Whittington Health NHS

Viral Haemorrhagic Fever Guideline

Subject:	Viral Haemorrhagic Fever
Policy Number	IPC/Micro 17
Ratified By:	Infection Prevention & Control Committee
Date Ratified:	18 September 2014
Version:	3
Policy Executive Owner:	Dr Michael Kelsey
Designation of Author:	Consultant Microbiologist
Name of Assurance Committee:	Infection Prevention and Control Committee
Date Issued:	September 2014
Review Date:	September 2017
Target Audience:	All clinical staff

Version Control Sheet

Version	Date	Author	Status	Comment
1	January 2009	Dr Michael Kelsey	In-active	
2	June 2013	Dr Michael Kelsey	In-active	• Review and substantial update to reflect change in guidance. • New template • Addition of policy monitoring tool • Addition of Appendices 1 and 2.
3	Sept 2014	Dr Michael Kelsey	Active	• Reviewed to incorporate information on Ebola and release of HSE/DoH guidance update of August 2014

➢ Criteria for use

This guideline is to be used by Emergency Department (ED), acute medical and intensive care staff who are assessing returning travellers with fever. Full guidance is to be found in "Management of Hazard Group 4 viral haemorrhagic fevers and similar human infectious diseases of high consequence: August 2014".

https://www.gov.uk/government/publications/viral-haemorrhagic-fever-algorithm-and-guidance-on-management-of-patients

➢ Introduction

- Viral haemorrhagic fevers (VHF) are severe, life-threatening diseases caused by a range of viruses.
- They are endemic in Sub Saharan Africa, South America, the Middle East and Eastern Europe. They have varying arthropod and animal hosts and are geographically restricted to the areas of their host species.
- They are NOT endemic in the UK. On average, there is just one imported case per year in the UK. The highest risk is in patients returning from Sub Saharan Africa.
- Humans become infected by contact with infected hosts or their body fluids. Humans are not natural hosts. Some of these viruses are capable of human to human transmission by direct contact with an infected patient or indirect contact with environments contaminated by blood or body fluids.
- Contact is defined as exposure to an infected person or their blood and body fluids, excretions or tissues following the onset of their fever.
- VHFs are of public health importance as they are capable of spreading within a hospital setting and have a high case fatality rate.
- Risk of secondary infection is principally amongst hospital and lab staff through needlestick injury or contamination of broken skin or mucous membranes by infected blood or body fluids. There has been one case of hospital acquired VHF in the UK which occurred in a laboratory worker who received a needle-stick injury.
- Strict infection control precautions are required but risk of epidemic spread in the general population is extremely low.
- All viruses are categorised as hazard group 4.
- Note: Other infectious diseases with haemorrhagic manifestations, including dengue, yellow fever and hantavirus, are not included in this guidance. They are hazard group 3 organisms. Please discuss with Microbiology if there is clinical suspicion of these infections.

➢ The Viruses

There are a large number of viral haemorrhagic fevers and there are likely to be more which have yet to be identified. The main diseases include Lassa, Ebola, Marburg and Crimean-Congo Haemorrhagic Fever (CCHF). Please see Appendix 2 for information about distribution and transmission of individual viruses.

➢ Clinical Presentation

- Incubation 3-21 days.
- Initial non specific symptoms: fever, headache, malaise, muscle pain, retrosternal pain, joint pain, nausea, vomiting.
- Haemorrhagic manifestations occur later in disease.

➢ Who To Risk Assess

- Risk assessment is a **LEGAL OBLIGATION.**
- The patient risk assessment should be led by a senior member of the medical team responsible for the acute care of the patient.
- Risk assess if :

  1) Patient has a fever or history of fever > 38°C within last 24 hours; **AND**
  2) An epidemiological exposure within the last 21 days:
     - Travel to an area where VHF is endemic).
     - Exposure to patient or animal infected with VHF or to their blood, body fluid or tissues.
     - Worked in a laboratory with the infectious agents of VHF.

- Patients are categorised into 4 groups. See flow chart in Appendix 1.

  - Unlikely to have a VHF
  - Low possibility of VHF
  - High possibility of VHF
  - Confirmed VHF.

- These categories then inform further management.

SEE FLOW CHART, APPENDIX 1 or
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/354641/VHF_algorithm_10_09_2014.pdf

ALL PATIENTS WITH POSSIBLE VHF OR HIGH POSSIBILITY OF VHF SHOULD BE DISCUSSED WITH MICROBIOLOGY and may need discussion with the High Level Isolation Unit (HLIU) team at the Royal Free Hospital.

