High Consequence Infectious Diseases – Infection Prevention and Control Principles

Version 1.0

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NSW GOVERNMENT

CLINICAL EXCELLENCE COMMISSION

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Acronyms and abbreviations

ED	emergency department
HW	health worker
HCID	high consequence infectious disease
ID	infectious disease
IPAC	infection prevention and control
NBC	NSW Biocontainment Centre
PPE	personal protective equipment
PHU	public health unit
VHF	viral haemorrhagic fever

1. Introduction

For the purposes of this guidance, high consequence infectious diseases (HCIDs) include infectious diseases (IDs) where the disease is not established in the NSW population, where there is a potential for human-to-human or animal-to-human spread, and where the disease has a significant health impact on the individual or at a population level should widespread transmission occur.

HCIDs constitute serious human health threats. Patients with such diseases typically develop severe symptoms and require a high level of care. The case-fatality rates can be high. Several HCIDs are transmissible from person to person and therefore require health workers (HWs) to take precautions to prevent transmission. HCIDs can transmit via contact route or respiratory route. HCIDs, including viral haemorrhagic fevers (VHFs), are rare in NSW. With global travel, the risk of introduction of a single case of a HCID remains, particularly for diseases endemic overseas that could be introduced into NSW.

If the decision is made to manage the patient with suspected HCID in the presenting hospital, the NSW Specialist Service for High Consequence Infectious Diseases will provide support to the facility and can be contacted on 1800 HCID 00 or 1800 424 300.

Where a patient meets the current case definition as a suspect or probable case of HCID, HWs are to don contact and airborne precautions (Level 1 or Level 2, based on risk assessment) personal protective equipment (PPE) to provide care.

1.1 Scope

This document must be read in conjunction with other relevant NSW Health policies and guidance:

- NSW Health Policy Directive Early Response to High Consequence Infectious Diseases
- NSW State Emergency Management Plan (EMPLAN)
- NSW Health Emergency preparedness
- NSW Health Public Health Emergency Response Preparedness.

Currently, there is no Australian national or jurisdictional list of HCIDs, although these do exist in some countries such as the United Kingdom and the United States. Some examples of infections that could be considered a HCID:

- newly emerged pathogens, where there will be limited knowledge of key characteristics that will inform risk assessment (for example, novel coronaviruses and emerging orthopoxviruses)
- existing or re-emergent pathogens, such as a:
    - known pathogen, usually a zoonosis, that is presenting with a different epidemiology (for example, expansion into a new geographic location or new population, such as mpox worldwide in 2022)
    - known high consequence pathogen, such as VHFs, where an occasional returning traveller may present, especially in the context of reported outbreaks overseas.

1.2 Features of HCIDs

A HCID may be caused by any number of different types of pathogens, including viruses, bacteria, fungi or prions. This could include an emerging ID, for which little is currently known. What distinguishes a particular microorganism as a HCID includes its potential to cause both morbidity and mortality. HCIDs are typically characterised by the following features:

- an acute ID
- a high case-fatality rate
- may be no effective prophylaxis (including vaccination) or treatment
- may be difficult to recognise and detect rapidly
- can spread in the community and within healthcare settings
- require an enhanced individual, population and system response to ensure effective, efficient and safe management.

As several HCIDs are transmissible from person to person, infection prevention and control (IPAC) precautions including appropriate PPE must be implemented to prevent transmission and reduce any subsequent morbidity and mortality.

Table 1: Examples of HCIDs, predominant modes of transmission and PPE requirement

Name	Virus/Pathogen	Predominant Transmission	PPE
Argentine haemorrhagic fever	Junin (Arena)	Contact + Airborne	Based on risk assessment
Andes Virus	Hantavirus	Airborne + Airborne	
Bolivian haemorrhagic fever	Machupo (Arena)	Contact + Airborne	
Crimean Congo Haemorrhagic Fever (CCHF)	CCHF (Nairovirus)	Contact + Airborne	
Ebola Virus Disease	Ebolavirus/filovirus	Contact + Airborne	
Influenza (novel, avian or other)	Influenza	Airborne	
Lassa Fever	Lassa (Arena)	Contact + Airborne	
Lujo Haemorhagic fever	Lujo (Arena)	Contact + Airborne	
Marburg virus disease	Marburg/filovirus	Contact + Airborne	
Middle East Respiratory Virus Syndrome (MERS)	Coronavirus	Airborne + Airborne	
Mpox (Clade 1)	Mpox*	Airborne + Contact	
Nipah Virus infection	Nipah	Airborne + Contact	
Pneumonic Plague	*Yersina Pestis*	Airborne	
Severe Acute Respiratory Syndrome (SARS)	Coronavirus	Airborne	
Severe Fever with Thrombocytopenia (STS)	Bunya	Contact + Airborne	

* Originally known as the ‘Central African’ or ‘Congo Basin’ clade, this is more likely to cause severe mpox disease

Table 2: PPE level

PPE Level 1	PPE Level 2
Non-sterile gloves	Non-sterile gloves – two pairs (long cuff, if available)
Long-sleeved, fluid-resistant gown, where the wrist is covered by gloves	Long-sleeved, fluid-resistant gown where the wrist is covered by gloves
Fitted, fluid-resistant disposable P2/N95 respirator	Fitted fluid resistant disposable P2/N95 respirator or PAPR (if available)
Eye protection	Surgical hood
Closed-in shoes	Eye protection
	Below-knee booties to cover shoes
HWs in NBC are required to wear Level 3 PPE when providing care to patients with HCID.	

2. Infection prevention and control for HCIDs

As HCIDs are usually uncommon but may have a significant impact on the community and delivery of health services, health service organisations need to have processes in place to be prepared for a HCID, which includes detection, response and referral, where necessary.

