

**Rapid Ebola Preparedness (REP) Tool for Hospitals Designated to Receive Suspected or Confirmed Ebola  
Virus Disease (Ebola) Patients**

This tool can be used to assess whether the designated hospital has appropriate infection prevention policies, procedures, and supplies in place to allow healthcare personnel (HCP) to provide safe care during the treatment of patients with Ebola virus disease. This tool is designed to be used by hospitals as a self-assessment tool for Ebola preparedness, or by Rapid Ebola Preparedness (REP) Teams to assist and support hospitals in their preparedness efforts.

***Note: This tool is not official government policy and will evolve as guidance evolves.***

Date: \_\_\_\_\_

Hospital: \_\_\_\_\_

City, State: \_\_\_\_\_

Hospital Contacts: \_\_\_\_\_

Health Department Contacts: \_\_\_\_\_

Rapid Ebola Preparedness (REP) Team Members:

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**Domains for Preparedness**

- A. Pre-Hospital Transport Plans, Emergency Medical Services (EMS), Emergency Department (ED) Preparedness**
- B. Staffing of Ebola Patient Care Team**
- C. Patient Transport from Point of Entry to Designated Ebola Treatment Area**
- D. Patient Placement**
- E. Personal Protective Equipment and Procedures for Donning and Doffing**
- F. Monitoring Healthcare Personnel and Managing Exposures**
- G. Laboratory Safety**
- H. Environmental Infection Control and Equipment Reprocessing**
- I. Management of Waste**
- J. Communications**
- K. Management of the Deceased**

## A. Pre-Hospital Transport Plans, Emergency Medical Services (EMS), Emergency Department (ED) Preparedness

Refer to:

Emergency Department Evaluation and Management for Patients Who Present with Possible Ebola Virus Disease, at:

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

Interim Guidance for Emergency Medical Services (EMS) Systems and 9-1-1 Public Safety Answering Points (PSAPs) for Management of Patient with Known or Suspected Ebola Virus Disease in the United States at:

<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>

Elements to be assessed	Notes
<b>EMS and initial transport into the facility</b>	
1. EMS provider(s) that will transport persons with suspected or confirmed Ebola to the facility for further evaluation have been identified.	
2. EMS providers have protocols for: <ul style="list-style-type: none"> <li>• Safe transport of persons with suspected or confirmed Ebola, including PPE used by EMS personnel</li> <li>• Training of EMS providers in correct use of PPE and documentation of competency</li> <li>• Advance notification of the hospital and public health authorities</li> <li>• Cleaning and disinfection of the ambulance and potentially contaminated equipment</li> <li>• Disposal of used PPE and waste generated during transport</li> </ul>	
3. The hospital has designated: <ul style="list-style-type: none"> <li>• Hospital personnel to meet the EMS provider on arrival to the hospital to: <ul style="list-style-type: none"> <li>○ Assume care of the patient</li> <li>○ Assist EMS personnel with doffing PPE, if needed</li> </ul> </li> <li>• Area where EMS personnel can doff their PPE</li> <li>• Area where EMS personnel can park their ambulance to perform decontamination</li> </ul>	
4. Entry point(s) for EMS are identified and communicated with EMS and are: <ul style="list-style-type: none"> <li>• Separated from other patient entrances</li> <li>• Offer a direct, secure route to ED or room where patient will be housed</li> <li>• Situated in a location that can be secured (e.g., an ambulance bay with doors)</li> <li>• Near decontamination facilities</li> </ul>	
5. Protocols are in place to transport the patient safely from the ambulance bay or other ED location, with minimal contact with non-essential healthcare workers or the public, to Ebola treatment unit.	

ED Guidance for triage and isolation/initial management of patients under investigation	
6. ED triage personnel are trained in screening patients for Ebola infection by asking: <ul style="list-style-type: none"> <li>Whether the patient has resided in or traveled to a country with widespread Ebola transmission or had contact with an individual with confirmed Ebola infection within the previous 21 days</li> <li>Whether patients with this history have experienced signs or symptoms compatible with Ebola infection</li> </ul>	
7. ED personnel are trained in questioning EMS providers about possible risk factors for Ebola infection in patients being transported via ambulance to the hospital.	
8. Protocols are in place to immediately isolate patients who report a relevant exposure history and signs or symptoms consistent with Ebola infection. <ul style="list-style-type: none"> <li>Patients are placed in a private room with private bathroom away from other patient care areas.</li> <li>Separate areas for donning and doffing of PPE are designated in proximity to the patient room</li> </ul>	
9. Only essential HCP with designated roles provide Ebola patient care in the ED.	
10. A log is maintained of all personnel who enter the Ebola treatment area in the ED and includes documentation on what tasks were performed by personnel when they were in the area.	
11. All HCP who have contact with the patient in the ED use appropriate PPE based on the patient's clinical status. <ul style="list-style-type: none"> <li>If the patient is exhibiting obvious bleeding, vomiting, copious diarrhea or a clinical condition that warrants invasive or aerosol-generating procedures (e.g., intubation, suctioning, active resuscitation), PPE designated for the care of hospitalized patients as outlined in <a href="#">CDC guidance</a>* is used.</li> <li>If signs and symptoms such as bleeding, vomiting, diarrhea or conditions warranting invasive or aerosol-generating procedures are <b>not</b> present and the patient is clinically stable, HCP at a minimum wear: 1) face shield, 2) surgical face mask, 3) impermeable gown and 4) two pairs of gloves</li> </ul>	

