

UNIQUE IDENTIFIER NO: C-91-2014  
EQUIP-2017-007  
Review Date: January 2020  
Review Lead: Lead Infection Prevention & Control Nurse

## **Section N**

# **Viral Haemorrhagic Fever Policy**

## **Version 2**

**Important:** This document can only be considered valid when viewed on the Trust's Intranet. If this document has been printed or saved to another location, you must check that the version number on your copy matches that of the document online.

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<b>Document Summary</b>		
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Infection Prevention and Control Committee	Consultant Microbiologist / Infection Prevention & Control Doctor	January 2017
<b>Other Stakeholders Consulted</b>		
<b>Does this document map to other Regulator requirements?</b>		
<i>Regulator details</i>	<i>Regulator standards/numbers etc</i>	
<b>Document Version Control</b>		
Version 1	This is a new policy focusing on the management of suspected or confirmed cases of Viral Haemorrhagic Fever.	
Version 2	This policy has been revised and updated in accordance with national guidelines. Classification of VHF has been changed from low, moderate or high probability to low possibility of VHF or high possibility of VHF. The risk assessment section has been updated and the algorithm is now contained within the body of the policy. A summary of roles and actions has been included as a quick reference guide. Links to relevant DH documents have been updated.	

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Policy on a page

**POLICY IN BRIEF – VIRAL HAEMORRHAGIC FEVER**

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Key Ref:

**KEY POINTS**

- VHF is a collective name for infectious diseases causing haemorrhagic symptoms. They are of particular concern as they have a high case fatality rate; are difficult to recognise/detect rapidly with no effective treatment.
- Environmental conditions in the UK do not support the natural reservoirs or vectors of any of the haemorrhagic fever viruses but transmission is possible in hospital so strict Infection Prevention and Control precautions are essential to protect staff and other patients from cross infection.
- In addition to fever, symptoms may include headache, sore throat, general malaise, diarrhoea, vomiting, bleeding and bruising.
- Patients at risk of VHF must not be held in a waiting area, but isolated until initial assessment is completed.

*Arenaviridae* - Lassa fever, Junin, Machupo),  
*Bunyaviridae* - Crimean-Congo HF, Rift Valley Fever, Hantaan HF  
*Filoviridae* - Ebola and Marburg  
*Flaviviridae* - yellow fever, dengue, Omsk haemorrhagic fever, Kyasanur forest disease).

**VHF diseases**

**Risk Assessment**

Follow the risk assessment algorithm (page 7) for all patients with current fever ( $\geq 37.5^{\circ}\text{C}$ ) or history of fever within the last 24hrs and with a relevant travel history or exposure to a person/animal with a VHF. This identifies immediate actions to be taken including urgent malaria test and notification to Public Health England.

**TIP: print the algorithm on A3 or view on screen – the text is very small**

**The patient has HIGH PROBABILITY of VHF**

ROLE/ACTION CARDS are included within the policy and should be referred to by all staff/departments involved in the patients management – using the latest version on the intranet.

Ensure that:

- A senior member of the medical team is identified as the lead clinician
- Staff in contact with the patient are restricted to necessary staff only
- One clinician and one staff nurse assigned to care for the patient; one HCA to act as a runner.
- The 'Ebola box' is collected which contains PPE and instruction
- The pneumatic air tube system is NOT used for samples – only essential samples to be collected and must be delivered by hand following telephone notification to the laboratory and handed to a member of the lab team.
- A list of all staff members in contact with the patient is kept – including clinical and non-clinical staff. (see Appendix 6, page 34).
- Display 'Contact Precautions' signs in the area.
- Remove all unnecessary equipment from the care area.
- Bag laundry, waste and non-disposable equipment and store in an agreed, secure area until results confirmed

**ROLE/ACTION CARDS**

- A&E Medical staff
- A&E Nurse and HCA
- Duty microbiologist
- Infection Control Doctor
- Director of IPC
- Infection Control Team
- Pathology laboratory
- Portering staff
- Radiology staff
- Cleaning services

**Press enquiries**

**MUST be referred to the CHFT communications team.**

**VHF is confirmed**

- Dispose of stored linen and waste as **HAZARDOUS** – i.e. Yellow bag for incineration only – See App 4, Pg 30.
- Continue enhanced levels of PPE and restricted access.
- Lead clinician to make contact with Royal Free Hospital to arrange immediate transfer and discuss options if transfer not clinically appropriate (details on page 17-18).
- Public Health response will be launched and an Incident Control Team formed.

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## **1. Introduction**

Viral haemorrhagic fevers (VHFs) are severe and life-threatening viral diseases that have been reported in parts of **Africa, South America, the Middle East and Eastern Europe**. They are of particular public health importance because they can spread within a hospital setting; they have a high case fatality rate; they are difficult to recognise and detect rapidly and there is no effective treatment (DH 2015).

Environmental conditions in the UK do not support the natural reservoirs or vectors of any of the haemorrhagic fever viruses. All recorded cases of VHF in the UK have been acquired abroad, with the exception of one laboratory worker who sustained a needle-stick injury.

Apart from fever, other symptoms of Ebola may include headache, sore throat, general malaise, diarrhoea, vomiting, bleeding and bruising.

Information contained within this policy is taken from DH guidance which can be accessed via the following link:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/534002/Management\\_of\\_VHF\\_A.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/534002/Management_of_VHF_A.pdf)

## **2. Purpose**

The purpose of this policy aims to eliminate or minimise the risk of transmission to healthcare workers and others coming into contact with an infected patient.

## **3. Definitions**

- **Contact:** exposure to an infected person or their blood and body fluids, excretions or tissues following the onset of their fever.
- **Endemic:** regularly occurring in a country or district.
- **Vector:** an animal, usually an insect or a tick, that transmits micro-organisms – and therefore the diseases they cause – from person to person or from infected animals to human beings.
- **Viral haemorrhagic fevers:** a group of illnesses that are caused by several distinct families of viruses: arenaviruses, filoviruses, bunyaviruses and flaviviruses.

#### **4. Duties**

The Chief Executive is responsible for ensuring that there are effective Infection Control arrangements in the Trust.

#### **5. Risk assessment**

Initiating the patient risk assessment algorithm should become normal practice in Emergency Departments or Acute Medical Units for any patient who has a fever [ $\geq 37.5^{\circ}\text{C}$ ] or history of fever in the previous 24 hours and a relevant travel history or epidemiological exposure within 21 days (DH 2015). Such patients should be isolated and any further assessment carried out by staff wearing appropriate personal protective equipment (PPE) as indicated in the flowchart on page 7. Full details regarding enhanced PPE, donning and doffing can be found in Appendix 3, page 28 of this document.

The flowchart will establish the patient's VHF risk category, which will determine the subsequent management of the patient and the level of protection for staff (DH 2015).

The risk to staff may change over time, depending on the patient's symptoms, the results of diagnostic tests and / or information from other sources. Patients with VHF can deteriorate rapidly.

Standard precautions and strict adherence to recommended infection control practices are paramount to ensure that staff are not put at risk whilst the initial risk assessment is carried out. **It is assumed throughout this guidance that staff will be following standard precautions.**

Additional information that may assist with the subsequent risk assessment and which should be clearly documented includes:

- Dates of travel
- Routes of travel (to include details of transit flights)
- Precise details of where in the affected country the patient has been
- Activities in the affected country: to include details of hospital admissions, voluntary work, contact with animals – specifically bats, primates and antelopes.
- Sexual contact in affected country
- Any contact with persons known to have or suspected of having Ebola
- Past history of fever / rigors in the preceding 24 hours
- Any bleeding or bruising – to include details of nosebleed, bloody diarrhoea, haematuria.

