Regional Public Health
Better Health For The Greater Wellington Region

Facsimile Cover Sheet
Wharangi Nama Waea

Date/Te Ra: 28 October 2014

To/Kia: General Practitioners, Practice Nurses, Pharmacists, After-hours Centers , ID Physicians, and Emergency Departments in the greater Wellington and Wairarapa region	From/Na: Dr Craig Thornley
Name of Agency/Wahi Mahi: n/a	Fax Number/Nama Waea: n/a

Ebola Virus Disease (EVD) Update from the Ministry of Health

I would be grateful if you could distribute the following updated information from the Ministry of Health to relevant staff in your organisation.

1. Updated Information for Health Professionals: Ebola Virus Disease (EVD) (version 24-10-14) – contains updates from previous version
2. Patient Management Guideline for Primary Care: Ebola Virus Disease (EVD) (version 24-10-14) – contains updates from previous version
3. FACTSHEET: Screening of travellers at airports (version 21-10-14)
4. FACTSHEET: Information about Ebola (version 23-10-14)
5. SIGNAGE: Attention to notify of travel history (version October 2014)

The situation with EVD internationally is rapidly evolving, so these documents are being refreshed regularly. The Ministry of Health would appreciate any feedback on their content or any other queries by email on ebolareadiness@moh.govt.nz This information is available at www.health.govt.nz/ebola and also on the Regional Public health website www.rph.org.nz

If you would also like to receive this by email for ease of distribution, storage and retrieval please advise RPH of your email on rph@huttvalleydhb.org.nz.

Kind regards,

Dr Craig Thornley
Medical Officer of Health [designation forthcoming]
Regional Public Health

MINISTRY OF HEALTH
MANATŪ HAUORA

New Zealand Government

Patient Management Guideline for Primary Care Ebola virus disease (EVD)

Updated 24 October 2014

This summary guideline has been developed specifically for primary care facilities and clinicians. It is based on the Ministry of Health's *Updated information for health professionals: Ebola virus disease (EVD)* guidance document which has more detailed information and will be updated on the Ministry's website on a regular basis: **www.health.govt.nz/ebolaguidance**

It is important that health professionals phone their local Public Health Unit for advice regarding any person with history or symptoms of concern for any possible notifiable disease, even if they do not formally meet the suspected case definition.

EVD - suspected case definition*

EVD should be suspected in people who are unwell with fever > 38.5°C
AND, within the last 21 days travelled to/from an EVD-affected country **OR** had close contact with a probable or confirmed case **OR** had exposure to EVD-infected blood or other body fluids or tissues **OR** directly handled bats, rodents or primates, from EVD-affected countries **OR** prepared or consumed 'bushmeat' from EVD-affected countries.

Further details on case definitions and the most recent case definitions are located at:
www.health.govt.nz/ebolacasedefinition

Potential Community Presentation Pathways

Person presents at primary care facility

If potentially EVD*, the person should be placed in a single room. Where possible, the room should be cleared (prior to use) of removable items to reduce cleaning requirements. Staff should put on the appropriate PPE (surgical facemask and visor, gloves, single use gown) and perform hand hygiene.

The General Practitioner will contact the local Medical Officer of Health as soon as possible who will assist with case assessment and if appropriate, will coordinate transfer to an appropriate health care facility.

Person phones ahead to primary care facility from the community

If potentially EVD*, the person should be advised not to visit the primary care facility.

The General Practitioner will contact the local Medical Officer of Health as soon as possible who will assist with case assessment and if necessary, will coordinate transfer to an appropriate health care facility.

Additional key notes

- Reception staff should be made aware of these instructions.
- Any people that identify themselves to reception staff as being unwell and have visited an EVD affected country in the previous 21 days should be isolated in a single room as soon as possible. They should not sit in the general waiting room once EVD is considered a possibility.
- For correct putting on and removal of PPE, please refer to the Infection Protection and Control section of the Ministry's *Updated information for health professionals: Ebola virus disease (EVD).*

See reverse for guidelines related to environmental cleaning

Guidelines for environmental cleaning of primary care facilities following suspected case of EVD

These guidelines provide a brief overview of environmental cleaning procedures. If you have had a suspected case of EVD in your primary care facility, you will be engaged with your local Public Health Unit and should contact them for advice. If you require urgent advice and cannot reach your public health unit, please contact the Ministry of Health on 0800 GET MOH.

People infected with EVD are infectious only once they develop symptoms. Once symptomatic, all body fluids and secretions such as blood, faeces, saliva, vomitus, urine should be considered infectious.

If undertaking environmental cleaning:

1. Put on the appropriate Personal Protective Equipment (PPE), including gloves, gown, apron, surgical facemask, and visor. Always practice hand hygiene.
2. Gather equipment:
   - bucket of warm water and detergent
   - disposal cloths
   - yellow Bio-hazard bags (double bagging required)
   - a fresh bleach solution 1,000 ppm for general cleaning, 5,000 parts for blood and body fluid spillage.

Visibly soiled areas:

In obviously contaminated areas, body fluids should be wiped or blotted away with disposable cloths (place into yellow bio-hazard bags). Wipe over with detergent and water to remove residual soiling place cloths in to yellow bag. Allow to dry. Finally disinfect area with bleach solution, allow bleach solution to sit for 30 minutes before wiping off with clean cloths.

