students, faculty, and staff who have been in countries where Ebola outbreaks are occurring within the past 21 days to determine individual level of risk exposure. The CDC defines the level of risk in three categories. They are high-risk exposure, low-risk exposure and no known exposure (**see appendix B**). They also will receive education on the following topics:

- Self-monitoring for symptoms
- Reporting procedures for those who develop symptoms
- Importance of immediately reporting symptoms and staying separated from other people as soon as symptoms develop
- If a student, faculty, or staff member has had a high- or low-risk exposure, the Southern Nevada Health District will be notified. UNLV officials should consult with Southern Nevada Health District for guidance about how that person should be monitored. Anyone with a potential exposure should receive thorough education about immediately reporting symptoms and staying away from other people if symptoms develop.

- In the event that a person who has had a high- or low-risk exposure develops symptoms consistent with Ebola, the person should be medically evaluated while following recommended infection control precautions. The Southern Nevada Health District will be notified.
- If campus community members have had no symptoms of Ebola for 21 days since leaving a West African country with Ebola outbreaks, NO further assessment is needed.

CDC Recommendations for Student Health Centers

The CDC recommendations for student health centers are the same as those for other US health care workers and settings.

- Student health center clinicians should refer to the [CDC Ebola Virus Disease Information for Clinicians in US Healthcare Settings](#) for more information on symptoms, exposure risks, and infection control measures.
- While Ebola poses little risk to the U.S. general population, clinicians are advised to be alert for signs and symptoms of Ebola in patients who have a recent (within 21 days) travel history to countries where the outbreak is occurring or have had contact with a person infected with Ebola. In the event that a potential case is identified, clinicians should isolate the patient pending diagnostic testing.

UNLV Student Wellness Center Plan

UNLV Student Wellness Center clinicians will follow these steps when caring for someone who may be sick with Ebola Virus Disease (this does not represent an exhaustive list of precautions and procedures):

- Apply the Southern Nevada Health District Interim Algorithm for Ebola Virus Disease Testing and Surveillance (**see appendix C**)
- Use proper infection prevention and control measures (**see appendices D and E**); standard, contact, and droplet precautions are recommended if Ebola is suspected.



Campus Ebola Advisory

UNLV Official to: UNLV Official

Sent by: Auto Mail

Bcc: Jamie Davidson

Please respond to student services official

08/25/2014 12:20 PM

Dear Students, Faculty and Staff:

In light of news reports and heightened concerns about the spread of the Ebola virus in West Africa, the Student Health Center is monitoring developments and preparing in case students, staff or faculty with possible exposure to the virus arrive on campus.

The current Ebola outbreak is centered in four countries in West Africa: Liberia, Guinea, Sierra Leone and Nigeria. According to the Centers for Disease Control and Prevention (CDC), Ebola does not currently pose a significant risk to the United States public. Ebola virus is transmitted only through direct contact with the blood or body fluids of an infected, symptomatic person or through exposure to contaminated objects (such as needles).

Symptoms of Ebola Virus Disease (EVD) include: fever, headache, joint and muscle aches, weakness, diarrhea, vomiting, stomach pain, lack of appetite, and abnormal bleeding. Symptoms may appear between 2 to 21 days after exposure to Ebola virus.

If your summer travels took you to West Africa, especially the countries of Liberia, Guinea, Sierra Leone, and Nigeria, or if you have been in direct contact with a person who traveled to these countries, please be aware of several important CDC recommendations:

1. You should closely monitor your health for 21 days after your travel or direct contact with a person who traveled to these countries since symptoms may appear anywhere from 2 to 21 days following exposure. Ebola virus is transmitted only through direct contact with the blood or body fluids of an infected, symptomatic person or through exposure to contaminated objects (such as needles).
2. Seek medical care immediately if you develop these symptoms. Notify your health care provider about your recent travel and your symptoms before you go to the office. Advance notice will help your provider care for you and protect other people who may be in the office. Remember, these symptoms may also be present in many other infections.

