Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust

Hazard Group 4 Viral Haemorrhagic Fevers

This procedural document supersedes: PAT/IC 32 v.4 – Hazard Group 4 Viral Haemorrhagic Fevers

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Executive Sponsor(s):	David Purdue - Director of Nursing, Midwifery and Allied Health Professionals
Author/reviewer: (this version)	Dr K Agwuh – Consultant Microbiologist
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Approved by:	Infection Prevention and Control Committee
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Target Audience:	Trust-wide

Hazard Group 4 Viral Haemorrhagic Fevers

AMENDMENT FORM

Version	Date	Brief Summary of Changes	Author
5	21 October 2019	No new changes	Dr K Agwuh – Consultant Microbiologist
4	21 December 2016	• Update of Current Trust Structure from Clinical Service Units to Care Groups. • Update of VHF Algorithm section 7A • Update of cut-off temperature ≥37.5°C	Dr K Agwuh – Consultant Microbiologist
3	August 2014	Update on the viral Haemorrhagic fevers risk assessment flowchart page:10	Dr K Agwuh – Consultant Microbiologist
2	January 2013	• New style Trust format included. • Completely revised policy due to new guidance: The management of Hazard Group 4 viral haemorrhagic fevers and similar human infectious diseases of high consequence: Advisory Committee on dangerous Pathogens, July 2012.	Dr K Agwuh – Consultant Microbiologist
1	April 2011	New Policy, please read in full	Dr K Agwuh – Infection Prevention and Control

Contents

1. INTRODUCTION

Viral Haemorrhagic Fevers (VHF) refer to a group of illnesses that are caused by several distinct families of viruses and are endemic in a number of parts of the world including parts of Africa, South America, Eastern Europe and the Middle East. The term VHF is usually applied to disease caused by *Filoviridae* (Ebola and Marburg), *Flaviviridae* (Yellow fever, Dengue, Alkhurma haemorrhagic fever, Omsk haemorrhagic fever, Kyasanur forest disease), *Arenaviridae* (Lassa fever, Junin and Machupo), and *Bunyaviridae* (Crimean-Congo haemorrhagic fever, Rift Valley Fever, Hantaan haemorrhagic fevers).

They usually cause severe and life threatening diseases with high case-fatality rate. The incubation period ranges from 2-21 days. Symptoms usually include fever, which may be up to 41 degrees Celsius, malaise, headache, muscle and joint pains. Other symptoms such nausea, diarrhoea, vomiting, shock and haemorrhage occur especially during the latter stages of illness. They are difficult to recognise and detect rapidly. There is no effective treatment for VHFs currently.

The risk of person-to-person transmission of VHF is highest during the latter stages of infection. There is a risk of secondary infection with these diseases particularly among hospital and laboratory staff. Accidental inoculation may occur from needle stick or contamination of broken skin or mucous membrane by infected blood or body fluids. **Therefore, strict infection control precautions are required to protect those who may be exposed.** Epidemiological studies of VHF on humans indicate that the airborne route does not readily transmit the infection. On this note, the Advisory Committee on Dangerous Pathogens (ACDP) now recommend flexibility in the isolation of a patient with a VHF infection within a Specialist High Security Infectious Disease Unit (SHIDU) in the UK.

This policy is directed at the ACDP Hazard Group 4 Viral Haemorrhagic Fever viruses, which include the following on Table 1 (also showing their Geographical distribution and transmission routes / vectors.

Table 1: HAZARD GROUP 4 VIRAL HAEMORRHAGIC FEVER VIRUSES:

Family	Virus	Geographical distribution	Transmission routes/vectors
Flaviviridae	**Kyasanur forest disease**	**India, Western districts of Karnataka state.**	Bite of infected tick (Haemaphysalis spinigera) contact with infected animals.
	Alkhurma haemorrhagic fever	**Saudi Arabia, Mecca, Jeddah, Jizan, Najran regions.**	Contact with infected animal, bite of infected tick or mosquito
	Omsk haemorrhagic fever	**Russian Federation, Novosibirsk region of Saberia**	Bite of infected tick (Dermacentor retculatus) Person-to-person