➢ Management of the three classifications of risk of VHF

Unlikely to have a VHF

- Investigate patient for other cause of symptoms.
- Discuss with Microbiology if further infectious cause is considered.
- The risk of VHF in the patient should be reassessed if a patient with a relevant exposure history fails to improve or develops one of the following:
    - Nosebleed;
    - Bloody diarrhoea;
    - Sudden rise in aspartate transaminase (AST);
    - Sudden fall in platelets;
    - Clinical shock;

Rapidly increasing O2 requirements in the absence of other diagnosis.

Low possibility of VHF

ALL CASES SHOULD BE DISCUSSED WITH MICROBIOLOGY OR other Infection Doctor (Dr Richard Jennings or Dr Ben Killingley)

- Investigations:
    - Treat patient samples as standard samples:
        - FBC, U+E, CRP, LFT etc.
        - **Malaria film: by far the most likely diagnosis.**
        - VHF screen if malarial film is negative- EDTA and serum.
        - Urine, stool, blood cultures.
        - Imaging as dictated by symptoms and signs.
- If patient has bruising or bleeding, they should be reclassified as “high possibility of VHF” and discussed urgently with the Royal Free High Level Isolation Unit.
- Infection control:

  Side room and single use equipment:
    - Contact precautions- hand hygiene, gloves, apron:
        - If bruising/bleeding - surgical face mask and visor.
        - If potential aerosol/splash inducing procedures - FFP3 respirator.
    - Cleaning:
        - Standard cleaning and decontamination procedures (Hospital Environment Cleaning Policy).

- Waste disposal:
  - All waste to be double bagged in yellow bags. Treat waste as category B infectious waste.
- Lab safety:
  - No need to inform lab of specimens in advance.

- Notification:
  - Inform HPU as possible VHF.

- If malarial film is positive, treatment for malaria should begin immediately:
  - If clinical response→ reclassify patient as VHF unlikely.
  - If no clinical response→ consider dual diagnosis and test for VHF.

Infection control measures for 'low possibility of VHF'	
Staff protection	Control measures
Standard precautions	• Hand hygiene • Gloves • Plastic apron
Additional protection for splash inducing procedures	• Fluid repellent surgical facemask • Eye protection
Additional protection for potential aerosol generating procedures based on risk assessment for other infections known to be transmitted by aerosol.	• FFP3 respirator or EN certified equivalent • Eye protection

High Possibility of VHF

- **URGENT DISCUSSION WITH MICROBIOLOGY OR DR RICHARD JENNINGS.**

- Diagnostic investigations:
  - Urgent VHF screen (EDTA and serum) and malarial screen.
  - Keep other investigations to the minimum necessary for patient management and diagnostic evaluation. Discuss specimens with laboratory before they are sent so that original patient specimens can be retained and provision made

for disposal as category A waste in the event that VHF is subsequently confirmed.
    - Blood film slides for malaria testing should be disposed of in a dedicated sharps bin, which should be retained and processed as category A waste in the event that VHF is subsequently confirmed in any of the samples. After use, the work surfaces should be treated with 1,000 ppm available chlorine.

- Infection Control:

    - **SIDE ROOM (highest priority).**
    - Restrict number of staff in contact with patient.
    - No visitors.
    - Contact precautions: hand hygiene, gloves, apron, surgical facemask, disposable visor:

        - If bruising/bleeding/uncontrolled diarrhoea or vomiting:
            - double glove, disposable gown, FFP3 respirator.

        - If aerosol/splash inducing procedures:
            - FFP3 respirator.

    - Single use equipment including disposable bed linen and cutlery.
    - Waste disposal:

        - All waste to be double bagged in yellow bags. Treat waste as category A infectious waste - refer to the Waste Management Policy which is available on the intranet.
        - All equipment used for blood taking should be placed into a dedicated sharp's box for immediate sealing and disposal.

    - Cleaning:

        - Cleaners MUST wear personal protective equipment as detailed above. They may also need overshoes.
        - Blood and body fluid spillages should be dealt with as per the Hospital Environment Cleaning Policy – available on the intranet.
        - The room must be fumigated for the terminal clean.