If you suspect that you may have been exposed to Ebola, please contact the UNLV Student Health Center at 702-895-3684 (students), the Faculty and Staff Treatment Center at 702-895-0630 (faculty and staff), or your primary care provider.

The UNLV Student Wellness Healthcare Team

Ebola Virus Disease (EVD)

Algorithm for Evaluation of the Returned Traveler



FEVER (subjective or $\geq 101.5^{\circ}\text{F}$ or 38.6°C) or compatible EVD symptoms* in patient who has traveled to an Ebola-affected area** in the 21 days before illness onset

* headache, weakness, muscle pain, vomiting, diarrhea, abdominal pain or hemorrhage

NO

Report asymptomatic patients with high- or low-risk exposures (see below) in the past 21 days to the health department

YES

1. Isolate patient in single room with a private bathroom and with the door to hallway closed
2. Implement standard, contact, and droplet precautions (gown, facemask, eye protection, and gloves)
3. Notify the hospital Infection Control Program and other appropriate staff
4. Evaluate for any risk exposures for EVD
5. IMMEDIATELY report to the health department

HIGH-RISK EXPOSURE

Percutaneous (e.g., needle stick) or mucous membrane contact with blood or body fluids from an EVD patient

OR

Direct skin contact with, or exposure to blood or body fluids of, an EVD patient

OR

Processing blood or body fluids from an EVD patient without appropriate personal protective equipment (PPE) or biosafety precautions

OR

Direct contact with a dead body (including during funeral rites) in an Ebola affected area** without appropriate PPE

LOW-RISK EXPOSURE

Household members of an EVD patient and others who had brief direct contact (e.g., shaking hands) with an EVD patient without appropriate PPE

OR

Healthcare personnel in facilities with confirmed or probable EVD patients who have been in the care area for a prolonged period of time while not wearing recommended PPE

NO KNOWN EXPOSURE

Residence in or travel to affected areas** without HIGH- or LOW-risk exposure

Review Case with Health Department Including:

- Severity of illness
- Laboratory findings (e.g., platelet counts)
- Alternative diagnoses

EVD suspected

EVD not suspected

TESTING IS INDICATED

The health department will arrange specimen transport and testing at a Public Health Laboratory and CDC

The health department, in consultation with CDC, will provide guidance to the hospital on all aspects of patient care and management

TESTING IS NOT INDICATED

If patient requires in-hospital management:

Decisions regarding infection control precautions should be based on the patient's clinical situation and in consultation with hospital infection control and the health department

If patient's symptoms progress or change, re-assess need for testing with the health department

If patient does not require in-hospital management

Alert the health department before discharge to arrange appropriate discharge instructions and to determine if the patient should self-monitor for illness

Self-monitoring includes taking their temperature twice a day for 21 days after their last exposure to an Ebola patient