Bunyaviridae		**Crimean Congo haemorrhagic fever**	**Central and Eastern Europe, Central Asia, the Middle East, East and West Africa,**	Bite of infected tick (most commonly Hyalomma ticks), contact with infected patients, their blood, fluids, and tissues.
Filoviridae		**Ebola**	**Western, Central and Eastern Africa.**	To index case via infected animals. Others via infected blood & body fluid.
		Marburg	**Central and Eastern Africa.**	As above (animal ?fruit bats)
Arena-virdae	**Old world**	**Lassa**	**West and Central Africa**	Contact with excreta or materials or inhalation of aerosols of infected multimammate rat (Mastomys spp.) Blood and body fluids, sexual contact.
		Lujo	**Southern Africa**	Transmission to index patient unknown, via blood or body fluids
	New World	**Chapare**	**Bolivia (one case to date)**	Direct bite infected rat or mouse Directed contact with excreta of infected rat or mouse Contact with materials e.g. food contaminated with infected rat or mouse excreta. Inhalation of aerosols of infected excreta of rat/mouse <u>Muchupo and Guanarito:</u> Contact with blood & body fluids
		Junin	**Argentina, Pampas region**	
		Sabia	**Brazil (one case to date)**	
		Guanarito	**Central Venezuela**	
		Machupo	**North eastern Bolivia, Beni**	

2. PURPOSE

This policy aims to assist staff working in accident and emergency as well as medical admission units in the hospital, who may assess patients with pyrexia of unknown origin (PUO) following a recent stay in countries where viral haemorrhagic fevers are endemic. Firm diagnosis solely on clinical grounds will be difficult, epidemiology is essential in assessing the feverish returning traveller with a history suggestive of VHF. It provides a brief guide to the assessment of such cases, and aims to provide efficient and timely management for patients, while preventing healthcare workers acquiring or exposing vulnerable patients to the infection. This Policy should be read in conjunction with other Infection Control Policies, particularly Hand Hygiene (PAT/IC 5), Isolation Policy (PAT/IC 16) and Standard Precautions (PAT/IC 19).

3. DUTIES

Each individual member of staff, volunteer or contracted worker within the Trust is responsible for complying with the standards set out in the Policy. They need to be aware of their personal responsibilities in preventing the spread of infection and should also continually assess whether they personally meet the required standards.

It is the responsibility of Divisions and Managers to ensure compliance with this standard. Infection Prevention and Control should be included in individual Annual Professional Development Appraisal.

Permanent staff groups include:

Managers
Medical Staff
Nursing Staff
Hotel and Site Services Staff
Administration Staff
Allied Health Professionals

4. INDIVIDUAL AND GROUP RESPONSIBILITIES

Divisions: are responsible for ensuring the policy is adhered to and for ensuring action is taken if staff fails to comply with the policy.

Matrons: Policy implementation assurance will be checked by reviewing audit results undertaken by the Infection Prevention and Control Team (IPC) and Ward Staff.

Ward and Department Managers: are responsible for ensuring all staff have read the policy and implement this within their area. Ward and Department managers will ensure the required number of assurance audits are undertaken as part of the IPC accreditation scheme.

The Infection Prevention and Control Team: is responsible for providing expert advice in accordance with this policy, for supporting staff in its implementation, and assisting with risk assessment where complex decisions are required.

Director of Infection Prevention and Control: Is responsible for implementing infection and prevention and control strategies throughout the Trust for embedding best practice.

Board of Directors: is responsible for ensuring the implementation of a Board to Ward culture and to support a Zero Tolerance approach to Health Care Associated Infections.

PATIENTS LACKING CAPACITY

Sometimes it will be necessary to provide care and treatment to patients who lack the capacity to make decisions related to the content of this policy. In these instances staff must treat the patient in accordance with the Mental Capacity Act 2005 (MCA 2005).

- A person lacking capacity should not be treated in a manner which can be seen as discriminatory.
- Any act done for, or any decision made on behalf of a patient who lacks capacity must be done, or made, in the persons Best Interest* see definitions.
- Further information can be found in the MCA policy, and the Code of Practice, both available on the intranet.

5. MODE OF TRANSMISSION

The following routes can transmit Viral Haemorrhagic Fever person-to-person:

- Direct contamination with body fluids such as vomit, urine, stool on broken skin/mucous membrane.
- Secretions of the respiratory tract if patient cough.
- Direct contamination with blood on broken skin/mucous membrane or via needle stick injury.

6. PATIENT ASSESSMENT AND CATEGORISATION

Risk assessment of a febrile patient with a travel or exposure history to a VHF endemic area with 21 days is a legal obligation. The Control of Substances Hazardous to Health (COSHH) regulations requires employers to assess risk to their employees in the work place. The risk to staff may change over time, depending on the symptoms of the patient, diagnostic tests results and / or information from other sources. Patients with confirmed VHF can deteriorate rapidly.

