### How to safely ship human blood samples from suspected Viral Haemorrhagic Fever cases within a country by road, rail and sea

2018

#### Step 1: Before handling the sample, prepare all shipping equipment

**Step 1a: Manage logistics**
- Identify the name and telephone number and/or e-mail of 1) responsible person/emergency contact at the National Reference Laboratory (this person should be available 24 hours a day until shipment arrives), and 2) lead epidemiologist/medical officer at the Ministry of Health
- Notify National Reference Laboratory and the lead epidemiologist/medical officer that the sample shipment will be coming
- Verify schedule/timetable for the company transporting the sample

**Step 1b: Assemble equipment for packing samples**

<table>
<thead>
<tr>
<th>Packing</th>
<th>Shipping / Transporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Absorbent material in sufficient quantity to absorb the entire liquid content, should the primary container(s) leak</td>
<td>- Receiver's name, address and telephone number</td>
</tr>
<tr>
<td>- Leak-proof secondary container</td>
<td>- Epidemiological questionnaire or line-list which includes patient name, sex, age (birthdate), clinical information, symptoms, date of onset, date specimen collected, type of sample</td>
</tr>
<tr>
<td>- Cushioning material, e.g. bubble wrap</td>
<td>- Laboratory form or letter describing the main epidemiological and clinical findings and the lab tests that are required</td>
</tr>
<tr>
<td>- Tape to seal the outer package (if required)</td>
<td>- Waterproof marker</td>
</tr>
</tbody>
</table>

#### Quick Tips for Category A shipments (infectious substances that can cause permanent disability, life-threatening or fatal disease when exposed to healthy people or animals)
- Ensure the primary and secondary containers are leak-proof
- Blood collection tubes in a sealed plastic bag or a screw-capped rigid tube can constitute a leak-proof primary container
- Do not place any sharps in your package: no needles, no cutters, no blades
- Shipping packages can be reused, but the packaging needs to be appropriately disinfected
- The minimal dimensions to ship a Category A package is 10cm x 10cm x 10cm
- Remember that training to ship Category A samples is a legal requirement and must be renewed every 2 years
### Step 2: Prepare the sample

- If the sample is in a plastic leak-proof primary container proceed to Step 3
- If sample is not in a plastic leak-proof primary container follow steps 2a – 2h

| Step 2a: Put on a gown, face protection and gloves (over cuffs) | Step 2b: Protect the sample from breaking during transport by wrapping the tube of blood in a paper towel or cushioning material. |
| - See WHO document "How to safely collect blood samples from persons suspected to be infected with highly infectious blood-borne pathogens" | - Do not wipe sample collection tubes with disinfectant. Use disposable paper towel only. |

| Step 2c: Ask a designated assistant to approach you with the unscrewed plastic leak-proof primary packaging container | Step 2d: Place the wrapped tube of blood into the plastic leak-proof primary packaging container |
| - This person should have gloves on | - Be careful not to touch the outside of the plastic leak-proof primary packaging container with contaminated gloves |

| Step 2e: Have the designated, gloved assistant tightly close the plastic leak-proof primary packaging container | Step 2f: Both persons should remove their personal protective equipment |
| - Disinfect with a disinfectant the outer side of the plastic leak-proof packaging container | - See WHO document "How to safely collect blood samples from persons suspected to be infected with highly infectious blood-borne pathogens" |

| Step 2g: Put contaminated items into an infectious waste bag for destruction | Step 2h: Both persons should perform hand hygiene |
| | - Duration of the entire procedure: 40-60 sec |

How to safely ship blood samples from suspected VHF cases within a country by road, rail and sea
Step 3: Package the sample

Step 3a: Prepare the rigid shipping box by inserting the inner lining into it

Step 3b: Open the secondary leak-proof container
  ✔ Choose the size of the container to match the number of samples being shipped

Step 3c: Insert the absorbent material
  ✔ There should be enough material to absorb all contents in primary container

Step 3d: Wrap the primary container with cushioning material
  ✔ If packaging more than one sample, wrap each primary container individually with the bubble wrap to prevent breakage

Step 3e: Place the primary container(s) into the secondary container

Step 3f: Close the secondary container
Step 3: Package the sample

Step 3g: If refrigeration is not necessary, place the secondary container into the lined rigid shipping box and proceed to step 3j.

If refrigeration is necessary

3h. Place the secondary leak-proof container into a styrofoam container and surround with ice packs

3i. Place styrofoam container into the rigid shipping box

Step 3j: Put laboratory form/letter and epidemiological questionnaire into an envelope

Step 3k: Put laboratory form/letter and epidemiological questionnaire into the rigid shipping box

- If no refrigeration is needed, place the laboratory form/letter and epidemiological questionnaire inside the box
- If refrigeration is needed, place the form/letter on the outside of the styrofoam container so that moisture will not destroy the

Step 3l: Close the top of the box

Step 3m: Tape the box closed
Step 4: Mark and label the box

**Step 4a: Write the name and addresses on box**
- Shipper’s name and address
- Receiver’s name and address

**Step 4b: Write the name and the telephone number of the contact person at the National Reference Laboratory**
- Person should be available 24 hours a day until shipment arrives

**Step 4c: Place the ‘Infectious Substance’ label on box**
- Write: ‘Infectious substance, affecting humans, UN2814’

**Step 4d: Verify that the orientation arrows are on the box**
- Arrows should be placed on opposite sides of box
- Arrows are required when total volume of infectious substance exceeds 50 ml per box

Step 5: Finalise the shipment

**Step 5a: Contact the transporting company to either pick-up shipment, or inform them that you will bring the shipment to them**
- Inform the transporting company if short delivery times are required due to refrigeration

**Step 5b: Contact the National Reference Laboratory to inform them that samples have been sent**

**Step 5c: Obtain shipping and tracking receipt and store in a safe location for 2 years**
- If possible, scan and email the tracking receipt to the lead epidemiologist / medical officer in charge of outbreak investigation and the responsible person in the laboratory

© World Health Organization 2018

Some rights reserved. This work is available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO license (CC BY-NC-SA 3.0 IGO; https://creativecommons.org/licenses/by-nc-sa/3.0/igo).

WHO-EM/CSR/164/E