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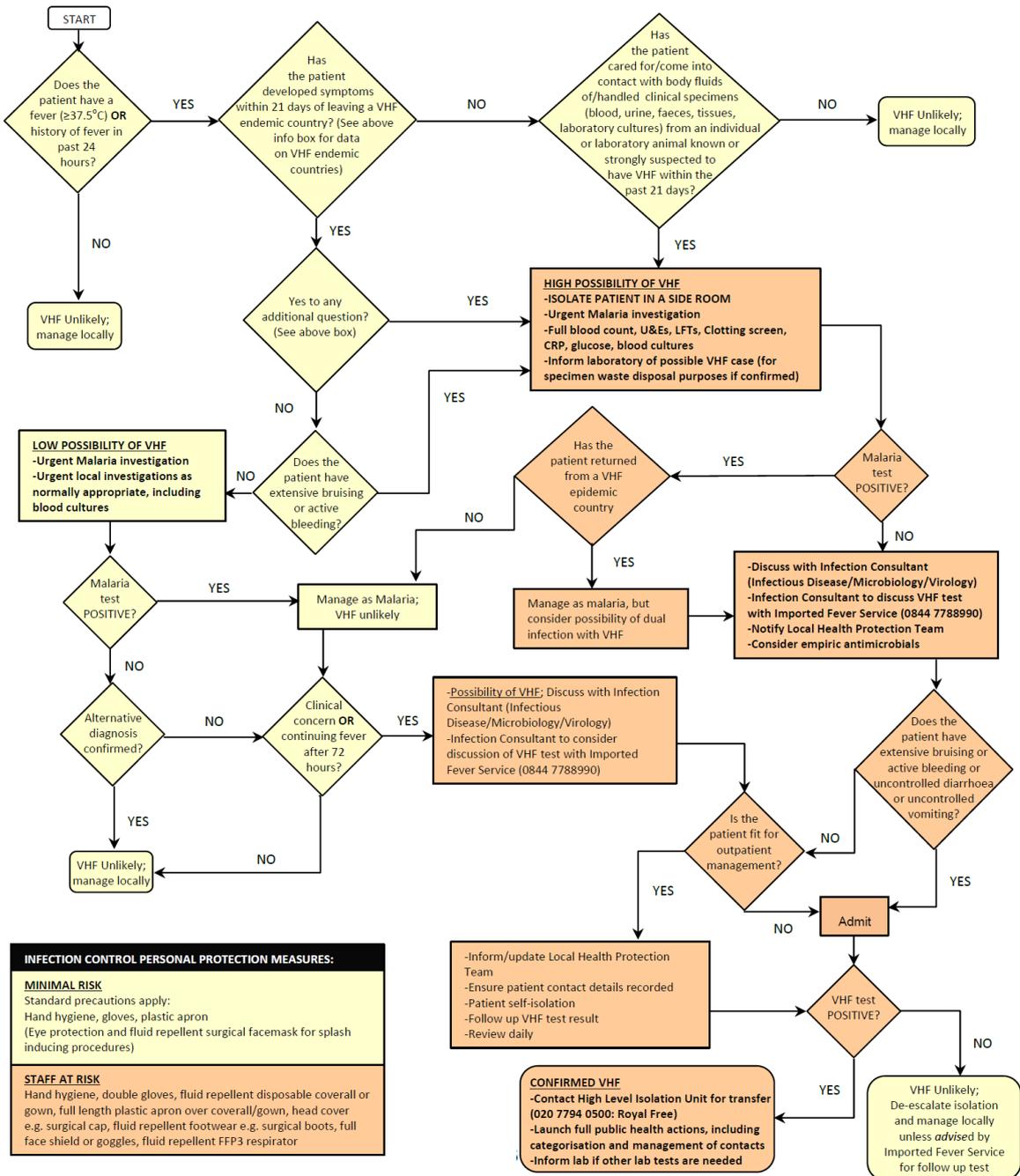
Guidance on the risk assessment and management of viral haemorrhagic fevers (including Ebola) by the Advisory Committee on Dangerous Pathogens (ACDP) is the principle source of guidance for clinicians risk assessing and managing suspected cases. The guidance and associated risk assessment algorithm can be seen on page 7 of this policy and the full document is also available via the following link:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/534002/Management\\_of\\_VHF\\_A.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/534002/Management_of_VHF_A.pdf)

**VIRAL HAEMORRHAGIC FEVERS RISK ASSESSMENT (Version 6: 15.11.2015)**

**VHF ENDEMIC COUNTRIES:**  
 Information on VHF endemic countries can be found at <https://www.gov.uk/viral-haemorrhagic-fevers-origins-reservoirs-transmission-and-guidelines> or see VHF in Africa map at [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/365845/VHF\\_Africa\\_960\\_640.png](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/365845/VHF_Africa_960_640.png)

**ADDITIONAL QUESTIONS:**  
 -Has the patient travelled to any area where there is a current VHF outbreak? (<http://www.promedmail.org/>) OR  
 -Has the patient lived or worked in basic rural conditions in an area where Lassa Fever is endemic? (<https://www.gov.uk/lassa-fever-origins-reservoirs-transmission-and-guidelines>) OR  
 -Has the patient visited caves / mines, or had contact with or eaten primates, antelopes or bats in a Marburg / Ebola endemic area? (<https://www.gov.uk/ebola-and-marburg-haemorrhagic-fevers-outbreaks-and-case-locations>) OR  
 -Has the patient travelled in an area where Crimean-Congo Haemorrhagic Fever is endemic ([http://www.who.int/csr/disease/crimean\\_congoHF/Global\\_CCHFRisk\\_20080918.png?ua=1](http://www.who.int/csr/disease/crimean_congoHF/Global_CCHFRisk_20080918.png?ua=1)) AND sustained a tick bite\* or crushed a tick with their bare hands OR had close involvement with animal slaughter? (\*If an obvious alternative diagnosis has been made e.g. tick typhus, then manage locally)



**INFECTION CONTROL PERSONAL PROTECTION MEASURES:**

**MINIMAL RISK**  
 Standard precautions apply:  
 Hand hygiene, gloves, plastic apron  
 (Eye protection and fluid repellent surgical facemask for splash inducing procedures)

**STAFF AT RISK**  
 Hand hygiene, double gloves, fluid repellent disposable coverall or gown, full length plastic apron over coverall/gown, head cover e.g. surgical cap, fluid repellent footwear e.g. surgical boots, full face shield or goggles, fluid repellent FFP3 respirator

## 6. Summary of Roles and Actions

Staff	Actions
<b>A/E Receptionist / Receiving staff</b>	<p>Ascertain whether the patient has had a fever of &gt; 37.5°C  <b>OR</b> h/o fever in the past 24 hours <b>and</b> a travel history  <b>OR</b> epidemiological exposure within 21 days.            (The following link can be used for up-to-date information of areas of known risk for VHF.  <a href="https://www.gov.uk/guidance/viral-haemorrhagic-fevers-origins-reservoirs-transmission-and-guidelines">https://www.gov.uk/guidance/viral-haemorrhagic-fevers-origins-reservoirs-transmission-and-guidelines</a>)            If not, proceed as usual; if 'yes', inform senior medical and nursing staff immediately. Patients identified as being at risk of VHF should <b>not</b> sit in the general waiting room prior to assessment but should be isolated immediately, including isolation from relatives, at least until after the initial assessment has been completed.  <b>CRH:</b> Minors 3 (old A/E plaster room)  <b>HRI:</b> Cubicle 5 or Cubicle 11</p>