In the UK the following are at risk of infection from VHFs:

(i) Patients with travel history to an area where VHFs occur, and / or

(ii) Person been exposed to a patient or animal with VHF (including their blood, body fluids or tissues); or

(iii) Workers in a laboratory with the infectious agents of VHFs.

The risk assessment should be done by Emergency department consultant or admitting team consultant and in consultation with duty microbiologist, for patients with temperature (≥37.5ºC) or with fever in the previous 24 hours, with a travel history or epidemiological exposure with 21 days to VHF endemic areas. The viral haemorrhagic fever risk assessment algorithm as provided by the ACDP recent document should be strictly followed (Attached on next page). The algorithm will assist in categorising patient as one of the following:

- Highly unlikely to have a VHF
- Possibility of VHF
- High possibility of VHF
- Confirmed VHF

The clinician **MUST** consult a consultant microbiologist to discuss whether a patient presenting with a pyrexia of unknown origin, within three weeks of returning from abroad, can be admitted and investigated locally or whether transfer to an infectious Disease Unit at Sheffield is required, as VHF may be a possible diagnosis. However, in most cases this can be dismissed

on epidemiological grounds alone. The following information should be obtained from the patient:

- Date of return to the UK
- Date of onset of illness
- Details of illness
- Country and places visited
- Reason for the visit
- Any visit to rural areas?
- Any contact with illness consistent with VHF?
- Any contact with rodents, in particular rats?
- Any consumption or importation of bush meat into the country?
- Did the patient take anti-malarials regularly? Obtain further details if yes.

The categorisation of patients according to level of infectivity and risk is important in the management of suspected case of VHF:

6.1 Highly Unlikely to have a VHF:

- Includes patients who have not travelled to endemic areas before the onset of illness; or
- Patients who have travelled to endemic areas or had contact with a known or suspected source of VHF, but in whom the onset of illness occurred **> 21 days** after their last contact with this source.
- Patient have not become unwell within 21 days of coming in contact with the blood, body fluid or caring a live or dead individual or animal known or strongly suspected to have a VHF.
- If patient's malaria screen in the UK is negative and patient apyrexial after more than 24 hours.
- If patient's malaria screen in the UK is positive and they are responding to anti-malaria appropriately.
- If alternative diagnosis confirmed and patient responding appropriately.
- The risk of VHF in this group of patient should be reassessed if history of adequate exposure fails to improve and develops one or more of the following symptoms or complications:

    a. Bloody diarrhoea
    b. Nose bleed
    c. Sudden fall in platelets count
    d. Sudden rise in aspartate transaminase (AST)
    e. Increasing oxygen requirement in absence of other diagnosis
    f. Clinical shock.

6.2 Possibility of VHF:

- Lead clinician should be the responsible physician for managing patient.
- Urgent malaria screen and local diagnostic investigations e.g. urine, blood cultures, stool investigations, CXR etc. Continued as normal.

- Negative malaria screen, with continuing temperature of ≥37.5ºC and history of travel to at risk areas without diagnosis, initiate a VHF screen and contact HSIDU or Infectious Diseases Unit at Sheffield. To continue other investigation and daily assessment.

6.3 High Possibility of VHF:

- Lead clinician should be the responsible physician for managing patient.
- Clinical care procedures should be in place
- Enhanced infection control measures appropriate to symptoms of patient e.g. bleeding or uncontrolled vomiting or diarrhoea.
- Urgent malaria and VHF screen (on EDTA and clotted blood), and other local investigation as appropriate but with additional laboratory precautions, such as informing the laboratory staff before sample is sent, keeping the number of specimens to laboratory to the minimum necessary for any investigation.
- Initiate public health actions
- Positive VHF test will lead to urgent transfer to local HSIDU
- **Commence full public health actions.**
- Notify **NHS England Area Team's 1st on-call** via 01709 820000, if any case is assessed as, **'HIGH POSSIBILITY OF VHF'**

6.4 Confirmed VHF:

- Positive VHF screen patients should be managed in an HSIDU except where transfer of patient is prevented by exceptional circumstances. The lead clinician should discuss with nearest HSIDU to arrange for immediate transfer
    - High Security Infectious Disease Units:

      Royal Free Hampstead NHS Trust London (www.royalfree.nhs.uk)
      Pond Street, London NW3 2QG
      Telephone: 0207794 0500 or 0844 8480700
      (Ask for: **Infectious Disease Consultant on-call**, 24 hours phone line)

      The HSIDU at Newcastle upon Tyne Hospitals NHS Foundation Trust, is currently closed.