Areas not visibly soiled:

Surfaces and objects which are not visibly soiled should be wiped over with detergent and water, allowed to dry then disinfected with bleach solution. Place all cloths into yellow bio-hazard bag

Public areas passed through:

Public areas where the suspected EVD case has passed through and spent minimal time in (such as corridors) but are not visibly contaminated with body fluids do not need to be specially cleaned and disinfected.

Final steps:

- remove PPE and place into yellow bio-hazard bags - perform hand hygiene
- put on fresh set of PPE and tie off yellow bags – place one bag into another and tie this off also
- place bag into locked area away from public area, and ensure collection by routine clinical waste management company
- empty out used cleaning solution – rinse with clean water, wipe inside and outside of buckets with bleach solution, invert and allow to dry
- remove PPE, dispose of normally and perform hand hygiene.

If you have any non-urgent queries please contact your local Public Health Unit or email: ebolareadiness@moh.govt.nz

MINISTRY OF HEALTH
MANATŪ HAUORA

HP6020
24 October 2014

Updated information for health professionals: Ebola virus disease (EVD)

24 October 2014

The EVD situation is rapidly evolving. Please ensure that you check the health professional's advice on www.health.govt.nz/ebolaguidance for any updated information.

Contents

1.0 Introduction 2
1.1 Where to get further information and advice 2
1.2 Context 2
1.3 Risk assessment 2
1.4 Local readiness and response plans 3
2.0 Guidelines for health professionals 3
2.1 EVD case definitions 4
2.2 Immediate actions on identification of a suspected case 5
2.3 Management of a suspected case 5
2.4 Contact tracing and management 6
2.5 Management of a confirmed case 9
2.6 Special situations 9
Appendix 1: Current international situation as of 24 October 2014 10
Appendix 2: General information about EVD 11
Appendix 3: Infection prevention and control management plan for suspected cases of viral haemorrhagic fever caused by filoviruses (Ebola and Marburg viruses) 12

1.0 Introduction

This document provides updated information and guidance concerning Ebola virus disease (EVD) which is complementary to or, where there are differences, supersedes the information provided in the Communicable Disease Control Manual 2012 (www.health.govt.nz/publication/communicable-disease-control-manual-2012).

This guidance is based on advice from the World Health Organization (WHO) and the Ministry's Ebola Technical Advisory Group (ETAG).

Intended users of this guidance are health care workers, laboratory workers and others who may come into contact with potentially infectious material from a suspect or confirmed case of EVD. Multiple health professional organisations have also released statements regarding EVD to their organisations and/or provided links to this Ministry guidance on their websites, for example the New Zealand Nurses Organisation (http://www.nzno.org.nz/)and Medical Council of New Zealand (https://www.mcnz.org.nz/).

1.1 Where to get further information and advice

Please see the webpages below for the latest information:

General information for the public:
www.health.govt.nz/ebola

Health professional guidance:
www.health.govt.nz/ebolaguidance

Situation updates:
www.health.govt.nz/ebolaupdate
www.who.int/csr/disease/ebola/situation-reports/en

EVD case definitions:
www.health.govt.nz/ebolacasedefinition

General information about EVD can also be found in Appendix 2 of this document.

Any queries from health professionals about patients that could have EVD should be directed to your local public health unit in the first instance.

If you require urgent advice and cannot reach your public health unit, please contact the Ministry of Health (0800 GET MOH).

The Ministry is operating an Ebola Readiness Incident Management Team (IMT) that will provide advice, support and coordination. The Ebola Readiness IMT will be able to call on additional expert advice from the Ministry's ETAG.

To contact the Ministry's Ebola IMT for routine (non-urgent) queries, email: ebolareadiness@moh.govt.nz

1.2 Context

EVD is notifiable as a viral haemorrhagic fever under the Health Act 1956. Suspected cases of EVD or any viral haemorrhagic fever must be notified to the local Medical Officer of Health immediately.

EVD is a quarantinable infectious disease. This allows the full range of quarantine provisions to be used to manage suspected cases and contacts at the border, and for the provisions of the Epidemic Preparedness Act 2006 to apply, if required. The Ministry would notify the World Health Organization (WHO) of a case of EVD under the International Health Regulations, 2005.

1.3 Risk assessment

The Ministry's risk assessment currently indicates that it is extremely unlikely that a confirmed case of EVD would be identified in New Zealand. However, it is considered more likely that a traveller that meets the suspect case definition for EVD would present and require management until laboratory testing ruled out EVD. If a suspected case were to present in New Zealand, given the location, population and frequency of international flight arrivals it is most likely that they would present in Auckland, Wellington or Christchurch.

1.4 Local readiness and response plans

District health boards (DHBs) should undertake comprehensive local risk assessments and formulate local readiness and response plans.

Operational guidelines for public health unit border health protection officers (medical officers of health or health protection officers) who may be required to manage ill travellers with suspected symptoms of EVD is available on the Health Emergency Management Information System (EMIS). Please contact your DHB Emergency Planner for further information on Health EMIS if required.

2.0 Guidelines for health professionals

2.1 EVD case definitions

The current case definitions for EVD are listed below. However, the situation is evolving, so it is important to check the most recent case definitions on the Ministry website: www.health.govt.nz/ebolacasedefinition.

It is important that with any person whose history and symptoms raise concern, health professionals phone their local public health unit for advice, even if the person does not meet the formal case definition.