Staff	Actions
	<p>Senior member of the medical team to be the lead clinician            Number of staff in contact with the patient to be restricted to necessary staff only            One clinician and one staff nurse to be assigned to care for the patient; one HCA to act as a runner.            Print off the flow chart – page 7 of this document.            Ongoing list of <u>all</u> staff members in contact with the patient to kept – including <u>clinical and non-clinical staff</u>. (List can be found in Appendix 6, p. 34).            Display 'Contact Precautions' signs to the area.</p>
<b>A/E Medical staff</b>	<p>If a VHF risk is identified</p> <ul style="list-style-type: none"> <li>• Use the risk assessment algorithm (p.7) to ascertain the level of risk i.e. low or high possibility of VHF</li> <li>• Inform the Duty Microbiologist and the IPCT of any suspected cases and liaise regarding risk assessment and management.</li> <li>• Ensure enhanced IPC precautions are followed as outlined in this policy (p. 12 for low possibility of VHF, p. 14 for high possibility of VHF).</li> <li>• Take a full history from the patient – see p.6 of this policy</li> <li>• Diagnostic tests according to low or high possibility of VHF – please refer to flow chart (p.7)</li> <li>• Any specimens taken from the patient must have an 'Infection Risk' sticker attached.</li> <li>• DO NOT use Sysmex machine in A&amp;E.</li> <li>• DO NOT perform ABG using normal machine – can be obtained using iSTAT, cartridges available from Biochemistry.</li> <li>• Ensure samples are not in contact with the paper request form – the request form must be placed in the correct slot</li> </ul>

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	<p>within the pathology bags.</p> <ul style="list-style-type: none"><li>• If the patient's test is VHF positive, contact the High Level Isolation Unit (HLIU) at the Royal Free London NHS Foundation Trust: Tel – 020 7794 0500 and ask for the Infectious Disease Consultant on-call.</li></ul>
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Staff	Actions
<b>A/E Nurse and designated 'buddy'</b>	<p>Ensure that the patient is isolated immediately in the assigned areas i.e.</p> <p><b>CRH:</b> Minors 3 (old A/E plaster room) – use clinic rooms across from Minors 3 for relatives and for donning / doffing PPE.</p> <p><b>HRI:</b> Cubicle 5 or Cubicle 11 – adjacent seating area by Cubicle 11 to be used for donning / doffing PPE and relatives isolated in the distressed relatives' room.</p> <ul style="list-style-type: none"><li>• Remove as much non-cleanable equipment as possible from the room prior to the patient's arrival</li><li>• Gather the required PPE equipment i.e. the 'Ebola box' and use according to the level of risk</li><li>• Obtain a hard, sealable container from the Lab in which specimens may be transported safely to the Lab: inform Porter staff when these need to be taken.</li><li>• Attach an 'Infection Risk' sticker to all specimens obtained from the patient.</li><li>• Inform Lab staff <u>in advance</u> by telephone that samples are being sent from a patient with suspected VHF and whether the patient is high risk or low risk. <u>Do not send specimens via the pneumatic air tube system.</u> Samples must be transported within a hard, sealed container (obtainable from Path Lab) – by hand – directly to the Lab and handed to a member of the Lab staff</li><li>• Donning and doffing of PPE must be in accordance with the procedure outlined in Appendix 3, p. 28.</li><li>• Display 'Contact Precautions' signage to the area</li><li>• Use single-use / disposable equipment where able</li><li>• Use disposable crockery and cutlery</li><li>• Process linen according to PCR results: segregate and store safely until these are available. If PCR result is negative, reusable linen should be processed as infected linen i.e. water-soluble bag and clear outer bag. If positive PCR result, all linen to be disposed of as Category A waste (see App 4, p 30).</li><li>• Provide a dedicated commode for patient use</li><li>• Notify porters of any suspected or high probability cases in order to prompt them to supply the appropriate waste bins.</li><li>• All waste to be disposed of Category A waste - See App 4, p.30 for step-by-step waste disposal process. Waste should be securely stored pending laboratory results.</li></ul>

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Staff	Actions
<b>Duty Microbiologist / Infection Control Doctor</b>	<ul style="list-style-type: none"><li>• Provide advice on the initial management of a suspected VHF case</li><li>• Inform the on-call Manager, Duty Matron and Executive Director on-call of the possibility of a patient with Ebola in the Trust</li><li>• If the malaria screen is negative from a patient meeting the case definition, liaise with the Imported Fever Service - Tel: 0844 7788990 to arrange VHF testing when indicated and for advice regarding ongoing management of patients with confirmed VHF prior to transfer to a HLIU. (Alternative telephone numbers: 01980 612 100 or 07789 031672. <b>Access to VHF testing is only available through the IFS.</b></li><li>• Inform PHE (Tel: 0113 386 0300) and the DIPC of any confirmed or cases deemed to be at high risk of VHF</li></ul>

Staff	Actions
<b>DIPC</b>	Instigate an Outbreak Control Group / major Outbreak Control Group as required and update the Executive team as necessary.

Staff	Actions
<b>IPCNs</b>	Attend the Department and work closely with staff, the Duty Microbiologist / ICD / DIPC to provide advice and support regarding IPC precautions

Staff	Actions
<b>Path Lab staff</b>	Provide suitable, sealable container for the transport of specimens from A/E to the Lab. As soon as available, telephone Malaria results, whether positive or negative, to the appropriate department. Testing of specimens for patient management should be performed using containment level 2 (CL2) laboratory procedures. If specimens need to be sent for further testing, transport and packaging information can be found on p. 19 of this policy.

Staff	Actions
<b>Cleaning services</b>	It is possible that the virus can survive for several hours when dried onto surfaces such as doorknobs and worktops and up to several days in body fluids such as blood at room temperature. However, it is easily inactivated at higher temperatures and by soap and water.

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	<p><b>Low possibility of VHF:</b> PPE as outlined in this policy i.e. hand hygiene, disposable gloves and apron, standard precautions, Tristel clean.</p> <p><b>High possibility of VHF:</b> Enhanced PPE as outlined in this policy; standard precautions and Tristel clean. Cleaning staff can wear a surgical face mask rather than an FFP3 mask if the patient is no longer in the room.</p> <p><b>Confirmed case of VHF:</b> Enhanced PPE as outlined in this policy, including FFP3 face mask; standard precautions, Tristel clean, HPV clean following patient's discharge. All patient equipment and cleaning equipment used should be left in the room for HPV treatment. Opportunistic Tristel clean of doffing room and corridor as clinical situation allows.</p>
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<b>Staff</b>	<b>Actions</b>
<b>Portering staff</b>	<ul style="list-style-type: none"><li>• Transport specimens to the Lab – on request – in a hard, sealed container and <b>hand to</b> a member of the Lab staff.</li><li>• Deliver a 360 litre bin for CRH or a 770 litre bin for HRI to the waste room: this should be clearly labelled as <b>Category A Waste</b></li><li>• Deliver a number of 'Wiva bins' and a linen skip (to be used to hold the yellow bags for waste disposal) to the outside of the room where the patient is being nursed</li><li>• The yellow clinical waste bags must be placed in a 60-litre Wiva bin prior to removal from the ward / department area.</li></ul>

<b>Staff</b>	<b>Actions</b>
<b>Radiology staff</b>	Portable X-rays only until the results of the malaria screen are available unless there is an over-riding clinical need – to be discussed with on-call Microbiologist / Radiologist as necessary.

**Communication:** no members of staff to discuss the possible case outside of CHFT or unnecessarily within CHFT, including the posting of messages on social media such as Facebook and Twitter. Staff members should not answer questions from the media – any media enquiries must be referred to the CHFT Communications department.

**7. Patients categorised as ‘low possibility of VHF’**

If an inpatient who is malaria negative has a continuing fever and relevant travel history, without diagnosis, discuss with the Infection Control Doctor / Consultant Microbiologist with a view to arranging VHF testing.

**NB: It is recommended that if a patient has extensive bruising or active bleeding, the lead clinician should manage the patient as ‘high possibility of VHF’.**

**Infection control measures**

All staff should already be using standard precautions (hand hygiene, gloves plastic apron); if not, these must be immediately introduced.