- Full public health action in place
- Testing of specimens after transfer of patient to be in a dedicated HSIDU laboratory.

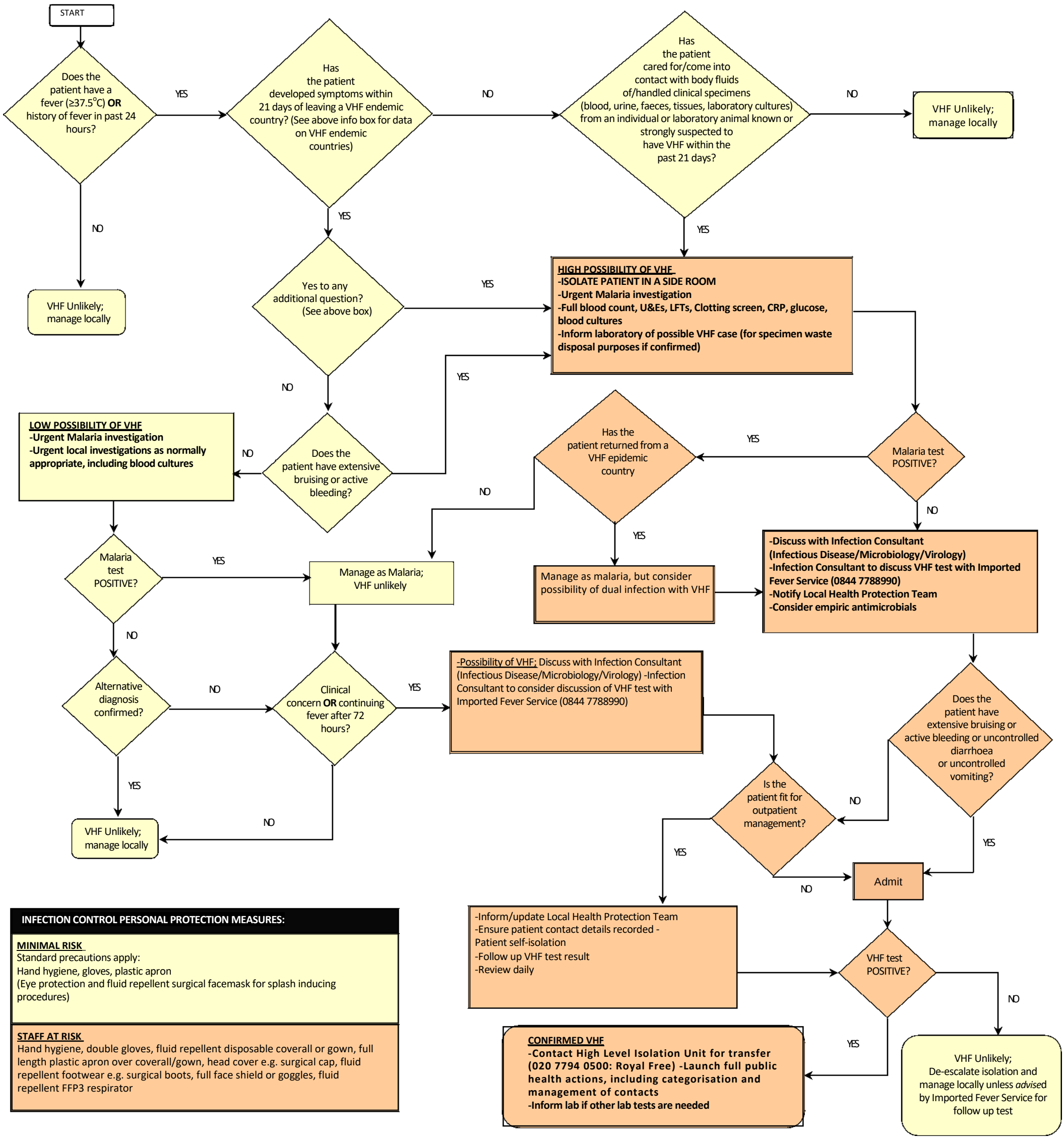
6.5 Blood Sampling:

Prior to taking any blood samples for investigation, please ensure that an appropriate patient risk assessment for VHF has been done. See PPE box in A&E or AMU for VHF alert or diagram below. Fill out a form to accompany samples to be sent to the laboratory for processing.
NOTE: samples may not be processed if form not signed by a consultant and discussed with microbiologist.

