

How to safely collect blood samples by phlebotomy from patients suspected to be infected with Ebola or Marburg

2017

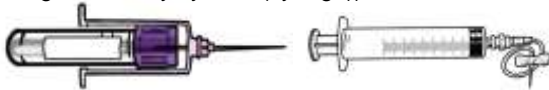
Step 1: Before entering patient room, assemble all equipment

Step 1a: Assemble equipment for collecting blood

- ❑ Laboratory sample tubes for blood collection (sterile glass or plastic tubes with rubber caps, vacuum-extraction blood tubes, or glass tubes with screw caps). EDTA tubes are preferred



- ❑ Blood sampling systems (Needle and syringe system, vacuum extraction system with holder, winged butterfly system (vacuum extraction) or winged butterfly system (syringe))



- ❑ Tourniquet (single-use)



- ❑ Skin antiseptic solution: 70% isopropyl alcohol



- ❑ Gauze pads



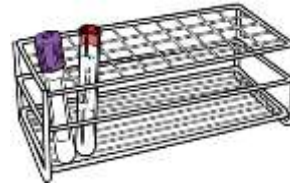
- ❑ Adhesive bandage



- ❑ Tray for assembling blood collection tools



- ❑ Rack for holding blood tubes



- ❑ Durable marker for writing on laboratory samples



Step 1b: Assemble equipment for preventing infections

For hand hygiene use

- ❑ Alcohol-based handrub **OR**
- ❑ Clean running water, soap and disposable (paper) towel



Personal Protective Equipment (PPE)

- ❑ Several pairs of disposable gloves (non-sterile, ambidextrous, single layer)
 - One pair for blood collection
 - Additional pairs as a replacement if they become damaged or contaminated



- ❑ Long-sleeved, cuffed gowns (if in hospital) or disposable coverall suit (if in rural area)

Note: For tasks where contact with blood or body fluid could happen, an impermeable gown or a plastic apron over the non impermeable gown are recommended.



- ❑ Footwear: Rubber boots (wear socks in order to remove easily) or shoes with puncture-resistant soles with disposable overshoes secured around the shoes to prevent direct contact with ground and infected bodily fluid spills



- ❑ Face protection: Face mask + [face shield **OR** goggles]



Waste management

- ❑ Leak-proof and puncture resistant sharps container
- ❑ Two leak-proof infectious waste bags
 - one for disposable material (destruction)
 - one for reusable materials (disinfection)



Step 1: Before entering patient room, assemble all equipment

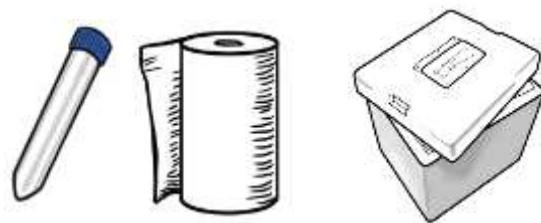
Step 1c: Fill out patient documentation

- Label blood collection tubes** with date of collection, patient name, and his/her identifier number.
- Do NOT forget to fill out necessary laboratory form and epidemiological questionnaire.**
- If several patients have to be sampled in the same place or during the same investigation, create a line list.** One patient per line. The list should include: patient name, identifier number, sex, age (birthdate), clinical information: symptoms, date of onset, date specimen was collected, type of sample taken.

