Management and Control of Viral Haemorrhagic Fevers Policy - HH(1)/IC/647/13

Document Summary

This document describes the management of Viral Haemorrhagic Fevers (VHF) to eliminate or minimise the risk of transmission to healthcare workers and to others coming into contact with a suspected or known case.

It is based on national guidelines produced by the advisory committee on dangerous pathogens. The Consultant in communicable diseases control and the infection prevention and control team will provide detailed advice on the management of cases and should be notified as soon as possible.

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1. Introduction

This document is concerned only with those agents of Viral haemorrhagic fevers (VHF) that are known from experience to be readily capable of person-to-person spread and which, therefore, may present a risk to the public health in the UK.

Currently, there are only four such agents of VHF which are of concern in the UK: an arenavirus, Lassa fever; a bunyavirus, Crimean/Congo haemorrhagic fever (CCHF); and two members of the filovirus family, Ebola and Marburg viruses.

The likelihood and severity of haemorrhagic disease varies greatly between these infections but they are of particular importance because of their proven ability to spread within a hospital setting, the often high case-fatality rate, and difficulties in their recognition and treatment.

Other viruses can cause VHF in humans, but although occasional reports indicate that person to person spread has occurred with some of these agents, they have not been imported into the UK, and do not present the same risk to public health. Appendix B gives a summary of all the agents of VHF.

Of all the agents of VHF, the Flaviviridae have been known the longest and include those mosquito-borne viruses causing yellow fever and dengue, and the tick-borne agents responsible for Kyasanur forest disease and Omsk haemorrhagic fever. Agents that have come to light more recently belong to four families: Arenaviridae, Bunyaviridae, Togaviridae and Filoviridae (see Appendix B).

For example, there has been an expansion of Hantaan viruses responsible for a variety of renal and pulmonary syndromes. Viruses in all these families circulate naturally in various populations of certain animals. It is uncommon for them to spread directly from human to human. Epidemics in the human population are linked to the presence of the animals that serve either as reservoirs or sometimes as vectors for these infections.

It is essential that infection control is seen as an organisational responsibility and priority, that adequate isolation facilities and resources are provided, and that appropriate infection control staff and support services are available.

2. Purpose

This policy describes the management of Viral Haemorrhagic Fevers (VHF) to eliminate or minimise the risk of transmission to healthcare workers and to others coming into contact with a suspected or known case.

It is based on national guidelines produced by the advisory committee on dangerous pathogens. The Consultant in communicable diseases control and the IPCT will
provide detailed advice on the management of cases and should be notified as soon as possible.

3. Scope
This policy extends to cover and will be applied fairly and consistently to all employees and service users regardless of their protected characteristics as defined by the Equality Act 2010 namely, age, disability, gender reassignment, race, religion or belief, gender, sexual orientation, marriage or civil partnership, pregnancy and maternity. For employees this policy also applies irrespective of length of service, whether full or part-time or employed under a permanent or a fixed-term contract, irrespective of job role or seniority within the organisation.

Where an employee or service user has difficulty in communicating, whether verbally or in writing, arrangements will be put in place as necessary to ensure that the processes to be followed are understood and that the individual is not disadvantaged during the application of this policy.

In line with the Equality Act 2010, the Trust will make reasonable adjustments to the processes to be followed where not doing so would disadvantage an individual with a disability during the application of this policy.

This policy complements professional and ethical guidelines and the Nursing and Midwifery Council (NMC) Code of Professional Conduct (NMC 2008).

4. Explanation of Terms
Viral haemorrhagic fevers (VHF) - severe and life-threatening diseases caused by a range of viruses. Most are endemic in a number of parts of the world, most notably Africa, parts of South America and some rural parts of the Middle East and Eastern Europe. However, environmental conditions in the UK do not support the natural reservoirs or vectors of any of these viruses and cases of VHF are extremely rare in the UK, all recorded cases have been acquired abroad.

Close Contact - Close contact is defined as: those who after the time of onset of the patient’s illness:
- had direct contact with the patient’s blood, urine or secretions, with or without clothing, bedding or other fomites soiled by the patient’s blood, urine or secretions (not including saliva)
- cared for the patient or handled specimens from the patient for example, household members, nurses, laboratory staff, ambulance crew, doctors or other staff
- had direct contact with the body of a person who had died of VHF either proven or in high/moderate risk category
- had direct contact with an animal infected with VHF, its blood, body fluids or corpse
5. Duties

Post-holders

**Chief Executive Officer (CEO)** - The CEO has overall responsibility for the strategic and operational management of the Trust ensuring there are appropriate strategies and policies in place to ensure the Trust continues to work to best practice and complies with all relevant legislation with regard to the management of VHF.

**Director of Infection Prevention and Control (DIPC)** – The DIPC is the Trust Director responsible to the board for the delivery of IPC standards and together with the Chief Executive should ensure that arrangements are in place according to this policy for the management of patients suspected or confirmed of having VHF and the prevention of spread to other patients and healthcare workers who might come in contact with the patients. They should ensure arrangements are in place for referral to appropriate national isolation units when indicated.