7.A VIRAL HAEMORRHAGIC FEVERS RISK ASSESSMENT (Version 6: 15.11.2015)

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

-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-outbreaksand-case-locations) **OR**
-Has the patient travelled in an area where Crimean-Congo Haemorrhagic Fever is endemic (http://www.who.int/csr/disease/crimeancongoHF/GlobalCCHFRisk20080918.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)

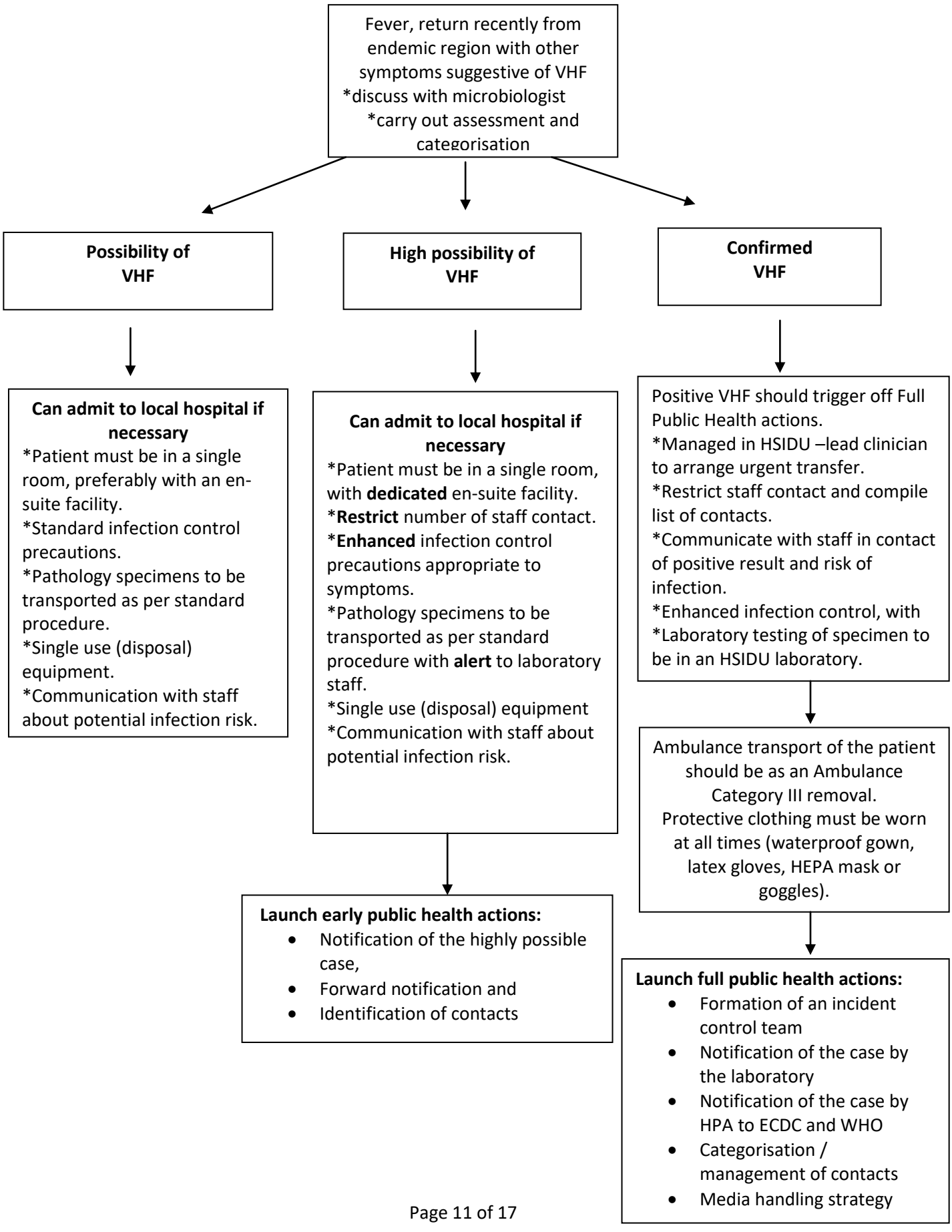


INFECTION CONTROL PERSONAL PROTECTION MEASURES:

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

7.B INFECTION CONTROL MANAGEMENT



8. DISINFECTION AND DECONTAMINATION

Linen from patients with suspected VHF must be double bagged and treated as "infected" PAT/IC 21. It is anticipated the linen will be incinerated.