<b>Infection control measures for patients with a LOW possibility of VHF</b>	
<b>Staff Protection</b>	<b>Control Measures</b>
<p><b>Isolate</b> patient in the designated area immediately:</p> <p><b>CRH:</b> Minors 3 (old A/E plaster room); clinic rooms across from Minors 3 to be used for relative(s) and for donning / doffing PPE.</p> <p><b>HRI:</b> A/E Cubicle 5 or Cubicle 11. Adjacent seated waiting area (by Cubicle 11) to be used for donning / doffing PPE and relative(s) isolated in the distressed relatives’ room.</p> <p>Restrict the number of staff in contact with the patient.</p>	<p>Remove as much non-cleanable equipment from the room as possible prior to the patient’s arrival.</p> <p>Provide a dedicated commode.</p> <p>Any body fluids to be solidified using the Vernagel sachets and disposed of, along with the disposable bed pan, in the yellow clinical waste bags as Category A waste.</p>
<p><b>Standard precautions</b>            (See Standard Precautions Policy for full details:  <a href="http://www.cht.nhs.uk/fileadmin/uploads/divisions/diag_thera/infection_control/policies/Section_C_Standard_Precautions_version_5_Final_CG.pdf">http://www.cht.nhs.uk/fileadmin/uploads/divisions/diag_thera/infection_control/policies/Section_C_Standard_Precautions_version_5_Final_CG.pdf</a>)</p>	<p>Hand hygiene            Gloves            Apron</p>
<p>Additional protection for splash inducing procedures</p>	<p>Fluid repellent surgical face-mask            Eye protection</p>
<p>Additional protection for potential aerosol generating procedures based on risk assessment for other infections known to be transmitted through the airborne route.</p> <p>Potential aerosol-generating procedures</p>	<p>FFP3 respirator or EN certified equivalent.</p> <p>Eye protection</p>

<p>include:</p> <ul style="list-style-type: none"> <li>• Endotracheal intubation</li> <li>• Bronchoscopy</li> <li>• Airway suctioning</li> <li>• Positive pressure ventilation via facemask</li> <li>• High frequency oscillatory ventilation</li> <li>• Central line insertion</li> <li>• Diagnostic sputum induction</li> </ul>	
<p>Single use (disposable) equipment and supplies should be used. The use of a needle-free intravenous system to eliminate the risk of needlestick injuries should be considered. Any specimens obtained from the patient should have an 'Infection Risk' sticker applied.</p>	
<p><b>Waste disposal:</b></p> <p><b>ALL generated waste to be treated as Category A waste.</b>          Use <b>yellow clinical waste bags</b> (available in Ebola boxes)  <b>See Appendix 4, p. 30 for full details.</b></p>	<p>Yellow clinical waste bags          Vernagel sachets          Wiva bins</p>

Patient to remain in A/E unless there are exceptional circumstances, such as a MAJAX, that requires movement to one of the identified areas below: Ideally await malaria results prior to moving patient to a side-room:

**CRH:** Ward 2AB                      **HRI:** Ward 6

**Paediatric patients: CRH:** Room 27 on 3C or Room 34 on 3D.  
 Transport to ward area to be via designated transport routes: portering staff with the assistance of security staff to clear the route.

**Diagnostic investigations:** see flowchart on pg. 7.

Malaria remains the most likely diagnosis and therefore screening for malaria is most urgent even if the patient has already had a malaria screen performed with a negative result.

**Specimens collected from patients categorised as 'low possibility of VHF'**

- (a) The main risk of infection to the healthcare worker when collecting the specimen is direct contact with blood or body fluids from the patient. The risk of exposure to VHF when collecting specimens from patients categorised as 'low possibility' is small, as an alternative diagnosis such as malaria is usually found.
- (b) Samples from patients with the possibility of viral haemorrhagic fever should **not** be sent via the pneumatic air tube system: see pg. 16. Ensure

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that an 'Infection Risk' sticker is attached to all specimens obtained from the patient.

- (c) Healthcare waste generated as a result of specimen collection from patients categorised as 'low possibility of VHF' must be treated as Category B infectious waste.

## **8. Patients categorised as 'high possibility of VHF'**

The lead clinician who is responsible for the acute care of the patient should be a senior member of the medical team

- If the malaria test is negative, discuss with the Infection Control Doctor / Consultant Microbiologist to arrange VHF test with the Imported Fever Service (IFS)
- Contact the Local Health Protection Unit (Tel: 0113 386 0300)
- If the patient's test is **VHF positive**, contact the HLIU (Royal Free London NHS Foundation Trust - Tel: 020 7794 0500 – ask for Infectious Disease Consultant on-call: full public health actions to be launched.
- If malaria test is positive and the patient has returned from a country affected by a current VHF outbreak, then dual infection should be considered and discussed with the Infection Control Doctor / Consultant Microbiologist.

It is recommended that, if a patient is bruised or bleeding or has uncontrolled diarrhoea or uncontrolled vomiting, the lead clinician should ensure that VHF testing is carried out and have an urgent discussion with HLIU concerning patient management and possible early transfer to the HLIU.

**Contact details:** Royal Free London NHS Foundation Trust, London.

**Telephone** 020 7794 0500 OR 0844 848 0700 (24 hours).

Ask for Infectious Disease Consultant on call.

[www.royalfree.nhs.uk](http://www.royalfree.nhs.uk)

### **Notification**

The Consultant for Communicable Disease Control (CCDC) must be notified of a suspected high-risk case in order that contacts can be identified and if necessary placed under surveillance.

**Contact details:** Within hours, Tel PHE: 0113 386 0300.

The PHE Yorkshire & Humber **out-of-hours** contact number for South and West Yorkshire is: **0114 304 9843**. The out-of-hours service is available from 5pm – 9am Monday to Friday and during the weekend.

### **Infection control measures**

Avoiding contact with a patient's body fluids, minimising contamination of the environment, and safely containing contaminated fluids and materials, is paramount to protecting staff and the wider public against infection risks.

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The level of staff protection required is dependent on the patient's symptoms and is set out in the table below:

<b>Infection control measures for patients with a HIGH possibility of VHF</b>	
<b>Staff Protection</b>	<b>Control Measures</b>
<p><b>Isolate</b> the patient in the designated area immediately: this includes isolation from relative(s) at least until after initial assessment.</p> <p><b>CRH:</b> Minors 3 (old A/E plaster room)</p> <p><b>HRI:</b> Cubicle 11 or Cubicle 5</p>	<p>Remove as much non-cleanable equipment from the room as possible prior to the patient's arrival.</p> <p><b>Restrict the number of staff in contact with the patient.</b></p>
<p>Standard precautions <b>plus</b> respiratory precautions</p> <p><a href="http://nwww.cht.nhs.uk/fileadmin/uploads/divisions/diag_thera/infection_control/policies/Section_C_Standard_Precautions_version_5_Final_CG_.pdf">http://nwww.cht.nhs.uk/fileadmin/uploads/divisions/diag_thera/infection_control/policies/Section_C_Standard_Precautions_version_5_Final_CG_.pdf</a></p>	<p><b>Follow the PPE guidelines for donning and doffing of PPE - See App 3, p. 28.</b></p> <ul style="list-style-type: none"><li>• Hand hygiene</li><li>• Double gloves</li><li>• Fluid repellent disposable coverall or gown</li><li>• Full length plastic apron</li><li>• Head cover e.g. surgical cap</li><li>• Fluid repellent footwear e.g. surgical boots / shoe or boot covers</li><li>• Full face shield or goggles</li><li>• Fluid repellent FFP3 respirator is used as splash protection. If the respirator is to be used as respiratory protection when managing a patient with infections known to be transmitted by the airborne route, it must be worn as per manufacturer's recommendations.</li></ul>
<p>Obtain specimens as outlined on the flowchart - p.7: attach an 'Infection Risk' sticker to all specimens obtained from the patient.</p>	<p>Single use (disposable) equipment and supplies should be used. The use of a needle-free intravenous system to eliminate the risk of needle-stick injuries should be considered.</p>
<p>Provide a dedicated commode with a disposable bowl.</p>	<p>After use, solidify the contents with high-absorbency gel and place into the yellow clinical waste bag.</p> <p>Toilets or commodes should be disinfected with hypochlorite containing 10,000ppm available chlorine at least daily, preferably after each use and upon patient discharge. For non-ambulant</p>