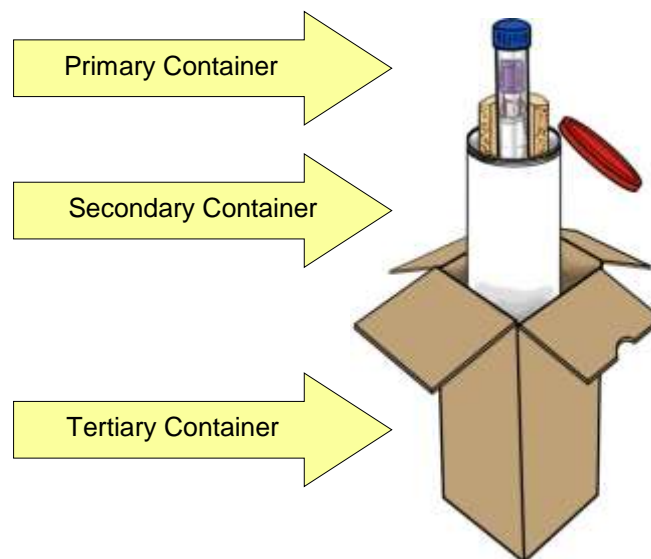


Step 1d: Assemble materials for packaging of samples

- Plastic leak-proof packaging container
- Disposable (paper) towels
- Cooler or cold box, if sample requires refrigeration



For the shipment of samples to the National Central Laboratory follow Sample Shipment packaging requirements (see document "How to safely ship Emerging and Dangerous Pathogen samples")



Important: A designated Assistant wearing gloves should be available to help you. This person should stand outside the patient room. He/She will help you prepare the sample for transport. He/She will assist you with putting on the personal protective equipment. He/She will provide any additional equipment you may need.

Step 2: Put on all personal protective equipment (PPE)

DO NOT ENTER THE PATIENT AREA IF YOU DO NOT HAVE ALL PROTECTIVE GEAR ON

Step 2a: Perform hand hygiene. Duration of the entire procedure: **40-60 sec** if handwashing with soap and water; **20-30 sec** if handrubbing with an alcohol-based solution.



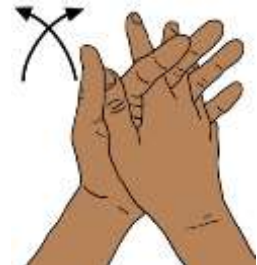
Wet hands with water and enough soap to cover all hand surfaces



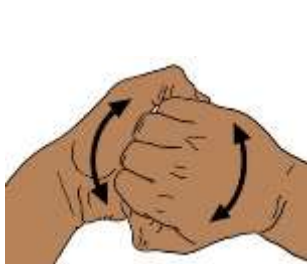
Rub hands, palm to palm



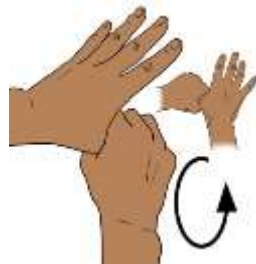
Right palm over left dorsum with interlaced fingers and vice versa



Palm to palm with fingers interlaced



Back of fingers to opposing palms with fingers interlocked



Rotational rubbing of left thumb clasped in right palm and vice versa

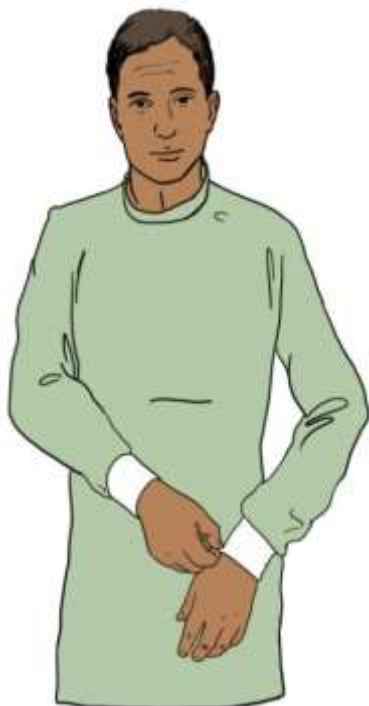


Rinse hands with water



Dry hands thoroughly with single use towel

Step 2b: Put on a gown



Step 2c: Put on face protection

Put on a medical mask



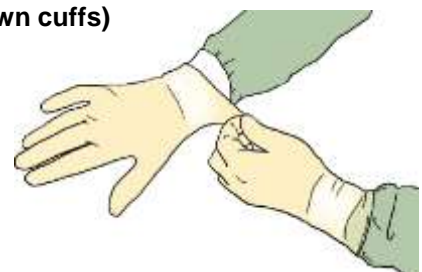
Put on eye protection (face shield OR goggles)