2.1 Early detection and preparedness

NSW Health organisations are to:

- have documented communication and preparedness plans to respond effectively to outbreaks, including single-case occurrences of a HCID. Plans must incorporate relevant links to public health units (PHUs) and are linked to State Emergency Management Plan (EMPLAN) and NSW Health Emergency preparedness
- regularly assess preparedness to manage patients with a potential HCID such as an annual local procedure review / update and inclusion in their planning program for tabletop exercises (this should include all relevant speciality stakeholders such as local IPAC, engineering, and so forth) as outlined in the NSW State Health Plan are to be undertaken
- work in partnership with relevant stakeholders to provide a coordinated and timely response
- maintain effective functioning across health services to manage other health issues.

The preparedness must include IPAC and ID specialists and clinical microbiologists as key drivers for health organisations to address the following:

Identification of potential cases

- Ensure strategies are in place to detect symptomatic potential travel-related infections.
- All entry points and triage – travel history is critical (refer to HCIDs: country specific risk).
- Process in place to ensure exclusion of more common/likely travel related infections such as dengue or malaria.
- A clear process for the urgent identification (contact tracing) and the prompt implementation of local management plans of potential contacts. This should be in consultation with the PHU to minimise further transmission risks within the service; for example, a waiting room or imaging department, where a patient may have been prior to

identification that this may be a HCID and where no isolation or PPE was used. Also includes HWs, contractors and other consumers.
- Clear communication processes and documentation of any identified risks and a plan to manage identified risks or barriers.
- A clear plan for appropriate medical transportation and travel plans to isolation points, as required.

Personal protective equipment (PPE) and shared equipment

- Access to appropriate PPE (see table 2).
- Application of PPE based on risk assessment, consistent application, and regular competency assessment records and processes to ensure this has been reviewed and HW practices are current.
- Provision of dedicated donning and doffing zone.
- Training and simulation exercises including risk assessment and management.
- All emergency departments (EDs) should maintain appropriate PPE kits for management of HCID patients that may present. These kits should be checked and maintained as part of routine emergency/disaster management equipment stores within the ED.
- Provision of dedicated patient care equipment or an approved cleaning/disinfection process if equipment is required to be shared with other patients due to the nature of the equipment (for example, ventilator, monitors and ultrasound devices).

Isolation

- Identified isolation area(s), ideally in the ED.
- Single room with ensuite.
- Negative pressure room, if available.

Management and escalation

- For potential cases, develop a management plan for both clinically stable and unstable patients.
- Clear communication pathways for notification, escalation and transfer (including handover, work health and safety huddles).
- Prompt management of staff health and wellbeing with respect to potential contact.
- There is a documented and approved process in place with pathology services for collection and transportation of pathology specimens.
- There should be a pre-agreed documented process for linen and waste management and collection with vendor.

Evaluation

- Debrief, after action reviews, communication and feedback strategies to HWs and stakeholder involved.
- Follow up on staff wellbeing and evaluation of lessons learner.
- Identification of where improvements can be progressed.

3. Viral haemorrhagic fevers (VHFs)

One of the key HCIDs is VHFs. A VHF can often be an extremely infectious and potentially life-threatening disease caused by six families of viruses with fever and thrombocytopenia syndrome. Some of the more well known of these viruses are Ebola, Lassa, Marburg, and Crimean-Congo.

Infections are generally limited to Africa, South America, Central Asia, Eastern Europe, India, the Middle East and Northwest China. VHFs are not endemic in Australia and environmental conditions here are unlikely to support the natural reservoirs and vectors of any of the above haemorrhagic fever viruses. The likely incursion of VHF into Australia would be via a traveller who has been in contact with a VHF while overseas and these individuals could present with a variety of symptoms to a healthcare provider, including an emergency department.

VHFs are notifiable infectious diseases and scheduled medical conditions under the *NSW Public Health Act 2010*. VHFs are also listed diseases under national biosecurity legislation and the International Health Regulations. Refer to NSW Health Early Response to High Consequence Infectious Diseases for appropriate management of cases and their contacts.

The documented modes of transmission for VHF are:

- person-to-person through direct contact with symptomatic patients or through laboratory exposure (through broken skin, including micro abrasions or mucous membranes) with:
    - blood or body fluids of a person who is sick with, or has died from, VHF
    - objects that have been contaminated with body fluids (such as blood, faeces and vomit) of a person who is sick with, or has died from, VHF
    - some VHF can persist in semen and eye fluid for many years following recovery (sexual contacts of prior cases may also be at risk)
- inadequate IPAC in a hospital setting
- burial ceremonies that involve direct contact with the body of the deceased
- consumption of raw and undercooked meat from infected animals or unpasteurised milk
- direct contact with rodents or inhalation of, or contact with, materials contaminated with rodent excreta
- certain ticks and mosquito species
- exposure to blood from infected animals.

3.1 Incubation period

The incubation period of VHFs varies according to the causative agent, as follows:

- Crimean Congo haemorrhagic fever – from 1 to 12 days (usually from 1 to 3 days)
- Ebola virus – from 2 to 21 days (most commonly from 8 to 10 days)
- Lassa fever virus – from 6 to 21 days
- Marburg virus – from 2 to 21 days.

For more information on other VHFs refer to CDC Viral Haemorrhagic Fevers.

3.2 Period of transmissibility

Transmissibility of VHFs depends on the infective agent but is usually higher when more severe disease is present. It is likely that transmission is possible, as long as there is ongoing viral replication which, for example, has been documented in Lassa fever for up to 9 weeks from illness onset and up to 60 days for Ebola.