The disinfectants currently used within the Trust for dealing with blood and body fluids are Peracide and a Chlorine-based disinfectant Haz Tabs.

Peracide is an agent that contains 'Peracetic acid' as the active chemical and is rapidly effective against viruses, fungi, bacteria and spores. Peracide is used for routine environmental /equipment cleaning on the wards, and high-risk areas such as Accident and Emergency. Peracide may be used on blood spillages refer to Spillage of Blood and other Body Fluids policy PAT/IC 18

A Chlorine-based disinfectant (Haz Tabs) is used within outpatients departments and communal areas outside wards. Haz Tabs disinfectant solution is expressed as parts per million (ppm) of available chlorine. A dilution of 10,000 ppm is required for treating blood spillages.

It may be necessary to quarantine the room utilised by High Possibility VHF patients for up to 24 hours if the patient is being tested for any causes of VHF at another hospital. If the diagnosis is confirmed, then specific advice on decontamination and waste disposal will be provided by the IPC team and waste manager. It is advisable to keep used linen and waste within the room until final result available or liaise with waste manager officer.

9. ADDRESSES AND TELEPHONE NUMBERS

High Security Infectious Disease Units (HSIDU)

Royal Free London NHS Foundation Trust, London
Pond Street
London NW3 2QG
Telephone: 0207 7940500 or 0844 8480700
www.royalfree.nhs.uk
(Ask for: Infectious Disease Consultant on –call, this is a 24 hour phone line)

High Security Infectious Disease Viral Diagnostic Laboratory – for viral screen

Rare and imported Pathogens Laboratory (RIPL)
Microbiology Services Division – Porton
Health Protection Agency
Porton Down, Salisbury Wiltshire
SP4 0JG
Telephone: +44 (0)1980 612100 (24 hour)

OR in unusual circumstances, where the RIPL lab is not available, samples may be directed to Colindale at the address below:

Health Protection Agency, Virus Reference Division
Central Public Health Laboratory
16 Colindale Avenue
London NW9 5HT
Telephone: 0208 200 4400 or +44 (0) 208 200 6868 (24 hour)

Consultant in Communicable Disease Control for South Yorkshire
Telephone: 0114 24208859

Consultant in Communicable Disease Control for cases a Bassetlaw area
Telephone: 0844 225 4524

10. TRAVEL HEALTH NETWORK

Further information on recent outbreaks of infections around the world can be obtained on the National Travel Health Network http://www.nathnac.org/

11. TRAINING / SUPPORT

The training requirements of all staff will be identified through a training needs analysis. Role specific education will be delivered by the service lead or nominated person.

It is recommended that Infection Prevention and Control should be included in individual Annual Development Appraisal and any training needs for IPC addressed.

12. MONITORING AND AUDIT

The Infection Prevention and Control Team will review this policy in the following circumstances:-

Monitoring	Who	Frequency	How Reviewed
The policy will be reviewed in the following circumstances		Every three years routinely, unless • When newly published evidence demonstrates need for change to current practice	Approved Procedural Document (APD) database. Policy will be approved and ratified by the Infection Prevention and Control Committee

Compliance with policy to negate cross-infection	The Infection Prevention and Control Practitioners	Weekly	"Alert organism review" to monitor adherence with the policy. Incidents where non-compliance with this policy is noted and are considered an actual or potential risk should be documented on an Adverse Incident and near miss report form.
Training needs for infection prevention and control	Ward and Department Managers Training and Education Department	Annually	Staffs Professional Development Appraisal. Attendance will be captured by the via OLM system.

13. DEFINITIONS

VHF - Viral Haemorrhagic Fevers.
Endemic - relation to disease that is constantly present to a greater or lesser degree in a particular locality.
Incubation Period - from the moment of exposure to an infectious agent until signs and symptoms of the disease appears.
Best Interest Assessment – A Best Interest assessment is determined on an individual patient basis. All factors relevant to the decision must be taken into account, family and friends should be consulted, and the decision must be in the Best interest of the individual. Please see S5 of the MCA code of practice for further information.

14. EQUALITY IMPACT ASSESSMENT

An Equality Impact Assessment (EIA) has been conducted on this procedural document in line with the principles of the Equality Analysis Policy (CORP/EMP 27) and the Fair Treatment For All Policy (CORP/EMP 4).