12. All equipment used in the care of patients suspected to have Ebola are not used for the care of other patients until appropriate evaluation and decontamination are done.	
13. The hospital has a protocol to notify immediately the Hospital Infection Control Program and other appropriate staff and report to the relevant local health department of patients suspected to have Ebola. The decision to test patient for Ebola is made in consultation with the relevant local health department.	
14. The hospital has protocols addressing: <ul style="list-style-type: none"><li>• Testing of laboratory specimens drawn in the ED</li><li>• Environmental infection control of the treatment area in the ED</li><li>• Management of waste generated in the ED</li></ul>	

## B. Staffing of Ebola Patient Care Team

Elements to be assessed	Notes
1. A dedicated, pre-identified, trained Ebola Patient Care Team has been identified for management of the Ebola patient. <sup>1</sup> Consider cross-training nurses or physicians to minimize number of staff with direct patient care (e.g., phlebotomy, cleaning).	
2. Qualified, trained staff members are identified for processing and testing of specimens from Ebola patient.	
3. Hospital has identified additional team members <sup>2</sup> involved in consultation but who should avoid entering Ebola patient room (e.g., audio/video conferencing may be used to communicate with patients or team members in room).	
4. A schedule of staffing for Ebola patient care is created in advance of an Ebola patient arriving so that individuals on call are determined and training can be prioritized.	
5. Staffing schedules include the following considerations: <ul style="list-style-type: none"> <li>• Enough team members to provide care for an Ebola patient for at least one month</li> <li>• Plans to minimize number of staff in room</li> <li>• Minimum number of MDs, RNs, and observers on unit at any time</li> <li>• Adequate time to rest between shifts</li> <li>• On-call schedule for consultants 24 hrs/7 days/week</li> <li>• Maximum duration HCP can be providing direct patient care (e.g., 2-4 hours continuously) and maximum duration of an Ebola patient care unit shift (e.g., 8-12 hours)</li> </ul>	
6. Team members receive competency-based, job-specific training on infection control practices, policies, and procedures for caring for Ebola patient (see <b>Section E</b> ).	
7. Policies are in place for HCP movement, monitoring, and non-Ebola patient care responsibilities while serving on an Ebola patient care unit (see <b>Section F</b> ).	
8. Hospital has designated individuals as site managers responsible for overseeing the implementation of precautions for healthcare workers and patient safety. At least one manager is on-site at all times in the Ebola treatment unit.	

9. A plan for ongoing support and evaluation of team members is in place, including process for HCP to provide feedback to leadership.	
10. Protocols are in place so that only direct patient care staff, wearing appropriate PPE, deliver meals to patients.	

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## C. Patient Transport from Point(s) of Entry to Designated Ebola Treatment Area

Elements to be assessed	Notes
<p>1. Point(s) of entry into hospital is(are) designated for Ebola patients arriving by ambulance, and transportation routes from entry point to designated Ebola patient care area are pre-identified.</p> <ul style="list-style-type: none"> <li>• Separate from main thoroughfares</li> <li>• Clear of all traffic (e.g., security escort)</li> <li>• Access to service elevators</li> </ul>	
<p>2. Protocols are in place for transport personnel to wear appropriate personal protective equipment (PPE) during transport of Ebola patients. Such personnel must receive competency-based training on proper procedures for donning and doffing of PPE.</p>	
<p>3. Protocols are in place for Ebola patient to be transported in appropriate protective equipment to prevent leakage or spillage of body fluids (e.g., appropriate leak-proof, absorbable patient transport wraps such as "isopods").</p>	
<p>4. Protocols are in place to manage blood or body fluid spills during transport.</p>	
<p>5. Protocols are in place to manage cleaning and disinfection of transportation equipment and potentially contaminated areas of the transportation route.</p>	
<p>6. Once Ebola patient is in the designated patient room/care area, no further movement of the Ebola patient within the hospital will be allowed.</p>	



## D. Patient Placement

Elements to be assessed	Notes
1. A private room with private bathroom and critical care capacity has been identified to house Ebola patient. If feasible: <ul style="list-style-type: none"> <li>anteroom to facilitate donning/doffing</li> <li>negative pressure airborne infection isolation room (AIIR).<sup>3</sup></li> </ul>	
2. Ebola patient room is physically separated from other patient care areas. Ideally, unit is sealed or closed off to personnel not engaged as part of Ebola patient management team.	
3. A system is in place to monitor entry of personnel into Ebola unit and Ebola patient room (e.g., log of all personnel entering unit and patient room, list of authorized personnel, security assistance).	
4. Ebola patient room incorporates a method of remote communication (e.g., intercom, video system, telemedicine equipment) for patient-staff communication, patient-family communication, and interdisciplinary rounds so that only essential personnel enter the room.	
5. Puncture-proof sealed sharps containers are located in room in close proximity to patient bed.	
6. Ebola patient room has dedicated and/or disposable patient care equipment <sup>4</sup> that is not used for any other patients. Equipment that is in use remains in the patient room and is cleaned and disinfected regularly in the room as per manufacturers' instructions.	
7. Large portable patient care equipment such as mechanical ventilator, dialysis machine <sup>5</sup> , and portable X-ray machine, are to be dedicated to the Ebola patient and remain in the Ebola patient room until reprocessing recommendations are determined.	
8. In close proximity to Ebola patient room, separate areas are designated: <ul style="list-style-type: none"> <li>HCP changing area<sup>6</sup></li> <li>Clean area<sup>7</sup></li> <li>PPE removal area<sup>8</sup></li> </ul>	