Suspected case

A person with a clinical illness compatible with EVD[1]

AND, within 21 days before onset of illness, EITHER:

- a history of travel to the affected areas[2] OR
- direct contact with a probable or confirmed case[3] OR
- exposure to EVD-infected blood or other body fluids or tissues[4] OR
- direct handling of bats, rodents or primates, from Ebola-affected countries OR
- preparation or consumption of 'bushmeat'[5] from Ebola-affected countries.

Probable case

A suspected case with no possibility of laboratory confirmation for EVD either because the patient or samples are not available for testing

Confirmed case

A suspected case with laboratory confirmation (positive serology or PCR).

---

[1] Sudden onset of fever (>38.5° C) with additional symptoms such as intense weakness, headache, myalgia, abdominal pain, sore throat, vomiting, diarrhoea or unexplained haemorrhage. Initial symptoms are usually not specific and may worsen after a few days, often with prostration, rash, evidence of capillary leak, bleeding/haemorrhage, shock and impaired consciousness. Please note that during the current outbreak in West Africa, haemorrhagic symptoms have been reported less frequently than non-specific symptoms.

[2] Affected areas in Guinea, Liberia, Sierra Leone, and the Équateur province in the Democratic Republic of Congo (see the map at www.cdc.gov/vhf/ebola/resources/distribution-map-guinea-outbreak.html).

[3] Direct contact includes:

- direct physical contact with the case during the illness[6]
- direct physical contact with the case post mortem[6]
- having touched case's blood or body fluids during the illness[6]
- having touched case's clothes or linens during the illness[6]
- having been breastfed by the case.

[4] This includes the semen of a recovered male patient. The presence of virus has previously been demonstrated in semen for up to three months after recovery.

[5] Bushmeat is the meat of African wild animals used as food

[6] Without the appropriate infection prevention and control measures.

2.2 Immediate actions on identification of a suspected case

- Place the suspected case in a single room. Place in a negative pressure room, if available.
- Use standard precautions plus droplet transmission-based precautions, including the use of personal protective equipment (PPE). See Appendix 3 for Infection Prevention and Control Guidance.
- Suspected cases of EVD should only be managed by senior members of staff.
- Suspected cases of EVD must be notified immediately to the local Medical Officer of Health. EVD is notifiable as a viral haemorrhagic fever under the Health Act 1956. The public health unit will then coordinate next steps and notify the Ministry of Health. It is important that health professionals phone their local public health unit for advice regarding any person with symptoms that raise concern, even if they do not think they formally meet the suspected case definition.
- Local readiness and response plans should be initiated. A suspected or confirmed case of EVD should be managed in a tertiary care facility. Local readiness and response plans should include identification and initial management of a suspected EVD case, as well as transport of a suspected case from the community, or a primary or secondary care facility to a tertiary care facility. Relevant ambulance services should be involved in making these arrangements.
- The preferred tertiary facilities for the management of a suspected or confirmed case of EVD are Auckland, Middlemore, Wellington or Christchurch Hospitals, however other tertiary facilities may also be utilised if required.
- The Ministry's Ebola Readiness IMT will provide advice, support and coordination. The IMT will be able to call on additional expert advice from the Ministry's ETAG, as required.

2.3 Management of a suspected case

Care for EVD is supportive, as there is no specific approved vaccine or therapeutic (antiviral drug) options available.

Other diagnoses, such as malaria or typhoid fever, are more likely than EVD in ill travellers from affected countries. Based on clinical assessment and discussion, it may therefore be appropriate to treat for other diseases empirically whilst awaiting diagnostic EVD results (see 2.5 and 2.6).

Diagnostic testing for other diseases is not recommended until EVD has been ruled out.

Laboratory testing for EVD diagnosis

EVD diagnostic testing must be undertaken in an accredited reference laboratory for quality assurance purposes. The Ministry has arrangements in place for testing to be undertaken at the Victorian Infectious Diseases Reference Laboratory (VIDRL), Peter Doherty Institute, Victoria.

VIDRL has requested that only original samples be submitted, not deactivated samples or extracted nucleic acid.

Instructions for the shipping of samples are included in the 'Sample Shipping Process' document available on the Health Emergency Management Information System (EMIS). Please contact your DHB Emergency Planner for further information on Health EMIS if required.

The timeframe for receiving a result is up to 72 hours.

Laboratory testing for patient management

- Local risk assessments should be conducted regarding collection, handling, testing and disposal of specimens from suspected EVD cases.

General recommendations for clinicians managing suspected EVD cases

- Until the EVD diagnostic test result is available, routine haematology and other tests should be minimised as the blood of EVD cases is highly infectious.
- Additional diagnostic tests, for more likely diagnoses such as malaria or typhoid fever, are not recommended until EVD has been ruled out. Consideration must be given to the possibility of co-infection – the presence of malaria, typhoid or other disease does not rule out EVD, and vice versa.
- Based on clinical assessment and discussion, it may be appropriate to treat for other diseases empirically whilst awaiting EVD diagnostic results.
- Following negative diagnostic results for EVD, a suspected case may be released from isolation and discharged, if the medical condition allows, unless a high index of suspicion remains (such as in the absence of an alternative diagnosis). They should be given information about EVD and contact details for the local public health unit.

