

# Prevention of Ebola Virus Disease (EVD) Transmission in Healthcare Settings

Gwen Borlaug, CIC, MPH  
Coordinator, Healthcare-Associated  
Infections Prevention Program  
Division of Public Health  
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# CDC Interim EVD Guidance Documents

- Infection Prevention in Healthcare Settings
- Environmental Infection Control
- Emergency Medical Services and 9-1-1 Management



## **CDC Infection Prevention and Control Recommendations for Hospitalized Patients with Known or Suspected Ebola Virus Disease (EVD) in U.S. Hospitals**

<http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html>



# EVD Infection Control

**Standard precautions**  
**Contact precautions**  
**Droplet precautions**

# Personal Protective Equipment (PPE) for Individuals Entering Rooms Housing Patients with Suspected or Confirmed EVD



**Fluid-resistant or impermeable disposable gowns**



**Disposable nitrile gloves (double gloving if exposed to copious amounts of blood or body fluids)**



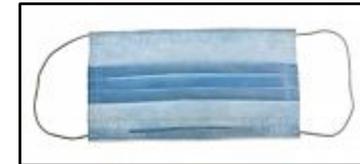
**Leg and shoe coverings if exposed to copious amounts of blood or body fluids**



**Disposable goggles or face shields**



**Surgical masks**



# **Personal Protective Equipment (PPE) for Individuals Entering Rooms Housing Patients with Suspected or Confirmed EVD**

**Respiratory protection during aerosol-generating procedures**



**Disposable N-95 filtering face pieces**



# PPE

**Use the “buddy system” when donning and doffing PPE.**



# University of Nebraska Medical Center

[http://app1.unmc.edu/nursing/heroes/ppe\\_posters\\_vhf.cfm](http://app1.unmc.edu/nursing/heroes/ppe_posters_vhf.cfm)



- 1 Bleach wipe the long cuff KC500 Purple Nitrile Gloves before opening the door to the patient room.
- 2 Step out of room onto the doffing pad with trash receptacle nearby.

**Donning and doffing PPE: Drill, drill, drill!!!**

# Log of Individuals Entering Rooms Housing Patients with Suspect/Confirmed Ebola Virus Disease

Visitors and staff should be limited to only those necessary for the patient's care and well-being.

Visits should be scheduled to allow for:

- screening the visitor for symptoms of ebola virus disease.
- training the visitor regarding proper use of PPE, hand hygiene and other infection control measures.

Instruct visitors to limit movement in the facility to only the patient care area and the adjacent waiting area.

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Patient Name \_\_\_\_\_ MR# \_\_\_\_\_

Date of Admission \_\_\_\_\_ Unit \_\_\_\_\_ Room Number \_\_\_\_\_

**Return this form to the Infection Prevention Department when completed.**

Date	Time In	Name of individual entering room	Relationship to Patient (e.g., HCW, spouse, sibling)	Name of Person Screening/Training Visitor	Time Out



# Aerosol-Generating Procedures

- Avoid
  - Bilevel positive airway pressure
  - Bronchoscopy
  - Sputum induction
  - Intubation and extubation
  - Open suctioning of airways



# Aerosol-Generating Procedures

## Respiratory protection

- Minimum: \*NIOSH-certified fit-tested N95 filtering facepiece
- Powered air purifying respirator (PAPR)
- Elastomeric respirator
- Disposable respiratory protective equipment is recommended.
- Staff processing re-usable respirators must be trained and use PPE described for patient care.

\*National Institute of Occupational Safety and Health

Protecting and promoting the health and safety of the people of Wisconsin



# Aerosol-Generating Procedures

- Do not allow visitors in the room.
- Limit number of healthcare personnel in room.
- Use private room and ideally an airborne infection isolation room (AIIR).
- Minimize entry and exit during and shortly after procedure.



# Hand Hygiene

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Alcohol hand sanitizers are effective against Ebola virus.



# Safe Injection Practices

- Minimize use of needles and other sharps.
- All injection equipment and parenteral medication vials that enter the patient care area should be dedicated to that patient and discarded at point of use.