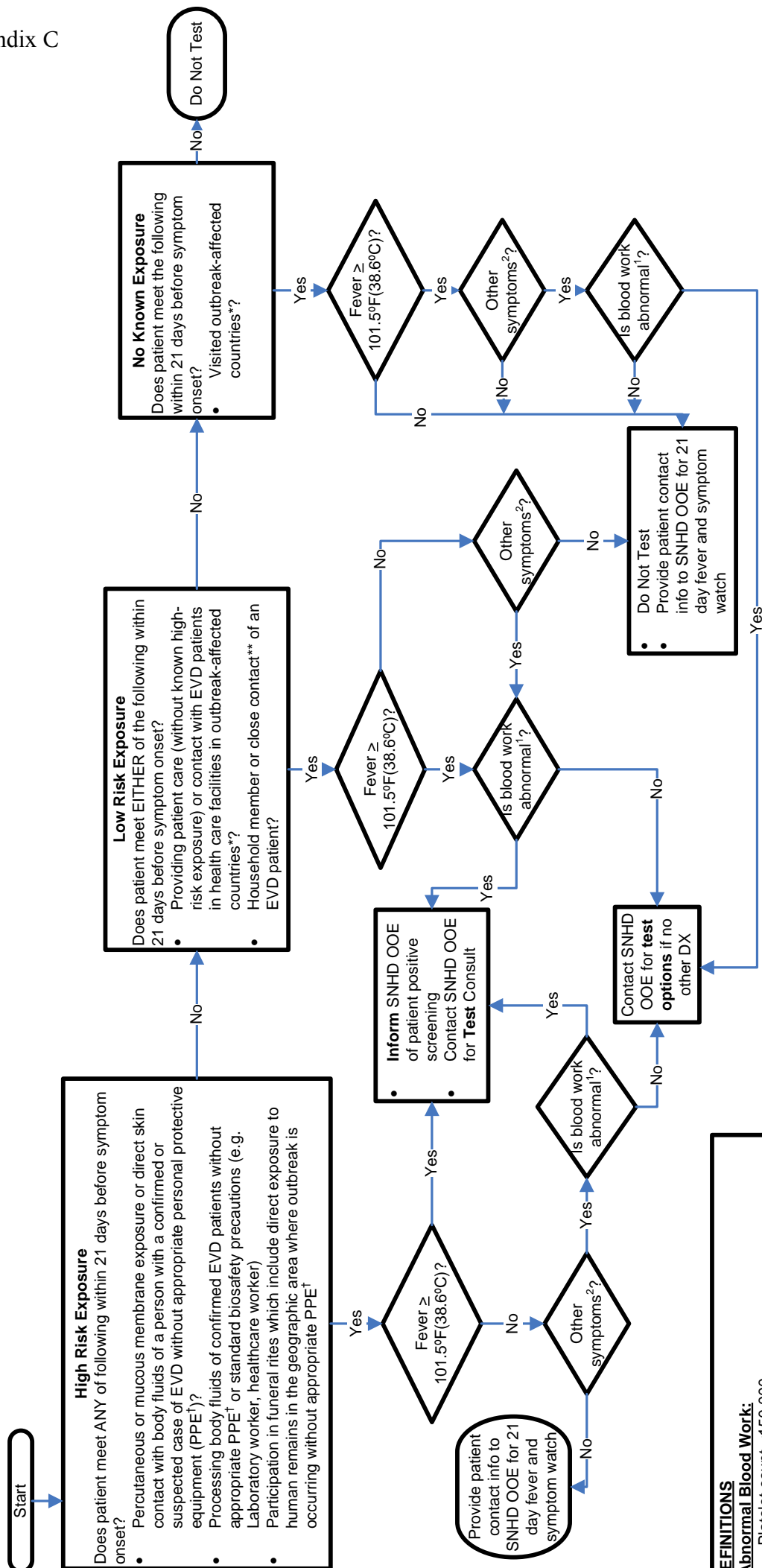
U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

** CDC Website to check current affected areas: www.cdc.gov/vhf/ebola

SNHD Interim Algorithm for Ebola Virus Disease (EVD) Testing and Surveillance (updated 10/8/14)

(updated 10/8/14)

If you suspect EVD, screen for potential risk factors below. If concerns persist, isolate the patient using standard contact and droplet precautions, consider alternative diagnoses[†], and contact the Southern Nevada Health District (SNHD) Office of Epidemiology (OOE) at (702)759-1300 option 2 for consultation.



DEFINITIONS

1¹ Abnormal Blood Work:

- Platelet count <150,000
- Prolonged PT/PTT
- AST/ALT elevation

2. **Other Signs/Symptoms Include:**

- Intense weakness
- Muscle Pain
- Headache and sore throat
- Vomiting
- Diarrhea
- Abdominal pain
- Impaired kidney and liver function
- Internal or external bleeding

*Outbreak affected areas: Sierra Leone, Guinea, Liberia, Nigeria (Lagos or Port Harcourt) (areas may be updated) refer to <http://www.cdc.gov/vhf/ebola/resources/distribution-map-guinea-outbreak.html#areas>

Close contact is defined as a) being within approximately 3 feet (1 meter) of an EVD patient or within the patient's room or care area for a prolonged period of time while not wearing recommended PPE or b) having direct brief contact (e.g. shaking hands) with an EVD patient while not wearing recommended PPE. Brief interactions, such as walking by a person or moving through a hospital, do not constitute close contact.

type guidance can be found at: <http://www.cdc.gov/vhf/ebola/hcp/index.html>

EVD can often be confused with other more common infectious diseases such as malaria, typhoid fever, meningococemia, and other bacterial infections (e.g., pneumonia). These diseases should be considered. A positive malaria test alone does not rule out EVD.