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	patients, disposable bedpans should be used and the contents solidified with high-absorbency gel and placed into the yellow clinical waste bags.
<b>Crockery and cutlery</b> Disposable crockery and cutlery should be used; the items should be disposed of as Category A waste.	Any sharp items that may pierce the waste bag should be disposed of in a sharps bin.
<b>Re-usable linen</b> from patients classified as <b>high possibility</b> may be segregated and safely stored whilst awaiting PCR test results if facilities are available. If PCR results subsequently confirm the patient as negative for VHF, re-usable linen can then be treated as Category B.	Process linen according to PCR results: if unable to segregate and store safely, waste from high possibility cases must be treated as Category A waste and disposed of in the yellow clinical waste bags. If designated as Category B: treat as infected linen i.e. red, water-soluble bag and clear outer plastic bag.
Waste disposal: <b>ALL generated waste to be treated as Category A waste.</b> Use <b>yellow clinical waste bags</b> (available in Ebola boxes)  <b>See Appendix 4 p. 30, for full details.</b>	PPE should not be a source of further contamination e.g. by being removed and left on environmental surfaces or by being removed inappropriately thus contaminating the wearer's hands.
<b>Cleaning:</b>	Full Tristel clean and HPV clean on patient's discharge. Cleaning staff to use enhanced precautions as outlined in this policy.

Diagnostic tests should be performed using CL2 laboratory procedures.  
<http://www.labmanager.com/lab-health-and-safety/2010/12/biosafety-levels-1-2-3-4?fw1pk=2#.WEICTE1XXcs>

*\*\*Micros- is the above an acceptable link or is there a CHFT policy that can be linked to?*

Analysis of specimens should not be delayed whilst awaiting the results of VHF tests.

### **8.1 Specimens collected from patients categorised as 'high possibility of VHF'**

Although the risk of infection from patients categorised as 'high possibility of VHF' may eventually turn out to be low as a result of an alternative diagnosis for example malaria, until an alternative diagnosis has been confirmed, enhanced standard precautions should be followed (see p.28).

Samples **must not be sent via the pneumatic air tube system**. They must be transported within a hard, sealed container – by hand – directly to the laboratory and **handed** to a member of the laboratory staff. A sealed

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container may be obtained from the laboratory. All specimens must have an 'Infection Risk' sticker attached.

For waste disposal purposes, the laboratory should be informed that specimens are to be retained until VHF status is known.

It is important to inform the laboratory in order to ensure that:

- (i) the appropriate laboratory containment (CL2) is in place for specimen handling and correct waste disposal procedures are followed
- (ii) Waste should be securely stored pending laboratory results. In the event that VHF infection is confirmed this would require disposal as Category A waste, otherwise it can be disposed of as Category B (see App 4, p. 30).

**8.2** Healthcare waste generated as a result of specimen collection from patients categorised as 'high possibility of VHF' must be securely stored pending laboratory results. In the event that VHF infection is confirmed, this would require disposal as Category A waste, otherwise it can be treated as Category B waste i.e. infectious waste.

Malaria remains the most likely diagnosis and therefore screening for malaria is urgent regardless of a previous negative malaria screen performed elsewhere.

If the malaria screen is negative and VHF is still suspected clinically, the case should be discussed promptly with the local Infection Consultant (ID/Microbiology/Virology). The Infection Consultant should contact the Imported Fever Service (0844 7788990) to arrange an **urgent VHF test** (See p. 7). The Local Health Protection Team at Public Health England should also be informed at this stage.

If the malaria screen is positive and the patient has returned from a country affected by a current VHF outbreak, then dual infection should be considered and discuss with the Infection Control Doctor / Consultant Microbiologist.

#### **VHF test results and subsequent patient management:**

If the VHF test is **negative**, then VHF is unlikely. Patient can be managed locally.

If there is further clinical concern the patient should be discussed with the Imported Fever Service.

**If the VHF test is positive, a number of urgent actions are required – see Section 9 below.**

## **9. Patient with confirmed VHF:**

A patient who has had a positive VHF test result should be managed in a High Level Isolation Unit (HLIU) unless exceptional circumstances prevent transfer of the patient.

If a patient has **confirmed VHF** the following **URGENT** actions are required:

- **RESTRICT** the number of staff in contact with the patient and compile a list of all staff who have been in direct contact with the patient (Appendix 6, p 34).
- **ENHANCE** levels of personal protection for those in direct contact with the patient (App 3, page 28).
- **Linen for confirmed VHF cases** should be considered as disposable and must be treated and disposed of as Category A waste i.e. use the yellow clinical waste bags.

The Lead clinician should discuss urgently with the HLIU to arrange for the immediate transfer:

**Contact details:** Royal Free London NHS Foundation Trust, London.

**Telephone** (24 hours, ask for Infectious Disease Consultant on call). 020 7794 0500 OR 0844 848 0700

[www.royalfree.nhs.uk](http://www.royalfree.nhs.uk)

If, after discussion with the HLIU, it is judged that the condition of the patient precludes transfer to the HLIU, an immediate discussion with the Lead for Infection Control should take place regarding local risk assessment and control measures. Discussions with the Health and Safety Executive and experts at the HLIU are also necessary. Advice on managing a VHF positive patient in a non-HLIU environment is provided in the DH Guidance and can be accessed via the following link: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/534002/Management\\_of\\_VHF\\_A.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/534002/Management_of_VHF_A.pdf)

- **Notify** the infection control team of the positive VHF test result;
- Full public health actions to be launched in accordance with DH Guidance, including formation of an Incident Control Team (see below)

### **Formation and role of an Incident Control Team**

An Incident Control Team (ICT) will need to be convened and should include representatives from all involved parties, including the local public health body and the hospital Trust. The lead for this will depend on the particular situation.

The ICT will also need to:

- Inform PHE, as the UK competent body, that the VHF test result was positive;
- Determine who is responsible for the assessment, categorisation and management of contacts, including those outside the UK, the actions to be taken and the advice to be given;
- Determine who is responsible for media handling;
- Agree all key media messages between all parties.

### **Specimens from patients with confirmed VHF:**

**9.1** There are potential risks of infection to the healthcare worker associated with collecting and handling specimens from patients with confirmed VHF. The main risk of infection when collecting and handling specimens is direct contact with blood or body fluids from the patient, for example by accidental inoculation (needlestick) or contact with broken skin or mucous membranes.

**9.2** For patients with confirmed VHF, specimens taken for laboratory analysis should be kept to the minimum necessary for patient management and diagnostic evaluation. Specimens should be discussed in advance between clinicians and the appropriate specialist for each laboratory area. During specimen collection, standard infection control principles and practices should always be adopted. In addition, staff must select PPE in accordance with the risk category of the patient – see the patient risk assessment algorithm (p. 7 of this policy and is also in Section 5 and Appendix 8 of the national guidance that can be accessed via the following link: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/534002/Management\\_of\\_VHF\\_A.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/534002/Management_of_VHF_A.pdf)

**9.3 Healthcare waste** generated as a result of specimen collection from patients with confirmed VHF must be treated as Category A infectious waste. Waste should be dealt with in accordance to the guidance set out in [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/167976/HTM\\_07-01\\_Final.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/167976/HTM_07-01_Final.pdf). Appendix 11.

