

Update #2 on Ebola Virus Disease (EVD)

Friday August 22, 2014

Target audience: Clinical laboratories

New Information:

- EVD testing is now available at Michigan Department of Community Health, Bureau of Laboratories—see below.
- Specimen requirements updated – see below.

Background

- Since March 2014, the largest outbreak of EVD ever documented and the first recorded in West Africa.
- As of August 18, 2014, a total of 2,473 cases and 1,350 deaths (case fatality 55-60%) have been reported across the affected countries of Guinea, Sierra Leone, Liberia and Lagos, Nigeria.
- Ebola poses no substantial risk to the U.S. general population.
- The virus is spread through **direct contact** (through broken skin or unprotected mucous membranes in, for example, the eyes, nose, or mouth) with the blood or body fluids (urine, feces, saliva, semen, and other secretions) of a person who is sick with Ebola, as well as exposure to contaminated objects.
- Ebola is **not** spread through the air or by water or, in general, by food; however, in Africa, Ebola may be spread as a result of hunting, processing, and consumption of infected animals (e.g., bushmeat).
- EVD is characterized by sudden onset of fever and malaise, accompanied by other nonspecific signs and symptoms, such as myalgia, headache, vomiting, and diarrhea. Patients with severe forms of the disease may develop hemorrhagic symptoms and multi-organ dysfunction, including hepatic damage, renal failure, and central nervous system involvement, leading to shock and death.
- The incubation period is usually 8–10 days (ranges from 2–21 days). Patients can transmit the virus while febrile through later stages of disease, as well as postmortem, when persons touch the body during funeral preparations.

Patient Evaluation Criteria

Further details of clinical symptoms, patient evaluation, and diagnostic testing criteria are available on the MDCH website for emerging diseases at: www.michigan.gov/emergingdiseases.

EVD case definition is available at: <http://www.cdc.gov/vhf/ebola/hcp/case-definition.html>

Laboratory Safety

The CDC has announced that US hospitals can safely manage a patient with EVD by following recommended isolation and infection control procedures (<http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html>). Standard, contact and droplet precautions are recommended for management of hospitalized patients with known or suspected EVD. Ebola virus is inactivated by EPA-approved hospital disinfectants.

Please refer to MDCH BOL Update #1 on Ebola Virus Disease (EVD) for further information.

http://www.michigan.gov/documents/mdch/Ebola_Update_1_8-7-2014_464958_7.pdf

NOTE: CDC has indicated that they will be issuing additional clinical laboratory safety guidance in the future. MDCH BOL will forward that information to clinical laboratory partners.

Routine Laboratory Testing (not for Ebola Diagnosis)

Routine laboratory testing includes traditional chemistry, hematology, and other laboratory testing used to support and treat patients. Precautions as described above offer appropriate protection for healthcare personnel

performing laboratory testing on specimens from patients with suspected infection with Ebola virus. Testing should be limited to avoid aerosol production and skin or mucous membrane exposure. Open specimen tubes in a biological safety cabinet or utilize a splash shield.

Test results from the following will be requested by CDC and MDCH Epidemiology to appropriately evaluate the patient before approval for testing:

Platelet Count
AST/ALT
INR
Creatinine
Hgb/HCT
Malaria

NOTE: Blood films, suspicious for Malaria can be forwarded to MDCH BOL for confirmation. Confirmation may include PCR from submitted blood samples.

Laboratory Testing for Ebola Virus Disease Available at MDCH BOL

Authorization for testing is required. DO NOT SEND SPECIMENS DIRECTLY TO CDC.

If testing for EVD is warranted based on the Patient Evaluation and Diagnostic Testing Criteria referenced above, please contact MDCH Communicable Disease Division to obtain testing authorization at:

517-335-8165 during normal business hours

517-335-9030 after normal business hours

CDC testing criteria will be followed by MDCH. **MDCH cannot perform Ebola PCR without CDC approval.**

When Specimens Should Be Collected for Ebola Testing

Ebola virus is detected in blood only after onset of symptoms, most notably fever. It may take up to 3 days post-onset of symptoms for the virus to reach detectable levels. Virus is generally detectable by real-time RT-PCR from 3-10 days post-onset of symptoms, but in some cases has been detected for several months in certain secretions. Specimens ideally should be taken when a symptomatic patient reports to a healthcare facility and is suspected of having an EVD exposure; however, if the specimens are collected <3 days post-onset of symptoms, a subsequent specimen will be required to completely rule-out EVD.

Preferred Specimens for Ebola Testing

Two tubes, each with a minimum volume of 4mL whole blood preserved with EDTA (purple top) in *plastic* collection tubes can be submitted for EVD testing. Do not submit specimens in glass containers. **Contact MDCH before any specimens are collected and submitted.** Specimens should be stored at 4°C. Standard labeling should be applied for each specimen.

Laboratory Specimen Collection Guidance

Early recognition and identification of suspect EVD patients is critical. Additional patient care considerations include:

- 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
- Do not use a pneumatic tube system for transporting suspected EVD specimens.

Packaging and Shipping Clinical Specimens to MDCH BOL

Please complete both the MDCH Specimen and CDC Submission Forms.

All specimens should be packaged and shipped to MDCH BOL on ice packs as Category A Infectious Substance in accordance with federal and international shipping regulations.

Link to MDCH Specimen Submission Form:

http://www.michigan.gov/documents/DCH-0583TEST_REQUEST_7587_7.pdf

(Be sure to write or type the test requested, i.e. "Ebola virus serology" and/or "Ebola virus PCR" into the blank space found under "Hepatitis" at the bottom right side of page 1.)

Link to CDC Specimen Submission Form:

http://www.michigan.gov/documents/mdch/HUMAN_form-50-34_410210_7.pdf

Steps for laboratories to take now

No action is required at this time, other than to monitor the situation and be aware of current guidance.

Further Information

This is a rapidly evolving situation. This document is based on currently available information. This guidance document will be updated as additional information becomes available.

More information is available on the CDC EVD website at: <http://www.cdc.gov/vhf/ebola/index.html>

Questions

For laboratory related questions, please contact:

Dr. Janice Matthews – Greer, MDCH BOL Virology Section Manager

MatthewsGreerJ@michigan.gov

(517) 335-8099

Dr. James Rudrik, Director, MDCH BOL Division of Infectious Diseases

RudrikJ@michigan.gov

(517) 335-8063