

How to safely collect blood samples from persons suspected to be infected with highly infectious blood-borne pathogens (e.g. Ebola)

Step 1: Before entering patient room, assemble all equipment (1st part)

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)



- Tourniquet (single-use)



- Skin antiseptic solution: 70% isopropyl alcohol



- Gauze pads



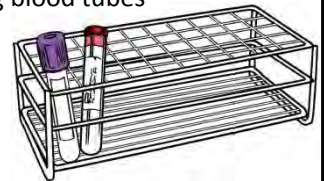
- Adhesive bandage



- Tray for assembling blood collection tools



- Rack for holding blood tubes



- Durable marker for writing on laboratory sample



Step 1b : Assemble equipment for preventing infections:

For Hand Hygiene: use Alcohol-based handrub OR

- Clean, running water
- Soap
- Disposable (paper) towel



Personal Protective Equipment (PPE):

- Several pairs of disposable gloves (non-sterile, ambidextrous, single layer)



✓ One pair of gloves for blood collection

✓ One additional pair as a replacement if they become damaged or contaminate

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

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



- Footwear: If in hospital: wear shoes with puncture-resistant soles or rubber boots;

If in rural setting or patient home wear rubber boots 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 shield or "goggles and mask"



OR



For waste management materials:

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



Step 1: Before entering patient room, assemble all equipment (last part)

Step 1c : Fill out patient documentation:

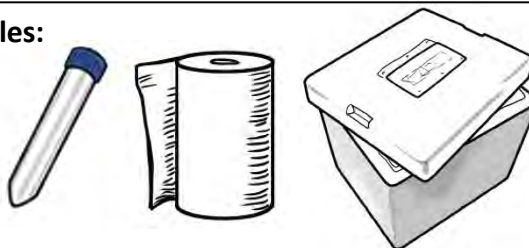
- Label blood collection tubes with date of collection, patient name, and his/her identifier number.
- Do NOT forget to fill out necessary laboratory form and epidemiological questionnaire.



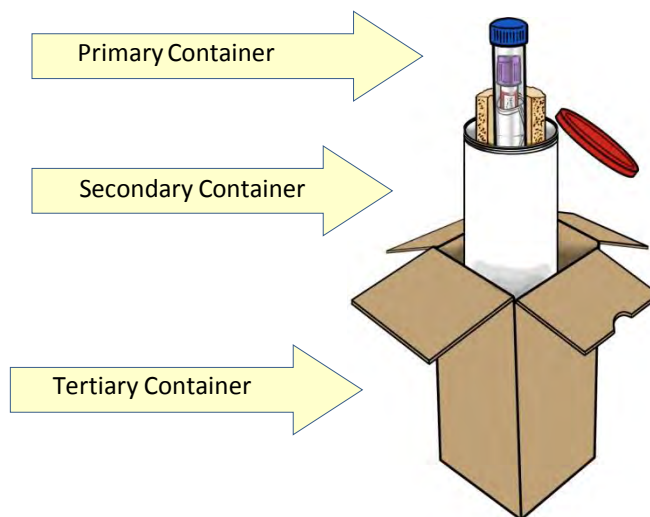
- If several patients have to be sampled in the same place or during the same investigation, create a line list. One patient per line. The list should include: patient name, identifier number, sex, age (birthdate), clinical information: symptoms, date of onset, date specimen was collected, type of sample 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, assist you with putting on the personal protective equipment, or provide any additional equipment you may need.

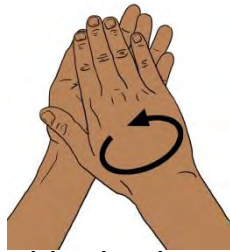
Step 2: Put on all personal protective equipment (PPE)

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

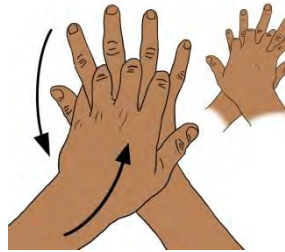
Step 2a: Perform hand hygiene. Duration of the entire procedure: **40-60 sec.**



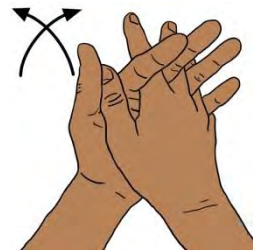
Wet hands with water and enough soap to cover all hand surfaces.



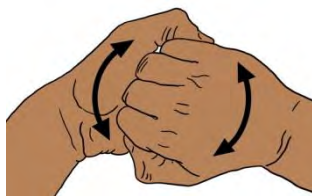
Rub hands, palm to palm,



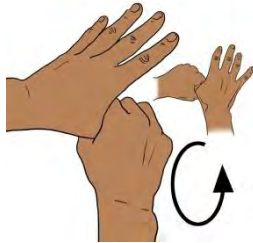
Right palm over left dorsum with interlaced fingers and vice versa,



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.