General recommendations for clinicians and laboratory staff managing samples

- Local risk assessments should be conducted regarding collection, handling and disposal of specimens from suspected EVD cases.
    - All laboratory staff and other healthcare personnel collecting, handling, testing or disposing of specimens must follow established laboratory standards. Refer to AS/NZS 2243.3.2010: Safety in Laboratories.
- Point of care testing devices are available:
    - In line with other jurisdictions, the Ministry has purchased point of care testing devices for use in the management of a suspected or confirmed EVD case. These devices have been distributed to Auckland, Middlemore, Wellington and Christchurch Hospitals. If a patient were to present at another facility and they were not able to be transferred then the Ministry of Health will arrange deployment of the device to the appropriate facility.
    - There is currently no international consensus as to whether the point of care devices should be used at the bedside or within the laboratory. This decision will be made on a case by case basis, based on a local risk assessment, as it would include consideration of the patient's condition as well as the particular local facilities.

2.4 Contact Tracing and Contact Management

Purpose of contact tracing

- Contact tracing is required for the prevention of onward transmission, awareness-raising and early detection of suspected cases. This will be coordinated by the local Public Health Unit (PHU).
- People infected with EVD are not infectious before symptoms develop. The risk of transmission increases in later stages of the disease, with increasing viral titres. Physical contact with infected body fluids is necessary for transmission.
- Once the contact information and risk assessment has been completed, contacts should be managed in accordance with the guidance in Table 1 (pages 7 & 8): Categories and management of contacts.

Table 1: Categories and Management of Contacts

Category of contact/Risk	Definition	Advice/Action	Monitoring
Casual contact, no risk	No direct contact with an EVD case or body fluids but may have been in the near vicinity of the patient e.g. travelling on public transport, sitting in the same room.	Provide advice about likely absence of risk. Provide fact sheet and health advice.	Nil required.
Direct contact, low risk	Flatting or living in a household with an EVD case but no direct contact with body fluids (e.g. not sharing toothbrush, not kissing, not breastfed, no sexual contact). Close contact in a healthcare or community setting – where close contact is defined as: • Being within 1 metre of an EVD patient for a prolonged length of time while **NOT** wearing personal protective equipment (PPE). • Direct skin to skin contact (e.g. hugging) while **NOT** wearing PPE. Healthcare workers see *page 8*.	No limitation to daily living activities if asymptomatic. Provide advice about likely low level of risk. Provide fact sheet and health advice.	Report immediately to Healthline if symptoms develop, including fever. Healthline immediately notifies the local Public Health Unit. Public Health Unit staff will investigate and immediately notify the Ministry of Health on 0800 GET MOH, if necessary.

Category of contact/Risk	Definition	Advice/Action	Monitoring
Direct contact, high risk	Direct contact with body fluids from EVD case without appropriate PPE. This includes percutaneous injury, sexual contact, being breastfed by a case, laboratory processing of body fluids of suspected EVD cases without appropriate PPE. Direct contact with a dead body without PPE. Preparing and/or eating bushmeat in affected countries.	Most people will have no limitations to daily living activities provided they are asymptomatic and adhering to monitoring. However, public health staff may require additional controls e.g. return to work/school dependant on risk assessment. Consideration may also be given to quarantine (home or facility) dependent on risk assessment, and/or compliance with monitoring. Provide support and advice about higher level of risk. Provide fact sheet and health advice.	Twice daily self-monitoring for fever and other symptoms for 21 days from last exposure. Daily phone call or visit from public health staff. Report immediately to public health staff if symptoms develop, including fever. Public Health Unit staff will investigate and immediately notify the Ministry of Health on 0800 GET MOH, if necessary.
Healthcare workers and people who have been assisting in the EVD response in EVD affected countries.	Providing healthcare to a case or suspected case in New Zealand. Laboratory worker handling specimens from a case or suspected case in New Zealand. *People returning from assisting in the EVD response in an EVD affected country (please refer to the protocol on the Ministry of Health website: http://www.health.govt.nz/our-work/diseases-and-conditions/ebola-updates/protocol-individuals-entering-new-zealand-after-assisting-ebola-virus-disease-response-affected).	Most people will have no limitations to daily living activities provided they are asymptomatic and adhering to monitoring. However, public health staff may require additional controls e.g. return to work/school dependant on risk assessment (for example, any PPE breach). Consideration may also be given to quarantine (home or facility) dependent on risk assessment, and/or compliance with monitoring. Provide support and advice about higher level of risk. Provide fact sheet and health advice. *The Ministry of Health protocol for people returning from assisting in the EVD response in EVD affected countries states they should discuss with their local PHU whether they are able to return to work (stand down of 21 days for healthcare workers).	Twice daily self-monitoring for fever and other symptoms for 21 days from last exposure. For those providing healthcare in New Zealand to a case or suspected case, please refer to 'occupational health and blood and body fluid exposure' in Appendix 3 (page 17). *For those returning from assisting in the EVD response in EVD affected countries, they will have daily phone calls or visit from local public health staff and must report immediately to the public health unit if symptoms develop or fever is greater than 38.0°C. Public Health Unit staff will immediately notify the Ministry of Health (on 0800 GET MOH) of any person with concerning history or symptoms, or who formally meets the suspected case definition.

2.5 Management of a confirmed EVD case

Care for EVD is supportive, as there is no specific approved vaccine or therapeutic (antiviral drug) options available.

The Ministry's Ebola Readiness IMT that will continue to provide advice, support and coordination. The IMT will be able to call on additional expert advice from the Ministry's ETAG, which includes expertise in the management of viral haemorrhagic fevers, including EVD cases.