**Consultant in Communicable Diseases Control, Public Health England (PHE) Centre** - PHE is responsible for convening an incident/outbreak control group in conjunction with the IPCT to ensure appropriate management of the case and contacts.

**Director of Nursing** - The Director of Nursing will ensure that the Divisional Directors take clinical ownership of the policy.

**Divisional Operational Directors** - The Divisional Operational Directors will ensure that all healthcare workers comply with this policy and that all healthcare workers attend mandatory infection prevention and control training. They are responsible for ensuring adequate facilities and resources are available to adhere to this policy.

**Clinical Service Managers/Leads** - The Clinical Service Managers/Leads will ensure that a printed copy of this policy is available in all of their areas. They will ensure that all healthcare workers comply with this policy and that all healthcare workers attend mandatory infection prevention and control training. They will ensure adequate equipment as described in this policy is in place to ensure safe management of the patients and should facilitate transfer to appropriate units when indicated. They are also responsible for referring staff to Health4Work for advice if they come in contact with a case.

**Clinical teams** - Clinical teams looking after the patient are responsible for notifying the IPCT and the PHE Centre after undertaking a risk assessment. Notification should be made on suspicion and before diagnosis is confirmed. All clinical staff should seek and ensure training on management of VHF. They should adhere to this policy.

**All Trust employees** - All Trust employees will comply with this policy and inform the Infection Prevention and Control Team about any issues or concerns relating to the policy. All staff will attend mandatory Infection Prevention and Control training annually.
Committees/Groups

Infection Prevention and Control Team (IPCT) - The IPCT will act as a resource for information and support. They will provide education in relation to this policy which includes mandatory training. They will monitor the implementation of this policy via audit within clinical areas and be responsible for regularly reviewing and updating it.

Health4Work department - Health4Work will act as a resource for information, and support and consult with managers, the Infection Prevention and Control Team and health care workers regarding the use of personal protective equipment. Health4Work should ensure staff who are contacts of a case or are infected or suspected of having an infection with a VHF are given appropriate advice as per this policy.

Health and Safety Team - The Health and Safety team will act as a resource for information, and support and consult with managers, the Infection Prevention and Control Team and healthcare workers regarding the use of personal protective equipment.

Infection control is the responsibility of ALL staff associated with patient care. A high standard of infection control is required on ALL wards and units, although the level of risk may vary. It is an important part of total patient care. They have a duty to inform their line manager and Health4Work if they come in contact with a case of VHF, are suspected of being infected or have travelled to a high risk area. They should report all potentially infectious illnesses relating to VHF to Health4Work.

6. Who is at risk?

There is no known animal reservoir in the UK which could constitute a source of infection with Lassa, CCHF, Marburg or Ebola fevers. Therefore, the likelihood of epidemic spread in the general population is negligible. However, infections may be acquired abroad or, very rarely, in a laboratory setting, or from an imported animal. The main risk is in returning travellers. Bioterrorism is another potential source.

There is a risk of secondary infection with these diseases, particularly amongst hospital and laboratory staff, where there is the possibility of accidental inoculation or contamination of broken skin or mucous membranes by infected blood or body fluids.

When a case of VHF occurs, a range of occupations may be involved in dealing with it. These include: general practitioners, community nurses, emergency department (ED) staff, laboratory workers, ambulance staff, ward staff, mortuary staff, staff in isolation units, funeral personnel.

7. The viruses

Lassa fever
Discovered in 1969 in Lassa/Nigeria. The incubation period of Lassa fever is usually 7-10 days but a range of 3-17 days has been recorded. A range from 3-21 days should be taken for control purposes. The onset of illness is insidious, with fever and shivering accompanied by malaise, headache and generalised aching. A sore throat is a common early symptom. In some cases the tonsils and pharynx may be inflamed with patches of whitish or yellowish exudate and occasionally small vesicles or shallow ulcers.

Importantly a similar appearance may be seen in cases of malignant tertian malaria. As the illness progresses the temperature may rise to 41°C with daily fluctuations of 2-3°C. The duration and severity of fever is very variable. The average duration is 16 days but extremes of 6-30 days have been reported. A feature of severe attacks is lethargy or prostration disproportionate to the fever.

During the second week of illness, there may be oedema of the face and neck, pleural effusion and ascites. Vomiting and diarrhoea may aggravate the effects of renal and circulatory failure. In the severest cases bleeding into the skin, mucosae and deeper tissues presages death. In non-fatal cases the fever subsides and the patient’s condition improves rapidly though tiredness may persist for several weeks. There is usually a leucopenia although a high polymorphonuclear leucocytosis is encountered occasionally. A common late complication of sensorineural deafness has been identified recently.

**Methods of transmission**
Lassa fever virus causes chronic symptomless infection in its natural host (the multimammate rat (*Mastomys natalensis*) with viral excretion in urine. In rural West African villages spread is probably through contamination of broken skin or mucous membranes, either through direct contact with the urine of infected rats or through indirect contact with materials or food contaminated by rat urine.