October 10, 2014

Infection Prevention and Control Recommendations for Hospitalized Patients with Known or Suspected Ebola Virus Disease in U.S. Hospitals

Standard, contact, and droplet precautions are recommended for management of hospitalized patients with known or suspected Ebola virus disease (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.](#)

For information on symptoms of Ebola Virus Disease infection and modes of transmission, see the [CDC Ebola Virus Disease Website](#).

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

Component	Recommendation
Patient Placement	<ul style="list-style-type: none">• Single patient room (containing a private bathroom) with the door closed• Facilities should maintain a log of all persons entering the patient's room
Personal Protective Equipment (PPE)	<ul style="list-style-type: none">• All persons entering the patient room should wear at least:<ul style="list-style-type: none">○ Gloves○ Gown (fluid resistant or impermeable)○ Eye protection (goggles or face shield)○ Facemask• Additional PPE might 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:<ul style="list-style-type: none">○ Double gloving○ Disposable shoe covers○ Leg coverings
Patient Care Equipment	<ul style="list-style-type: none">• 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

Component	Recommendation
	<p>according to manufacturer's instructions and hospital policies</p>
Patient Care Considerations	<ul style="list-style-type: none"> • 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 in puncture-proof, sealed containers
Aerosol Generating Procedures (AGPs)	<ul style="list-style-type: none"> • Avoid AGPs for patients with EVD. • If performing AGPs, use a combination of measures to reduce exposures from aerosol-generating procedures when performed on Ebola HF patients. • Visitors should not be present during aerosol-generating procedures. • Limiting the number of HCP present during the procedure to only those essential for patient-care and support. • 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. • HCP should wear gloves, a gown, disposable shoe covers, and either a face shield that fully covers the front and sides of the face or goggles, and respiratory protection that is at least as protective as a NIOSH certified fit-tested N95 filtering facepiece respirator or

Component	Recommendation
	<p>higher (e.g., powered air purifying respiratory or elastomeric respirator) during aerosol generating procedures.</p> <ul style="list-style-type: none"> • Conduct environmental surface cleaning following procedures (see section below on environmental infection control). • If re-usable equipment or PPE (e.g. Powered air purifying respirator, elastomeric respirator, etc.) are used, they should be cleaned and disinfected according to manufacturer instructions and hospital policies. • Collection and handling of soiled re-usable respirators must be done by trained individuals using PPE as described above for routine patient care
Hand Hygiene	<ul style="list-style-type: none"> • 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. • Healthcare facilities should ensure that supplies for performing hand hygiene are available.
Environmental Infection Control	<ul style="list-style-type: none"> • Follow the Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus (Appendix E) to the extent applicable
Safe Injection practices	<ul style="list-style-type: none"> • Facilities should follow safe injection practices as specified under Standard Precautions.
Duration of Infection Control Precautions	<ul style="list-style-type: none"> • Duration of precautions should be determined on a case-by-case basis, in conjunction with local, state, and federal

Component	Recommendation
	health authorities.
Monitoring and Management of Potentially Exposed Personnel	<ul style="list-style-type: none"> • Facilities should develop policies for monitoring and management of potentially exposed HCP • 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"> ○ 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. • Persons with percutaneous or mucocutaneous exposures to blood, body fluids, secretions, or excretions from a patient with suspected EVD should <ul style="list-style-type: none"> ○ 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 ○ 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.) • HCP who develop sudden onset of fever, 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"> ○ Not report to work or should immediately stop working ○ Notify their supervisor