The following should be considered:

- sexual transmission though semen after clinical recovery can occur for up to 14months for Ebola, 7 weeks for Marburg and 3 months for Lassa and Lujo
- risk of transmission during the asymptomatic incubation period is negligible

- transmissibility increases with the stage of illness, especially during the “wet” phase of the disease, and bodies remain infectious after death.

Transmission of these VHFs is only thought to occur from people who are symptomatic.

3.3 Symptoms

Symptom onset is usually sudden, and early symptoms are generally non-specific, with fever, headache, myalgia and lethargy for several days prior to the onset of haemorrhagic manifestations. However, most patients with Lassa fever or Crimean–Congo haemorrhagic fever either have mild or no symptoms and recover without further progression.

For those who have more severe disease, the illness typically progresses from “dry” symptoms (such as fever, myalgia and fatigue) to “wet” symptoms (such as diarrhea and vomiting) as illness severity worsens. The hallmark of VHF is bleeding, which initially may manifest as bruising, but may also include bleeding from the nose and gums, venepuncture sites or vagina, or may be apparent as haematemesis or haemoptysis.

3.4 Prevention and control

The management of a VHF patient requires considerable care to prevent further transmission in clinical settings and extensive public health action to identify and manage close contacts at risk of infection. The prevention and control strategies include:

- early identification and isolation
- reducing exposure to HWs by using appropriate PPE and training in donning and doffing.

In consultation with relevant stakeholders, the management of patient may require referral or transport to NSW Biocontainment Centre (NBC). The NBC, located at the Westmead Health Precinct, is a purpose-built quarantine facility to care for both adult and paediatric patients with HCID. The centre plays many roles, operating as the statewide referral and outreach facility for patients with suspected or confirmed HCID, as well as the education and training hub for preparedness and safe practice in managing these infections.

The NBC also offers infectious diseases advice, including referral to relevant diagnostic testing and locations of testing, links with NSW Health Pathology and patient management able to be utilised as a 24/7 service in the early phases of the response. The ID team at Westmead Hospital can be contacted on 1800HCID00 (1800 424 300).

4. Management of patients with possible/suspected VHFs outside of the NSW Biocontainment Centre

In the unlikely event that a symptomatic patient with possible VHF (based on history of recent travel to a VHF endemic country or known exposure to a VHF and compatible symptoms) presented to any healthcare setting (for example, emergency department of a smaller hospital), the following procedures are recommended.

4.1 Patient risk assessment

The aim of this section is to provide advice on initial actions to ensure the safety of the patient and HW while the likelihood of VHF is being assessed. Clinicians should immediately take steps to protect themselves and others if they suspect VHF. VHF may be suspected if the patient has the following:

Person has a recent (within past 21 days) travel history to an area where VHFs are endemic or epidemic AND has a plausible exposure pathway	**OR**	Exposure to known or suspected case of VHF (present or past) For example, contact with a case, contact with sick/dead animal(s), consumption of bushmeat, participation in funeral and laboratory exposure
AND		
Symptom profile consistent with VHF (particularly fever with a clinically compatible illness/symptoms) *		
OR Meets the case definition specified in a recent NSW Health Safety Notice		

* While there may be other potential causes of VHF-like symptoms, cases should be treated as suspect until it is definitively excluded where there is a higher index of suspicion.

Source: Response to suspected or confirmed viral haemorrhagic fever.

If the patient meets the above criteria, the following actions should be implemented.

Table 3: Immediate actions to be followed

No.	Action	Progress
1	Allocate nominated trained HWs who are experienced and are able to manage patient care as feasible.	☐
2	Provide the patient with a surgical mask and emesis bag (if needed). HW to perform hand hygiene and don PPE (P2/N95 respirator, eye protection, gown and gloves).	☐
3	Escort patient to a single room for assessment (single room with door closed, with own bathroom and negative pressure if available).	☐
4	Restrict staff and visitor access to the room to minimise exposure to others.	☐
5	Perform a risk assessment to determine the risk of exposure to body fluids (does the patient have dry symptoms such as fever, body ache and fatigue or wet symptoms such as diarrhoea, vomiting or bleeding).	☐
6	Allocate single patient-use equipment to the room.	☐
7	Perform hand hygiene before donning PPE and after any contact with the patient or their immediate environment and after doffing PPE. There are additional donning and doffing requirements for HCID, which are listed in the appendices.	☐

8	Used PPE should be bagged and discarded in clinical waste. Retain in a secure area for appropriate disposal when further information is available about likely VHF status.	☐
9	Urgent discussion with local IPAC, ID and PHU. Based on risk assessment, telephone the ID team at Westmead Hospital on 1800HCID00 (1800424300).	☐
10	Avoid any invasive procedures including sample collection until ID/HCID Westmead Hospital have been contacted and has provided advice.	☐
11	Commence a line list for staff and others who have had contact with the patient (see table 5, “Sample VHF surveillance – Daily HW contact list form”).	☐
12	Follow VHF patient risk algorithm (appendix 14A).	☐
13	Provide information to the patient and/family or caregivers on the need for isolation, importance of staying in the room, how to contact a HW if needed and document all actions taken in patients clinical record to ensure clarification of events and action taken.	☐

4.2 Criteria for appropriate selection of PPE

The aim of this section is to provide advice and rationale for the type of PPE that should be donned for any person entering the room until the risk of VHF is clarified. Donning and doffing should be accompanied by a buddy (where possible) to ensure that PPE is appropriately chosen, fits properly, and is removed and disposed of safely. This section also provides guidance on other IPAC procedures while the patient remains in isolation.

Although there is very limited evidence for airborne transmission of VHF, airborne precautions are required in addition to contact and droplet precautions until there is further information about the level of risk. Additional or non-approved PPE should not be worn. PPE creep is to be avoided for work health and safety purposes.