Person-to-person spread has been described especially within hospitals in West Africa. This has been caused by accidental inoculation of blood or tissue fluid by contaminated needles or instruments, by intimate personal contact and by close exposure to pharyngeal secretions. Patients may continue to excrete virus in body fluids up to a few months post-recovery, but there are no cases of chronic or persistent infection in humans.

**Treatment**
Intensive supportive measures help to reduce mortality. Antiviral drugs such as tribavirin reduce, but do not abolish viraemia. There may be reduction of mortality by 60% in severe cases, particularly if treatment is started early in the course of infection. Antiviral treatment does not abolish either viraemia or viruria in convalescence. The prophylactic use of such an antiviral drug may however prevent or delay disease in exposed contacts.

**Ebola fever**
Ebola haemorrhagic fever was discovered in 1976 during simultaneous outbreaks in northern Zaire and southern Sudan, causing widespread international concern. Outbreaks in other parts of Africa occurred in 1990s.

Clinical features
The incubation period of the Ebola virus infections in the outbreaks in Africa was around 7 days with extremes of 4-16 days. The onset of illness is abrupt with shivering and a rapid rise in temperature accompanied by severe headache, backache and muscle and joint pains. Gastro-intestinal disturbances may be a presenting feature, but more commonly commence on about the third day with anorexia, nausea, vomiting and diarrhoea. The stools are watery and sometimes contain blood and mucus. Profuse diarrhoea may continue for several days and will lead to severe dehydration unless treated. After 3-8 days many patients develop a morbilliform rash, which persists for 4-14 days and is followed by fine desquamation. The throat and conjunctivae may be inflamed and small transparent lesions resembling tapioca granules may be present on the soft palate. Many patients bleed spontaneously and renal failure is common in fatal cases.

As the disease progresses, severe thrombocytopenia, neutrophilia and leucopenia develop accompanied by elevated levels of aspartate aminotransferase. Within a few days of onset of symptoms, patients show signs of alteration in mental state and extreme lethargy, and usually become critically ill. In fatal cases, death generally occurs at the beginning of the second week. In non-fatal attacks the fever subsides after 10-20 days, although the patient faces a protracted period of convalescence.

Methods of transmission
The natural reservoir of Ebola virus is unknown but monkeys may be a link to humans. Once successfully transmitted to humans, the Ebola virus is capable of person-to-person spread, most commonly by contact with infected blood. Virus has also been isolated from the semen of a convalescing patient. Aerosol transmission has not been described in the clinical setting. In the laboratory and other experimental settings, aerosol transmission between animals cannot be entirely excluded.

Treatment
To date no specific treatment (antiviral drug, cytokine or vasoactive agent) has been shown to influence the course of Ebola virus infection. Treatment is generally a matter of using intensive supportive measures.

Marburg
Marburg is a severe, haemorrhagic, febrile illness first described in 1967 in Europe. The first outbreak of Marburg disease to be recognised in Africa was in South Africa in 1975. The incubation period of Marburg disease in the European outbreak was 3-9 days. The course of the illness is similar to that of Ebola, though Marburg virus infection tends to be less severe and has a lower case fatality rate.

Methods of transmission
The natural reservoir of Marburg virus is unknown but acquisition of the infection by monkeys may bring it into contact with man. Once successfully transmitted to humans, Marburg is capable of person-to-person spread, most commonly by contact with infected blood. Aerosol transmission has not been described in the clinical setting, but it would be unwise to disregard the possibility of this occurring when the patient is seriously ill with pulmonary involvement.

**Treatment**

No specific treatments (antiviral drug, cytokine or vasoactive agent) have been shown to date to influence the course of Marburg infection. Treatment is generally a matter of applying intensive supportive measures.

**Crimean/Congo haemorrhagic fever (CCHF)**

First recognised in Russia in 1944-1945. In 1969, it was realized that the virus causing CCHF was identical to the virus named Congo which had been isolated in 1956 from a case in Africa. Since then cases have been reported in the Middle East, Asia and other parts of Africa.

The incubation period of CCHF is from 7 to 12 days. The illness begins abruptly with fever, chills, malaise, irritability, headache and severe pains in the limbs and loins, followed by anorexia, nausea, vomiting and abdominal pain. Fever is usually continuous but may be remittent and sometimes biphasic, resolving by crisis after 8 days. The face and neck are flushed and oedematous. The conjunctivae and pharynx are infected, and there is oedema of the soft palate. Patients are often depressed and somnolent. In most cases a fine petechial rash begins on the trunk and then covers the entire body. A haemorrhagic rash appears on the soft palate and uvula early in the illness and other bleeding manifestations, including haematemeses and melaena appear on about the fourth or fifth day in over three quarters of patients. Leucopaenia and severe thrombocytopenia are common. Large ecchymotic areas caused by subcutaneous extravasation of blood occur at times. Severe gastric and nasal haemorrhages often lead to death. The liver is enlarged in about half the cases but the respiratory system is unaffected. Involvement of the central nervous system is seen in 10-25% of patients and usually indicates a poor prognosis: features include neck rigidity, excitation and coma. The mortality rate is often as high as 30-50%. Death is usually due to shock, blood loss or intercurrent infection.