The purpose of the EIA is to minimise and if possible remove any disproportionate impact on employees on the grounds of race, sex, disability, age, sexual orientation or religious belief. No detriment was identified. See Appendix 2.

15. ASSOCIATED TRUST PROCEDURAL DOCUMENTS

This policy should be read in conjunction with other Trust Policies and protocols for the prevention and control of HCAI in line with the Health and Social Care Action 2008. In particularly:

- Control of Substances Hazardous to Health (COSHH) Guidance - CORP HSFS 7

- Glove Use Policy - CORP/HSFS 13
- Hand Hygiene - PAT/IC 5
- Health and Safety at Work - Medical Surveillance - CORP/HSFS 2
- Isolation Policy - PAT/IC 16
- Medical Devices Management Policy - CORP/PROC 4
- Medical Equipment Training Policy - CORP/RISK 2
- Mental Capacity Act 2005 - Policy and Guidance including Deprivation of Liberty Safeguards (DOLS) - PAT/PA 19
- Selection and Procurement of Medical Devices Policy - CORP/PROC 3
- Spillage of Blood and other Body Fluids PAT/IC 18
- Standard Infection Prevention and Control Precautions Policy - PAT/IC 19
- Waste Management Policy - CORP/HSFS 17 (A)
- Waste Management Manual – CORP/HSFS 17 (B)
- Mobile Communications Policy – CORP/HSFS 16
- Fair Treatment For All Policy - CORP/EMP 4
- Equality Analysis Policy - CORP/EMP 27.

16. DATA PROTECTION

Any personal data processing associated with this policy will be carried out under 'Current data protection legislation' as in the Data Protection Act 2018 and the General Data Protection Regulation (GDPR) 2016.

For further information on data processing carried out by the trust, please refer to our Privacy Notices and other information which you can find on the trust website: https://www.dbth.nhs.uk/about-us/our-publications/uk-data-protection-legislation-eu-general-data-protection-regulation-gdpr/

17. REFERENCES

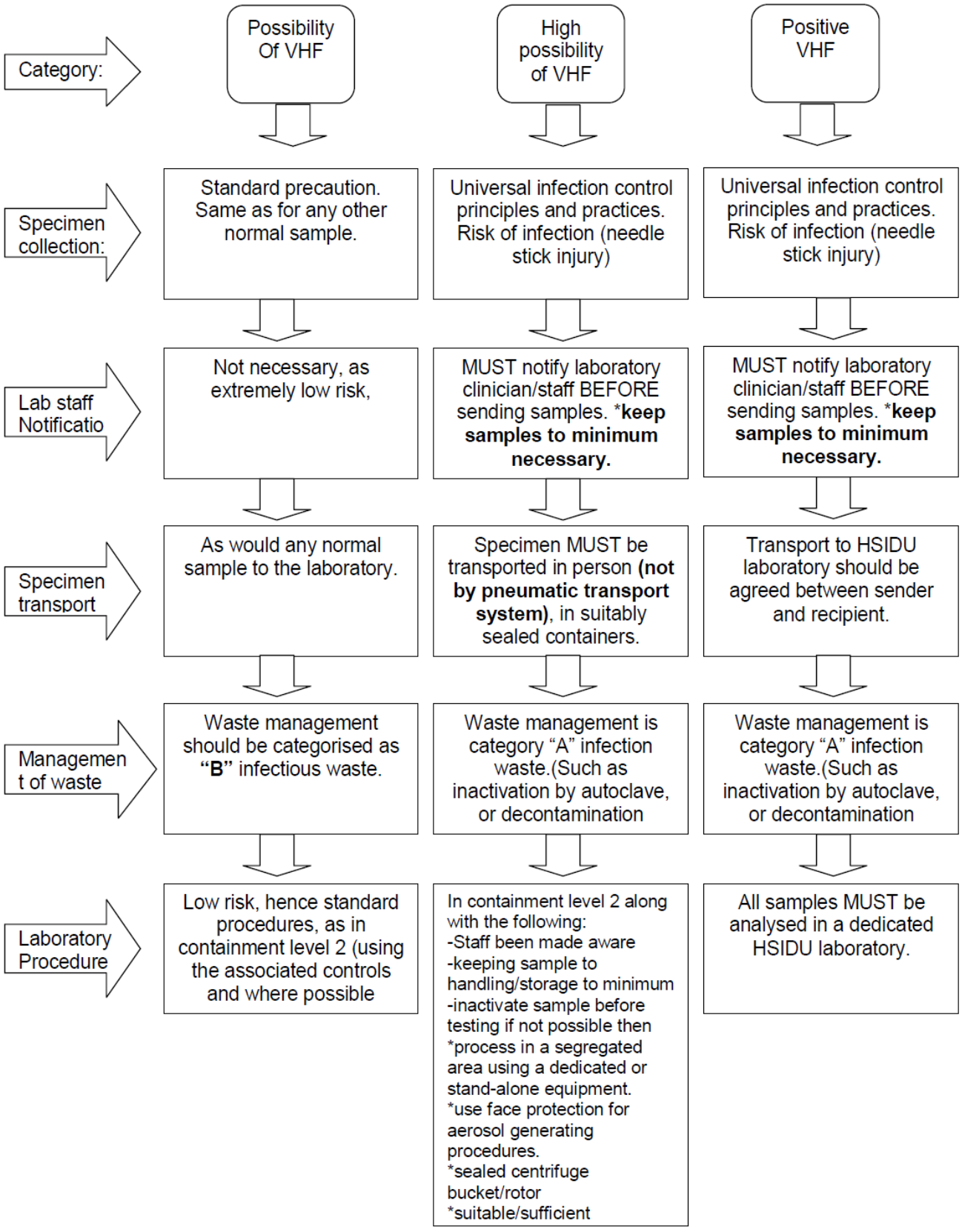
Management of Hazard Group 4 viral haemorrhagic fevers and similar human infectious diseases of high consequence: Advisory Committee on Dangerous Pathogens, November 2015.