## **10. Identification of contacts**

It is a public health responsibility:

- To identify, assess, and categorise contacts of a patient with VHF;
- To ensure the appropriate monitoring of higher risk contacts;
- To arrange further evaluation for contacts who develop a temperature of  $\geq 37.5^{\circ}\text{C}$  within 21 days of the last possible exposure;
- To consider antiviral prophylaxis and arrange as necessary.

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A contact is defined as a person who has been exposed to an infected person or their blood and body fluids, excretions or tissues following the onset of their fever. This may include contacts that are not in the UK. For management of staff accidentally exposed see App 9 (p. 69) of the following link:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/534002/Management\\_of\\_VHF\\_A.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/534002/Management_of_VHF_A.pdf)

As soon as a patient has been categorised as confirmed VHF all those who have had contact with the patient should be identified as far as possible: complete the contact list – Appendix 6, p. 34.

## **11. VHF Sample Testing Advice**

Doctors requesting advice on testing samples from possible VHF cases should contact the Duty Microbiologist (available via switchboard) in the first instance.

If the case merits consideration based on this discussion, the Duty Microbiologist (Infection Consultant) should contact the Imported Fever Services (IFS) on 0844 7788990. **Access to VHF testing is only available through the IFS.**

The Rare and Imported Pathogens Laboratory (RIPL) **WILL NOT** accept samples for urgent VHF testing that have not been discussed with the local Duty Microbiologist and the IFS.

### **The IFS doctor will:**

- Discuss the case with the referring Infection Consultant to decide whether testing is required and make a risk assessment of the *likelihood* of the patient having a VHF infection. They will determine the degree of urgency, the samples to be taken and provide advice on the best way to transport samples to RIPL. They will also ensure that local laboratory staff can liaise directly with technical staff on packaging and specimen tracking.
- Discuss with the local Infection Consultant any immediate treatment to be instituted for likely differential diagnoses, isolation procedures and other investigations that should be undertaken locally and the safety of doing them in the particular case referred.
- Direct the referring clinician to inform the local health protection team (HPT) of the assessed *likelihood* of VHF infection and the plan for testing.
- Arrange with laboratory staff at RIPL for the samples to be tested and define the tests to be undertaken.

### **RIPL clinicians will:**

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- Inform the referring clinician of the results as soon as they are available and advise on the further clinical management of the case (including infection control) as appropriate).
- *In the event of a positive result, inform the referring clinician of the result first and request that the clinician inform the rest of their clinical team, laboratory, IPCT and other key contacts within their Trust. The referring clinician will be advised to contact their local HPT immediately and ask the Duty CCDC to phone the RIPL clinician. The RIPL clinician will also notify the clinical team at the Royal Free Hospital High Level Isolation Unit (HLIU) and relevant senior PHE staff by e-mail.*

### **Samples to take:**

**For VHF testing at RIPL, the minimum samples are:**

Serum (4.5mL serum separation gel tube)

EDTA blood (4.5mL EDTA tube)

Ideally, a urine sample as well. Testing should not be delayed to obtain a urine sample.

IFS / RIPL clinicians may also advise taking additional samples depending on exposure and presentation of the case, either in parallel with the VHF testing or dependent on the results.

**Paediatric samples:** the minimum sample is 1mL of blood for VHF testing (either screw top bottles or vacutainers are acceptable). However, a full imported infections screen at RIPL may not be possible with this amount and a larger volume is still preferred if possible.

## **12. Transport and packaging**

The IFS clinician will advise on whether samples are to be sent as **Category A** or as **Category B**. This will depend upon the likelihood of a VHF diagnosis from exposure history and the clinical presentation of the patient.

- Samples must be packaged according to the relevant international guidelines for UN2814 (Category A) or UN3373 (Category B). RIPL staff will provide advice to technical staff in the referring hospital on request.
- The RIPL request form can be found at the following link:  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/346000/P1\\_Rare\\_and\\_Imported\\_Pathogens.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/346000/P1_Rare_and_Imported_Pathogens.pdf)
- Samples are to be sent to RIPL at Porton Down at the following address:

**Rare and Imported Pathogens Laboratory**

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PHE Porton  
Manor Farm Road  
Porton Down  
Wiltshire SP4 0JG

Sending laboratories are asked to provide the testing laboratory with:

- The name of the courier
- The tracking number
- The estimated delivery time at Porton
- A completed request for (see above)

The Couriers you can use: (you may choose to use a courier known to you but the following organisations are known to provide both Category A and Category B transport.

<b>Courier</b>	<b>Telephone No:</b>
Topspeed Couriers	01565 631840 or 0800 856 2464 at any time
City Sprint	0844 888 4115 at any time
PDP Couriers	01784 420 466 at any time
DGI	0208 814 0404

**Availability of results:** for all urgent samples where it has been agreed to process the samples immediately on receipt, results are normally available within 4 to 6 hours of arrival in the laboratories and will be telephoned. At RIPL, the *complete* VHF panel results are usually available within 7 – 8 hours of arrival but any positives in the other real-time assays are usually available sooner and will be telephoned as soon as they are known.

Results are telephoned by a RIPL clinician as soon as they are available and the referring clinical team are ALWAYS informed first. Please do not call the RIPL clinical staff for results out of hours.

**Contacts:**

**Imported Fever Service: 0844 77 88 99 0**

This number automatically routes to the clinician's mobile phone. Please allow time for the connection to be made and for the doctor to answer it.

**RIPL on call clinician: 07789 031 672**

This also re-routes to the on-call person's phone so allow time.

**If all else fails or to contact RIPL laboratory technician: 01980 612 100**

PHE Porton switchboard will ensure that someone gets back to you.

### **13. Transfer of a Patient**

#### **Transfer of a patient within the UK**

- 13.1 Patients without confirmed VHF being transferred between hospitals (not HLIU) may be transported by standard means provided that they do not have bruising, bleeding, uncontrolled diarrhoea or uncontrolled vomiting.
- 13.2 The decision to transfer a patient to HLIU should be made by the senior clinician responsible for the patient's care, after consultation and agreement with clinicians at the HLIU to which the patient is to be transferred. Only patients with confirmed VHF should be transferred to the HLIU, however in exceptional circumstances patients may be transferred before the diagnosis is confirmed. The ambulance crew and staff must be made aware of the patient's clinical condition.
- 13.3 Transfer by road, in an ambulance, is the preferred option for all patients. Transfer to the HLIU will be arranged by the HLIU staff. VHF's are classified as Category 4 infectious diseases across all Ambulance Trusts in England, Scotland, Wales and Northern Ireland.
- 13.4 Transportation by Ambulance of patients with a Category 4 infectious disease will need to be carried out in accordance with a number of basic requirements for ambulance contents, PPE, decontamination and after care. These are outlined below and may be accessed via the following link:  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/534002/Management\\_of\\_VHF\\_A.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/534002/Management_of_VHF_A.pdf)

### **14. Additional Information**

#### **Cleaning**

Survival of viruses outside the body is dependent on several factors. For example, Ebola virus survival on different surfaces is dependent on a number of environmental factors (type of surface, humidity, light, concentration of virus present, etc.). It can survive for several hours when dried onto surfaces such as doorknobs and worktops, and up to several days in body fluids such as blood at room temperature. However it is easily inactivated at higher temperatures and by soap and water.

Materials or equipment requiring decontamination may be segregated and stored whilst awaiting PCR test results if facilities are available to do so safely.

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**For patients categorised as low possibility of VHF**, standard precautions, cleaning and decontamination procedures apply, including the treatment of laundry. A standard terminal clean of the side room is required on the patient's discharge, wearing appropriate PPE. Blood spillages must be cleaned using 1:1000 ppm chlorine releasing agent e.g. Tristel.