# Specimen Collection and Handling

<http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-specimen-collection-submission-patients-suspected-infection-ebola.html>

**Recommendations for specimen collection by staff:** Any person collecting specimens from a patient with a case of suspected Ebola virus disease should wear gloves, water-resistant gowns, full face shield or goggles, and masks to cover all of nose and mouth. Additional PPE may be required in certain situations.

**Recommendations for laboratory testing by staff:** Any person testing specimens from a patient with a suspected case of Ebola virus disease should wear gloves, water-resistant gowns, full face shield or goggles, and masks to cover all of nose and mouth, and as an added precaution use a certified class II Biosafety cabinet or Plexiglass splash guard with PPE to protect skin and mucous membranes. All manufacturer-installed safety features for laboratory instruments should be used.



# Specimen Collection and Handling

<http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-specimen-collection-submission-patients-suspected-infection-ebola.html>

- Conduct point of care testing or maintain chain of custody when transporting specimens to the laboratory (no use of pneumatic tubes).
- Use only plastic vials.
- Disinfect outside of specimen vials before placing in durable, leak-proof secondary containers.
- Alert laboratory of specimen collected from potential or known Ebola cases.



# Duration of Precautions

Duration of infection control precautions will be determined on a case-by-case basis collaboratively among local, state and federal health authorities.



# Management of Healthcare Personnel (HCP)

- No known unprotected exposure
  - Monitor HCP caring for Ebola patients for fever and other symptoms twice daily during care of patient and for 21 days after last contact with patient or patient's environment.
  - Remove symptomatic HCP from work or furlough from work. Notify local and state health departments.



# Management of Healthcare Personnel (HCP)

- Known unprotected exposure
  - Notify local and state health departments.
  - Remove from work for 21 days after last known exposure.
  - Medical evaluation and monitoring for fever and symptoms twice daily for 21 days after last known exposure.

**DPH telephone numbers  
608-267-9003 or after hours 608-258-0099**



# Healthcare Employees Returning from West Africa

- Notify Division of Public Health upon return and before employee returns to work.
- Employee will be evaluated for exposure risk and managed accordingly.
- Employer will conduct temperature and symptom check twice daily.



# Visitors

- Visitors exposed to persons with EVD before and during hospitalization are a possible source of infection for other patients, visitors and staff.
  - Limit visitors to only those needed for patient's wellbeing.
  - Schedule visits, screen for fever and symptoms, train on use of PPE, hand hygiene, restrict movement in the facility.
- Work with local and state health departments.



# CDC Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus

<http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html>



# Role of Environment in EVD Transmission

- Role of environment in Ebola virus transmission not clearly established.
- Laboratory studies indicate Ebola virus can remain viable on solid surfaces for several days.
- Items and surfaces with no visible blood are less likely to be contaminated with viable Ebola virus.
- No epidemiologic evidence of transmission via patient care environment or fomites.



# PPE

- Environmental Services (EVS) staff should wear same PPE as patient care staff when cleaning and disinfecting patient care areas.
- Re-usable items (e.g., utility gloves) should be disinfected after use.



# Disinfectants

- Use U.S. Environmental Protection Agency (EPA)-registered hospital disinfectants with a label claim for non-enveloped viruses such as norovirus, rotavirus. These include bleach-based and hydrogen peroxide products.

[http://www.epa.gov/oppad001/list\\_g\\_norovirus.pdf](http://www.epa.gov/oppad001/list_g_norovirus.pdf)



# Environmental Cleaning and Disinfection

- Clean and disinfect patient rooms daily.
- Use disposable cleaning cloths, mops and wipes.



# Waste Disposal

- 42 CFR 73.3(d)(1) exemption from Category A regulation: Any \*HHS select agent or toxin that is in its naturally occurring environment provided the select agent or toxin has not been intentionally introduced, cultivated, collected, or otherwise extracted from its natural source.
- Dispose of used PPE, linens, cleaning cloths, wipes, privacy curtains, etc. as infectious waste.