<p>9. PPE removal area includes:</p> <ul style="list-style-type: none"><li>• Supplies for disinfection of PPE and washable footwear</li><li>• Supplies for performing hand hygiene</li><li>• Space to remove PPE</li><li>• Place for sitting<sup>9</sup></li><li>• Leak-proof waste container to discard PPE and area or containers designated to collect PPE for reprocessing (e.g., PAPRs) if applicable</li><li>• Signs<sup>10</sup></li><li>• Full-length mirror (optional)</li></ul>	
<p>10. Hospital has dedicated showers<sup>11</sup> in close proximity to PPE removal area for HCP to use following PPE removal protocol</p> <p>Note: HCP can leave PPE removal area wearing dedicated washable footwear that has been disinfected using an EPA-registered disinfectant wipe<sup>12</sup> (wiping down complete external surface of the washable footwear) and scrubs.</p>	
<p>11. A designated area outside of the Ebola unit for patient family members is identified.</p>	

## E. Personal Protective Equipment and Procedures for Donning and Doffing

Refer to: **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)**, at: <http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>

Elements to be assessed	Notes
1. Hospital has selected the PPE to be used by HCP to manage Ebola patients and has a protocol outlining procedures for use of the PPE.	
2. Hospital is compliant with all elements of OSHA Respiratory Protection Standards, including respirator fit-testing, medical evaluation, and training of HCP.	
3. HCP caring for Ebola patients change into hospital scrubs or disposable garments and dedicated, washable footwear, if using.	
4. Healthcare personnel (HCP) on the Ebola Patient Care Team receive repeated training and are required to demonstrate competency through testing and assessment <sup>13</sup> on proper procedures for donning and doffing of PPE.	
<p>5. A policy is in place for trained observers to monitor for correct PPE use and adherence to donning/doffing protocols prior to entering and after leaving rooms of Ebola patients.</p> <ul style="list-style-type: none"> <li>• Trained observer is a dedicated individual with the sole responsibility, during donning/doffing process, of ensuring quality control in all steps of the procedure.</li> <li>• Trained observer reads aloud each step of the procedure to HCP using a checklist, then visibly confirms and documents that each step has been completed correctly</li> <li>• HCP must engage/wait for a trained observer prior to PPE donning and doffing</li> <li>• Donning and doffing of PPE should proceed slowly and deliberately to ensure full-coverage and prevent self-contamination</li> </ul>	

<p>6. Recommended PPE during management of Ebola patients includes the following (<b><u>If hospital elects to use additional/different PPE from CDC recommendations, HCP are trained to ensure donning and doffing procedures are adjusted and practiced accordingly</u></b>):</p> <ul style="list-style-type: none"> <li>• PAPR<sup>14</sup> or N95 respirator:             <ol style="list-style-type: none"> <li>1. PAPR with full face-shield, helmet, or headpiece. <b>Any reusable helmet or headpiece must be covered with a single-use (disposable) hood</b> that extends to shoulders and fully covers neck and is compatible with selected PAPR.</li> <li>2. Single-use (disposable) N95 respirator in combination with single-use (disposable) surgical hood extending to shoulders and single-use (disposable) full face shield</li> </ol> </li> <li>• Single-use (disposable), fluid-resistant or impermeable gown that extends to at least mid-calf <u>or</u> coverall without integrated hood</li> <li>• Single-use (disposable), nitrile examination gloves with extended cuffs.<sup>15</sup></li> <li>• Single-use (disposable), fluid-resistant or impermeable boot covers that extend to at least mid-calf. Single-use (disposable) fluid-resistant or impermeable shoe covers are acceptable only if used in combination with a coverall with integrated socks.</li> <li>• Single-use (disposable), fluid-resistant or impermeable apron that covers the torso to the level of mid-calf should be used for Ebola patients with vomiting and/or diarrhea</li> </ul>	
<p>7. Recommended PPE for trained observer assisting in doffing includes:</p> <ul style="list-style-type: none"> <li>• Single-use (disposable) fluid-resistant or impermeable gown that extends to at least mid-calf <u>or</u> coverall without integrated hood</li> <li>• Single-use (disposable) full face shield</li> <li>• Single-use (disposable) nitrile examination gloves with extended cuffs.<sup>14</sup></li> <li>• Single-use (disposable) fluid-resistant or impermeable shoe covers</li> </ul> <p>Note: If trained observer assists with PPE doffing, then he/she should disinfect outer-gloved hands with EPA-registered disinfectant wipe<sup>12</sup> or ABHR immediately after contact with HCP's PPE.</p>	
<p>8. Hand hygiene is performed before donning and after doffing and disposing of gloves and at any time during doffing procedure when contamination of hands is suspected.</p>	

9. Doffing procedure includes steps for disinfection of <u>visibly contaminated PPE</u> with EPA-registered disinfectant wipes <sup>12</sup> or spray <sup>16</sup> prior to removal and steps for <u>disinfection of gloved hands</u> with ABHR (ideally with touch-free dispensing system) or EPA-registered disinfectant wipe <sup>12</sup> between each step in the doffing process.	
10. Hospital has established adequate inventory of PPE to care for an Ebola patient for at least a 30 day period. Plans are in place for re-supplying PPE and alternative procedures if supply chain is interrupted.	