**Methods of transmission**

Transmission is by tick bite. Person-to-person spread has been described and infections have been acquired in hospital from direct contact with infected blood specimens. Secondary cases have followed exposure to cases requiring resuscitation.

**Treatment**

Treatment is generally a matter of intensive supportive measures, though there is some evidence that early treatment with an antiviral drug such as ribavirin can reduce both the duration of feverish illness and the severity of haemorrhagic features.
8. Risk assessment

Conducting the assessment

Factors which need to be considered in assessing risk include:
- which VHF virus may be present (hazard identification)
- the likelihood of infection in the patients concerned
- the severity of VHF infections if infection occurs
- where viruses are likely to be present (e.g. in spilled blood, on contaminated instruments, tools and equipment, in waste and on contaminated clothing)
- ways in which employees may be exposed (e.g. through direct personal exposure to blood in invasive procedures, dealing with accidents and emergencies or in handling contaminated items for cleaning or disposal)
- estimate of exposure i.e. number and range of sources, frequency of contact

Basis of the assessment

Wherever there is the possibility of contact with blood and/or body fluids from a known or suspected source of VHF there is some risk of infection. For patients who cannot immediately be assigned to the minimum risk category the risk of transmission of suspected viral haemorrhagic fever to others will include:
- the clinical condition of the patient
- the number of contacts and procedures involved in caring for the patient or taking and handling specimens
- contact with laboratory specimens which may contain very high concentrations of virus

Assessing the patient

Patients with possible VHF are likely to present to HHFT emergency departments with a travel related fever.

Collect patient name and demographics, clinical signs and symptoms, full travel history (countries and areas visited, dates of travel, activities undertaken, potential exposure, vaccination and malaria prophylaxis history, past medical history, available blood tests – full blood count (FBC), malaria film, urea and electrolytes (U&E’s), C.Reactive protein (CRP), current clinical management if any.

If the patient is a travel fever in the low or moderate risk category, exclude malaria with appropriate blood tests asap, having collected blood under strict aseptic technique. Malaria is a medical emergency and needs urgent treatment. If the patient is in the high risk category, contact the PHE Centre and imported fever service specialist via consultant microbiologist to discuss.

If appropriate, patient samples can be sent to PHE Porton Rare and Imported Pathogen Laboratory (RIPL), on their own request form, clearly citing ‘fever service’. RIPL will deliver same day molecular diagnostic test results.
9. Patient Categorisation

**Minimum risk**
This category includes febrile patients who have not been in known endemic areas before the onset of illness; or been in endemic areas, (or in contact with a known or suspected source of a VHF), but in whom the onset of illness was definitely more than 21 days after their last contact with any potential source of infection.

**Moderate risk**
This category includes febrile patients who have been in an endemic area during the 21 days before the onset of illness, but who have none of the additional risk factors which would place him or her in the high risk category; or not been in a known endemic area but who may have been in adjacent areas or countries during the 21 days before the onset of illness, and who have evidence of severe illness with organ failure and/or haemorrhage which could be due to a VHF, and for which no alternative diagnosis is currently evident.

**High risk**
This category includes febrile patients who:

a) have been in an endemic area during the three weeks before illness and:
   - have lived in a house or stayed in a house for more than 4 hours where there were ill feverish persons known or strongly suspected to have a VHF
   - or took part in nursing or caring for ill feverish patients known or strongly suspected to have a VHF or had contact with the body fluids, tissue or the dead body of such a patient
   - or are a laboratory, health or other worker who has, or has been likely to have come into contact with the body fluids tissues or the body of a human or animal known or strongly suspected to have a VHF
   - or were previously categorised as moderate risk, but who have developed organ failure and/or haemorrhage

b) have not been in an endemic area but during the three weeks before illness they:
   - cared for a patient or animal known or strongly suspected to have a VHF, or came into contact with the body fluids, tissues or dead body of such a patient or animal
   - or handled clinical specimens, tissues or laboratory cultures known or strongly suspected to contain the agent of a VHF

The placing of a patient in the high risk category allows arrangements to be made for admission to a high security infectious disease unit (HSIDU) for clinical care, and for specimens to be handled in a high security infectious disease (HSID) laboratory.

10. Initial management of patients

**Minimum risk**
Minimum risk patients should be admitted if ill and requiring hospital treatment using standard isolation to a ward suitable for their clinical condition. Malaria should be excluded as soon as possible. Patients who are well enough may remain at home.
Patients in hospital should be managed with standard isolation precautions as per trust policy.

Over 95% of seriously ill patients in the minimum risk category will have malaria, and symptoms will resolve with appropriate anti-malarial treatment. Other patients may need to undergo further tests (e.g. X-rays, blood cultures, serological tests).