\*U.S. Department of Health and Human Services



# Waste Transportation

Waste generated during care of EVD patients is subject to U.S. Department of Transportation (DOT) Hazardous Materials Regulations.

- All waste generated from a suspected/confirmed patient should be treated as Category A waste as follows:
  1. Place soft waste or sealed sharps containers into a primary medical waste bag (1.5ml – ASTM tested; can be provided by Stericycle).
  2. Apply bleach or other virocidal disinfectant into the primary bag to sufficiently cover the surface of materials contained within the bag; securely tie the bag.



3. Treat the exterior surface of the primary container with bleach or other virocidal disinfectant.
4. Place the primary bag into a secondary bag and securely tie the outer bag.
5. Treat the exterior surface of the secondary bag with bleach or other virocidal disinfectant.
6. The double bagged waste should then be placed into special Category A packaging provided by Stericycle with the liner tied securely and container closed per the packaging instructions provided.
7. Store the Category A waste containers separate from other regulated medical waste and in a secure area preferably isolated and with limited access.



# Non Fluid-Resistant Items

- Avoid contamination of reusable porous items that cannot be made single use.
- Use only mattresses and pillows with plastic or other impervious coverings.
- Do not place suspected EVD patients in carpeted rooms. Remove all upholstered furniture and decorative curtains.



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## Medical Devices



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# Damaged or Worn Covers for Medical Bed Mattresses Pose Risk of Contamination and Patient Infection: FDA Safety Communication

**Date Issued:** April 19, 2013

**Audience:** Nurses, Caregivers, Infection Control Professional Staff, Risk Managers, Materials Managers, Housekeepers, Biomedical Engineers, Directors of Purchasing, and other health care providers and staff responsible for the purchase, inspection, use, or maintenance of medical bed mattress covers

**Medical Areas:** Any patient care setting where medical bed mattress covers are used. These include Intensive Care, Diagnostic Care, Emergent or Urgent Care, Ambulatory Care, Specialty Care, General Care, Long Term Care, and Home Care.

**Purpose:** The Food and Drug Administration (FDA) is alerting health care providers, health care facility staff, and caregivers that damaged or worn covers for medical bed mattresses can allow blood and body fluids to penetrate medical bed mattresses, posing a risk of infection to patients. The FDA is providing recommendations for reducing



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[Volume 42, Issue 4](#), Pages 421–422, April 2014

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## Potential bloodborne pathogen exposure from occult mattress damage

[Susan L. Bradbury](#), MSPH, RN, CIC , [Deborah Mack](#), BSN, CIC, [Terri Crofts](#), MS BME, [Richard T. Ellison III](#), MD  
University of Massachusetts Memorial Medical Center, Worcester, MA



## **Interim Guidance for Emergency Medical Services (EMS) Systems and 9-1-1 Public Safety Answering Points for Management of Patients with Known or Suspected EVD in the U.S.**

**<http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-emergency-medical-services-systems-911-public-safety-answering-points-management-patients-known-suspected-united-states.html>**



# EMS and 9-1-1 Guidance

- Guidance is for pre-hospital EMS personnel, law enforcement and fire service first responders.
- In effect when threat of EVD cases is elevated in the community (determined by information from state and local health departments).

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



# EMS and 9-1-1 Guidance

9-1-1 staff should screen callers **during elevated EVD activity in the community** and notify first responders.

- Fever, headache, muscle pain, vomiting, diarrhea, abdominal pain, unexplained bleeding
- Within past 3 weeks of symptom onset:
  - Contact with blood or body fluids of a suspected or known EVD case
  - Residence in or travel to EVD affected countries
  - Direct handling of bats or nonhuman primates from EVD endemic areas



Gwen Borlaug, CIC, MPH  
Coordinator, HAI Prevention Program  
Division of Public Health  
1 West Wilson Street Room 272  
Madison, WI 53702  
[gwen.borlaug@wi.gov](mailto:gwen.borlaug@wi.gov)  
608-267-7711