National High Security Quarantine Laboratory Guideline for Management of Quarantinable Viral Haemorrhagic Fevers

The National High Security Quarantine Laboratory (NHSQL) is operated by the Victorian Infectious Diseases Reference Laboratory (VIDRL) and is located at The Doherty Institute, 792 Elizabeth Street Melbourne Vic 3000.

The NHSQL undertakes diagnostic testing for the four quarantinable viral haemorrhagic fevers (VHF) in a physical containment level 4 (PC4) facility. VIDRL can also undertake other testing for any of the human quarantinable diseases if requested. Information on the laboratory testing of samples from persons with a suspected VHF is provided below.

Telephone contact with the VIDRL on-call Medical Microbiologist is essential before any specimen referral.

The VIDRL on-call Medical Microbiologist can be contacted on mobile 0438 599 437. In case of difficulty back-up is provided by the VIDRL on-call laboratory manager (0438 599 439), and the Royal Melbourne Hospital Switchboard (03 9342 7000).

Tests available	**Specimen type**
Detection of haemorrhagic fever viruses (Ebola, Marburg, Lassa, Crimean-Congo, Rift Valley Fever) by nucleic acid.	• Acute serum or EDTA plasma • Throat swab • +/- Urine
Haemorrhagic fever virus serology (Ebola, Marburg, Lassa, Crimean-Congo, Rift Valley Fever viruses).*	• Acute serum • Convalescent serum

*Serology is only an adjunct to direct detection of VHF viruses.

Specimen collection and transport

When a patient with suspected quarantinable viral haemorrhagic fever is identified, the VIDRL on-call Medical Microbiologist should be notified through the relevant State or Territory Chief Quarantine Officer. Direct contact with the VIDRL on-call Medical Microbiologist is essential to arrange receipt of specimens and for advice regarding specimen collection, safe packaging and transport.

The essential specimens to be submitted for virus detection are a sample of venous blood, and a throat swab. If post mortem specimens are available, serum, liver, spleen and kidney tissues are desirable.

The following procedures should be followed:

- Appropriate personal protection equipment (PPE) should be worn during specimen collection and staff collecting specimens from persons under investigation for Ebola virus disease should

refer to the Infection prevention and control principles and recommendations for Ebola virus disease level 2 PPE guidelines.

- Venous blood samples must be collected with extreme care to avoid self-inoculation. Ten millilitres of clotted blood should be collected in an EDTA tube. Needles should not be recapped, bent, broken, removed from disposable syringes or otherwise handled. Blood-taking equipment must be placed into a puncture-proof approved sharps container. When full the container must be placed in a plastic bag, sealed and the outside wiped over with 0.5% hypochlorite, marked with the nature of the contents, and then autoclaved or incinerated.
- Throat swabs should be collected and placed in a collection tube with 1 ml viral transport medium (VTM) or equivalent transport medium. A dry swab may be used if no VTM is available.
- The outside of each specimen container should be swabbed with disinfectant (5000 ppm available chlorine) and a label must be attached bearing the patient's name, hospital identification, and the date of collection. The specimens must be double bagged in secure, airtight and watertight bags, which have been similarly labelled. Bags containing specimens should be sponged with disinfectant before they are removed from the patient's room.
- Samples should be classified as Category A biological hazard, assigned to UN2814 with the shipping name "Infectious substances affecting humans" (Haemorrhagic fever viruses). They should be handled as required by International Air Transport Instruction (IATA) Hazard Class 6.2 and packaging instruction 602.
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In general, the specimens should be packaged as follows:

1. Place the specimens for transport in a tightly sealed, watertight collection container, such as a screw-cap plastic tube, and seal the cap with Parafilm.
2. Wrap the primary collection container in sufficient absorbent material (eg. tissue) to absorb the entire contents in case the container leaks or breaks. Double bagging should be applied at this stage.
3. Place the double-bagged primary collection container in a durable, watertight screw-cap mailing tube or metal can. This secondary container should be sealed with tape. Several primary containers (eg. blood sample and swab sample) may be placed in one secondary container to a maximum of 50ml of specimen material.
4. On the outside of the secondary container, attach the specimen labels and other relevant information.
5. Place the second container in a secure box or mailing tube addressed to:
   National High Security Quarantine Laboratory
   Victorian Infectious Diseases Reference Laboratory (VIDRL)
   The Doherty Institute
   792 Elizabeth Street
   Melbourne Vic 3000
6. Transport for specimen for virus isolation chilled on wet or dry ice as appropriate, depending on the duration of shipping.
7. A competent door-to-door courier should be used. Since individual commercial and non-commercial carriers or shipping services may apply different regulations for transporting biologic specimens, contact a representative of the chosen carrier beforehand to ensure all necessary formalities are fulfilled.

8. Notify the on-call VIDRL medical microbiologist of the dispatch of the specimen with flight time and number, courier or airway bill number as required for transport of a Tier 1 security sensitive biological agent.
9. If transport is by air, a dangerous goods declaration must be made. Refer to the IATA Dangerous Goods regulations.
10. Specimen delivery is to the foyer specimen receiving area at the Doherty Institute, accessed from Elizabeth Street where there are two short-term delivery parking spaces. For out-of hours testing, the specimen should be handed to the VIDRL on-call scientist or on-call laboratory manager (0438599439) in foyer specimen receiving area at the Doherty Institute, who will have appropriate identification.
11. Full details of the contact person for reporting of results should be provided on the specimen form, including name and contact number.