The following is required for HWs entering the patient room:

- bare below the elbows (remove any rings, watches, or bracelets) and roll up sleeves
- long hair to be tied up
- no equipment to be taken into the room unless it is staying in the room (for example, do not take personal stethoscope, mobile telephone, pens and computer on wheels).

PPE (level 1) for “dry” patients and PPE (level 2) for “wet” patients (see table 2).

When selecting appropriate and practical PPE to control transmission risk, consider:

- what tasks are going to be undertaken
- whether there will there be exposure to blood or body fluids, including respiratory aerosols.

See table 4 for further details.

Ideally, there should be a designated area for donning (clean) and doffing (contaminated) of PPE. This should be separate from the patient care area and sufficient space in the doffing

area to allow freedom of movement for safe doffing of PPE. The clean and contaminated areas are clearly separated and signed. Signage to be used to clearly identify the patient care area, donning area, and the PPE doffing area.

Role of PPE buddy

A PPE buddy is to support safe and effective donning and doffing of PPE to reduce contamination, particularly by HWs who are less familiar with wearing specific types of PPE.

A PPE buddy role is optional, but may be helpful in some circumstances, such as donning and doffing of PAPR if used.

The role of the buddy is to observe, assist and support HWs through the donning and doffing process, without self-contamination by staying in a safe distance. The buddy should wear appropriate PPE based on the risk assessment.

4.3 Cleaning up a body substance environmental spill or contamination

Generally, all VHFs are inactivated by hospital grade disinfectants.

The following steps should be followed:

- spills should be managed by HWs caring for the VHF patient and by wearing appropriate PPE (Level 2)
- isolate the area of the spill; do not let other individuals access the area until cleaning and disinfection is complete
- place absorbent material on the spill (if available, a solidifier agent can be used) or an absorbent pad (bluey) or paper towels, if unavailable
- use disposable absorbent towels to remove bulk spill material (dispose of the towels into clinical waste)
- apply TGA-approved hospital grade disinfectant to the cleaned surface and allow the specified contact time
- use disposable cleaning cloths or wipes to wipe the treated area and dispose into clinical waste
- follow local waste management and disposal process (as specified above)
- remove PPE and perform hand hygiene
- seek advice from IPAC if uncertain.

Table 4: Management of a patient with possible or suspected VHF

IPAC principles	Requirements
Isolation	• Single room with ensuite preferably with negative pressure ventilation. • In hospitals where such facilities are not available, interim arrangements may be required, such as use of commodes, disposable urinals and bedpans in the patient's room and designating restricted areas outside of the patient's room. • An anteroom for donning and doffing PPE. If an anteroom is not available, identify a clearly marked donning and doffing zone outside the room. • Identify patient safety, cultural and cognitive capacity or needs when placing patient into isolation and any additional or enhanced compliance support strategies that may also be required.

	• Approved and correct transmission-based precautions signage to be displayed on or near patient door and to be clearly visible before any staff entry.
Patient	• Patients to wear a surgical mask if able as a precaution prior to placement in the hospital or examination room and during transport. • Limit patient movement as feasible within the healthcare setting. • Patients must also have their primary presenting health. condition managed safely as well as HCID requirements (i.e. birthing, palliative, mental health crisis).
Visitors	• Visitation should not be permitted until the risk is clarified. However, if a parent or a carer needs to be with the patient (due to age, cultural reasons, end of life, dementia, mental health reasons etc) the IPAC/ID team must be consulted for an exemption.
Hand hygiene	• Hand hygiene must be performed by all HWs and visitors (if present) as per five moments for hand hygiene.
Transmission-based precautions	• Contact, droplet, and airborne precautions to be applied.
Select PPE based on risk assessment and patients' symptoms (for example, wet and dry)	• PPE donning and doffing with a buddy, if possible. • Select PPE based on patients dry or wet symptoms. • Dry – (level 1) disposable gown, eye protection, P2/N95 respirator and gloves. • Wet – (level 2) disposable gown, P2/N95 respirator OR disposable powered air purifying respirator (PAPR) hood or surgical hood to cover head and neck (if available), disposable eye protection, disposable fluid repellent below-knee booties and double gloves (long cuffs).
Laboratory testing	• Contact ID physician at Westmead on 1800HCID00 (1800 424 300). • Discuss urgent VHF and other appropriate testing with an ID physician, PHU, the local laboratory, and clinical microbiologist on call at the Centre for Infectious Diseases and Microbiology Laboratory Service (CIDMLS), Institute of Clinical Pathology and Medical Research (ICPMR) Westmead. Also notify NSW public health pathology and email NSWWPATH-publichealthpathology@health.nsw.gov.au. • Discuss with ID at Westmead before collection of any blood specimens. • If a decision is made to collect blood locally, send to ICPMR and transport specimens according to the NSW pathology collection, packaging, and transport of VHF pathology specimens and PD2023_001 Transport of Pathology Specimens to Laboratories Ebola virus disease - Information for Laboratories