Component	Recommendation
	<ul style="list-style-type: none"> ○ Seek prompt medical evaluation and testing ○ Notify local and state health departments ○ Comply with work exclusion until they are deemed no longer infectious to others • 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"> ○ Should receive medical evaluation and follow-up care including fever monitoring twice daily for 21 days after the last known exposure. ○ Hospitals should consider policies ensuring twice daily contact with exposed personnel to discuss potential symptoms and document fever checks ○ May continue to work while receiving twice daily fever checks, based upon hospital policy and discussion with local, state, and federal public health authorities.
Monitoring, Management, and Training of Visitors	<ul style="list-style-type: none"> • Avoid entry of visitors into the patient's room <ul style="list-style-type: none"> ○ Exceptions may be considered on a case by case basis for those who are essential for the patient's wellbeing. • Establish procedures for monitoring managing and training visitors. • Visits should be scheduled and controlled to allow for: <ul style="list-style-type: none"> ○ Screening for EVD (e.g., fever and other symptoms) before entering or upon arrival to the hospital ○ Evaluating risk to the health of the visitor and ability to comply with precautions ○ providing instruction, before entry into the patient care

Component	Recommendation
	<p data-bbox="583 348 1240 483">area on hand hygiene, limiting surfaces touched, and use of PPE according to the current facility policy while in the patient's room</p> <ul data-bbox="537 499 1240 634" style="list-style-type: none"><li data-bbox="537 499 1240 634">○ Visitor movement within the facility should be restricted to the patient care area and an immediately adjacent waiting area.

October 10, 2014

Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus

On August 1, 2014, CDC released guidance titled, "[Infection Prevention and Control Recommendations for Hospitalized Patients with Known or Suspected Ebola Hemorrhagic Fever in U.S. Hospitals](#)."

Ebola viruses are transmitted through direct contact with blood or body fluids/substances (e.g., urine, feces, vomit) of an infected person with symptoms or through exposure to objects (such as needles) that have been contaminated with infected blood or body fluids. The role of the environment in transmission has not been established. Limited laboratory studies under favorable conditions indicate that Ebolavirus can remain viable on solid surfaces, with concentrations falling slowly over several days.^{1, 2} In the only study to assess contamination of the patient care environment during an outbreak, virus was not detected in any of 33 samples collected from sites that were not visibly bloody. However, virus was detected on a blood-stained glove and bloody intravenous insertion site.³ There is no epidemiologic evidence of Ebolavirus transmission via either the environment or fomites that could become contaminated during patient care (e.g., bed rails, door knobs, laundry). However, given the apparent low infectious dose, potential of high virus titers in the blood of ill patients, and disease severity, higher levels of precaution are warranted to reduce the potential risk posed by contaminated surfaces in the patient care environment.

As part of the care of patients who are [persons under investigation, or with probable or confirmed Ebola virus infections](#), hospitals are recommended to:

- **Be sure environmental services staff wear recommended personal protective equipment (PPE) including, at a minimum, disposable gloves, gown (fluid resistant/impermeable), eye protection (goggles or face shield), and facemask to protect against direct skin and mucous membrane exposure of cleaning chemicals, contamination, and splashes or spatters during environmental cleaning and disinfection activities.** Additional barriers (e.g., leg covers, shoe covers) should be used as needed. If reusable heavy-duty gloves are used for cleaning and disinfecting, they should be disinfected and kept in the room or anteroom. Be sure staff are instructed in the proper use of personal

protective equipment including safe removal to prevent contaminating themselves or others in the process, and that contaminated equipment is disposed of appropriately. (see question 8).