**For patients categorised as high possibility of VHF or who have a confirmed result, ensure that** decontamination and cleaning is conducted wearing appropriate PPE – see p. 28.

Following the discharge of a confirmed VHF positive patient, rooms where they have been nursed, in a non-specialist IDU, will also need to be decontaminated via fumigation (HPV clean).

### **Waste**

All waste from patients identified as high possibility of VHF infection must be classified as Category A infectious waste. The waste department should be contacted to arrange for separate collection – see App. 4, p. 30 for full details regarding waste disposal.

If results confirm patient as negative for VHF, waste can then be treated using standard precautions.

### **Linen**

Where a patient has a high possibility of VHF infection, disposable linen should be used. Where re-useable linen has been used, this must not be returned to the laundry but treated and disposed of as Category A Infectious waste.

## **15. Dissemination and Implementation**

This policy will be implemented via the following routes:

- Information regarding the policy will be disseminated to the Infection Prevention and Control Link Practitioners
- The policy will be included in the Trust's Document Library
- The policy will be circulated to all Ward Sisters/Charge Nurses/Departmental Managers and Matrons.

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## **16. Monitoring Compliance with this Procedural Document**

Element to be monitored	It is highly unlikely that this situation will occur. In the event of any suspected case each case will be monitored against the policy and reported to the HICC.
Lead	Infection Prevention & Control Team
Tool	Risk Assessment in this document
Frequency	as cases occur
Reporting arrangements	Information will be reported to the Hospital Infection Prevention & Control Committee
Acting on recommendations and Lead(s)	Required actions will be identified and completed within a month.
Change in practice and lessons to be shared	Via the HAI Performance Board

## **17. Training and Implementation**

Training will be carried out to all Trust staff by the IPCT via induction and risk management as well as targeted training sessions to key personnel/areas. This includes link infection prevention and control practitioners across the Trust who will then cascade the information to appropriate colleagues within their area/department. Targeted sessions will also include areas where patients develop CDI.

## **18. References**

Advisory Committee on Dangerous Pathogens (2014) . 'Management of Hazard Group 4 viral haemorrhagic fevers and similar human infectious diseases of high consequence'. Department of Health, London, November 2015.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/167976/HTM\\_07-01\\_Final.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/167976/HTM_07-01_Final.pdf)

## 19. Useful links

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/534002/Management\\_of\\_VHF\\_A.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/534002/Management_of_VHF_A.pdf)

'Management of Hazard Group 4 Viral Haemorrhagic Fevers and similar human infectious diseases of high consequence.' Advisory Committee on Dangerous Pathogens (ACDP), Nov 2015.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/365845/VHF\\_Africa\\_960\\_640.png](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/365845/VHF_Africa_960_640.png) (Map of affected areas in Africa)

<https://www.gov.uk/guidance/ebola-and-marburg-haemorrhagic-fevers-outbreaks-and-case-locations> (updated 2016)

<https://www.gov.uk/guidance/lassa-fever-origins-reservoirs-transmission-and-guidelines>

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/404112/Ebola\\_information\\_for\\_sewage\\_and\\_water\\_handlers\\_v2.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/404112/Ebola_information_for_sewage_and_water_handlers_v2.pdf)

<https://www.gov.uk/guidance/imported-fever-service-ifs>

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/404110/Ebola\\_guidance\\_for\\_individuals\\_at\\_risk\\_of\\_contact\\_with\\_human\\_waste\\_v2.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/404110/Ebola_guidance_for_individuals_at_risk_of_contact_with_human_waste_v2.pdf)

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/478115/VHF\\_Algo.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/478115/VHF_Algo.pdf) - updated Risk Assessment algorithm

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/506916/PHE\\_Microbiology\\_Services\\_VHF\\_Sample\\_Testing\\_Advice\\_REVISED\\_FOR\\_10mar2016.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/506916/PHE_Microbiology_Services_VHF_Sample_Testing_Advice_REVISED_FOR_10mar2016.pdf)

PHE Microbiology Services VHF Sample Testing Advice. Version 11, March 2016.

## APPENDIX 1

### Management in acute hospitals

Ebola should be suspected in individuals with a fever ( $>37.5^{\circ}\text{C}$ ), or history of fever in the previous 24 hours, who have visited an affected area within the past 21 days (or who has cared for or come into contact with blood or body fluids or clinical specimens from a live or dead individual or animal known or strongly suspected to have Ebola virus disease).



Individuals should be **isolated in a side-room straight away**.  
**CRH:** Minors 3 (old A/E plaster room).  
**HRI:** A/E Cubicle 5 or Cubicle 11  
S/he should not sit in the general waiting room before being assessed.



The ACDP risk algorithm should be reviewed and a **full history** should be taken by a clinician trained in the use of and wearing appropriate **PPE** (hand hygiene, gloves, plastic apron, fluid repellent surgical facemask and eye protection). The history should include details of travel history, return date to the UK, presenting symptoms and any contact with persons known or suspected to have Ebola infection.



If the clinician is concerned about possible Ebola virus disease, then the case should be discussed with the **Duty Microbiologist**.  
If the initial risk assessment indicates that there is a higher risk based on the patient's symptoms, then the **additional control measures** (i.e. increased PPE as specified in the ACDP guidance) will need to be put in place.  
**Relevant diagnostic tests** should not be delayed while awaiting the results of Ebola tests. These may include a malaria screen, FBC, U&Es, LFTs, clotting screen, CRP, glucose and blood cultures.



If appropriate the **Duty Microbiologist** will then contact the **Imported Fever Service** to discuss testing and further management issues.  
Further guidance is available at <https://www.gov.uk/ebola-health-guidance>



The **local health protection team** should be contacted if a patient is being tested for Ebola or if there are additional public health issues to discuss.  
The contact details for the local health protection team are: 0113 386 0300

### **Infectivity / Transmission**

The incubation period for VHF's can be between 2 – 21 days.

Communication with staff about potential infection risks is paramount. Staff must also be informed about and understand the risks associated with a VHF patient, for example

The severity of VHF if infection is confirmed.

That the virus may be present in:

- Blood
- Body fluids – including urine
- On contaminated instruments and equipment
- In waste
- On contaminated clothing
- On contaminated surfaces

That exposure to the virus may occur:

- **Directly** through exposure (broken skin or mucous membranes) to blood and / or body fluids during invasive, aerosolising or splash procedures
- **Indirectly** through exposure (broken skin or mucous membranes) to environments, surfaces, equipment or clothing contaminated with splashes or droplets of blood or body fluids.

Experts agree that there is no circumstantial or epidemiological evidence of an aerosol transmission risk from VHF patients (DH 2015).

**Symptoms** vary according to the type of virus but initially they generally include: fever, fatigue, dizziness, muscle aches and weakness.

Patients with severe disease may show signs of bleeding under the skin, from body orifices like the mouth, eyes and ears or into internal organs. Severely ill patients may also show signs of shock, kidney failure and nervous system malfunction including coma, delirium and seizures.

The risk for person-to-person transmission of VHF's is highest during the later stages of the illness when vomiting, diarrhoea and often haemorrhage may lead to splash and droplet generation.

Standard precautions and a high standard of infection control practices are paramount to ensure that staff are not put at risk whilst the initial risk assessment is carried out.

Patients can be managed more effectively if they are categorised according to level of infectivity and risk.

### **Donning and doffing PPE**

PPE should be chosen to ensure an adequate barrier to exposure is created and maintained. This will need to be taken into consideration when putting on the various items of PPE. After use, it should be assumed that PPE may be contaminated and an appropriate removal procedure is essential to prevent risks of exposure to the wearer. Consequently, a detailed and pre-defined sequence for donning and doffing items should be developed, implemented and monitored.