The IPCT should be informed before the patient is admitted, or immediately after admission. The PHE Centre should also be informed. Standard procedures for transport of specimens should be used. Patients may be transported without special precautions in an ambulance.
**Moderate risk**

Moderate risk patients should be admitted either to a Department of Health designated HSIDU or to intermediate isolation facilities, after consultation with the physician in charge of these units. These patients should NOT be admitted to HHFT, as no suitable facilities are available here and as per national guidelines. The PHE Centre should be involved in the risk assessment and notified of a suspected case in the moderate category. The aim is to provide a high level of infection control for patient care and particularly for laboratory procedures while an alternative, non-VHF diagnosis is sought. In more than 95% of cases malaria will be the alternative diagnosis. Virological tests for VHF are therefore generally not indicated for moderate risk patients, at HHFT. Apart from the initial malaria test, patient management specimens should only be sent to a HSID laboratory and should be transported as a high risk sample. Since these patients should not be admitted to HHFT, there should be no need for collecting or transporting such samples here.

The PHE Centre will advice on where the patient should be referred. Unless the patient is re-categorised as high risk the contacts need not be placed under surveillance.

The ambulance service will transport the patient as an ambulance category III removal. Any special needs will be advised by the clinician in charge of the designated HSIDU, who should be notified as soon as possible.

**High risk**

Any patient known or strongly suspected to be suffering from a VHF should be admitted to a specially designated HSIDU. As these diseases are rare, clinical and laboratory expertise is concentrated in specialist units, designated by the Department of Health. Under NO circumstances should these patients be admitted to HHFT. The PHE Centre should be immediately informed where a patient is categorised as high risk. The PHE Centre will identify close contacts, place them under surveillance and liaise with other PHE Centres and the Imported fever service on the identification of contacts who may be in other districts. Specimens of blood and body fluids from such patients are likely to contain high concentrations of virus. Viraeemia and viruria persist for a variable length of time during convalescence. Specimens for patient management tests from high risk or confirmed patients must NOT be collected at HHFT and should be delayed till the patient is admitted to an appropriate unit. Ambulance transport of the patient should be as an ambulance category III removal with any special needs being advised by the clinician in charge of the designated HSIDU.

**11. Laboratory Testing**

**Collection of specimens**

The main risk of infection with VHF, as with other blood-borne diseases, is amongst hospital and laboratory staff, where there is the possibility of accidental inoculation or contamination of broken skin or mucous membranes by blood, urine or other body fluids from infected patients.
Specimens from minimum risk patients
Specimens from minimum risk patients should be handled in accordance with good laboratory practice at a minimum Containment Level 2. Specimens should be tracked and their handling audited.

Specimens from moderate and high risk patients
Patients in these categories should be referred to a designated unit as advised by the PHE Centre, without tests and on clinical diagnosis only.

12. Exceptional circumstances
To preserve the life of the patient, staff might be obliged to conduct emergency tests to manage critically ill high risk patients. In such circumstances, the advice should be sought of HSID specialists at an early stage, to agree on what emergency tests are required.

This is strictly an emergency arrangement and is not intended to be for continuing patient management, as specimen taking and handling are the most vulnerable activities leading to mishap and cross-infection:

- tests should be kept to a minimum
- should be taken by an experienced member of the team, wearing appropriate personal protective equipment (gloves, FFP3 mask, fluid repellent gown and goggles as described in the trust’s isolation policy)
- a list of all staff in contact with the patient should be kept for surveillance and any incidents recorded and discussed with a microbiologist

Whenever feasible, specimens, even for emergency tests, should be transported to a HSID laboratory for testing

Most importantly, the transfer of patients to a HSIDU should not be delayed where infection with VHF is a strong possibility. Material for transport to a HSID laboratory must be packed according to instruction given by the receiving laboratory. Before any specimens are sent there should be discussion between the patient’s clinician, the Infection Control Doctor or a microbiologist to ensure that the appropriate Containment Level for laboratory investigations is agreed.

Specimens must be clearly labelled. The laboratory request form should indicate the level of risk (moderate /high) of VHF infection and be signed by a consultant or a deputy designated by the consultant.

13. Retrieval of specimens
If the possibility of VHF has been realised only after specimens have been sent, it should be the responsibility of the consultant responsible for the patient or the PHE Centre and the Infection Control Doctor, to ensure that specimens are:

- located quickly
- appropriately labelled, packed and stored prior to transportation to a HSID laboratory
• made safe by autoclaving or incineration; the identity of those who had contact with these specimens should be ascertained and recorded, taking particular note of any mishap

14. VHF infected bodies
Post-mortem examination
A post-mortem examination on a person known to have died of VHF exposes staff to unwarranted risk and should not be performed.

Where a patient suspected of having VHF has died it may be necessary on public health grounds to undertake some diagnostic tests including malaria tests. Consultation with appropriate specialists may determine that limited sampling (e.g. urine, cerebro-spinal fluid, cardiac blood, needle necropsy) will suffice to either establish or eliminate the diagnosis of VHF or provide another diagnosis. Any specimens taken should be obtained by an experienced doctor wearing protective clothing (gloves, FFP3 mask, fluid repellent gown and goggles) and following the guidance for the safe collection and transport of specimens. Protective clothing should be placed either into an autoclavable bag for immediate decontamination by autoclaving pending final disposal by incineration, or into a clinical waste bag for immediate incineration. All non-disposable instruments should be decontaminated as per trust policy. All disposables and sharps should be placed in a suitable container which is sealed and disposed of without delay, preferably by incineration.