- **Use a U.S. Environmental Protection Agency (EPA)-registered hospital disinfectant with a label claim for a non-enveloped virus (e.g., norovirus, rotavirus, adenovirus, poliovirus) to disinfect environmental surfaces in rooms of patients with suspected or confirmed Ebola virus infection.** Although there are no products with specific label claims against the Ebola virus, enveloped viruses such as Ebola are susceptible to a broad range of hospital disinfectants used to disinfect hard, non-porous surfaces. In contrast, non-enveloped viruses are more resistant to 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, poliovirus) are broadly antiviral and capable of inactivating both enveloped and non-enveloped viruses.
- **Avoid contamination of reusable porous surfaces that cannot be made single use.** Use only a mattress and pillow with plastic or other covering that fluids cannot get through. Do not place patients with suspected or confirmed Ebola virus infection in carpeted rooms and remove all upholstered furniture and decorative curtains from patient rooms before use.
- **To reduce exposure among staff to potentially contaminated textiles (cloth products) while laundering, discard all linens, non-fluid-impermeable pillows or mattresses, and textile privacy curtains into the waste stream and disposed of appropriately.**
- **The Ebola virus is classified as a Category A infectious substance by and regulated by the U.S. Department of Transportation's (DOT) Hazardous Materials Regulations (HMR, 49 C.F.R., Parts 171-180). Any item transported offsite for disposal that is contaminated or suspected of being contaminated with a Category A infectious substance must be packaged and transported in accordance with the HMR. This includes medical equipment, sharps, linens, and used health care products (such as soiled absorbent pads or dressings, kidney-shaped emesis pans, portable toilets, used Personal Protection Equipment (gowns, masks, gloves, goggles, face shields, respirators, booties, etc.) or byproducts of cleaning) contaminated or suspected of being contaminated with a Category A infectious substance.^{6,7} (see question 8).**

1. How can I determine whether a particular EPA-registered hospital disinfectant is appropriate for use in the room of a patient with suspected or confirmed Ebola virus infection?

Begin by looking at the product label or product insert or, if these are not available, search the [EPA search engine](#) for this information. Users should be aware that an 'enveloped' or 'non-enveloped virus' designation may not be included on the container label. Instead check the disinfectant's label for at least one of the common non-enveloped viruses (e.g., norovirus, rotavirus, adenovirus, poliovirus).

2. Are there special instructions for cleaning and disinfecting the room of a patient with suspected or confirmed Ebola virus infection?

Daily cleaning and disinfection of hard, non-porous surfaces (e.g., high-touch surfaces such as bed rails and over bed tables, housekeeping surfaces such as floors and counters) should be done.⁴ Before disinfecting a surface, cleaning should be performed. In contrast to disinfection where products with specific claims are used, any cleaning product can be used for cleaning tasks. Use cleaning and disinfecting products according to label instructions. Check the disinfectant's label for specific instructions for inactivation of any of the non-enveloped viruses (e.g., norovirus, rotavirus, adenovirus, poliovirus) follow label instructions for use of the product that are specific for inactivation of that virus. Use disposable cleaning cloths, mop cloths, and wipes and dispose of these in leak-proof bags. Use a rigid waste receptacle designed to support the bag to help minimize contamination of the bag's exterior.

3. How should spills of blood or other body substances be managed?

The basic principles for blood or body substance spill management are outlined in the United States Occupational Safety and Health Administration (OSHA) [Bloodborne Pathogen Standards](#) (29 CFR 1910.1030).⁵ CDC guidelines recommend removal of bulk spill matter, cleaning the site, and then disinfecting the site.⁴ For large spills, a chemical disinfectant with sufficient potency is needed to overcome the tendency of proteins in blood and other body substances to neutralize the disinfectant's active ingredient. An EPA-registered hospital disinfectant with label claims for non-enveloped viruses (e.g., norovirus, rotavirus, adenovirus, poliovirus) and instructions for cleaning and decontaminating surfaces or objects soiled with blood or body fluids should be used according to those instructions.

4. How should disposable materials (e.g., any single-use PPE, cleaning cloths, wipes, single-use microfiber cloths, linens, food service) and linens, privacy curtains, and other textiles be managed after their use in the patient room?