For a confirmed case in the convalescent phase, the need for PPE may be reviewed as the patient's clinical state improves. Recovered confirmed cases may be released from isolation in consultation with an infectious diseases physician and allowed to return home once well. However, convalescent patients must be meticulous about personal hygiene due to the possibility of the presence of virus in bodily fluids (particularly semen, in which the presence of virus been demonstrated for up to three months after recovery). The case should be given advice about the use of condoms or advised to abstain from sex.

2.6 Special situations

Outbreaks in health care facilities

If one or more suspected, probable or confirmed EVD cases are identified in a healthcare facility, an outbreak management team should be convened; including a senior facility manager, an infection control practitioner and appropriate clinical staff, in consultation with local the PHU. Control measures may include:

- identification and monitoring of close contacts
- active case finding and treatment
- isolation and/or cohorting
- work restriction for health care workers who have had close contact (ie, unprotected exposure) with a suspected, probable or confirmed case
- distribution of fact sheets and other information
- epidemiological studies to determine risks for infection.

Outbreaks in residential care facilities or other residential institutions (e.g. prisons or boarding schools)

There have been few if any reports of EVD outbreaks in institutions other than in healthcare facilities. Nevertheless, it is assumed that fellow residents in an institution may be at greater risk of infection if there has been a confirmed case living at the institution while infectious, particularly if there are shared bathroom/toilet facilities.

If one or more probable or confirmed EVD cases are identified in a residential care facility or institution, an outbreak management team should be convened, including PHU staff.

Other factors to consider in the event of local transmission

Where local transmission of EVD is thought to have occurred, a thorough review of contributing environmental factors should be undertaken. This should include a review of infection control procedures, and opportunities for exposure to environments contaminated by body fluids.

If a case has had exposure to animals in New Zealand, it may be appropriate to consult with the Ministry for Primary Industries to assess the risk that animals could have become infected.

Appendix 1: Current international situation as of 24 October 2014

An outbreak of EVD has been occurring in West Africa since December 2013. It is the largest outbreak of EVD ever reported, both in terms of the number of cases and the geographical spread. It is also the first time the EVD has spread to large cities.

For further information on the evolving situation, see: www.who.int/csr/disease/ebola/situation-reports/en/

A list of countries currently defined as EVD affected countries is available at: www.health.govt.nz/ebolaupdate

Declaration of a Public Health Emergency of International Concern (PHEIC)

On 8 August 2014, Director General of the World Health Organization (WHO) declared the ongoing Ebola Virus Disease (EVD) outbreak in West Africa to be a Public Health Emergency of International concern (PHEIC). This decision was based on the advice and assessment of an Emergency Committee convened under the International Health Regulations. It is only the third time a PHEIC has been declared (the first was for the 2009 H1N1 influenza pandemic, the second was in May 2014 in response to the international spread of wild polio virus).

The WHO has issued a series of recommendations for states with EVD transmission, those with potential or confirmed EVD cases and those with land borders with affected states. These recommendations are intended to assist with containing the outbreak and preventing further international spread. The WHO also issued a series of recommendations for all states which are applicable to New Zealand.

Separate EVD outbreak in the Democratic Republic of Congo (DRC)

A separate outbreak of EVD, not related to the ongoing outbreak in West Africa, was reported on 24 August by the Democratic Republic of Congo (DRC).

Situation updates

The WHO website has latest situation updated and other information: www.who.int/csr/disease/ebola/situation-reports/en

The CDC website has an up-to-date map of countries affected by EVD: www.cdc.gov/vhf/ebola/resources/distribution-map-guinea-outbreak.html

Appendix 2: General information about EVD

Ebola viruses

EVD is caused by a virus of the *Filoviridae* family. Five species of Ebola virus have been identified, namely Zaire, Sudan, Reston, Tai Forest and Bundibugyo, from samples collected during human and non-human primate outbreaks since the first outbreak in the Democratic Republic of the Congo in 1976. Fruit bats of the *Pteropodidae* family are considered to be a likely natural host of the Ebola virus, with outbreaks of EVD occurring occasionally amongst other species such as chimpanzees, gorillas, monkeys and forest antelope. The 2014 outbreak in West Africa is caused by the Zaire strain of Ebola virus.

Transmission

EVD is introduced into the human population through contact with the blood, secretions, other bodily fluids or organs of infected animals (often through hunting or preparation of bushmeat[1]). EVD then spreads person to person through contact and droplet transmission via the blood, secretions, organs or other bodily fluids of infected people, and contact with environments heavily contaminated with such fluids, including in health care settings. The risk for infection in health care settings can be significantly reduced through the appropriate use of infection control precautions. Transmission through sexual contact may occur up to seven weeks after clinical recovery. Laboratory-acquired infections have also been reported.

Airborne transmission, as occurs for measles or influenza, has never been documented. There is no evidence that simple physical contact with a sick person is sufficient for contracting EVD. Contact with heavily contaminated objects (such as bedding) can possibly facilitate transmission. Traditional burial ceremonies in affected countries are a known high risk activity for transmission.

The role of the environment in transmission has not been established. Under environmental conditions that favour virus persistence, it has been shown that Ebola virus can survive in liquid or dried material for a number of days. However, Ebola virus is also sensitive to inactivation by ultraviolet light and drying.