    - Lab safety:

        - Discuss specimens with laboratory BEFORE THEY ARE SENT.
        - Transport specimens in sealed containers.

    - Clothing and shoes contaminated by patients body fluids (including those of health care workers) must be disposed of and treated as category A infectious waste.

- Notification:

    - Inform HPU: high possibility of VHF.

- Communicate risk to staff on ward and in laboratory.

- If bleeding, bruising, uncontrolled diarrhoea or vomiting: urgent discussion with the Royal Free HLIU for early transfer.

Confirmed VHF

Arrange URGENT transfer to the Royal Free HLIU.

- Infection Control:
    - As per high possibility of VHF AND:
        - Compile list of those in contact with patient and DISCUSS URGENTLY WITH INFECTION CONTROL TEAM.
    - Enhance levels of personal protection:
        - Hand hygiene.
        - Double glove.
        - Fluid repellent disposable gown.
        - Disposable visor.
        - FFP3 respirator.
    - In most cases, patients with a positive VHF screen will be transferred to an HLIU and specimens will be analysed at the dedicated HLIU laboratory. However, where transfer is delayed or considered inadvisable, the specimens may be processed in a containment level 2 laboratory using routine autoanalysers provided that the additional precautions outlined in Appendix 7 of the "Management of Hazard Group for Viral Haemorrhagic Fevers and Similar Human Infectious Diseases of High Consequence" can be followed.
- Notification:
    - Confirmed VHF.

Management of Staff Accidentally Exposed to Potentially Infectious Material

Initial first aid:

- Needlestick: encourage bleeding by squeezing affected area.
- Broken skin: Immediately wash area with soap and water.
- Mucous membranes: irrigate area immediately.

- Urgent discussion with Microbiology.

➢ Further information

Management of Hazard Group 4 Viral Haemorrhagic Fevers and Similar Human Infectious Diseases of High Consequence.

Advisory Committee on Dangerous Pathogens. Department of Health.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/343862/ACDP_VHF_guidance_12_08_20141.pdf

➢ Contacts (inside and outside the Trust including out-of-hours contacts)

Microbiology Department:

Dr Julie Andrews	Extension 3894
Dr Michael Kelsey	Extension 5082

Infection Prevention & Control: Extensions 3261/3661 Bleep 2669

High Level Isolation Unit- Royal Free Hampstead NHS Trust
020 7794 0500 - ask for the Infectious Disease Physician on-call

Reference laboratory - for VHF screen
Rare and Imported Pathogens Laboratory (RIPL) Public Health England
Porton Down
Salisbury, Wiltshire
01980 612 100 (24 hour)

➢ References (evidence upon which the guideline is based)

Management of Hazard Group 4 viral haemorrhagic fevers and similar human infectious diseases of high consequence

Advisory Committee on Dangerous Pathogens. Department of Health.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/343862/ACDP_VHF_guidance_12_08_20141.pdf

To be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval

		Yes/No	Comments
1.	**Does the procedural document affect one group less or more favourably than another on the basis of:**		
	• Race	No	
	• Ethnic origins (including gypsies and travellers)	No	
	• Nationality	No	
	• Gender	No	
	• Culture	No	
	• Religion or belief	No	
	• Sexual orientation including lesbian, gay and bisexual people	No	
	• Age	No	
	• Disability - learning disabilities, physical disability, sensory impairment and mental health problems	No	
2.	**Is there any evidence that some groups are affected differently?**	No	
3.	**If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?**	No	
4.	**Is the impact of the procedural document likely to be negative?**	No	
5.	**If so can the impact be avoided?**	N/A	
6.	**What alternatives are there to achieving the procedural document without the impact?**	N/A	
7.	**Can we reduce the impact by taking different action?**	N/A	

If you have identified a potential discriminatory impact of this procedural document, please refer it to the Director of Human Resources, together with any suggestions as to the action required to avoid/reduce this impact.

For advice in respect of answering the above questions, please contact the Director of Human Resources.

Checklist for the Review and Approval of Procedural Document

To be completed and attached to any procedural document when submitted to the relevant committee for consideration and approval.