Body disposal
Staff wearing protective clothing consisting of non permeable apron, gown, rubber boots, gloves and face and eye protection, should place the body in a body bag, seal and spray this bag with hypochlorite before transportation. The body bag should not be opened except by a designated person after consultation with the PHE Centre.

15. Management of contacts including healthcare workers
Definition of close contact
Only close personal contacts with a patient with VHF or their body fluids is at risk of acquiring the infection. Those incubating the infection are not a risk to their contacts

Management of close contacts of a high risk or confirmed case
All close contacts of a high risk or confirmed case should be kept under daily surveillance for a period of 21 days from the last possible date of exposure to infection. During surveillance there need be no restriction on work or movement within the UK but the contact's temperature should be recorded daily and enquiry made about the presence of any suspicious symptoms.

Throughout the period of surveillance those suffering any rise of temperature above 38°C should be kept under observation at home and, if fever persists for more than 24 hours, advice should be sought from a consultant in infectious diseases regarding the need for admission to an isolation unit. The PHE Centre should be informed
about any such decision. If a person wishes to go abroad during a period of surveillance, the PHE Centre should be consulted before advice is given. However, there is no statutory power to prevent a person who has been in contact with VHF, but has not developed any illness, from travelling abroad.

Management of other contacts of moderate risk/high risk or confirmed cases
When contact with a VHF patient has not been close, the risk of infection is minimal. Therefore there is no need to trace and/or follow up contacts who are not in the four categories listed above. This type of contact might arise with persons who had shared public transport with the patient, or had social contact only. Where there is uncertainty and, where contact with body fluids is unlikely but cannot be ruled out, it may be necessary to identify such individuals and question them about their exposure. If daily surveillance appears unnecessary, they should be advised to consult their own doctor if they feel unwell within 21 days since their last possible exposure to infection.

16. Disinfection and decontamination
Important considerations
Those dealing with a VHF incident should ensure that areas and equipment used for care of patients at moderate or high risk of being infected with a VHF, or confirmed cases, who had been treated at HHFT either inadvertently or due to critical clinical condition, are adequately decontaminated and cleaned as per trust’s cleaning disinfection and sterilisation policy. The viruses involved are not highly resistant either to chemicals or to heat. From the point of view of transmissibility they behave like blood-borne viruses such as hepatitis C and the HIV. Areas and equipment which have not been contaminated with blood, body fluids or laboratory specimens, can be adequately decontaminated using Actichlor Plus 1,000ppm. Extreme methods of decontamination, such as the use of powerful chemicals or attempts at fumigation, are not recommended.

The Trust’s protocols for dealing with laundry, cleaning of crockery and utensils and for final disinfection of beds, equipment and clinical areas used in the care of patients with infectious diseases should be used. Where there has been no contamination by blood and body fluids these procedures and practices will be fully adequate for safe decontamination following use for a suspected case of VHF. They include such procedures as packing laundry safely for immediate dispatch to hot-washing facilities, packing clinical waste in appropriate bags for immediate disposal, wiping beds, chairs and surfaces with sodium hypochlorite solution containing 1000 ppm available chlorine, and leaving for 10-20 minutes before cleaning. Floors should be cleaned with sodium hypochlorite solution containing 1000 ppm. Wall-washing is not necessary.

Contamination by blood and/or body fluids
In some circumstances VHF viruses can survive for two weeks or even longer on contaminated fabrics and equipment. Special care should therefore be taken when dealing with soiled items:
Persons carrying out decontamination procedures should cover cuts and abrasions with waterproof dressings and should wear disposable gloves and waterproof aprons.

Clothes may be further protected by wearing a disposable water repellent, gown.

Eye and face protection is advisable if there is a risk of splashing.

Soiled clothing and linen that is to be re-used should be handled as infected linen. Items should be packed into alginate-stitched or soluble laundry bags which are themselves contained in suitably labelled outer bags from which the laundry bag can be tipped directly into a machine with a hot-wash programme. The outer bag is then immediately placed into a clinical waste bag which is sealed for disposal by incineration.

Crockery and cutlery should be carried to a washing-up machine in a secure disposable container or a strong plastic bag, which should be placed in a clinical waste bag for immediate disposal after the items have been transferred to the machine.

Non-washable clothing and fabrics should be destroyed.

Toilet bowls should be disinfected with hypochlorite after use.

For non-ambulant patients, disposable bed pans should be used, the contents being solidified with high-absorbency gel and then autoclaved or incinerated.

Soiled disposable items and ‘sharps’ should be packed without delay into a secure clinical waste bag or ‘sharps' container which is immediately sealed for disposal.

**Spillages of blood or body fluids**

**Small spots of blood or small spills**

- Apron and gloves should be worn and lesions on exposed skin covered with waterproof dressings.
- Contamination should be wiped up with a paper towel soaked in freshly prepared hypochlorite solution containing 10,000ppm available chlorine.
- Towels, aprons and gloves should be placed in a Yellow clinical waste bag for incineration and hands washed.