Incubation period, signs and symptoms

The incubation period varies from 2 to 21 days, most commonly 8-10 days. People are not infectious before symptoms develop. The onset of symptoms is sudden and includes fever, intense weakness, myalgia, headache, nausea and sore throat. This is followed by vomiting, diarrhoea, impaired kidney and liver function, rash, and in some cases, both internal and external bleeding. Laboratory findings frequently include low white blood cell and platelet counts, as well as elevated liver enzymes. Some cases progress to profuse internal and external bleeding, which can further progress to shock and multi-organ failure. The mortality associated with Ebola virus in developing countries ranges from 50 percent to 90 percent (50–70 percent in this current outbreak) depending on the species of Ebola virus causing disease. The mortality for patients receiving care in developed countries is not known but is expected to be lower.

1. The meat of African wild animals used as food.

Appendix 3: Infection prevention and control management plan for suspected cases of viral haemorrhagic fever caused by filoviruses (Ebola and Marburg viruses)

Purpose

This guideline outlines the management of patients with known or suspected viral haemorrhagic fever within New Zealand district health board hospitals. This includes, but is not limited to, pathogens such as the Ebola and Marburg viruses.

These guidelines are based on the available information and the following considerations:

- The lack of a safe and effective vaccine for EVD.
- A suspected high rate of morbidity and mortality among EVD infected patients.
- Absence of confirmed or probable EVD case in New Zealand.
- The rapidly evolving international situation.
- Initial diagnosis not likely to be known and patient may have airborne disease rather than EVD.

Guideline principles and goals

This guideline takes a precautionary approach and recommends a higher level of infection prevention and control measures than required for the reasons listed above. As more information becomes known about the situation, changes may be made to the infection prevention recommendations.

The guideline provides infection prevention and control guidance for all staff members when in close contact with a **patient either suspected or proven to have a viral haemorrhagic fever.**

Key documents this guidance is based on

1. CDC Infection prevention and control recommendations for hospitalised patients with known or suspected Ebola Haemorrhagic Fever in US hospitals. Updated 20 October 2014. www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html
2. Public Health Agency of Canada Laboratory Biosafety and Biosecurity. Ebola Virus. Updated 1 August 2014. www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/ebola-eng.php
3. WHO Interim infection control recommendations for care of patients with suspected or confirmed Filovirus (Ebola, Marburg) Haemorrhagic Fever. August 2014. www.who.int/csr/resources/publications/ebola/filovirus_infection_control/en/
4. UK Department of Health HSE Management of Hazard Group 4 viral haemorrhagic fevers and similar human infectious diseases of high consequence. August 2014. www.gov.uk/government/uploads/system/uploads/attachment_data/file/354640/VHF_guidance_document_updated_links.pdf

Infection prevention and control

This infection is spread via direct contact and indirect contact with infectious body fluids including secretions and excretions. Droplet spread may occur. Spread by small particle aerosols has not been conclusively demonstrated.

The concern and safety of health care workers related to the high mortality rate has been taken into consideration for infection prevention and control measures and a precautionary approach is therefore recommended. For this reason the following personnel restrictions should be put in place.

1. Restrict all non-essential staff from entering the clinical care area.
    - Use of signage.
    - Use of security personnel.
2. Maintain a log of all staff and non-staff (family, friends and whānau) entering the room.
    - Use of a checklist to ensure that all staff and non-staff entering the clinical care area use personal protective equipment (PPE) correctly - the wearing of correct PPE and the safe removal of PPE.
3. Visitors restricted.

Standard Precautions and Transmission-based Precautions should be applied.

Contact and droplet precautions

1. Patient placement

- The patient should be placed in an airborne infection isolation room (negative pressure room) because of the high mortality associated with this infection. An ante room and ensuite bathroom is highly desirable. NB: If a negative pressure room is not available, at a minimum a single room, with the door closed, should be used until transfer to a negative pressure room is possible.
- It is important that there is adequate space to allow for placement of PPE, infectious waste bins and disposable/single-patient use equipment for use with patient care. Discuss with IPC staff the optimal set up of 'clean' and 'dirty' areas.
- DHBs should refer to local infection prevention and control guidelines/policy on placement of PPE and waste bins.

2. Hand hygiene

- Staff should wash their hands with soap and water.
- Use alcohol-based hand rubs in accordance with the '5 moments for hand hygiene'.
- Hand hygiene should precede the donning of PPE and during the removal of contaminated PPE, as specified in the instructions on donning and removing.

3. Personal protective equipment (PPE)

- The donning and removal of PPE should be supervised by a trained observer. Ensure that trained observer is wearing PPE to protect themselves from accidental transmission when assisting in the removal of used PPE, to reduce the risk of accidental skin exposure or self-contamination when removing used PPE.
- Staff should be trained in procedures to put on and take off PPE. Clear instructions should be available on what PPE should be used, disposal of used PPE. Training should be held regularly.