## F. Monitoring Healthcare Personnel and Managing Exposures

Refer to: Interim U.S. Guidance for Monitoring and Movement of Persons with Potential Ebola Virus Exposure, at: <http://www.cdc.gov/vhf/ebola/exposure/monitoring-and-movement-of-persons-with-exposure.html#table-monitoring-movement>

Elements to be assessed	Notes
1. Hospital has well-defined policies including: <ul style="list-style-type: none"> <li>• Work-exclusion policies that encourage reporting of illnesses and do not penalize with loss of wages, benefits, or job status</li> <li>• Education of personnel on prompt reporting of illness to supervisor and occupational health</li> </ul>	
2. A log, including documentation of specific tasks performed, is maintained to assist with monitoring of relevant healthcare personnel.	
3. A policy is in place that defines HCP Ebola exposure categories (i.e., high-risk, some risk, low-risk). <sup>17</sup>	
4. Protocols for monitoring and restrictions of <b>asymptomatic</b> HCP are in place, according to the exposure category of the HCP. <sup>18</sup> HCP should be monitored during patient care or period of time handling potentially infectious materials and during the 21 days after the last potential exposure. <ul style="list-style-type: none"> <li>• <b>Direct, active monitoring</b> is performed for HCP providing direct care to Ebola patients or handling potentially infectious materials while wearing appropriate PPE, with no known breaches in infection control ("low-risk" exposure category)</li> <li>• <b>Direct, active monitoring, with controlled movement, patient care restrictions,</b> and potential public health orders, is performed for HCP providing direct care to Ebola patients or handling potentially infectious materials in a healthcare facility where another HCP has been diagnosed with confirmed Ebola without an identified infection control breach, or where a breach is identified retrospectively ("high-risk" exposure category)</li> </ul>	
5. Following a recognized Ebola exposure incident, protocols for post-exposure management, evaluation, and follow-up are in place. <sup>19</sup>	

## G. Laboratory Safety

Refer to: How U.S. Clinical Laboratories Can Safely Manage Specimens from Persons Under Investigation for Ebola Virus Disease, at: <http://www.cdc.gov/vhf/ebola/hcp/safe-specimen-management.html>

Elements to be assessed	Notes
1. Protocols for laboratory testing are in place to minimize blood draws from the Ebola patient.	
2. If there is a dedicated point of care (POC) laboratory for Ebola patient care, essential laboratory testing needed is discussed with clinical team and POC laboratory equipment can perform the tests. <sup>20</sup>	
3. For laboratory testing that must be done in the main hospital laboratory <sup>21</sup> , a policy and procedure is developed with the hospital's main clinical laboratory to ensure the safe processing and testing of Ebola patient specimens.	
4. Protocols are in place for handoff and placement of specimen tubes into appropriate container for transport to laboratory. Specimens are placed in a durable, leak-proof secondary container for transport within the hospital. Outside of secondary container is disinfected with EPA-registered hospital disinfectant <sup>12</sup> prior to removal from room. Note: Pneumatic tube system is NOT used for Ebola specimens.	
5. Personnel who process and perform laboratory testing on specimens wear gloves, fluid-resistant or impermeable gowns, full face shield or goggles, and masks to cover all of nose and mouth AND use a certified Class II biosafety cabinet or Plexiglass splash guard <sup>22</sup> .	
6. In addition to PPE, clinical laboratorians should use manufacturer-installed safety features for instruments that reduce the likelihood of exposure and to ensure additional protection. Note: Some laboratory procedures (e.g., centrifugation) have the potential to produce aerosols or small droplets. If such procedures must be performed, physical containment devices such as sealed centrifuge rotors or centrifuge safety cups should be used, along with PPE.	
7. Protocols are in place for disinfection of laboratory surfaces, management of body fluid spills, and exposure of staff.	
8. A tracking system is in place for Ebola patient specimens that are transported to the laboratory.	
9. A policy is in place for safe storage and disposal of Ebola patient specimens.	

## H. Environmental Infection Control and Equipment Reprocessing

Refer to: Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus, at:

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

Elements to be assessed	Notes
1. Facility selects approved EPA-registered hospital disinfectants <sup>12</sup> with a label claim of potency <i>at least equivalent to</i> that for a non-enveloped virus (e.g., norovirus, rotavirus, adenovirus, poliovirus), and uses all cleaning and disinfecting products, including disposable wipes, in accordance with manufacturers' instructions (e.g., dilution, storage, shelf life, contact time).	-
2. Dedicated, trained Ebola patient care team members have been designated to perform cleaning and disinfection of Ebola patient room surfaces. Consider having EVS staff perform only terminal cleaning and management of spills to limit personnel with direct patient contact.	.
3. Protocols are in place for staff to wear appropriate PPE to prevent exposure to Ebola virus during cleaning of the Ebola patient room and equipment. <sup>23</sup>	
4. Protocols are in place for monitoring of cleaning and disinfection procedures to ensure they are consistently and correctly performed.	
5. Materials to be used for cleaning and disinfection of Ebola patient room and equipment are disposable, for single-use only.	
6. Protocols are in place for environmental surfaces in Ebola patient care areas to be cleaned with a detergent and disinfected on a regular basis (e.g., at least daily), when spills occur, and when surfaces are visibly contaminated. <ul style="list-style-type: none"> <li>Hospital promptly removes bulk spill matter, cleans and decontaminates spills of blood or other potentially infectious materials using appropriate EPA-registered hospital disinfectants<sup>12</sup></li> </ul>	
7. Protocols are in place for post-discharge cleaning and disinfection of the Ebola patient care areas, including visibly soiled areas, frequently touched surfaces, and floors in the Ebola patient care area.	
8. Protocols are in place to ensure that medical equipment (non-critical, semi-critical, and critical) is dedicated for Ebola patient care and remains in the Ebola patient care area; dedicated equipment is not used for any other patient care. <sup>24</sup>	