Staff should be trained in procedures to don and especially doff PPE, including the correct order to avoid cross contamination, and to check that the RPE with which they are provided fits properly. They must also receive clear instructions on when it is to be used and how it is to be disposed of or, as appropriate, decontaminated, maintained and stored. This training should be held regularly and training records should be kept for all participating individuals.

PPE should be donned before starting procedures likely to cause exposure and only doffed after moving away from a source of exposure.

PPE should not be a source of further contamination e.g. by being removed and left on environmental surfaces.

### **Don PPE in the following order: 'buddy' required to assist**

1. Change out of uniform into scrubs
2. Perform hand hygiene (alcohol hand gel to visibly clean hands)
3. Put on fluid repellent boiler suit (keep hood down)
4. Put on boot covers
5. Put on 1<sup>st</sup> pair of gloves (ensure cuffs of gloves are over boiler suit)
6. Put on gown – fastened at neck and back by 'buddy'
7. Put on FFP3 face mask – use the FFP3 mask you are fit tested for. If not fit tested and unfamiliar with reusable mask assembly, use disposable FFP3 mask.
8. Put on full face visor
9. Put hood up on boiler suit
10. Put on 2<sup>nd</sup> pair of surgical gloves (as longer cuffs)

### **Doff (remove) PPE in the following order – 'buddy' required to assist**

Doffing to take place in different room to patient:

CRH: clinic room opposite Minors 3

HRI: seated waiting area adjacent to Cubicle 11.

1. Remove outer gloves: place in yellow clinical waste bag
2. Buddy to untie gown at back of waist and then break / tear neck strap. Buddy steps back
3. Remove gown, rolling down and away from you to waist level
4. Remove arms from gown: MAKE SURE GLOVES STAY ON
5. Fold gown and place in yellow clinical waste bag
6. Remove boot / shoe covers (from back to front) and discard in waste bag

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7. Remove boiler suit – ensure gloves stay on and hands do not come into contact with scrubs or arms
8. Remove gloves and discard in waste bag
9. Perform hand hygiene with alcohol hand gel and allow to dry
10. Apply a new pair of gloves
11. Remove face visor (using elastic straps pulling from the back of the head)
12. Remove face mask (use elastic straps, pulling from the back of the head) – **place in a separate yellow clinical waste bag to be kept until VHF result is known**
13. Remove gloves
14. Perform hand hygiene with alcohol hand gel inside the room and outside the room
15. Change back to normal uniform – **scrubs should be placed in separate yellow clinical waste bag until VHF result known**

### **Disposal or decontamination**

Following removal, disposable PPE should be placed into the yellow clinical waste bags and treated as infectious waste. If re-usable PPE is unavoidable, it must be decontaminated using an appropriate method prior to storage. The method should be validated as effective against VHF and compatible with the PPE to ensure it is not damaged so that its effectiveness in subsequent use is not compromised.

### **Storage and Maintenance**

PPE should be suitably stored to prevent accidental damage and contamination. Infrequently used PPE should be subject to stock selection and control procedures with regard to shelf-life to ensure it is available for use at short notice with no deterioration in protective qualities.

## **Waste**

Definition: Category A Infectious Substances

Category A waste is defined as an infectious substance which is carried in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease to humans or animals. Indicative examples of substances that meet Category A criteria can be found at Pages 24-25 of the following link (CHFT Waste Management Policy).

<http://nww.cht.nhs.uk/fileadmin/intranet/policies/documents/491/G-10-2008%20-%20Waste%20Management%20Policy%20v5.pdf>

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/167976/HM\\_07-01\\_Final.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/167976/HM_07-01_Final.pdf)

## **Category B Infectious Substances**

Category B is defined as any other infectious substance that does not meet the criteria of Category A infectious substances.

- All waste bags within the room of a patient who is suspected of being infected with Ebola must be **Yellow clinical waste bags** (available in the Ebola boxes) which must then be double-bagged – see process below.



**UN approved heavy-duty clinical waste bag.**

- Porters should be notified immediately of any suspected Ebola cases: they will then deliver an extra 360 litre bin (For CRH) or 770 litre bin (for HRI) to the waste room (this should clearly be labelled **Cat A Waste**).
- Porters will also deliver a number of 'Wiva bins' and a linen skip (to be used to hold the yellow bags for waste disposal) to the outside of the room where the patient is being nursed.
- The yellow clinical waste bags must be placed in a 60 litre Wiva bin prior to removal from the ward / department area.

The following process should be followed in order to package the waste correctly.

## **Stage1**

- **Nurse 1 - Inside Isolation Room**

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- Place soft waste and linen into a yellow heavy duty clinical waste bag, ensuring the sack is only half full (primary sack). **Add absorbent Gel** e.g. Vernagel.
- Only soft/non-sharp items to go directly into bags — otherwise must be contained in sharps bin before bagging. As well as clinical sharps, this includes anything physically similar/liable to puncture bags e.g. used cutlery.
- Securely tie the clinical waste sack at the neck, dispelling as much air as possible.

## **Stage 2**

### **Nurse 2 - outside Isolation Room**

- Place absorbent material (Vernagel sachets) into bottom of wiva bin.
- Place an empty heavy duty yellow clinical waste sack (secondary sack) into a rigid leak-proof 60ltr Wiva bin with ½ of the sack folded over the opening of the container.
- Prepare a biobin with a heavy duty clinical waste bag for reusable facemasks and scrubs to be placed in after use. These should be sequestered until the diagnosis is made and should only be sent as Category A waste if a positive VHF result comes back.
- Nurse 1 places the primary sack into the secondary sack ensuring the bag will fit into the container. Nurse 1 moves away without touching the secondary sack.



**fold over 2<sup>nd</sup> bag.**

## **Stage 3**

- Nurse 2 dispels as much air as possible from the secondary sack and securely ties the sack at the neck; push down the sack leaving approximately 3 or 4 inch gap between the sack and the lid of the container.
- If the wiva bin is not filled to full volume, dunnage (e.g. cardboard, foam) should be added to prevent movement of contents.
- Nurse 2 places the lid onto the rigid leak proof 60ltr wiva bin and seals it shut, ensuring it is sealed correctly.
- Sharps boxes should be wiped down with a virucidal disinfectant (e.g. Tristel) and placed inside the wiva bin.
- Do not exceed certified max gross mass when filling [not a problem for 'soft' wastes, may need to be careful if putting in several smaller sharps bins].
- Continue the above process until all of the waste is securely sealed within the leak-proof containers.
- Wipe down the outside of the wiva bin with a virucidal disinfectant (e.g. Tristel).

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- Attach a filled out Category A waste / Emergency Contact label to the front of each individual bin (labels contained within the Ebola box).



**Complete emergency details**

#### **Stage 4 (for portering staff)**

- Will be wheeled 'cart' (770/360 50H 'wheelie bin')
- Must be filled with the more densely-filled 3rd-layer bins at bottom.
- 4th layer packaging must not enter the contaminated area.
- Voids to be filled with suitable, robust dunnage so that 3rd layer bins don't move around.
- Place into bulk bin and call portering services to swap when full.

Waste removed from the ward must be taken to the Category A waste secure **area**.



**PORTERS:** cover the UN3291 label and fit UN 2814 label.  
Label bins as 'Infectious Substance, Affecting Humans'.

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**APPENDIX 5: AFTER DEATH CARE:** please refer to Appendix 12 in the following link for full details:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/534002/Management\\_of\\_VHF\\_A.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/534002/Management_of_VHF_A.pdf)

**Key points:**

- Staff to wear suitable PPE – as for a ‘High Risk’ case.
- The body should be placed in a double body bag (plastic)
- Absorbent material should be placed in each bag e.g. Vernagel (this is available from the IPC Emergency out-of-hours cupboards or from the Ebola boxes in A/E).
- The outside body bag should be cleaned with Tristel
- The bag must be labelled ‘High risk of Infection’
- The mortuary staff must be informed.