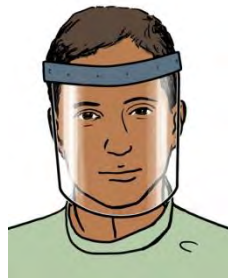
Dry hands thoroughly with single use towel.

Step 2b: Put on a gown.



Step 2c: Put on face protection:

Put on a face shield



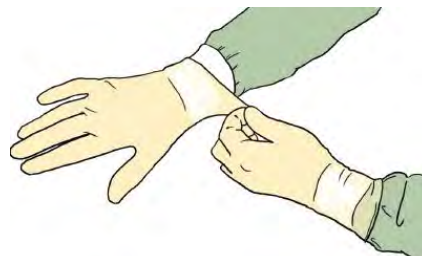
OR

Put on a medical mask and eye protection (e.g. eye visor/goggles)



Quick tips: If the patient has respiratory symptoms, wear a medical mask underneath the face shield.

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



Step 3: Collect blood sample from patient (1st part)

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.



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 (last part)

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

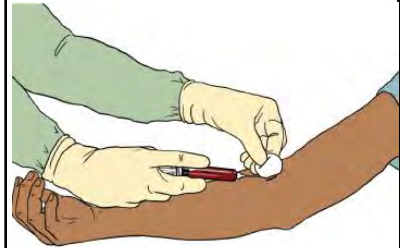


Step 3k: Once sufficient blood has been collected (minimum 5ml), release the tourniquet **BEFORE** withdrawing the needle

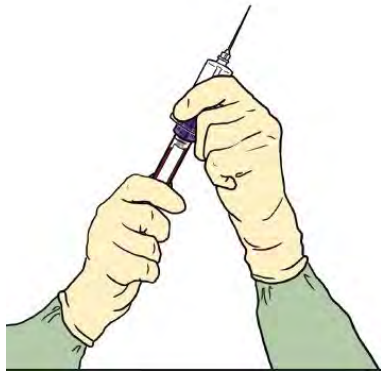


Step 3l: Withdraw the needle gently.

- ✓ 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 into 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 HAS 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.

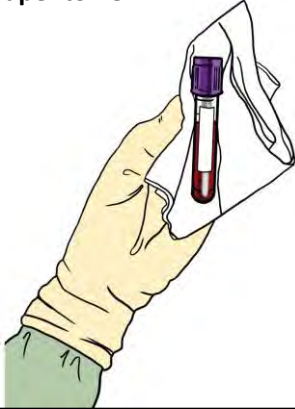


Quick Tips:

- ✓ 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

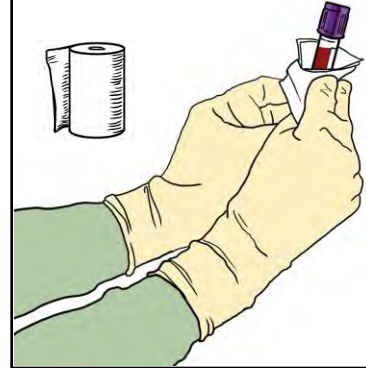
Step 4a: Take the blood tube from the tray and wipe the blood tube with a disposable paper towel.



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

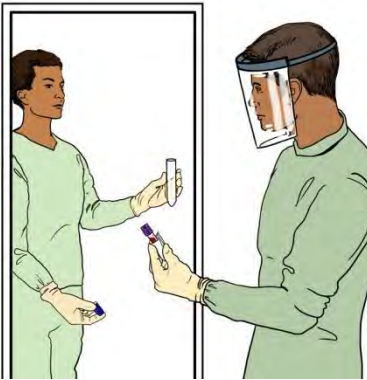


Step 4d: Protect the sample from breaking during transport by wrapping the tube of blood in a paper towel.



Step 4e: 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 4f: 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 leak-proof plastic tube with gloves.



Step 4g: Have the designated, gloved assistant tightly close the top of the plastic leak-proof packaging container.



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. Grasp the outer edge of the 1st glove and peel it off.



2. Hold the 1st glove in the gloved hand and drag a bare finger under the 2nd glove.

3. Remove 2nd glove from the inside, creating a "bag" for both gloves and throw it in 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.



2. Dispose the gown in the infectious waste bag for destruction



Step 5c: Perform Hand hygiene. Duration of the entire procedure: **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.
- ✓ Optional: If wearing a medical mask, remove the medical mask from behind, starting with the bottom strap, and place it in a infectious waste bag for destruction.



When wearing goggles and a 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 5e: Perform Hand hygiene. Duration of the entire procedure: **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.