
ANNEX 12 Skin Biopsy on Fatal Cases for Diagnosis of Ebola

Ebola virus can be detected in fatal cases from a skin specimen using an immunohistochemistry test developed by the Centers for Disease Control and Prevention (CDC) Infectious Diseases Pathology Activity. The skin specimen is fixed in formalin which kills the virus. The specimen is no longer infectious once it is placed in formalin and the outside of the vial has been decontaminated. This vial can be shipped by mail or hand carried to the lab without risk. Results are available within a week after the specimen arrives at the CDC.

CDC provides Skin Biopsy Kits for the collection of skin samples in formalin. If these are available in your area, follow the simple instructions that are provided in the kit. An example of the instructions is on the following pages.

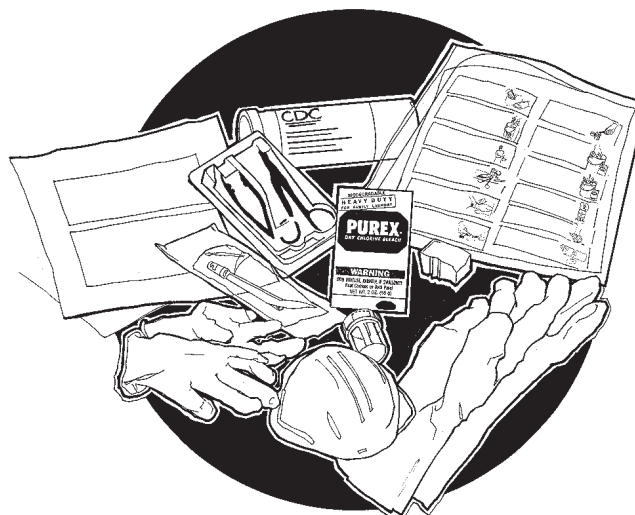
If a kit is not available, the biopsy can still be collected and sent for diagnosis to:

Dr. Sherif Zaki
Centers for Disease Control and Prevention
Infectious Diseases Pathology G-32
1600 Clifton Road, NE
Atlanta, GA 30329-4018



Viral Haemorrhagic Fever

Skin Biopsy Kit For Surveillance



Check the list of equipment and make sure everything is in place before beginning.

Kit Equipment List:

1. Instruction sheet
2. Selection criteria and surveillance forms
3. (1) box powdered bleach
4. (4) pairs latex gloves
5. (2) pairs heavy-duty gloves
6. (2) masks
7. (1) biopsy tool
8. (1) tweezers and scissors set
9. (1) vial with formalin
10. (1) piece hand soap
11. (1) mailing tube
12. (1) set mailing labels

Other items needed:

1. 1 or 2 buckets for disinfectant and handwashing
2. Gowns or plastic aprons
3. 10 litres water

Shipping Instructions:

Be sure to fill out the forms with the name of the patient on each page. Number the vial and put the number on the form. This is very important especially if you have more than one specimen to send. Use a pencil to write on the lid of the vial.

The formalin fixed specimen is not infectious. The vial can be sent by normal mail, carried on a plane or delivered to the U.S. Embassy **without risk** to the carrier.

Put the forms and the vial containing the specimen into the mailing tube. Close the lid tightly and seal with tape if available. Put the label on the tube and send it to CDC either by the U.S. Embassy or by the post. It can be mailed in your country or if someone carries it to the U.S., it can be placed in any U.S. Mailbox.

Please remember to put stamps on the package.

Surveillance for Ebola Haemorrhagic Fever

INSTRUCTION FOR USING THE SKIN BIOPSY KIT

IMPORTANT: For security, all of the equipment used in the biopsy is for one use only and must not be reused.

1 Fill out the patient forms with the patient information. Include your address for sending the results. Check the equipment and make sure you have everything you need.



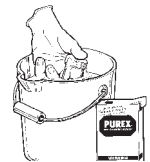
7 Place the sample in the formalin. Close the cap tightly to prevent leaks.



2 Prepare the disinfectant solution. Mix the contents of the box of bleach in 10 litres of water.



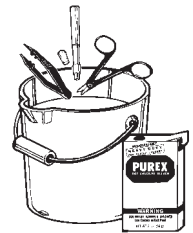
8 Dip the vial in the disinfectant for 1 minute. Set it aside to dry.



3 Put on the protective clothing. Begin with the gown, next the latex gloves, then the kitchen gloves and the mask. Use a plastic apron if one is available.



9 Then place the rest of the equipment in the disinfectant. If you need to move the cadaver, do so while you are still wearing the protective clothing. When you are finished, rinse your exterior gloves in the disinfectant, remove them and drop them in the disinfectant bucket.



