



## Ebola Care Guideline

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On 8 August 2014, the World Health Organization (WHO) declared an international emergency in relation to the outbreak of Ebola Virus Disease (EVD), stating that a coordinated response would be essential to stop the spread of the virus. Since then, caregivers have contacted EVD in the US, Spain, and other parts of Africa. Protecting those who care for EVD victims is critical. Yet resource-rich countries are scrambling to create safe conditions and provide appropriate supplies and education for medical personnel on the front lines.

This is an open source, publicly available, three-ward care plan for evaluation and treatment of EVD patients. Data and examples have been gathered from the Centers for Disease Control (CDC), WHO, National Institutes of Health (NIH), Massachusetts General Hospital, and other global resources (see References). This is a living document that will be regularly updated when new, clinically relevant information is vetted.

1. Ebola Standard of Care (Version 0.70, 9 October 2014).
2. "Case Definition for Ebola Virus Disease (EVD)," last modified Oct 20, 2014, <http://www.cdc.gov/vhf/ebola/hcp/case-definition.html>.
3. "When Caring for Suspect or Confirmed Patients with Ebola," last modified Oct 20, 2014, <http://www.cdc.gov/vhf/ebola/hcp/when-caring-for-suspect-or-confirmed-patients-with-ebola.html>.
4. "Safe Management of Patients with Ebola Virus Disease (EVD) in U.S. Hospitals," last modified Oct 20, 2014, <http://www.cdc.gov/vhf/ebola/hcp/safe-management-us-hospitals.html>.
5. "Interim Guidance for Specimen Collection, Transport, Testing, and Submission for Persons Under Investigation for Ebola Virus Disease in the United States," last modified Oct 20, 2014, <http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-specimen-collection-transport-testing-and-submission-for-persons-under-investigation-for-ebola-virus-disease.html>.
6. "Interim Guidance for Monitoring and Movement of Persons with Ebola Virus Disease Exposure," last modified Oct 20, 2014, <http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-monitoring-and-movement-of-persons-with-ebola-virus-disease-exposure.html>.
7. "Treatment," last modified Oct 20, 2014, <http://www.cdc.gov/vhf/ebola/treatment/index.html>.
8. "Interim Guidance for Healthcare Workers Providing Care for the Ebola Outbreak: Limiting Heat Burden While Wearing Personal Protective Equipment (PPE)," last modified Oct 20, 2014, <http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-healthcare-workers-providing-care-for-the-ebola-outbreak-limiting-heat-burden-while-wearing-personal-protective-equipment-ppe.html>.
9. "Protection from Ebola: A complicated procedure," last modified Oct 20, 2014, <http://apps.washingtonpost.com/archive/local/2014/08/20/protection-from-ebola-a-complicated-procedure/2014/08/20/>.
10. "How does an American nurse contract Ebola? With directions like these," last modified Oct 20, 2014, <http://www.washingtonpost.com/archive/local/2014/08/20/how-does-an-american-nurse-contract-ebola-with-directions-like-these/2014/08/20/>.

## INITIAL PATIENT EVALUATION<sup>1,2,3,4</sup>

### Identify Symptoms:

- Fever > 100.4°F / 38.0 °C AND
- Wet symptoms: diarrhoea, vomiting, unexplained bleeding/bruising OR
- Dry symptoms: severe headaches, abdominal pain, sore throat, breathing difficulties, muscle pain, joint pain, weakness, fatigue.

### Identify EVD Exposure Risk:

- Direct contact with symptomatic or deceased Ebola patient in past 21 days
- Residence/intrave to area where EVD transmission is active
- Direct handling of infected animals or meat from disease-endemic areas

### High Risk:

- Body fluids include blood, vomit, urine, feces, sweat, semen, saliva, and other fluids
- Percutaneous (e.g., needle stick) or mucous membrane exposure or direct skin contact with body fluids of a confirmed EVD patient without appropriate personal protective equipment (PPE)
- Laboratory processing of body fluids of a confirmed EVD patient without appropriate PPE or standard biosafety precautions

### Low Risk:

- Care contact with a dead body without appropriate PPE in a region where an EVD outbreak is occurring
- Care contact is defined as (a) being within approximately 1m/3ft. 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.)
- Residence in the same house with a confirmed EVD patient
- Caring for EVD patient in health care facility or community setting

### No Recognized Risk:

- There is no identified risk exposure for those who were present in a country in which an EVD outbreak occurred within the past 21 days, but who have had no high or low risk exposures.

## TREAT PATIENT<sup>5,6,7,8,9,10</sup>

### Standard

- Patients have been reviewed by the VHF clinical management team and found to not meet the case definition of a suspected case, with no epidemiological link to any suspected or confirmed case.
- Have a conclusive diagnosis that is not VHF, recognizing that co-infections do occur.
- Have responded to specific treatment.
- Are in good health condition and able to go back home.
- Discharge of a VHF-confirmed case or suspected cases is based on the clinical presentation and the correct interpretation of the laboratory findings. Consider discharge when the following criteria are met:

### Experimental

- Some experimental treatments developed for Ebola have been tested and proven effective in animals but have not yet been tested in randomized trials in humans.
- ZMapp, being developed by Mapp Biopharmaceutical Inc., is an experimental treatment, for use with individuals infected with the Ebola virus. It has not yet been tested in humans for safety or effectiveness. The product is a combination of three different monoclonal antibodies that bind to the protein of the Ebola virus.
- Tekmira and Biocryst Pharmaceuticals, receive funding from the Department of Defense's Defense Threat Reduction Agency and have therapeutic candidates for Ebola in early development.
- Biocryst, with NIH support, is working to develop an antiviral drug to treat Ebola virus that is expected to begin Phase 1 testing later this year.

### High Risk:

- Three or more days without fever or any significant symptom.
- Symptoms that suggest ongoing shedding of virus (e.g. diarrhea, coughing, bleeding) should have completely disappeared.
- Viral shedding known to occur in the semen of male patients, and probably in the breast milk of lactating females, need not preclude discharge, but must be taken into consideration when providing instructions to the patient.
- AND significant improvement in clinical condition.
- AND in a relatively good general condition: independently feeding and to carry out other activities of daily life, like washing and walking, without assistance, taking into account any previous disabilities.
- AND, if laboratory testing is available: a negative blood PCR for VHF (regardless of any other serologic tests) on day 3 or later following onset of symptoms; for patients with previous positive blood PCR tests, this means a subsequent negative test 48 hours from the initial test (regardless of serology); for previously blood PCR positive mothers, that are breast feeding, it may be safer to delay discharge until PCR on breast milk turns negative as well (to be discussed with the clinicians and laboratory personnel).

### Low Risk:

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- Police and Security will determine the best route to the ED.
- After patient leaves the facility, close the room and do not use until it is cleaned and disinfected with hospital-approved, bleach germicide cleaner per EVD Discharge Cleaning Protocol.

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