These materials should be placed in leak-proof containment and discarded appropriately. To minimize contamination of the exterior of the waste bag, place this bag in a rigid waste receptacle designed for this use. Incineration or autoclaving as a waste treatment process is effective in eliminating viral infectivity and provides waste minimization. If disposal requires transport offsite then this should be done in accordance with the U.S. Department of Transportation's (DOT) Hazardous Materials Regulations (HMR, 49 C.F.R., Parts 171-180).^{6,7} Guidance from DOT has been released for Ebola.⁷

5. Is it safe for Ebola patients to use the bathroom?

Yes. Sanitary sewers may be used for the safe disposal of patient waste. Additionally, sewage handling processes (e.g., anaerobic digestion, composting, and disinfection) in the United States are designed to inactivate infectious agents.

6. How long does the Ebola virus persist in indoor environments?

Only one laboratory study, which was done under environmental conditions that favor virus persistence, has been reported. This study found that under these ideal conditions Ebola virus could remain active for up to six days.¹ In a follow up study, Ebolavirus was found, relative to other enveloped viruses, to be quite sensitive to inactivation by ultraviolet light and drying; yet sub-populations did persist in organic debris.²

In the only study to assess contamination of the patient care environment during an outbreak, conducted in an African hospital under "real world conditions", virus was not detected by either nucleic acid amplification or culture in any of 33 samples collected from sites that were not visibly bloody. Virus was detected on a blood-stained glove and bloody intravenous insertion site by nucleic acid amplification, which may detect non-viable virus, but not by culture for live, infectious virus.³ Based upon these data and what is known regarding the environmental infection control of other enveloped RNA viruses, the expectation is with consistent daily cleaning and disinfection practices in U.S. hospitals that the persistence of Ebola virus in the patient care environment would be short – with 24 hours considered a cautious upper limit.

7. Are wastes generated during delivery of care to Ebola virus-infected patients subject to select agent regulations?

As long as facilities treating Ebola virus-infected patients follow the CDC's [Infection Prevention and Control Recommendations for Hospitalized Patients with Known or Suspected Ebola Hemorrhagic Fever in U.S. Hospitals](#); waste generated during delivery of care to Ebola virus-infected patients would not be subject to Federal select agent regulations (See the exclusion provision 42 CFR § 73.3(d)(1)). However, this would not apply to any facility that intentionally collected or otherwise extracted the Ebola virus from waste generated during the delivery of patient care.

8. Are wastes generated during delivery of care to Ebola virus-infected patients subject to any special transportation requirements?

Yes, wastes contaminated or suspected to be contaminated with Ebola virus must be packaged and transported in accordance U.S. DOT Hazardous Materials Regulations (HMR, 49 C.F.R., Parts 171-180).^{6,7}

Once a patient with suspected Ebola Virus Disease (e.g., Patients under investigation) is no longer suspected to have Ebola Virus disease (EVD) or has ruled out for EVD, their waste materials no longer need to be managed as if contaminated with Ebola Virus.

References

1. Sagripanti JL, Rom AM, Holland LE. Persistence in darkness of virulent alphaviruses, Ebola virus, and Lassa virus deposited on solid surfaces. *Arch Virol* 2010; 155:2035-2039
2. Sagripanti JL, Lytle DC. Sensitivity to ultraviolet radiation of Lassa, vaccinia, and Ebola viruses dried on surfaces. *Arch Virol* 2011; 156:489-494
3. Bausch DG et al. Assessment of the Risk of Ebola Virus Transmission from Bodily Fluids and Fomites. *J Infect Dis* 2007; 196:S142-7
4. [CDC Guidelines for Environmental Infection Control in Healthcare Facilities](#)[PDF - 249 pages] (see: Environmental Surfaces Section).
5. [OSHA Bloodborne Pathogen Standard 29 CFR 1910.1030](#)
6. [DOT. Guidance for Transporting Ebola Contaminated Items, a Category A Infectious Substance](#)

7. DOT. Hazardous Materials Regulations [49 CFR Parts 100-1999; 49 CFR 172.700; 49 CFR 173.134(a)(5)]