	PHLN laboratory procedures and precautions for samples collected from patients with viral haemorrhagic fevers. **Specimen collection** • The zip-lock specimen bag, request form and transport box must remain in the clean area (outside patient zone). • Pre label the specimen tubes as per the pathology requirements. • Specimens should be collected, taking care not to contaminate the external surfaces of the blood tubes. • Disinfect the specimen tubes by gently wiping with dual purpose wipes. • Place the specimen tubes in the zip-lock bag and transport box without contaminating the outer surface. • Organise transport of specimens as per the PD2023_001Transport of Pathology Specimens to Laboratories.
Sharps management	• Limit the use of laboratory testing to the minimum necessary for essential diagnostic evaluation and patient care and as per discussion with Westmead ID physician. • Use Safety Engineered Medical Devices (SEMD) for phlebotomy, cannulation, and a needle-free intravenous system to reduce the risk of needle stick injuries. • Each patient should have dedicated injection and parenteral medication equipment which should be disposed of at the point of care. • Dispose of used syringes, needles, scalpel blades and other sharp objects in a puncture resistant sharp container. • Ensure that the puncture-resistant containers are securely sealed with a lid and remains in the patient's room, also placed in an area that is not easily accessible by visitors, particularly children. • Sharps containers disposal will follow local waste management and disposal process for waste (see "waste management" in this table).
Communication	• HWs are to be informed of the risks and risk management strategies. • Prior to transfer or care, relevant HWs must be informed of patient's VHF status and exposure risks. Patient privacy and confidentiality must be respected and maintained. • Use local escalation pathways to communicate risk. • Ongoing surveillance of HWs who may have contact with patients (for example, temperature monitoring).
Medical equipment (cleaning and disinfection of patient-care equipment after	• Where possible, single-use (disposable) or dedicated equipment and supplies. Clean and disinfect reusable equipment.

patient transferred to NBC or following discharge)	• Equipment is to remain in the room until patient discharge or transfer and to be cleaned and disinfected prior to use on another patient. • Reusable patient care equipment must be cleaned and disinfected using products containing sodium hypochlorite or similar disinfectant. • If any organic matter present on the item, clean with water and detergent first, then a disinfectant. After disinfection using sodium hypochlorite, the items should be thoroughly rinsed or wiped with water (to remove irritating hypochlorite residues and salt deposits) before re-use. • Where manufacturers instruction prohibits the use of sodium hydrochloride for cleaning and disinfection, consider if there is an alternative that can be used or seek advice from IPAC team before it is removed from patient zone. • Use PPE as per standard precautions. • All waste generated during this disinfection process should be treated as clinical waste. • For semi-critical and critical equipment, ensure routine disinfection/sterilisation reprocessing occurs, but no additional disinfection or sterilisation cycle is required. **Meal delivery** • Use disposable items for meals.
Environmental cleaning	• VHF viruses are readily inactivated by hospital-level disinfectants. **Terminal clean** • Only allocate HWs trained in safe donning and doffing of PPE, including P2/N95 respirator fit checking principles should be allocated to enter and clean patient zone. • Once the patient has left the isolation room, the entire room should be cleaned with a neutral detergent then allowed to air dry or use a 2-in-1 cleaning and disinfection process. • Clean and disinfect all surfaces, furniture (including all surfaces of the bed and mattress), fittings and the ensuite. • Disposable cleaning cloths, mop cloths, and wipes should be used, and discarded into the clinical waste after each clean. • All cleaning cloths and mop heads must not be reused and must be disposed of as clinical waste. • Mop handle to be thoroughly cleaned, and: o cleaning trolley not to be taken into the room o clean from clean to dirty, patient room first then bathroom. • Change curtains, if present. • Where cleaning of a patient zone is not clear, seek advice form IPAC team before entry. **Disinfection**

	• Use sodium hypochlorite solution at a strength of 1,000 parts per million (ppm) available chlorine or hydrogen peroxide in 3% concentration. • Use PPE as per standard precautions (Level 1 PPE). • All waste generated during cleaning and disinfection process should be treated as infectious waste. • Do not use spray in occupied or unoccupied clinical areas with disinfectant. **Toilet waste** If a patient is unable to use the toilet, a pan can used and emptied in a pan sanitiser within the isolation room. If a sanitiser is not available, carefully empty the contents into the isolation room toilet (contents can be solidified with high absorbency gel if available), wearing a minimum Level 1 PPE.
Linen	• Disposable linen is the preference for patient clothing and bed linen. • Dispose of linen in the patient's room, not to be carried by HW. Discard all linen, sheets, towels, blankets, patient gown as clinical waste, rather than laundering for reuse. • Avoid any unnecessary manipulation of linen, which should be disposed of safely. • Patient clothing is to be discarded as clinical waste. The patient is to wear hospital clothing and gowns and not their own clothes. Ensure the patient and/or next of kin is aware that the clothing will be discarded and that needs to be documented. • When handling soiled linen, use Level 1 PPE with double gloves.
Waste management	Waste generated from patient(s) who have been categorised as increased possibility of VHF or have been confirmed with VHF infection should be classified as clinical waste. This includes any single-use items (for example, PPE, cleaning cloths and wipes) must be placed in a leakproof bag and discard as clinical waste. • VHF clinical waste (that is, medical waste derived from a patient with a VHF) is classified as Category A waste under the international standard UN 2814 for infectious substance, affecting humans. • Category A waste (including VHF clinical waste) must be packaged in a triple containment system; for example: o leakproof primary bag o rigid outer receptacle o leakproof secondary bag. • Keep the leakproof primary bag and rigid outer receptacle inside the patient's room or zone, and then place the receptacle inside a second clinical waste bag kept outside the patient room.

	• Prior to collection by the contractor, waste must be stored securely, and access restricted to authorised and trained personnel. • A waste contractor must be consulted to organise the safe disposal of the waste. Consult work health safety if there is no standard operating procedure around the above 3 steps. • VHF clinical waste must be destroyed within 24 hours of collection, as far as is reasonably practicable. • The transfer of VHF clinical waste into the custody of an appropriately trained and licensed waste contractor must be documented as part of quality controls and accountability.
Patient transfer	• Confirmed or likely VHF patient to be transferred to NBC for further management after discussion with the HCID team. • Consult with NSW Ambulance to organise the transfer. • Transfer of the patient will also depend on patient condition and suitability for transfer in consultation with NBC. If the patient is unstable and not for transfer, patient will require a negative pressure room, combined transmission-based precautions and to follow the advice in table 3 “Immediate actions to be followed”. • Refer to Early Response to High Consequence Infectious Diseases for further information.