9. Protocols are in place clearly delineating responsibility for cleaning and disinfection of dedicated patient care equipment (how equipment should be cleaned and by whom). <ul style="list-style-type: none"><li>• Protocols include documentation of cleaning on a log (who/when/how)</li></ul>	
10. HCP are trained to handle soiled textiles/linens with minimum agitation to avoid contamination of surfaces and persons.	
11. All linens used in the Ebola patient room are discarded into the waste stream and disposed of appropriately. These items are not reused.	
12. Food trays, dishes, and cutlery provided to the Ebola patient with meals are disposable, and are placed into the waste stream along with leftover food items for appropriate disposal.	

# I. Management of Waste

Refer to: Ebola-associated Waste Management, at: <http://www.cdc.gov/vhf/ebola/hcp/medical-waste-management.html>

- Medical waste generated in the care of patients with known or suspected Ebola is subject to procedures set forth by local, state and federal regulations.
- Medical waste contaminated with Ebola virus is a Category A infectious substance regulated as a hazardous material under the U.S. Department of Transportation's (DOT's) Hazardous Materials Regulations (HMR; 49 CFR, Parts 171-180). For off-site commercial transport of Ebola-associated medical waste, strict compliance with the HMR is required. For more information on the HMR requirements see <http://phmsa.dot.gov/hazmat/transporting-infectious-substances>.

Elements to be assessed	Notes
1. The hospital has waste management plan and protocols <sup>25</sup> in place <ul style="list-style-type: none"> <li>• Wastes contaminated or suspected to be contaminated with Ebola virus must be packaged and transported in accordance with U.S. DOT Hazardous Materials Regulations (HMR, 49 C.F.R., Parts 171-180)</li> </ul>	
2. Waste or other potentially contaminated materials are not stored in the clean area.	
3. The hospital has identified a dedicated waste management team <sup>26</sup> with special training and standard procedures for wearing appropriate PPE .	
4. The hospital has communicated with its waste contractor and has determined whether potentially contaminated and contaminated waste will: <ul style="list-style-type: none"> <li>• Be autoclaved on-site and be disposed of as regulated medical waste according to local, state, and federal regulations, <b>OR</b></li> <li>• <b>Not</b> be autoclaved on-site, and will be packaged as Category A infectious waste for transport and appropriate disposal according to the HMR by the waste contractor.</li> </ul>	
5. All waste is placed in leak-proof bags, using a rigid waste receptacle designed to support the bag and help minimize contamination of the bag's exterior. Bags should not be allowed to overfill to ensure they can be safely closed.	
6. The hospital has protocols for disposal of liquid waste (e.g., urine, diarrhea, vomit) that minimize risk of splash. For example, addition of a liquid medical waste solidifier and bagging and disposal of waste collected at the bedside as opposed to discarding in the toilet. If the patient toilet is used, methods should be employed (e.g., installation of a lid) to minimize splash during flushing.	

<p>7. If waste is to be autoclaved, a protocol is in place to ensure appropriate waste autoclave procedures<sup>27</sup> are followed that will inactivate all infectious material, and a large capacity, dedicated autoclave<sup>28</sup> is available within the Ebola patient care unit or within close proximity to the Ebola patient care unit.<sup>29</sup></p>	
<p>8. Non-autoclaved, non-sharps, soft waste is:</p> <ul style="list-style-type: none"> <li>Placed into primary medical waste bags (1.5 mil—ASTM tested)</li> <li>EPA-registered hospital disinfectant<sup>12</sup> is added to sufficiently cover the surface of the materials in the bag.</li> <li>The bag is securely tied.</li> <li>The outside of the bag is disinfected with an EPA-registered hospital disinfectant.<sup>12</sup></li> <li>The disinfected primary bag is placed into a second medical waste bag that is also securely tied and disinfected.</li> <li>Double-bagged waste is placed into appropriate Category A waste packaging according to manufacturer's instructions.<sup>30</sup> and in a manner that prevents external contamination of the final container.</li> </ul>	
<p>9. Sharps waste is:</p> <ul style="list-style-type: none"> <li>Placed in appropriate disposable sharps containers</li> <li>EPA-registered hospital disinfectant is added to the sharps container prior to disposal.</li> <li>Sharps containers ready for disposal are sealed and placed into primary medical waste bags (1.5 mil—ASTM tested).</li> <li>The bag is securely tied.</li> <li>The outside of the bag is disinfected with an EPA-registered hospital disinfectant.<sup>12</sup></li> <li>The disinfected primary bag is placed into a second medical waste bag that is also securely tied and disinfected.</li> <li>Double-bagged waste is placed into appropriate Category A waste packaging according to manufacturer's instructions<sup>31</sup> and in a manner that prevents external contamination of the final container.</li> </ul>	
<p>10. Packed, sealed Category A waste containers are appropriately labeled and stored in the designated waste storage area on the Ebola patient care unit and separated from other waste, awaiting transport by the facility waste contractor.</p>	
<p>11. The facility's waste contractor has been contacted and a plan is in place for the facility's waste contractor to request a special permit from the U.S. DOT.<sup>31</sup></p>	

