

Diagnosis of Ebola virus disease (EVD)

How to safely collect and transport blood samples from persons suspected to be infected with Ebola virus

1. When to collect the blood samples:

Ebola virus is detected in blood only after the onset of symptoms, usually fever. It may take up to 3 days after the onset of illness for virus to reach detectable levels. Virus is detected by RT – PCR from 3rd day to 10th day after the onset of symptoms. IgM response is detected during second week of the illness.

Specimen is taken when the symptomatic patient with an exposure history is presented to the Health Care Facility. If the specimen is taken before the 3rd day of illness, a second specimen may need to collect to rule out Ebola if the first specimen tests negative.

Ebola virus classified as a “dangerous pathogen”. Therefore limit the use of phlebotomy and laboratory testing to the minimum necessary for essential diagnostic evaluation and patient care.

2. Assemble equipments needed for collecting blood specimen:

- Plastic or glass tube with rubber cap containing EDTA / Vacuum extraction tube with EDTA
- Needle and syringe / vacuum extraction system with holder
- Tourniquet (Single use)
- Gauze pads, adhesive bandage, 70% isopropyl alcohol
- Tray and a holder for the tube

3. Assemble equipments needed for preventing infection

- Hand washing facility, soap, single use towels
- Personal protective equipments (Long sleeve cuffed gown, several pairs of gloves, Foot wear, Face shield or Goggles + Mask, Head cover)
- Leak proof puncture resistant sharps container and two leak proof infectious waste bags

4. Fill out patient documentation

- Label the blood collection tube (date, name, ID, etc)
- Fill the Laboratory Request Form (Patient ID, clinical details, requesting test, ETC).

WRITE “HIGH RISK SAMPLE” IN BLOCK LETTERS IN RED ON THE TOP OF THE REQUEST FORM

5. **Assemble materials needed to pack the sample for transport to the laboratory**

- Plastic leak proof container with a screw cap lid
- Absorbent material
- Reverse cold chain box / rigifoam box

6. **Preparing for specimen collection**

- Wash your hands
- Put on all personal protective equipments (PPE)

IMPORTANT: DO NOT ENTER THE PATIENT AREA WITHOUT YOUR PROTECTIVE GEAR ON

7. **Collection of blood sample**

- Ensure infectious waste bags and the sharp container is within the patient area
- Place blood collection equipment in easy reach
- Identify the patient; select the site preferably at the bend of the elbow.
- Choose a vein of good size which is visible straight and clear. Apply the tourniquet around the arm 4 – 5 finger breaths above the selected site. Ask the patient to form a fist so that vein become prominent
- Disinfect the area with 70% isopropyl alcohol. Wait for 30 seconds to dry before drawing blood

IMPORTANT: DO NOT PLACE THE FINGER OVER THE VEIN TO GUIDE THE NEEDLE

- Once the sufficient volume of blood (minimum 5 ml) is collected **release the tourniquet** before withdrawing the needle
- Place clean gauze or dry cotton wool ball on the site and ask patient to press gently
- Transfer the blood into the tube containing EDTA
- Put the needle and holder / syringe into the sharps container

IMPORTANT: DO NOT TRY TO REMOVE THE NEEDLE

- Ensure bleeding has stopped from the site. Put on adhesive bandage on the site

IMPORTANT: PUT ALL ITEMS THAT CONTACT WITH BLOOD IN TO THE INFECTIOUS WASTE BAG

IF THERE IS VISIBLE CONTAMINATION OF GLOVES CHANGE THE GLOVES

8. Prepare the sample for transport

- Take the blood tube wipe with disposable paper towel
- Protect the sample from breaking during the transport by wrapping the tube in a paper towel
- Ask the designated Assistant to approach the patient room **without entering**.

IMPORTANT: ASSISTANT SHOULD BE WEARING PPE. HE SHOULD NOT ENTER THE PATIENT AREA

- The Assistant should hold the open plastic leak proof packaging container. The person who collected the sample should place the wrapped blood sample into the open packaging container held by the Assistant at the door of the patient area **without touching**

IMPORTANT: DO NOT TOUCH THE OUTSIDE OF THE PACKAGING CONTAINER

- Designated Assistant should tightly close the lid of the packaging container. Sample can be sent to the Medical Research Laboratory. Use triple packaging system for transport of infectious substance

9. Remove personal protective equipments

- Remove the gloves and gown at the door and put into the infectious waste bag
- Wash the hands with soap and water
- Remove the face protection, head cover and foot wear
- Wash the hands with soap and water

10. Transport of sample to Medical Research Institute

- Place the packaging container with the blood sample inside the secondary container (plastic container with a lid). Place sufficient absorbent material within the secondary container.
- Secondary container is placed inside the tertiary (outer) container. If the sample is sent in cold temperature place the ice packs / cubes between the secondary container and tertiary container
- Specimen should be sent with a messenger to the Medical Research Institute. Specimens will be accepted 24h/7days
- Medical Research Institute will courier the specimens to a designated Ebola reference laboratory with the help World Health Organization
- Sample can be stored at room temperature for up to 24 hours, one week at 0 to 5⁰ C. If sample need to store the sample for more than a week, store at -20⁰ C. Avoid freezing and thawing cycles

PLEASE INFORM MEDICAL RESEARCH INSTITUTE AND EPIDEMIOLOGY UNIT BEFORE SENDING A SPECIMEN FROM SUSPECTED PATIENT WITH EBOLA VIRUS DISEASE

Contact Information:

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References:

1. How to safely collect blood samples from persons suspected to be infected with highly infectious blood-borne pathogens (E.g. Ebola)
<http://www.who.int/csr/resources/publications/ebola/en/>
2. In-country shipment: How to safely ship human blood samples from suspected Ebola cases within a country by road, rail and sea
<http://www.who.int/csr/resources/publications/ebola/en/>

Supportive Diagnosis

Medical Research Institute will provide selected Haematological assays and Biochemical assays needed for patient management.

Samples should be collected to the containers provided by the MRI

Contact Dr. Priyanka Herath, Consultant Haematologist (+94 11 2693532 -3) and Dr. Gaya Katulanda (+94 11 2693532 -3) before sending the samples

Samples should be collected and transported according to the instructions given above