4.4 Contacts

All HWs who have contact with the patient must be recorded for surveillance and an exposure risk assessment performed (see table directly below). Urgently contact the PHU for advice on contact tracing and follow up management support.

Table 5: Sample VHF surveillance – Daily HW contact list form

Surname	First name	Age/ Gender	Date of last contact	Type of contact*	Level of contact**	Baseline temp	PPE worn (Level 1 or 2)	Telephone number	Address	Comments

* **Types of contact:**

1 = Touched body fluids of the patient (blood, vomit, saliva, urine or faeces) with or without PPE.

2 = Had direct physical contact with the body of the patient (alive or dead) with or without PPE.

3 = Touched or cleaned linens, clothes or dishes of the patient with or without PPE.

** **Level of contact including length of time**

- High risk (had a needle stick or other penetrating injury involving contact with the patient's secretions, excretions, blood, tissues or other body fluids).
- Medium risk (involving contact with patient's secretions, excretions, blood, tissues or other body fluids to intact skin).
- Low risk (close contact; for example, providing care without any known breach).

5. Exposure management

Occupational exposures during the care of patients can occur due to:

- breaches in PPE during use or doffing
- accidental contamination of mucous membranes, non-intact skin with blood, tissue or other body substances
- exposure to airborne or droplet respiratory pathogens
- sharps injuries such as needle or scalpel that can pierce the skin.

5.1 Immediate management

Skin exposure

In the event of skin exposure, the HW should leave patient zone immediately and do the following:

- if visible blood or body substance present on gloves, remove contamination with detergent or disinfectant wipes (or dual purpose) taking care not to expose any further skin
- remove gloves in a controlled manner and then wash the exposed area with soap and running water
- inspect area to determine extent of contamination; check if there is any non-intact skin exposed
- remove remaining PPE (follow section 8. HCIDs - Checklist for PPE removal) and perform hand hygiene
- notify IPAC and ID units immediately for further assessment and management
- report the incident as per local procedures.

Mucous membrane exposure (eyes/nose/mouth)

HW to leave patient zone straight away and undertake the following:

- remove the contaminated PPE in a controlled manner to prevent further exposure (don clean gloves to remove contaminated PPE)
- check for any contamination if present, then remove it
- as soon as possible, spit out any blood or body substance that may have entered the mouth and rinse the mouth with water several times
- irrigate the eye or nose with water or normal saline (do not use any type of disinfectant on mucosal surfaces as part of first aid as this may cause irritation and potential entry portal if mucosa becomes damaged)
- remove remaining PPE (follow section 8. HCIDs - Checklist for PPE removal) and perform hand hygiene
- notify IPAC and ID units immediately for further assessment and management

- report the incident as per local procedure.

Percutaneous exposure (needlestick/sharps injury)

Where in jury has occurred, the following applies:

- remove outer gloves, check inner gloves; if visible blood or body substance, remove contamination with detergent or disinfectant wipes (dual purpose), then remove inner gloves
- perform hand hygiene with soap and running water (do not squeeze affected area)
- apply clean pair of gloves and remove remaining PPE (follow section 8. HCIDs - Checklist for PPE removal) and perform hand hygiene
- notify IPAC and ID units immediately for further assessment and management
- report the incident as per local procedure.

Ongoing management

During the 21-day period following high-risk exposure, HWs are advised they may need to:

- take post-exposure prophylaxis (as per ID advice)
- be in isolation during incubation period (home/hospital/other)
- perform daily symptom-monitoring during the incubation period, including temperature
- have further testing for HCID as symptoms develop and as required
- be reviewed by ID if any symptoms develop, and at the end of the incubation period
- PHU may be notified for follow up and further management
- liaise with their direct manager for any local workforce-related requirements or additional supportive measures (such as the Employee Assistance Program).

Based on risk assessment, if there are concerns for transmitting to household/family members at their usual living place, HW(s) may be housed in hospital or health service-allocated accommodation. This decision must include their manager and workforce regarding the LHDs HCID HW isolation requirement and accommodation eligibility plan.

Staff health, IPAC or designated service manager to provide appropriate support. HW(s) to also undergo ongoing Hepatitis and HIV testing as per risk assessment based on the NSW Health Policy directive, HIV, Hepatitis B and Hepatitis C – Management of Health Care Workers Potentially Exposed.

6. Handling of deceased bodies

When managing deceased bodies, the same precautions to be applied after death as were in place prior to death.

VHF may survive for several days in the body, and on surfaces contaminated with blood or other body fluids. The deceased body of any person suspected to have VHF must only be handled by a minimum number of HWs and those who are trained in the appropriate donning and doffing of PPE. The following also applies:

- for dry patients, HWs handling the body must wear PPE (minimum Level 1) and for wet patients, Level 2
- when transporting the deceased, the body must be placed and secured in a body bag or wrapping in a manner that prevents the leakage of body fluid or other substance; double bagging may be required to achieve this
- label the outer bag “Infectious Disease: Handle with care”
- do not wash or clean the body

- do not embalm the body
- do not perform post-mortem examination unless it is necessary (if a post-mortem examination is required it should be performed by operators using the highest-level PPE appropriate for high-risk infectious diseases, as per accepted forensic medicine procedures)
- do not remove any inserted medical equipment from the body such as intravenous (IV) lines, endotracheal or other tubing, or implanted electronic medical devices.