## J. Communications

Elements to be assessed	Notes
1. The hospital has a plan in place to inform and educate staff and patients of plans to care for Ebola patients.	
2. The hospital has a process in place for dissemination of every new or changed plan, procedure, and protocol to appropriate groups within hospital to ensure understanding, proficiency, comfort among HCP	
3. The hospital has a plan in place to handle media inquiries related to Ebola patient care.	
4. The hospital has a plan in place for protecting the privacy of the Ebola patient, controlling and monitoring access of HCP to the Ebola patient record so that unauthorized access does not occur.	
5. A single staff member is designated as primary point of contact for communicating information to public health authorities on a daily basis.	

## K. Management of the Deceased

Refer to: [Guidance for Safe Handling of Human Remains of Ebola Patients in U. S. Hospitals and Mortuaries](http://www.cdc.gov/vhf/ebola/hcp/guidance-safe-handling-human-remains-ebola-patients-us-hospitals-mortuaries.html), at: <http://www.cdc.gov/vhf/ebola/hcp/guidance-safe-handling-human-remains-ebola-patients-us-hospitals-mortuaries.html>

Elements to be assessed	Notes
<p>1. Protocols are in place for post-mortem care of deceased Ebola patients.</p> <ul style="list-style-type: none"> <li>Only designated, trained HCP wearing PPE (same PPE used for direct patient care, plus apron) are permitted to provide post-mortem care.</li> <li>Handling of Ebola patient remains is kept to a minimum, with no washing or cleaning of the body.</li> <li>Autopsies are not performed on deceased Ebola patients.</li> <li>Medical devices such as urinary catheters, central lines and endotracheal tubes are not removed; they are left in place.</li> </ul>	
<p>2. The body remains in the Ebola patient room, and is first wrapped in a plastic shroud.<sup>32</sup> After wrapping, the body is immediately placed in a leak-proof plastic bag not less than 150 µm thick and zippered closed. The bagged body is then placed in another leak-proof plastic bag not less than 150 µm thick and zippered closed.</p>	
<p>3. Gloves or other components of PPE that become grossly contaminated with potentially infectious material are disinfected in the Ebola patient room with disposable disinfectant wipes or alcohol-based hand rub and exchanged for clean items. Outer gloves are disinfected and then exchanged for clean outer gloves.</p>	
<p>4. Surface decontamination of the corpse-containing body bag is performed prior to transport to the morgue by removing visible soil on outer bag surfaces with an EPA-registered hospital disinfectant<sup>12</sup>, with a label claim of potency <i>at least equivalent to</i> that for a non-enveloped virus (e.g., norovirus, rotavirus, adenovirus, poliovirus), following the product's label instructions. Once visible soil has been removed, the disinfectant is reapplied to the entire bag surface and allowed to air dry.</p>	
<p>5. Protocols are in place for transport of the disinfected corpse-containing body bag to the morgue via a pre-specified route by personnel wearing PPE.</p>	

6. Arrangements are in place with designated mortuaries prepared to handle and cremate Ebola patient remains according to all applicable regulations. Local and state public health authorities are contacted prior to transporting of the Ebola patient remains to the designated mortuary.	
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## References

### **B. Staffing of Ebola Patient Care Team**

<sup>1</sup> Examples of team members involved in direct patient care of Ebola patient as needed (not intended to be all-inclusive):

- Critical care nurses (nurses with ED, OR, or pediatric expertise may be considered, depending on hospital and specific patient care needs)
- Critical care physicians (hospitalists with critical care experience may be considered)
- Anesthesiologist or other airway management specialist
- Obstetrician
- Neonatologist
- Respiratory therapist(s) (consider using RNs to minimize staff with direct patient contact)
- Dialysis technician (consider having RNs performing dialysis to minimize staff with direct patient contact)
- Environmental services staff (consider having RNs do daily cleaning and have trained EVS staff only for management of spills and for terminal cleaning)
- Transporters (consider using clinical members of Ebola care team to minimize staff with direct patient contact)
- X-ray tech (avoid radiologic procedures as much as possible)

NOTE: Trainees (e.g., residents, fellows, medical and nursing students, etc.) should **not** be permitted to participate in direct patient care or handling of potentially infected materials.

<sup>2</sup> Examples of additional team members involved in consultation

- Infectious Diseases physician
- Nephrologist
- Nutritionist(s)
- Physical/occupational therapist(s)
- Laboratory technologist(s)
- Pharmacist
- Mental health specialist (to provide support to team members on an ongoing basis)
- Clinical studies specialist or research pharmacist (to oversee and manage documentation and communication with federal agencies re: experimental treatments)
- Infection preventionist(s)
- Palliative care
- Interpretive services
- Chaplain
- Ethics expert

NOTE: Trainees (e.g., residents, nursing students, etc.) could be included in consultation not involving direct patient care or handling of potentially infected materials as deemed appropriate by the hospital.

### **D. Patient Placement**

<sup>3</sup> Although Ebola virus is not airborne, placement of Ebola patient in AIIR room will provide additional protection in the event that an aerosol-generating procedure (AGP) is required.