	Title of document being reviewed:	Yes/No	Comments
1.	**Title**		
	Is the title clear and unambiguous?	Yes	
	Is it clear whether the document is a guideline, policy, protocol or standard?	Yes	
2.	**Rationale**		
	Are reasons for development of the document stated?	Yes	
3.	**Development Process**		
	Is it clear that the relevant people/groups have been involved in the development of the document?	Yes	
	Are people involved in the development?	Yes	
	Is there evidence of consultation with stakeholders and users?	Yes	
4.	**Content**		
	Is the objective of the document clear?	Yes	
	Is the target population clear and unambiguous?	Yes	
	Are the intended outcomes described?	Yes	
5.	**Evidence Base**		
	Are key references cited in full?	N/A	
	Are supporting documents referenced?	N/A	
6.	**Approval**		
	Does the document identify which committee/ group will approve it?	Yes	
7.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	Yes	
8.	**Document Control**		
	Does the document identify where it will be held?	Yes	
9.	**Process to Monitor Compliance and Effectiveness**		
	Are there measurable standards or KPIs to support the monitoring of compliance with and	Yes	

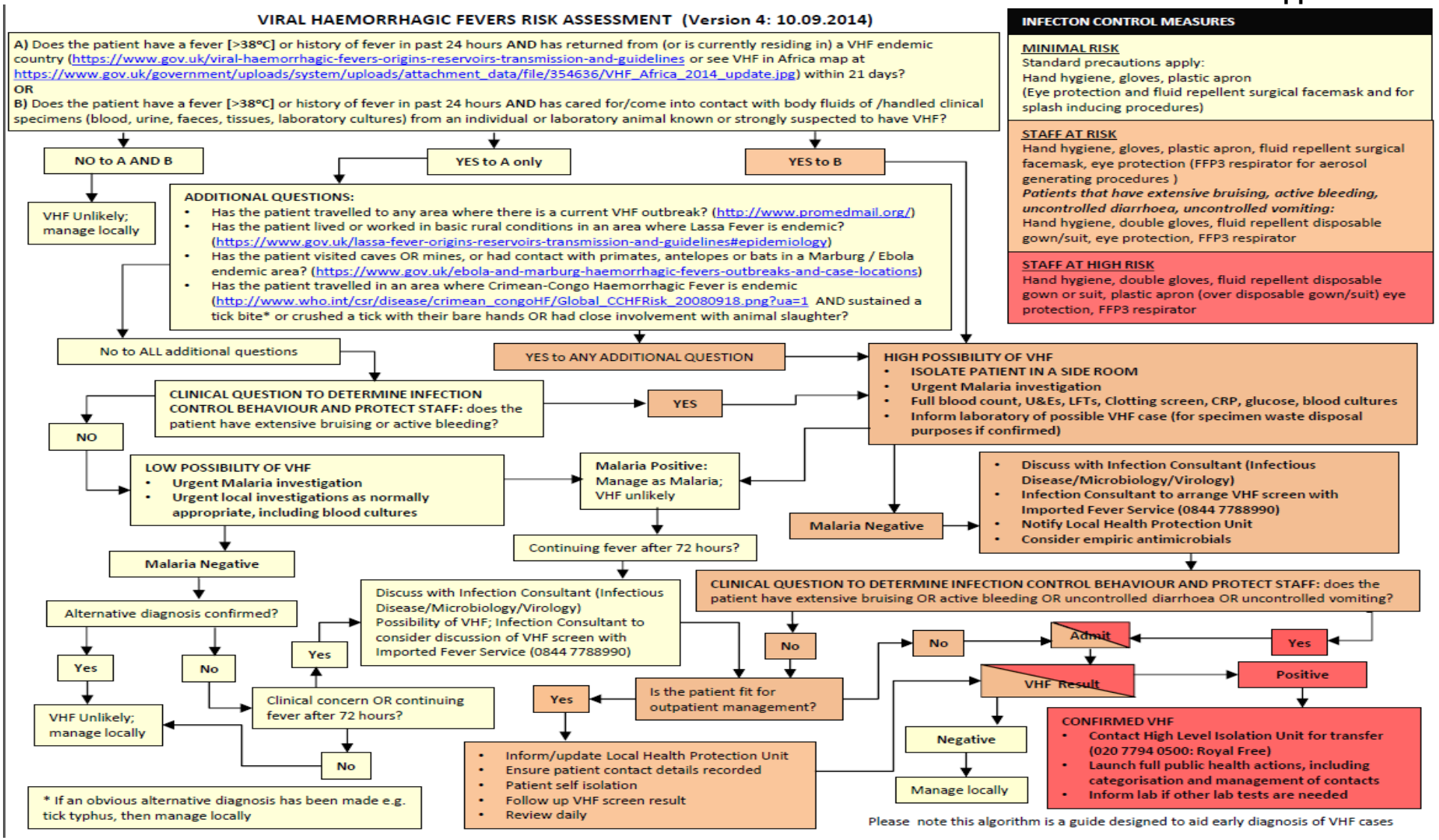
	Title of document being reviewed:	Yes/No	Comments
	effectiveness of the document?		
	Is there a plan to review or audit compliance with the document?	Yes	
10.	**Review Date**		
	Is the review date identified?	Yes	
	Is the frequency of review identified? If so is it acceptable?	Yes	
11.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for co-ordinating the dissemination, implementation and review of the document?	Yes	