7. High consequence infectious disease – checklist before entering isolation room

Name of healthcare worker (HW): _____

Name of buddy: _____

Date: _____ Time: _____ MRN: _____

PREPARATION PPE DONNING		
Buddy checklist (tick items for completion)	**Steps**	**Action – Check by buddy (read out)**
☐	Step 1	Where possible, allocate a designated zone for donning PPE BUDDY CHECK – ensure ALL equipment is available and in the correct size: • surgical scrubs (for wet symptoms only) • disposable fluid resistant below-knee booties (for wet symptoms only) • surgical hood with flange (optional based on risk assessment) • inner gloves (different colour if available) • fluid resistant long sleeve gown (lower than knees) correctly tied and able to provide adequate back cover • P2/N95 respirator the HW has been fit tested to • eye protection • outer gloves with long cuff – if available, two different colours (sterile gloves may be used not necessarily due to the need for sterility but because they are associated with fit and dexterity) • stool/chair (cleanable) • alcohol-based hand rub (self-dispensing or buddy to assist in dispensing recommended) • hospital grade dual purpose disinfectant wipes.
☐	Step 2	Ensure that donning occurs in a quiet area. The environment needs to remain calm – limit activity and discussion to donning only.
☐	Step 3	Confirm that the HW has undertaken clinical competency assessment for combined transmission-based precautions

☐	Step 4	Confirm that the HW is wearing surgical scrubs and impervious, closed-toe shoes (for wet patient only).
☐	Step 5	Confirm skin integrity of HW (check break/scratch areas with alcohol hand rub for skin integrity; if not stinging, then may proceed). If HW has skin integrity breaks, then advise them not to care for patient. In the event of staffing contingency risk assess any skin breaks, small breaks/areas may be able to be covered by waterproof dressings where complete protection with PPE is also achieved.
☐	Step 6	Ask the HW if they need a drink of water or to go to the bathroom.
☐	Step 7	Check the following for the HW: • all jewellery has been removed; for example, facial and ear piercings, necklaces, rings, watches, bracelets, religious items and so forth • hair is off the face and collar, and tied in a ponytail or bun if required • HWs with facial hair to follow local facility policy on beard cover • no jumpers, jackets or vests are on • no wallets, phones, pagers, or pens are in pockets • no ID tag is hanging from scrubs.
☐	Step 8	Record HWs temperature in logbook.
DONNING PPE		
☐	Step 1	For wet patient, put on surgical scrubs and closed-in shoes. Ensure hair is off the face and collar and tied in a ponytail or bun. Secure own spectacles with head strap.
☐	Step 2 Hand hygiene	HW to perform hand hygiene with soap and water or alcohol-based hand rub. Ensure hands are dry.
☐	Step 3	HW to put on P2/N95 respirator.
☐		BUDDY CHECK (fit checking assist) – HW to perform fit check. Instruct HW to take deep breath then exhale. Feel if any air escapes and make any necessary changes to respirator fit.
Move to step 7 if booties and hood, are not needed.		

☐	Step 4 Booties (optional)	For wet patient, HW to sit down and put on disposable fluid repellent below-knee booties and tie any straps to prevent trip hazard (tying at the front facilitates easy removal).
☐		BUDDY CHECK – boots are secure around ankles and knees and ties are tied.
☐	Step 5 Hood (optional)	HW to put on surgical hood with flange. Do not tie it.
☐		BUDDY CHECK – ensure surgical hood covers head, neck, and shoulders.
☐	Step 6 Gloves	HW to put on inner pair of gloves.
☐	Step 7 Gown	HW to put on impervious, long-sleeve gown and tie at the back, ensure long enough to cover the back. If wearing, ensure inner gloves are tucked underneath the cuffs of the gown.
☐		BUDDY CHECK – check gown for any tears or holes and ensure inner gloves are tucked underneath the cuffs of the gown.
☐	Step 8 Eye protection	HW to put on eye protection.
☐	Step 9 Gloves	HW to put on outer gloves with the longer cuff. Ensure gloves go over the cuffs of the gown and no fabric showing.
☐		BUDDY CHECK – check that gloves are over the cuffs of the gown.
☐	Step 10	HW is ready to enter the room. Instruct the HW to use the room telephone if they need any assistance.

Buddy signature: _____

8. High consequence infectious disease – checklist for PPE removal

Name of healthcare worker (HW): _____

Name of buddy: _____

Date: _____ Time: _____ MRN: _____

PPE DOFFING		
Buddy checklist **(tick items for completion)**	**Step**	**Action – Check by buddy (read out)** Depends on the location of the buddy and interaction- Where there is a greater risk of contamination the buddy should also be equally protected wearing appropriate PPE (level 1 PPE)
☐	Step 1 Prepare to doff	Where possible a designated zone for doffing PPE is to be identified. Buddy to ensure all equipment is ready for removal. Buddy ensures the area is quiet and free from other staff and distractions. Equipment required for removal: • rigid plastic stool or chair that can be cleaned and disinfected near the door • clinical waste bin • alcohol-based hand rub • hospital-grade, dual purpose disinfectant wipes • additional gloves – different in colour compared with inner pair of gloves of HW, if available. Ensuring that these items are within one step of the HW and ensures that there is no unnecessary movement.
☐	Step 2	Buddy instructs HW that this will be a calm, smooth process and to tell the buddy if they need assistance at any time.
☐	Step 3	BUDDY CHECK – ask the HW if they inspected their PPE for visible contamination, cuts or tears before leaving the room and remove it with a hospital-grade, dual-purpose wipe prior to leaving the room.
☐		Buddy to inspect the PPE to assess for visible contamination, cuts or tears before starting to remove.
☐		If visible contamination present, HW to clean it with a disinfectant wipe and discard wipe into clinical waste bin. Buddy to also observe from a distance to inspect for any visible contamination.
☐	Step 4	Instruct HW to remove the outer gloves: • slip finger underneath outer gloves and carefully remove without touching outside of gloves • discard into designated clinical waste bin in doffing zone.