<sup>4</sup> Examples of dedicated or disposable patient care equipment: blood pressure monitoring devices, pulse oximeters, portable ultrasound device, or glucometer. Stethoscopes should not be used due to the nature of the PPE in use and the

risk of HCP exposure from a contaminated stethoscope. Alternatives might include electronic or telephonic stethoscopes.

<sup>5</sup> Used dialyzers must not be reprocessed or reused.

<sup>6</sup> HCP changing area is a designated area of HCP caring for Ebola patients to change from street clothes into hospital scrubs or disposable garments and dedicated, washable footwear, if using.

<sup>7</sup> Clean area is a designated staging area outside Ebola patient room where clean PPE is stored and where HCP can don PPE prior to entering patient room. Examples of clean area space: nearby vacant room, demarcated area in hallway outside patient room.

<sup>8</sup> PPE removal area is a designated area in proximity to patient's room which is separate from the clean area. Examples of PPE removal area space: anteroom or adjacent vacant patient room. If hallway outside patient room must be used as PPE removal area, physical barriers should be constructed to close the hallway to through traffic. Facility should make sure this complies with fire codes and restrict access to this hallway to essential personnel who are properly trained. Some PPE may be removed in a clearly designated area of patient room near the door, provided steps can be supervised by the trained observer (e.g., through window such that the HCP doffing PPE can still hear the instructions of the trained observer). This clearly designated area should not be used for any other purpose and the clean section of the PPE removal area should have gloves accessible.

<sup>9</sup> In PPE removal area, place for sitting should be easily cleaned/disinfected.

<sup>10</sup> Signs in PPE removal area should instructing HCP to wait for trained observer to support doffing of PPE and to remind HCP of slow and deliberate PPE removal.

<sup>11</sup> Showers are recommended for HCP performing high-risk patient care (e.g., exposed to large quantities of blood, body fluids, or excreta) and spending extended periods of time in Ebola patient room.

<sup>12</sup> U.S. Environmental Protection Agency (EPA)-registered hospital disinfectant with a label claim of potency at least equivalent to that for a non-enveloped virus (e.g., norovirus, rotavirus, adenovirus, poliovirus). For disinfectant wipes use a disposable wipe impregnated with an EPA-registered disinfectant.

#### **E. Personal Protective Equipment and Procedures for Donning and Doffing**

<sup>13</sup> Healthcare personnel are to be trained on all PPE recommended in the facility's protocols and repeatedly practice donning/doffing procedures before engaging in Ebola patient care. HCP are required to demonstrate competency in the use of PPE, including donning and doffing, through testing and assessment before engaging in Ebola patient care.

<sup>14</sup> PAPR with self-contained filter and blower unit that is integrated inside helmet is preferred. Before beginning donning process, confirm all PPE is serviceable (check PAPR to make sure battery is fully charged and blower is operating before use). Hospital must follow manufacturer's instructions for decontamination.

<sup>15</sup> Two pairs of gloves should be worn; at a minimum, outer gloves should have extended cuffs.



<sup>16</sup> EPA-registered disinfectant spray can be used if facility conditions permit and regulations are followed, particularly on contaminated areas.

## **F. Monitoring Healthcare Personnel and Managing Exposures**

<sup>17</sup> **High risk** exposure includes any of the following:

- Percutaneous (e.g., needle stick) or mucous membrane exposure to blood or body fluids of a person with Ebola while the person was symptomatic
- Exposure to the blood or body fluids (including but not limited to feces, saliva, sweat, urine, vomit, and semen) of a person with Ebola while the person was symptomatic without [appropriate personal protective equipment \(PPE\)](http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html) (<http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>)
- Processing blood or body fluids of a person with Ebola while the person was symptomatic without [appropriate PPE](http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html) (<http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>) or standard biosafety precautions
- Direct contact with a dead body without [appropriate PPE](http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html) (<http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>) in a [country with widespread Ebola virus transmission](http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/distribution-map.html) (<http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/distribution-map.html>)
- Having lived in the immediate household and provided direct care to a person with Ebola while the person was symptomatic
- Healthcare workers taking care of Ebola patients in a U.S. facility where another healthcare worker has been diagnosed with confirmed Ebola without an identified breach in infection control. A similar determination would be made if an infection control breach is identified retrospectively during investigation of a confirmed case of Ebola in a healthcare worker

Exposures conferring **some risk**:

- Close contact in households, healthcare facilities, or community settings with a person with Ebola while the person was symptomatic
  - Close contact is defined as being for a prolonged period of time while not wearing [appropriate PPE](http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html) (<http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>) within approximately 3 feet (1 meter) of a person with Ebola while the person was symptomatic
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**Low (but not zero) risk** exposure includes the following:

- Having brief direct contact (e.g., shaking hands), while not wearing [appropriate PPE](http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html) (<http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>), with a person with Ebola while the person was in the early stage of disease
- Brief proximity, such as being in the same room for a brief period of time, with a person with Ebola while the person was symptomatic
- In countries without widespread Ebola transmission, direct contact while using [appropriate PPE](http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html) (<http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>) with a person with Ebola while the person was symptomatic
- Traveled on an aircraft with a person with Ebola while the person was symptomatic

<sup>18</sup> Protocols for monitoring HCP may include:

- Web-based or other system for HCP being monitored to report measured temperatures and symptoms consistent with Ebola, per hospital protocols.
- Specific individual(s) responsible for reviewing HCP monitoring data and actions to be taken if HCP does not comply with monitoring requirements.