4 Take the equipment to the work site. Open the vial of formalin. Open the two packets of instruments: the scissors and the tweezers, and the biopsy tool. Take the cover off the biopsy tool and arrange the equipment for use near the body.



10 Wearing the interior gloves, remove all of the disinfected material and place in the plastic sac. Burn the sac in the incinerator. Remove your gloves and burn.



5 Gently turn the head of the cadaver to expose the nape of the neck. Place the biopsy tool perpendicular to the neck and press down into the skin up to the guard. Rotate gently. Remove the biopsy tool.



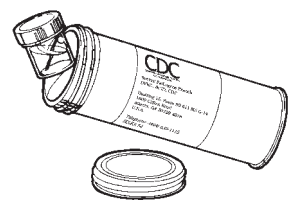
11 Wash your hands with soap and water. The specimen is not infectious after it is placed in formalin and the outside of the vial is disinfected.



6 With the tweezers, gently lift out the core you cut in the skin and use the scissors to cut the piece away if necessary.



12 Place the vial and the patient forms in the mailing tube and send to CDC, Atlanta. Do not freeze the sample.



Haemorrhagic Fever Surveillance Form

Name and location of Health Centre:

Vial Number:

Name of physician or nurse:

Contact address (**Important: to receive results, give a very specific contact address**):

Telephone /Facsimile number:

Patient data

Hospital Number:

Name:

Age:

Sex: Male Female

Address:

Profession or occupation:

Date of first symptoms:

Date of admittance:

Date of death:

Date of biopsy:

If patient was not hospitalized, who cared for the patient?

Are any other family members ill? If yes, relationship:

Symptoms of family member:

If the patient was hospitalized, use the table on the back to mark the symptoms which you observed and any other important observations.

Clinical Signs and Symptoms Form

Name of Patient: _____

Symptoms (Check each one present)	Date of appearance:
<input type="checkbox"/> Fever	
<input type="checkbox"/> Diarrhoea	
<input type="checkbox"/> Extreme weakness after rehydration	
<input type="checkbox"/> Nausea	
<input type="checkbox"/> Vomiting	
<input type="checkbox"/> Sore throat	
<input type="checkbox"/> Headache	
<input type="checkbox"/> Loss of appetite	
<input type="checkbox"/> Muscle pain	
<input type="checkbox"/> Joint pain	
<input type="checkbox"/> Hiccups	
<input type="checkbox"/> Cough	
<input type="checkbox"/> Conjunctivitis (red eye)	
<input type="checkbox"/> Chest pain	
<input type="checkbox"/> Rapid respiration	
<input type="checkbox"/> Recent loss of hearing	
<input type="checkbox"/> Burning sensations of the skin	
Bleeding , specify below:	Date of appearance:
<input type="checkbox"/> Black or bloody vomit	
<input type="checkbox"/> Black or bloody stool	
<input type="checkbox"/> Mouth	
<input type="checkbox"/> Nose	
<input type="checkbox"/> Urine	
<input type="checkbox"/> Skin or puncture site	
<input type="checkbox"/> Other bleeding: specify	
<input type="checkbox"/> Other observations	Date of appearance:

Selection criteria for testing of suspected Ebola haemorrhagic fever (EHF)

Patient's last name, first name: _____

When to take a skin biopsy for testing:

The patient had the following symptoms within two weeks preceding death:

- Fever and
- Diarrhoea and
- One of the following signs:
 - Headache
 - Intense weakness after rehydration
 - Muscle pains
 - Joint pain
 - Back pain

Treatment was given with antibiotics and antimalarials for a minimum of three days.

The patient failed to respond to treatment and died

Or

Died with at least 3 of the following symptoms and no definitive diagnosis:

- Sore throat or difficulty in swallowing
- Red eyes
- Skin eruptions
- Hiccups
- Burning sensation of the skin
- Bleeding: nose, mouth, urine, stools (black or bloody), or vomit (black or bloody)
- Rapid respiration

The diagnosis of haemorrhagic fever is possible and even probable if the patient is bleeding.

If the patient reports another similar death in the family recently, the diagnosis of EHF is even more likely. Measures should be taken to put the family and contacts under surveillance.

Take a skin biopsy, following the instructions given in this annex.

The biopsy is not infectious once in formalin.

Send it to CDC for testing at the address on the back of this form.

Dr. Sherif Zaki

Centers for Disease Control and Prevention

Infectious Diseases Pathology G-32

1600 Clifton Road, NE

Atlanta, GA 30329-4018