Executive Sponsor Approval			
If you approve the document, please sign and date it and forward to the author. Procedural documents will not be forwarded for ratification without Executive Sponsor Approval			
Name		Date	
Signature			
Relevant Committee Approval			
The Director of Nursing and Patient Experience's signature below confirms that this procedural document was ratified by the appropriate Governance Committee.			
Name		Date	
Signature			
Responsible Committee Approval – only applies to reviewed procedural documents with minor changes			
The Committee Chair's signature below confirms that this procedural document was ratified by the responsible Committee			
Name		Date	
Name of Committee		Name & role of Committee Chair	
Signature			

Tool to Develop Monitoring Arrangements for Policies and Guidelines

What key element(s) need(s) monitoring as per local approved policy or guidance?	**Who will lead on this aspect of monitoring?** **Name the lead and what is the role of the multidisciplinary team or others if any.**	**What tool will be used to monitor/check/observe/Assess/inspect/ authenticate that everything is working according to this key element from the approved policy?**	**How often is the need to monitor each element?** **How often is the need complete a report ?** **How often is the need to share the report?**	**What committee will the completed report go to?**
Element to be monitored	**Lead**	**Tool**	**Frequency**	**Reporting arrangements**
Identification of travellers returning from endemic countries with fever starting within 21 days of return in whom no alternative diagnosis is established.	Medical staff in Microbiology	Requests to Microbiology are monitored for these events. If detected and no appropriate action has been taken by the admitting team, corrective action will be taken by the medical microbiology staff and a Datix report made.	These incidents are infrequent and when discovered corrective action taken. We would anticipates one such error per year.	Infection Prevention and Control Committee

Appendix 1



From: Management of Hazard Group 4 viral haemorrhagic fevers and similar human infectious diseases of high consequence Advisory Committee on Dangerous Pathogens. Department of Health.

Viral Haemorrhagic Fever Guideline, Dr Michael Kelsey, Consultant Microbiologist, Sept 2014, Version 3

Appendix 2

The Commonest VHFs https://www.gov.uk/viral-haemorrhagic-fevers-origins-reservoirs-transmission-and-guidelines

1) Lassa:
   - Majority of cases imported to the UK (13 since 1971).
   - West and Central Africa.
   - Transmission:
     - Contact with excreta or materials contaminated by excreta of multimammate rat.
     - Inhalation of aerosols of excreta of multimammate rat.
     - Contact with blood or body fluids from infected patients.
   - Ribavirin may be effective.