- Protocol for HCP to follow for abnormal temperature and/or symptoms (with specific criteria to trigger the protocol: e.g., temperature  $\geq 100.4^{\circ}\text{F}$  or  $38^{\circ}\text{C}$ ; symptoms including: severe headache, fatigue, muscle pain, vomiting, diarrhea, abdominal pain, or unexplained hemorrhage)
- Temporary lodging options for HCP during the period of time when they are providing direct patient care or handling potentially infectious materials, and for the duration of the monitoring period (provided to the HCP by hospital upon request, at no cost to HCP, and not involving risk to others).

<sup>19</sup> Protocols for post-exposure management, evaluation, and follow-up include:

- HCP stops working and immediately washes the affected skin surfaces with soap and water. Mucous membranes (e.g., conjunctiva) should be irrigated with copious amounts of water or eyewash solution (ensure eye wash and other wash stations/showers are available in the Ebola treatment area).
- HCP is safely removed from PPE and patient care area.
- Immediate contact of occupational health/supervisor for assessment and access to post-exposure management services for all appropriate pathogens (e.g., Human Immunodeficiency Virus, Hepatitis C, etc.).
- Appropriate monitoring and furlough of exposed HCP from direct patient care procedures for the 21 days following the exposure.
- Procedures for immediate notification and safe transport if fever or symptoms develop
- Testing procedures
- Early clinical management as appropriate (clarify options and procedures for accessing experimental therapies)

## **G. Laboratory Safety**

<sup>20</sup> Examples of POC laboratory testing include:

- CBC with automated differential
- Complete metabolic profile
- Magnesium
- Phosphorous
- Troponin
- Creatine kinase
- Blood gases
- Protime/INR, Partial thromboplastin time
- Blood typing
- Blood cultures
- Malaria testing
- Urinalysis

Note: Hospital must follow guidance for POC testing regarding instrument specifications, training, and use of PPE:

<http://www.cdc.gov/vhf/ebola/hcp/safe-specimen-management.html>

Specifically, if POC instruments are used in the critical care of a patient suspected to have Ebola, then the clinical laboratory must:

1. Ensure POC instruments used have Food and Drug Administration clearance for intended use in critical care patients. If the intended use of the instrument does not include testing critical care patients:
  - a. Then the use of the POC instrument on these patients is considered off-label use, and before reporting patient results, the laboratory must establish the performance specifications for accuracy, precision, sensitivity, specificity, reportable range of test results, reference intervals and any other performance characteristic required for test performance.

- b. In addition to establishing performance specifications for the specific use of the test, the laboratory must also document performance of quality control and proficiency testing, and that high complexity laboratory education/experience qualifications (42 CFR § 493.1441 – 1495) are met by laboratory directors and other employees, including testing personnel.
2. Additionally an alternative plan for specimen transport to the clinical laboratory should be in place should a POC instrument fail or critical testing be required that cannot be performed by POC.

If clinical laboratories decide to add POC instruments specifically for testing PUI for EVD, they should provide training and have staff practice these procedures while wearing the appropriate PPE in advance. Changing to unfamiliar equipment or PPE without sufficient training and practice may lead to breaches in safe practices and may increase a person's risk of contaminating their clothes, mouth, or eyes.

<sup>21</sup> U.S. clinical laboratories can safely handle specimens from PUI for Ebola by following all required laboratory precautions and practices as specified in 29 CFR 1910.1030 for bloodborne pathogens.

<sup>22</sup> If a certified Class II biosafety cabinet or Plexiglass splash guard is not available, a full face shield should be worn instead of goggles.

#### **H. Environmental Infection Control and Equipment Reprocessing**

<sup>23</sup> PPE and required training for personnel performing cleaning and disinfection is the same as for providers performing direct patient care.

<sup>24</sup> Equipment that is in use remains in the patient room, and is subject to regular cleaning in the room as per the manufacturer's recommendations. Under no circumstances should used dialyzers be reprocessed or reused.

#### **I. Management of Waste**

<sup>25</sup> Protocol for management of waste generated requires documentation of disposal of waste.

<sup>26</sup> Staff responsibilities for bagging and packaging waste, autoclaving waste (where appropriate), storing waste, and transporting packaged waste for removal from facility are clearly delineated.

<sup>27</sup> Waste autoclave protocol requires that biological indicator, intended specifically for the type and cycle parameters of the sterilizer, is used. Autoclave parameters, including autoclave pressure, time, and liquid cycle are specified. Logs are maintained with documentation from each cycle.

<sup>28</sup> A 40+ or 70+ cu ft autoclave can hold large, trash size autoclavable biohazard bags. Bags must be special autoclavable bags to avoid plastic melting in autoclave.

<sup>29</sup> For autoclave within close proximity to the Ebola patient care unit, identify safe means of waste transport to the autoclave.

<sup>30</sup> Based on Stericycle protocols.

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<sup>31</sup> For waste disposal, DOT may grant a special permit if the applicant can demonstrate that an alternative packaging will achieve a safety level that is (1) at least equal to the safety level required under the HMR, or (2) consistent with the public interest if a required safety level does not exist. See <http://www.phmsa.dot.gov/hazmat/permits-approvals/special-permits>

#### **K. Management of the Deceased**

<sup>32</sup> Wrapping of the body is done in a way that prevents contamination of the outside of the shroud.

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