Centre for Disease Control and prevention: **http://www.cdc.gov/mmwr/**

WHO HEALTH ORGANISATION: **http://www.who.int/topics/haemoorrhagic fevers viral/en/**

National Travel Health Network: **http://www.nathnac.org/**

APPENDIX 1 – SPECIMEN COLLECTION, HANDLING AND LABORATORY PROCEDURE



APPENDIX 2 - EQUALITY IMPACT ASSESSMENT PART 1 INITIAL SCREENING

Service/Function/Policy/ Project/Strategy	Division/Executive Directorate and Department	Assessor (s)	New or Existing Service or Policy?	Date of Assessment
Hazard Group 4 Viral Haemorrhagic Fevers	Corporate – Director of Nursing, Midwifery & Quality, Infection Prevention & Control	Dr K Agwuh – Consultant Microbiologist	Existing policy	October 2019

1) Who is responsible for this policy? Name of Division/Directorate - Infection Prevention & Control

2) Describe the purpose of the service / function / policy / project/ strategy? Who is it intended to benefit? What are the intended outcomes?
Policy updated using latest evidence to promote the safe management of patients with suspected/ confirmed haemorrhagic fevers.
It demonstrates the Trust commitment to provide staff with guidance maintain safe practice.

3) Are there any associated objectives? Legislation, targets national expectation, standards - Public Health England, World Health Organisation.

4) What factors contribute or detract from achieving intended outcomes? – Nil

5) Does the policy have an impact in terms of age, race, disability, gender, gender reassignment, sexual orientation, marriage/civil partnership, maternity/pregnancy and religion/belief? Details: [see Equality Impact Assessment Guidance] – No

- **If yes, please describe current or planned activities to address the impact** [e.g. Monitoring, consultation] –

6) Is there any scope for new measures which would promote equality? [any actions to be taken] - N/A

7) Are any of the following groups adversely affected by the policy?

Protected Characteristics	Affected?	Impact
a) Age	No	Neutral
b) Disability	No	Neutral
c) Gender	No	Neutral
d) Gender Reassignment	No	Neutral
e) Marriage/Civil Partnership	No	Neutral
f) Maternity/Pregnancy	No	Neutral
g) Race	No	Neutral
h) Religion/Belief	No	Neutral
i) Sexual Orientation	No	Neutral

8) Provide the Equality Rating of the service / function /policy / project / strategy – tick outcome box

Outcome 1 ✓	Outcome 2	Outcome 3	Outcome 4

If you have rated the policy as having an outcome of 2, 3 or 4, it is necessary to carry out a detailed assessment and complete a* **Detailed Equality Analysis form in Appendix 4

Date for next review: **October 2022**

Checked by: **B Bacon Infection Prevention & Control Practitioner** **Date: 16th October 2019**