- **Gloves** – Single use examination gloves with extended cuffs. Two pairs of gloves should be worn. At a minimum, outer gloves should have extended cuffs. Perform hand hygiene before putting on gloves and after removal of gloves. This should occur before leaving the patients room. The discarded gloves should be placed in the infectious waste bin.
  - After glove removal and performing hand hygiene, ensure that hands do not touch potentially contaminated environmental surfaces or items in the patient's room.
  - If, inadvertently, gloves were not worn by a staff member or a non-staff member during the handling of the patient, contaminated patient care equipment or linen, then they must immediately wash their hands with soap and water. They should also inform occupational health staff.
- **Gowns** – wear a semi-impervious splash-resistant disposable isolation gown or an all-in one disposable coverall[2] (consideration should be given to selecting gowns or coveralls with thumb hooks to secure sleeves over inner glove). If there is a risk of significant exposure to blood or body fluids then wear a disposable plastic apron over the gown or coverall.
- **Masks** – wear a surgical mask. For all aerosol-generating procedures wear a particulate respirator (N95/P2 mask[3]) (see Airborne Precautions below). Ensure that all staff who will be wearing such masks are familiar with 'fit checking'. Guidance should be sought from IPC personnel if staff have any queries. Masks should comply with AS/NZS 1716:2012 respiratory protective devices.
- **Face shield** – wear a disposable single use full facial shield (surgical masks with integral eye shields do not protect the entire face).
- **Surgical hood** –disposable single use hood that extends to the shoulders and fully covers the neck.
- **Boot covers** – wear disposable single use fluid resistant or impermeable boot covers that extend to at least mid-calf. Boot covers should allow for ease of movement and not present a hazard to the wearer.
- **Hair covers** – disposable single use hair cover to be worn under surgical hood.

Ensure that all PPE is donned and removed adhering to best practice. Removed PPE should be placed in an infectious waste bin.

Airborne Precautions

Airborne precautions are to be used in addition to standard and contact precautions for aerosol generating procedures.

Airborne precautions require the wearing of a particulate respirator (often referred to as a N95/P2 mask) and should be followed for all aerosol generating procedures.

Aerosol generating procedures at the bedside include bronchoscopy, open suctioning of airway secretions, resuscitation involving emergency intubation or CPR, bilevel positive airway pressure (BiPAP), sputum induction and endotracheal intubation.

---

2. The use of coveralls rather than long-sleeved disposable gowns should only be considered for staff trained and competent in using such attire.

3. A P2/N95 respirator must comply with AS/NZS 1716:2012. The difference between N95 and P2 classification for respirator face masks is the N95 classification means the masks complies with USA testing requirements and the P2 classification indicates compliance with European testing requirements.

Summary & PPE Risk Assessment

The type of PPE required will vary depending on the level of infectiousness and clinical assessment.

A: **Person has returned from an EVD affected country within 21 days of illness onset and has a fever (>38.5 degrees) or a history of fever in past 24 hours**

B: **Person identified as suspected or confirmed EVD, based on case definition**

YES to A only

Standard precautions apply to all

- Hand hygiene
- Gloves
- Long sleeved impermeable gown or coverall
- Surgical mask
- Full face shield

YES to B

Standard precautions apply to all

- Hand hygiene
- Surgical scrubs*
- Long sleeved impermeable gown or coverall +/- plastic apron
- Hair cover
- Surgical mask or N95/P2 respirator
- Surgical hood
- Full face shield
- Gloves
- Boot covers

NB: Consideration should be given to the use of surgical scrubs* by staff members who have direct patient contact and a process in place for the laundering of these garments.

Please refer to http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html for descriptive advice of donning and removal of PPE until the updated pictorial sequence is available (based on updated CDC Guidelines published 20 October 2014). As with previous versions of this document, pictorial guidance will be integrated once it is made available.

Patient-care equipment

Dedicate the use of non-critical patient-care equipment to the patient.

Where possible, use single-patient use equipment. All patient-care equipment that is not single-patient use should be thoroughly decontaminated and disinfected before being reused. If it cannot be adequately disinfected then it should be discarded into the appropriate receptacle. Follow the manufacturers' instructions for disinfecting re-useable equipment.

Patient transport

Limit the movement and transport of the patient from the room to essential purposes only. If the patient is to be transported out of the room, ensure that the staff assisting with the transfer wears PPE (gloves, gown, shoe and hair covers and face shield). The patient is to wear a surgical mask.

Avoid transporting the patient through high patient flow or public access areas. If necessary, cordon off the route. Ensure that the clinical area receiving the patient is informed about the timing of the transfer.

Environmental control

It is important that the patient environment remains clean; who undertakes the task should be determined in consultation with the local Infection Prevention and Control Specialists. Staff performing environmental cleaning should be appropriately trained. Care should be taken to avoid contact with blood and body fluids including secretions and excretions.

Ensure that the appropriate procedures for the routine care, cleaning and disinfection of environmental surfaces; beds, bedrails, bedside equipment and 'high-touch' surfaces are followed.

Heavily soiled areas need to be cleaned with warm water and detergent before disinfection.

Typical household bleach is a solution of sodium hypochlorite containing 5000 ppm available chlorine. It is important to check the concentration in the formulation before use. Typical in-use concentrations are 5000 ppm for the disinfection of blood spills and 1000 ppm for general environmental cleaning. For blood and body fluids spillage – follow current DHB policy for managing spills.

A fresh bleach solution should be made up every 24 hours.

Disposal of body fluids

Safe handling of commode bowls, urinals and bed pans is essential. Full PPE must be worn when handling commode bowls, urinals and bed pans.

Where possible, empty the urinal and the bed pan contents into the en suite toilet bowl, close the lid and flush the toilet. If no en suite toilet is available, transport the commode bowl, urinal or bed pan safely in a plastic bag to the dirty utility room and either:

- carefully empty the contents down the sluice sink
- place the commode bowl, urinal or bed pan directly into the flusher sanitiser and run a cleaning cycle
- place contents and cardboard insert directly into macerator and run cycle.