OR



Step 2d: Put on gloves (over gown cuffs)



Step 3: Collect blood sample from patient

Step 3a: Prepare room

- ✓ Put infectious waste bags and leak-proof and puncture resistant sharps container into patient room and make sure they are ready for use
- ✓ Place all blood collection equipment in a place that is easy to access



Destruction

Disinfection

Step 3b: Identify and prepare the patient

- ✓ Introduce yourself to the patient and explain what you will do with the blood sample and why
- ✓ Make sure that this is the correct patient from whom you wish to take the blood sample



Step 3c: Select the site, preferably at the bend of the elbow

- ✓ Palpate the area; locate a vein of good size that is visible, straight and clear
- ✓ The vein should be visible without applying a tourniquet



Step 3d: Apply a tourniquet around the arm

- ✓ Tie approximately 4–5 finger widths above the selected site



Step 3e: Ask the patient to form a fist so that the veins are more prominent



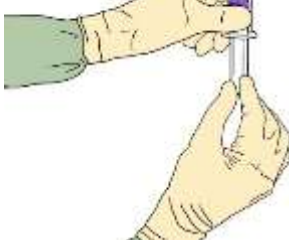
Step 3f: Disinfect the area where you will put the needle.

- ✓ Use 70% isopropyl alcohol
- ✓ Wait 30 seconds for the alcohol to dry
- ✓ DO NOT touch the site once disinfected



Step 3g: When using vacuum extraction system with holder, insert the blood collector tube into the holder

- ✓ Avoid pushing the collector tube past the recessed line on the needle holder or you may release the vacuum



Step 3h: Anchor the vein by holding the patient's arm and placing a thumb BELOW the place where you want to place the needle

- ✓ DO NOT touch the disinfected site
- ✓ DO NOT place a finger over the vein to guide the needle



Step 3i: Perform the blood draw

- ✓ Enter the vein swiftly at a 30° angle



Step 3: Collect blood sample from patient

Step 3j: When blood starts to flow, ask patient to open his/her hand

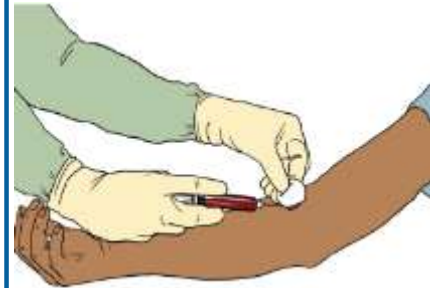


Step 3k: Once sufficient blood has been collected (minimum 5ml), release the tourniquet BEFORE withdrawing the needle

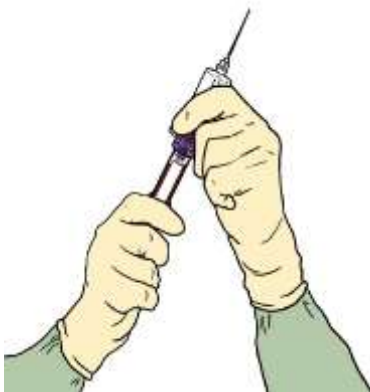


Step 3l: Withdraw the needle gently

- ✓ Give the patient a clean gauze or dry cotton wool ball to press gently on the site
- ✓ Ask the patient NOT to bend the arm



Step 3m: Remove blood collector tube from holder and put in rack



Step 3n: Put needle into leak-proof and puncture resistant sharps container

If the sharps container DOES NOT HAVE a needle remover:

- ✓ Put the needle and holder into a sharps container
- ✓ Do not remove the needle from the holder
- ✓ **Do not reuse the needle**

If the sharps container DOES HAVE a needle remover:

- ✓ Remove the needle following instructions on the sharps container
- ✓ Put the holder into the infectious waste bag for disinfection



Step 3o: Stop the bleeding and clean the skin

- ✓ Do not leave patient until bleeding has stopped
- ✓ Put an adhesive bandage on the site, if necessary



Step 3p: Put items that drip blood or have body fluids on them into the infectious waste bag for destruction