**Larger spills**

- Gloves should be worn and lesions on exposed skin covered with waterproof dressings.
- If the spillage is extensive, disposable plastic overshoes or rubber boots may be necessary.
- If splashing is likely to occur while cleaning up, other protective clothing (gown, face mask and goggles) should be worn.
- Liquid spills should be covered with dichloroisocyanurate granules and left for at least two minutes before clearing up with paper towels and/or a plastic dustpan.
• alternatively, the spill may be covered with paper towels and the contaminated area gently flooded with hypochlorite solution containing 10,000 ppm available chlorine* (this should be left for five minutes before attempting to clear up)
• towels, gloves, disposable overshoes and contaminated clothing should be placed in a yellow waste bag for incineration and hands washed; (rubber boots may be decontaminated with Actichlor Plus)
• the area should be washed with water and detergent and allowed to dry

*Urine may promote the release of free chlorine from the treated area when hypochlorite or other chlorine containing compounds are applied. Ventilation of the area will be necessary. Hypochlorite solutions (e.g. household bleach) may be replaced by solutions of dichloroisocyanurate prepared from tablets according to the manufacturers instructions.

17. Contacts
   Please see Appendix C for contact details for internal and external reporting.

18. Stakeholders Engaged During Consultation

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Date of Consultation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection Prevention and Control (Lead Infection Prevention &amp; Control Nurse)</td>
<td>22 March 2013</td>
</tr>
<tr>
<td>Health and Safety (Health and Safety Advisor)</td>
<td>22 March 2013</td>
</tr>
<tr>
<td>Safeguarding (Trust Safeguarding Lead)</td>
<td>22 March 2013</td>
</tr>
<tr>
<td>Information Governance (Information Governance Manager)</td>
<td>22 March 2013</td>
</tr>
<tr>
<td>Risk and Compliance Manager (Risk and Compliance)</td>
<td>22 March 2013</td>
</tr>
<tr>
<td>Divisional Directors and Divisional Directors (Operational)</td>
<td>22 March 2013</td>
</tr>
<tr>
<td>Equality and Diversity Lead (Equality &amp; Diversity)</td>
<td>22 March 2013</td>
</tr>
<tr>
<td>Infection Prevention and Control Committee</td>
<td>22 March 2013</td>
</tr>
<tr>
<td>Consultant Microbiologists</td>
<td>22 March 2013</td>
</tr>
<tr>
<td>Clinical Service Managers/Leads</td>
<td>22 March 2013</td>
</tr>
<tr>
<td>Operational Service Managers</td>
<td>22 March 2013</td>
</tr>
</tbody>
</table>
19. Dissemination and Implementation

<table>
<thead>
<tr>
<th>Action(s)</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publicise detail of new document via Intranet and Midweek message</td>
<td>IPCT and Communication Team</td>
</tr>
<tr>
<td>Communication to all Senior Managers to advise publication of policy</td>
<td>BNHH Healthcare Library</td>
</tr>
<tr>
<td>The policy will be available on the intranet and web site</td>
<td>BNHH Healthcare Library and Communication Team</td>
</tr>
</tbody>
</table>

20. Training

Individuals in the Trust should receive annual infection prevention and control training to ensure they are aware of their responsibilities. Education and Training will be provided in accordance with the Trust Training Needs Analysis (Learning and Development Policy).

21. Monitoring Compliance with the Document

Compliance with the policy will be monitored in the following way:

<table>
<thead>
<tr>
<th>Minimum requirements</th>
<th>Requirement Reviewed by</th>
<th>Method of Monitoring</th>
<th>Frequency of Review</th>
<th>Monitoring Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness of policy</td>
<td>Infection Prevention and Control Team and Public Health England</td>
<td>Audit</td>
<td>Case by case review</td>
<td>Infection Prevention and Control Committee</td>
</tr>
</tbody>
</table>

22. References

Advisory Committee on Dangerous Pathogens. Management of Hazard Group 4 viral haemorrhagic fevers and similar human infectious diseases of high consequence. DoH. May 2012

Imported fever service via www.hpa.org.uk

Guidance from other organisations

Public Health England

23. Associated Documentation

Standard Precautions Policy (incorporating Personal Protective Equipment)
Learning and Development Policy

24. Contributors

<table>
<thead>
<tr>
<th>Contributor Job Title</th>
<th>Contributor Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director Infection Prevention and Control</td>
<td>Dr Matthew Dryden</td>
</tr>
<tr>
<td>Lead Infection Prevention and Control Nurse</td>
<td>Hazel Gray</td>
</tr>
</tbody>
</table>
### Appendix A – Equality Impact Assessment