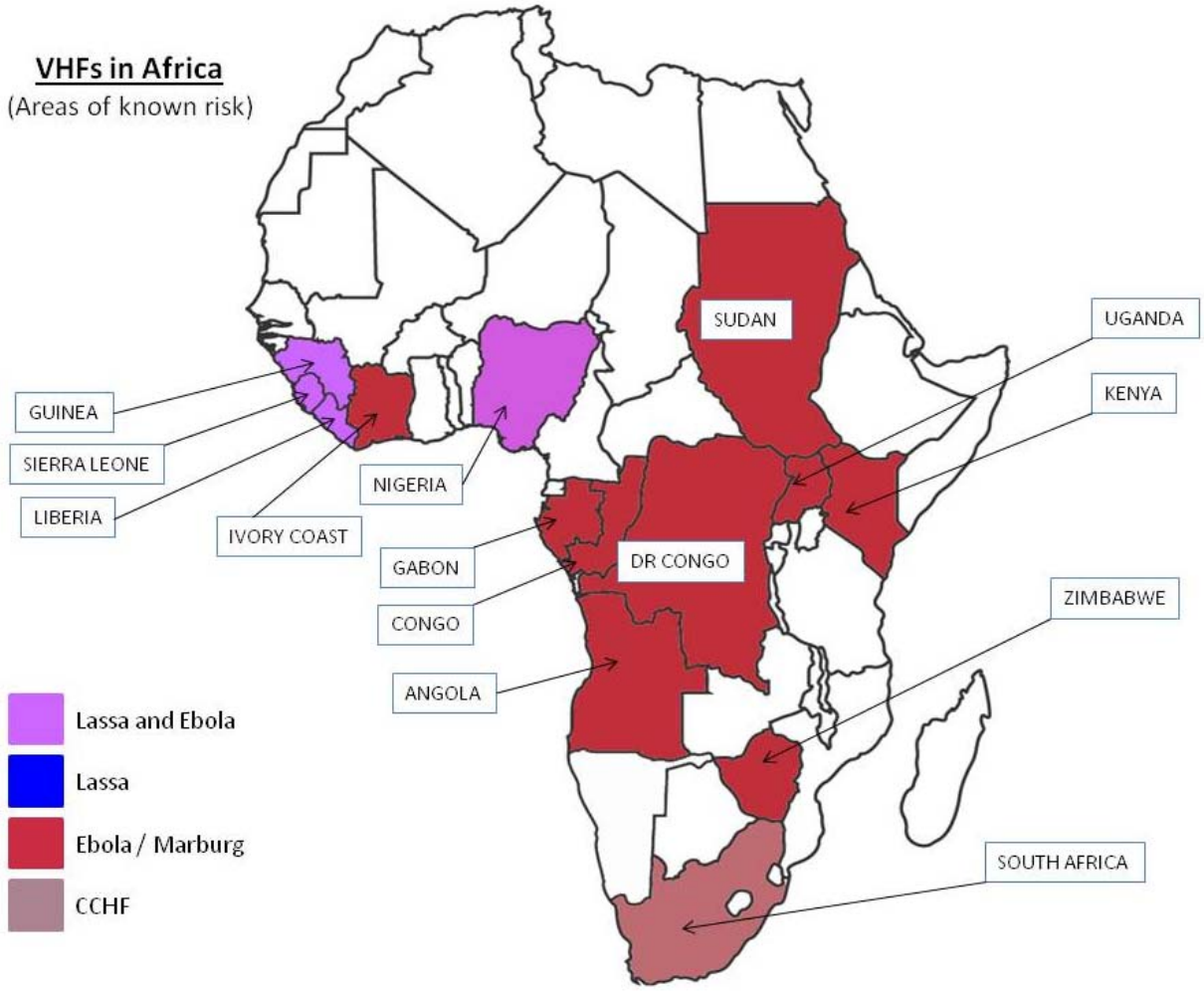
2) Ebola:
   - One imported case to the UK.
   - Western, Central and Eastern Africa:
     - DRC, Sudan, Uganda, Gabon, Cote D'Ivoire, Republic of Congo.
   - Natural reservoir unknown.
   - Transmission:
     - Contact with infected animals (?monkeys).
     - Contact with infected blood or body fluids.
   - Mortality >60%.

3) Marburg:
   - No imported cases to the UK.
   - Central and Eastern Africa:
     - Angola, DRC, Kenya, Uganda, South Africa.
   - Transmission:
     - Contact with infected animals -? Fruit bats.
     - Contact with infected blood or body fluids.

4) Crimean/Congo Haemorrhagic fever:
   - One imported case to the UK – 2012.
   - Central and Eastern Europe, Central Asia, Afghanistan, the Middle East, East and West Africa.
   - Transmission:
     - Bite of infected tick.
     - Contact with infected patients and their body fluids.
     - Contact with blood or tissues from infected livestock.

5) South American Haemorrhagic fevers:
   - No known imported cases to the UK.
   - Bolivia, Venezuela, Argentina, Brazil.
   - Transmission:
     - Bite from infected rat/mouse.
     - Contact with excreta or materials contaminated by excreta from infected rat or mouse.
     - Inhalation of aersols of excreta of rat or mouse.
     - Contact with blood or body fluids from infected patients.

6) Flaviviridae:
   - Including:
     - o Kyasanur forest disease: Karnataka, India.
     - o Alkhuma haemorrhagic fever: Saudi Arabia.
     - o Omsk haemorrhagic fever- Siberia.



From Public Health England