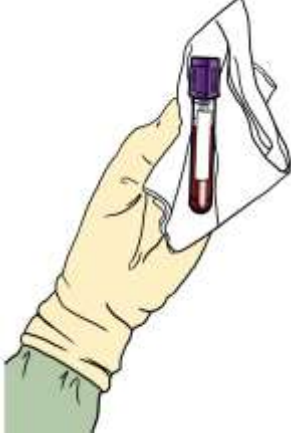


Quick Tips

- ✓ The blood holder tray and rack will need to be disinfected after use
- ✓ A minimum of 5ml of blood should be collected for each patient

Step 4: Prepare blood sample for transport

Step 4a: Take the blood tube from the tray and wipe the blood tube with a disposable paper towel



Step 4b: Place all items that came into contact with blood into the infectious waste bag for destruction



Step 4c: Protect the sample from breaking or leaking during transport by wrapping the tube of blood in a paper towel



Step 4d: Ask the designated assistant to approach the patient room, without entering

- ✓ This person should have gloves on
- ✓ This person should come close to you holding the open plastic leak-proof packaging container.
- ✓ This person should **not** enter the patient room



Step 4e: The person who has collected the blood sample should put the wrapped tube of blood into the plastic leak-proof packaging container

- ✓ Be careful not to touch outside of plastic leak-proof packaging container with gloves



Step 4f: Have the gloved assistant tightly close the top of the plastic leak-proof packaging container

- ✓ Disinfectant the outer side of the plastic leak-proof packaging container with a disinfectant



Step 4g: The assistant removes gloves and performs hand hygiene

Note: The sample is now ready for shipment to the National Central Laboratory. Follow Sample Shipment packaging requirements for infectious substances.

- Store samples at room temperature for up to 24 hours. If you need to store the sample for one week before shipping, store between 0-5° Celsius.
- If you need to store the sample for more than one week before shipping, store at -20 ° Celsius (or better at -70 ° Celsius if available). Avoid freeze-thaw cycles.

Step 5: Remove Personal Protective Equipment (PPE)

Step 5a: Remove the gloves

1. Hold the outer edge of the first glove and peel it off



2. Hold the first glove in the gloved hand and drag a bare finger under the second glove



3. Remove second glove from the inside, creating a "bag" for both gloves and put in the infectious waste bag for disposal



Step 5b: Remove the gown

1. Untie the gown



2. Remove the gown from behind starting at the neck and shoulders



3. Put the gown in the infectious waste bag for destruction



Step 5c: Perform hand hygiene

- ✓ Alcohol-based handrub solution (20-30 sec) **OR**
- ✓ Soap and water (40-60 sec)



Step 5d: Take off face protection



When wearing a face shield

- ✓ Remove face shield from behind
- ✓ If it is a reusable face shield, place it in an infectious waste bag for disinfection
- ✓ If it is a disposable face shield, place it in an infectious waste bag for destruction
- ✓ Remove the medical mask from behind, starting with the bottom strap, and place it in an infectious waste bag for destruction

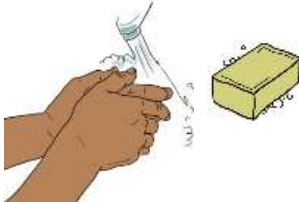


When wearing goggles and mask

- ✓ Remove goggles from behind
- ✓ If reusable goggles, place it in an infectious waste bag for disinfection
- ✓ If disposable goggles, place it in an infectious waste bag for destruction
- ✓ Remove the medical mask from behind, starting with the bottom strap, and place it in an infectious waste bag for destruction

Step 5c: Perform hand hygiene

- ✓ Alcohol-based handrub solution (20-30 sec) **OR**
- ✓ Soap and water (40-60 sec).



Quick Tips

- Place all reusable equipment into a separate infectious waste bag for disinfection

When collecting blood samples from multiple patients

- Change gloves between each patient
- Wash hands between each patient
- **DO NOT WASH GLOVED HANDS**
- **DO NOT REUSE GLOVES**