#### PART 1
To be completed by the document owner

**Document Title:** Management and Control of Viral Haemorrhagic Fevers Policy

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes/No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Could the application of this document have a detrimental equality impact on individuals with any of the following protected characteristics? (See Note 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>No</td>
<td></td>
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<tr>
<td>Disability</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Gender reassignment</td>
<td>No</td>
<td></td>
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<tr>
<td>Race</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Religion or belief</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>No</td>
<td></td>
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<tr>
<td>Sexual orientation</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Marriage &amp; civil partnership</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Pregnancy and maternity</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>2. If you have identified any potential detrimental impact, do you consider this to be valid, justifiable and lawful? If so, please explain your reasoning.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. If you have answered ‘no’ to question 2, has the policy been amended to remove or reduce any potential detriment?</td>
<td></td>
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<tr>
<td>• If you answer ‘yes’, please summarise the changes made</td>
<td></td>
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<tr>
<td>• If you answer ‘no’. please explain why not</td>
<td></td>
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<tr>
<td>4. Based on the answers to questions 1 – 3 do you consider that a detailed equality analysis is needed?</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**NAME:** Dr Matthew Dryden  
**JOB TITLE:** Director Infection Prevention and Control  
**DATE:** 13 March 2013
PART 2
To be completed by the Trust’s Equality and Diversity Lead

**Brief Summary of potential impact of this document and whether sufficient consideration has been given to the Equality Duty**

The application of this policy for the Management of viral haemorrhagic fevers is completely clinically based and ensuring prompt management would be the priority, however the Trust would endeavour to continue to meet patients and employees individual needs as far as is practicable.

<table>
<thead>
<tr>
<th></th>
<th>Yes/No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Is this document recommended for publication without amendment?</td>
<td>Y</td>
</tr>
<tr>
<td>2.</td>
<td>Is this document recommended for publication but with recommended amendments? Please specify.</td>
<td>N/A</td>
</tr>
<tr>
<td>3.</td>
<td>Is this document not recommended for publication without amendments being made? Please specify?</td>
<td>N/A</td>
</tr>
<tr>
<td>4.</td>
<td>Is it recommended that this document requires a more detailed equality analysis to be undertaken prior to publication?</td>
<td>No</td>
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<tr>
<td>5.</td>
<td>Specify with which, if any, individuals and groups you have consulted in reaching your decision.</td>
<td>N/A</td>
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</table>

**NAME:** Verity Gibbons

**JOB TITLE:** Assistant Risk and Compliance Manager

**DATE:** 23 April 2013

**Note 1**
Under the terms of the Equality Act 2010’s public sector Equality Duty, the Trust has a legal responsibility to think about the following three aims of the Equality Duty as part of our decision making and policy development.

- **Eliminate unlawful discrimination,** harassment and victimisation;
- **Advance equality of opportunity** between people who share a protected characteristic and people who do not share it; and
- **Foster good relations** between people who share a protected characteristic and people who do not share it.
### Appendix B - Agents of Viral Haemorrhagic Fevers

<table>
<thead>
<tr>
<th></th>
<th>Mosquito bornе</th>
<th>Tick bornе</th>
<th>Other Animal Source</th>
<th>Unknown Source And Reservoir</th>
<th>ACDP4 Hazard Group</th>
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<tbody>
<tr>
<td><strong>Arenaviridae</strong></td>
<td></td>
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<tr>
<td>Argentine haemorrhagic fever (Junin)*</td>
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<tr>
<td>Bolivian haemorrhagic fever (Machupo)*</td>
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<tr>
<td>Brazilian haemorrhagic fever (Sabia)*</td>
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<tr>
<td>Lassa fever</td>
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<tr>
<td>Venezuelan haemorrhagic fever (Guanarito)</td>
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<td><strong>Bunyaviridae</strong></td>
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<tr>
<td>Crimean/Congo haemorrhagic fever</td>
<td>√</td>
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<tr>
<td>Haemorrhagic fever with renal syndrome (Hantaan)</td>
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<tr>
<td>Rift Valley Fever</td>
<td>√</td>
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<tr>
<td><strong>Filoviridae</strong></td>
<td></td>
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<tr>
<td>Ebola</td>
<td></td>
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<tr>
<td>Marburg</td>
<td></td>
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<tr>
<td><strong>Flaviviridae</strong></td>
<td></td>
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<tr>
<td>Dengue, types 1-4</td>
<td>√</td>
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<td>3</td>
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<tr>
<td>Kyasanur Forest disease</td>
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<tr>
<td>Omsk haemorrhagic fever</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Yellow fever</td>
<td>√</td>
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<td></td>
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<tr>
<td><strong>Togaviridae</strong></td>
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<td>Chikungunya</td>
<td>√</td>
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</tr>
</tbody>
</table>

* indicates occasional incidents of person-to-person spread have been reported
Appendix C – Contacts

HHFT On call consultant microbiologist via the switchboard

Infection Prevention and Control Team
  • BNHH Extn 6774 / Bleep 2364
  • RHCH Extn 5156 / Bleep 177 / 194

Dorset, Hampshire and Isle of Wight Public Health England (PHE) Centre
  • Office hours 9 am – 5 pm: 0845 055 2022
  • Out of hours on call service: 0844 967 0082

High Security Infectious Diseases Unit (HSIDU), The Royal Free Hospital, London NW3 2QG
Telephone: 020 7794 0500