☐	Step 5	Inspect inner glove for any contamination, tear or cuts. Remove any visible contamination and change gloves if needed, followed by hand hygiene. If torn or cut, don another pair of gloves.
☐	Step 6	HW to remove impervious, long-sleeve gown. • assume that the gown front and sleeves are contaminated • avoid contact with scrubs and hood underneath the long sleeve gown • unfasten ties • pull away gown from neck and shoulder area, touching outside of gown and remove • turn gown inside out while removing, and fold or roll into a bundle touching only the inside of the gown. Discard into clinical waste bin.
☐	Step 7	BUDDY CHECK – ensure HW inspects gloves prior to removal.
☐	Step 8	Check gloves for contamination (if no visible contamination present go to step 9). If visible contamination present, HW to clean gloves with a disinfectant wipe and discard wipe into clinical waste bin. Remove gloves and perform hand hygiene. Don another pair of gloves. Go to step 10 if wearing booties.
☐	Step 9	Remove gloves by: • grasping outside of glove with opposite gloved hand; peel off • hold removed glove in gloved hand • slide fingers of ungloved hand under remaining glove at wrist • peel gloves off over first glove. Discard gloves into clinical waste bin.
☐	Step 10 (Booties if worn)	If worn, perform hand hygiene and don new pair of gloves. HW to sit on clean or covered stool/chair to begin removal of below-knee boots. • roll the top of the boots down for two turns (both legs) • carefully untie straps and remove the boot by grasping the heel area and pulling away from body • discard boot into clinical waste bin • place feet directly onto the floor away from the doffing zone.
☐	Step 11	Remove gloves and discard into clinical waste bin. Perform hand hygiene.
☐	Step 12	Don another pair of fresh gloves.

☐	Step 13	HW to remove hood (if worn), respirator and eye protection in one motion. Grasp back of hood, tilt head downwards and pull forward in a downward motion, removing hood, respirator and eye protection together. Place items in clinical waste bin.
☐	Step 14	Remove gloves and perform hand hygiene with soap and water, including forearms up to elbows. Alcohol-based hand rub can be used if from an automatic dispenser.
☐	Step 15	Final inspection by both buddy and HW for any contamination. If contamination is identified, the scrubs should be carefully removed and disposed of as clinical waste and the HW should shower immediately. Any possible exposure/contamination should be reported.
☐	Step 16	If there has been prolonged contact or high-risk patient care, then shower using a neutral soap and change into fresh scrubs. At the end of the shift, all HWs must shower with a neutral soap. If not contaminated, discard scrubs into routine linen for processing.

Buddy signature: _____

9. Additional resources

ACSQH, National Hand Hygiene Initiative – NHHI

CDC, Division of High-Consequence Pathogens and Pathology

CDC, Viral Haemorrhagic Fevers - CDC Yellow Book 2024

CDC, Respiratory Infections CDC Yellow Book 2024

Ebola virus disease, CDNA National Guidelines for Public Health Units

NBC SharePoint website

NSW Health Viral haemorrhagic fevers control guideline

NSW Health EVD - For Hospitals - Hospital Preparedness

NSW Health Ebola virus disease control guideline

NSW Health Ebola virus disease (EVD)

NSW Health Early Response to High Consequence Infectious Diseases

10. References

- Centers for Disease Control and Prevention, What are VHFs?
- European Centre for Disease Prevention and Control, Health emergency preparedness for imported cases of high-consequence infectious diseases (see operational checklist for country preparedness planning in the EU/EEA countries)
- World Health Organization, Haemorrhagic fevers, Viral
- NSW Health, Early Response to High Consequence Infectious Diseases
- UK Government, High consequence infectious disease: country specific risk

Appendix A: High consequence infectious diseases – Viral haemorrhagic fever preparedness checklist

1.	Identification of potential cases			
		Y/N	**Sign**	**Date**
1.1	Strategies are in place to detect travel-related infections (for example, on eMR at Triage).	☐ Y ☐ N		
1.2	Process in place to exclude more common/likely travel related infections (for example, Dengue and Malaria).	☐ Y ☐ N		
1.3	Contact numbers for local PHU, IPAC and HCID Westmead Hospital (ID physician at Westmead on 1800HCID00 (1800 424 300)) readily available.	☐ Y ☐ N		
1.4	Line listing available for the identification and management of potential contacts.	☐ Y ☐ N		
1.5	An isolation space and transmission-based precautions door signage is identified in the emergency department (single room, negative pressure, if available).	☐ Y ☐ N		
1.6	Local escalation plans available with contact numbers if a suspected VHF patient presents to the facility.	☐ Y ☐ N		
1.7	Escalation plan includes an after-hours process, environmental cleaning, occupational exposure management processes and local work health safety considerations.	☐ Y ☐ N		
2.	**Personal protective equipment (PPE)**			
2.1	Appropriate PPE kits for HCID are available in the emergency department and checked regularly as per local discretion.	☐ Y ☐ N		
2.2	Relevant health workers undergo regular (minimum annually) competency assessment as per local discretion for the use of PPE, which is documented.	☐ Y ☐ N		
2.3	Donning and doffing zones can be identified.	☐ Y ☐ N		
2.4	Donning and doffing buddy checklists are available.	☐ Y ☐ N		
2.5	Training and simulation exercises are performed and documented.	☐ Y ☐ N		
2.6	Dedicated patient-use equipment is identified (preferably disposable); if not, identify items that can be cleaned and disinfected with TGA-approved disinfectant prior to being considered for use as feasible.	☐ Y ☐ N		