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, Ebola has spread to Nigeria, Dakar, Mali, Spain, and the United States. In all of these places, 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-word care plan for evaluation and treatment of patients with EVD. It was created by a group of infectious disease doctors, 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 Response at Case Western 21 & Children (2014).
2. Case Definitions for Ebola Virus Disease (EVD). last updated Oct 20, 2014. http://www.cdc.gov/vhf/ebola/clinicians/case-definition.html
3. Interim Guidance for Clinicians to Confirmed Patients with Ebola. last modified Oct 20, 2014. http://www.cdc.gov/vhf/ebola/clinicians/index.html
4. Public Management of Patients with Ebola Virus Disease (EVD) in U.S. Hospitals. last modified Oct 20, 2014. http://www.cdc.gov/vhf/ebola/clinicians/index.html
5. Interim Guidance for Specimen Collection and Testing in Clinical Laboratories Performing Testing for Ebola Virus Disease in the United States. last modified Oct 20, 2014. http://www.cdc.gov/vhf/ebola/clinicians/index.html
6. Ebola Hemorrhagic Fever. last modified Oct 20, 2014. http://www.cdc.gov/vhf/ebola/index.html
7. Ebola: Guidance for Monitoring and Management of Persons at Risk of Ebola Virus Disease in Resource-Limited Settings. last modified Oct 20, 2014. http://www.who.int/csr/disease/ebola/guidance-monitoring-management-persons-risk-ebola-resource-limited-settings/en/
8. Ebola Response Roadmap Situation Report. last modified Oct 20, 2014. http://apps.who.int/ebola/ebola-situation-assessment-and-response-plan/situation-reports/situation-reports-ebola-response-roadmap-situation-r
9. Ebola Response Roadmap Situation Report. last modified Oct 20, 2014. http://apps.who.int/ebola/ebola-situation-assessment-and-response-plan/situation-reports/situation-reports-ebola-response-roadmap-situation-r
10. Protection from Ebola. Accessed Oct 20, 2014. http://www.cdc.gov/vhf/ebola/clinicians/protection-ebola.html
11. Ebola Hemorrhagic Fever. last modified Oct 20, 2014. http://www.cdc.gov/vhf/ebola/index.html
12. Ebola Virus Disease. Accessed Oct 20, 2014. http://www.cdc.gov/vhf/ebola/index.html
13. Ebola Virus Disease. Accessed Oct 20, 2014. http://www.cdc.gov/vhf/ebola/index.html
14. Ebola Virus Disease. Accessed Oct 20, 2014. http://www.cdc.gov/vhf/ebola/index.html

INITIAL PATIENT EVALUATION[1,2,3,4,5,6,7,8,9,10,11,12,13,14]

Identify Symptoms
- Fever (>38.0 °C/100.4 °F) AND
- One symptoms: diarrhea, vomiting, unexplained bleeding/bruising OR
- Two symptoms: headache, muscle pain, abdominal pain, severe fatigue, difficulties, muscle pain, joint pain, unexplained bleeding

Identify EVD Exposure Risk:
- Contact with a living or deceased Ebola patient in past 21 days
- Suspected contact to a bat or primate
- Direct handling of infected animals or meat from disease-endemic areas

High Risk
- Needle hole (blood, vomit, urine, feces, sweat, semen, saliva, and other fluids
- Percutaneous (e.g., needle stick) or mucous membrane exposure to 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 containment precautions
- Burial of someone who died of a dead body without appropriate PPE in a region where an EVD outbreak is occurring[7]

Low Risk
- Contact that is defined as not being high risk AND 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 (3) having direct food contact (e.g., shaking hands) with an EVD patient while not wearing recommended PPE. (Brief interaction with an EVD patient while not wearing PPE is not considered close contact.)
- Residence in the same house with a confirmed EVD patient
- Sexual contact; Accident 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 exposure.

Provider Protocol
Those caregivers/clinicians who intend to provide a potential to your healthcare organization (hospitals) look into the following protocol:

If a patient meets Ebola exposure risk criteria:
1. Call the Emergency Department (ED) immediately and indicate that the patient needs to be transported to the ED with caution. Do not let the patient enter the waiting room.
2. If the patient is already with the physician or another provider (fever clinic, EPC) and refuse that he/she be transported to the ED, the provider should don PPE and initiate the "Ebola Care Guideline" (3 words).
3. If applicable, call the Infection Control Unit to report the suspect case.
4. Place the patient in a private room with the door closed. Minimize incidental skin contact. If available, or if possible (rare), keep the door closed, open window and/or ventilation.
5. Limit staff contact with the patient. All personnel entering the room must:
   - Wear appropriate personal protective equipment (PPE)
   - Put on the following PPE: (one pair of gloves, a gown, a facial mask, and a face shield or goggles) prior to contact with any bodily fluids, mucous membrane, or non-intact skin (e.g., blood, vomit, diarrhea, urine, or sweat). Remove PPE in a way that prevents skin and mucous membrane exposure to potentially infectious materials. Perform hand hygiene after removing PPE.
   - Minimize the number of people who have contact with the patient. Record the names of the patient's family from provider residence to ease the contact tracing process. Ask the family to quarantine themselves.
6. Immediately place the patient from the waiting room into a private room.
7. Notify the hospital epidemiologist.
8. Where applicable, contact the Ebola Response Team.
   - Security personnel must clear the lower trunk and facilitate transport.
   - Transport personnel must don PPE and transport patient (VIP) (because they will not have direct contact with the patient).
   - Fixers and Security will remove/clean the lower trunk to the ED.
   - Patient should be placed in a private room in the ED and kept closed and disinfected with hospital approved, Ebola-specific protocol (known as EVD Discharge Cleaning Process).

TREAT PATIENT[1]

Standard
Symptoms of Ebola are treated as they appear. The following basic interventions, when used early, can significantly improve the chances of survival:
- Maintaining blood oxygen level and compensating electrolytes (body salts) / Maintaining oxygen status and blood pressure
- Treating other infections if they occur
- Early supportive care with oral or intravenous rehydration should be used when possible.

Experimental
Experimental treatments developed for Ebola have been tested and proven effective in animals but have not yet been tested in randomized trials in humans.
- Transfusion of whole blood or plasma from survivors of Ebola Hemorrhagic Fever, an experimental treatment, for use with individuals infected with Ebola virus. It has not yet been tested in humans for safety or effectiveness. The Food and Drug Administration (FDA) has cleared the use of convalescent blood products for treatment of Ebola Virus Disease and Marburg Hemorrhagic Fever. Investigational New Drug Application (IND) with the Department of Health and Human Services (HHS) Biomedical Advanced Research and Development Authority (BARDA) is working to develop an antiviral drug to treat Ebola virus that is expected to begin Phase 1 human trials in the coming months.

However, a range of potential treatments including blood products, immune therapies and drug therapies are currently being evaluated.

EVALUATE PATIENT

Discharge of an alert case is done on the following conditions:
- Patients have been reviewed by the IHF 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 are possible
- Have responded to specific treatment
- Have been afebrile for 48 hours without the aid of any 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:
  - Afebrile for 48 hours without fever or any symptoms
  - Improvement in clinical signs and symptoms (e.g. vomiting or vice jay diarrhea, coughing, bleeding) should have continuously improved for 48 hours
  - Two consecutive negative results in blood samples taken at least one day apart (at least one sample should be taken 48 hours after recovery from the disease). Samples must be taken not sooner than one day after promising instructions to the patient
  - Clinical assessment confirms patient's improved condition
  - AND, it is 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 underlying conditions
  - AND, if convalescing is available a neighbourhood PCR is required (NOTE: Ct values and/or other serological tests on day 2 or later following onset of symptoms for patients with previous positive results may be used to inform a decision to discharge patients from care, but should not be interpreted as serology); for previously blood PCR positive mothers, that are breast feeding, may be safer to delay discharge and PCR on breast milk turns negative as well (to be discussed with the clinicians and laboratory experts)

DISCHARGE PATIENT[1]

Patients can be discharged if they meet all following clinical criteria:
- Clinical criteria
  - Afebrile for 48 hours in a period of at least 72 hours
  - A significant improvement in clinical condition AND
  - Free of any VHF related signs and with bodyweight
- Laboratory support
  - Antigen or PCR is negative on day 4 or later after the onset of the symptoms OR
  - Two consecutive PCR samples taken at least one day apart are negative (at least 48 hours). If patient suffers symptoms, but these are not thought to be due to VHF (Fever, Hemorrhage Fever), 2 negative blood PCR's 48 hrs apart can be used as discharge criteria. The patient might be referred to another ward.

Case detection
Contact Tracing & Follow-up
Isolate Contacts
Isolate Cases
Case detection
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Isolate Contacts
Isolate Cases
Stay at home
Stay at home
Remote Evaluation
Remote Evaluation
Hospital in Isolated private Ebola treatment centers within the city
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Contact Laboratory
Contact Laboratory
Hospital Test
Hospital Test
Test results
Test results
Stay at home
Stay at home
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Contact Laboratory
Hospital Test
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Remote Evaluation
Remote Evaluation