Care must be taken to avoid excessive splashing.

Disinfect the sluice sink are with 1% bleach solution after disposal of contents.

Linen

All linen (disposable or otherwise) will need to be disposed of. Used linen should be placed in the infectious waste bins. The bin should contain an inner lining.

If disposable linen is not available then the normal re-usable linen should be used and disposed of in the infectious waste bin after use. The bin should contain an inner lining.

If bins with a lid are not available then the linen should be placed inside an infectious waste bag. When this bag is full it should be placed inside another infectious waste bag (double bagged) before being removed from the patient's room or anteroom. The bag should be sealed before removal.

Sending linen to the laundry may pose a risk to staff handling the linen at the laundry. Stringent measures would need to be put in place to ensure that the linen is handled safely. In the event that secure measures cannot be guaranteed linen should be disposed of with waste.

Occupational health and blood and body fluid exposure

Occupational health

- A record of all potentially exposed staff should be maintained. Potentially exposed staff are those staff who provided care for the patient but who adhered to infection prevention and control best practices.
- Potentially exposed staff should be provided with written information about the symptoms associated with viral haemorrhagic fevers that they need to watch out for. There should be clear instructions regarding who they should contact if symptoms occur.
- Potentially exposed staff who become unwell during the incubation period (the 21 days period after last exposure to the patient with suspected or confirmed viral haemorrhagic fever) should contact their manager. They should also seek prompt medical evaluation and testing. The manager will assess the risk and contact Occupational Health Service. Depending on their symptoms, unwell staff may meet the case definition so would need to be notified to the local Medical Officer of Health, who would notify the Ministry of Health on 0800 GET MOH.
- Any staff member with unprotected percutaneous or mucocutaneous exposures to blood, body fluids, secretions or excretions from a patient with suspected viral haemorrhagic fever should immediately stop working. Mucous membrane exposures should be rinsed with copious amounts of water. For cutaneous exposures the affected area should be washed with soap and water. They should then seek assistance from their immediate supervisor who will contact the Occupational Health Service for assessment of the risk and access to post exposure management for blood borne viruses including HIV, Hepatitis B and C etc.
- A plan should be put into place for daily monitoring (twice daily temperature recordings) of the staff member for symptoms consistent with viral haemorrhagic fever for 21 days after the last exposure. The staff member should not return to clinical work for one full incubation period (21 days).

Avoiding blood and body fluid exposure

- Take care to avoid injuries when using needles, scalpels and other sharp injuries. Never recap a needle.
- Place sharp objects in a puncture resistant container after use.
- If a needle stick injury is sustained by a staff member then they must immediately rinse the wound with copious amount of water and wash vigorously with medicated soap. They should seek assistance from their colleagues and inform their immediate manager.
- Collect all solid, non-sharp, medical waste using leak-proof waste bins with covers.
- Manage all spills according to routine policy. Wear appropriate PPE when cleaning up after a spill.
- Limit the use of phlebotomy and keep laboratory testing to the minimum necessary for essential diagnostic evaluation and patient care.

Management of waste

A risk assessment and management plan should be made for the safe storage and disposal of all waste. Discuss with your local IPC specialist for advice.

- Refer to NZS 4304:2002 management of Healthcare Waste for guidance on the disposal of infectious waste.
- All waste should be placed in an infectious waste bin or bag.
- Prior to removal of a bin from the room or anteroom, the outside of the bin should be wiped with a 1% bleach solution.
- Prior to removal of a bag from the room the bag should be placed in another infectious waste bag.

- The opening of the bag or the lid of the bin should be sealed so that they cannot be inadvertently opened prior to disposal.
- The bags and bins should be identified and stored in a secured locked area in the loading bay prior to collection by the waste management service.
- Contact your local waste stream disposal provider to discuss /agree removal of waste and sharps bins (Daniel Sharps system).

Movement of deceased bodies

The handling of deceased bodies should be kept to a minimum. Staff handling the deceased body should wear the appropriate PPE (and should be trained in the donning and removing of PPE).

The deceased patient should be placed in a sealed, leak-proof body bag[4] and transported to the mortuary. Unfortunately, leakage may still occur with these bags and for this reason the body bag should be placed inside a clear plastic bag or another body bag and sealed and wiped over with 1000 ppm available chlorine. Removal of PPE and hand hygiene should be performed once the task completed.

The Funeral Director should be informed in advance that the body is infectious so the appropriate arrangements by the funeral director can be made.

Post-mortem examinations

- A post-mortem examination on a person known to have died of EVD exposes staff to unwanted risk and **should not be performed.**
- Where a patient has died prior to a definitive diagnosis of EVD, advice should be sought from the local Medical Officer of Health.

Visitors

- Visitors (family, friends and whānau) should not be allowed into the patient care area. However, exceptions may be made on a case by case basis.

Release of cases from isolation

A suspected case may be released from isolation and discharged if the medical condition allows after testing negative for EVD, unless a high index of suspicion remains (such as in the absence of an alternative diagnosis). They should be given a fact sheet and contact details for their local public health unit.

Cleaning of the room after patient discharge

- Refer to current DHB policy for performing a terminal clean of the room.

Published in October 2014 by the Ministry of Health, PO Box 5013, Wellington 6145.

ISBN 978-0-478-44443-8 (online)

HP6064

4. Body bags should be of a good quality, zips should have a material underside as vinyl is more likely to tear. Absorbent material should be placed between each bag.