

# Updated information for Health Professionals: Middle East Respiratory Syndrome (MERS)

19 June 2015

Please ensure that you check the health professional advice on <http://www.health.govt.nz/our-work/diseases-and-conditions/middle-east-respiratory-syndrome-coronavirus-mers-cov>

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# 1 Introduction

This document provides updated information and guidance concerning Middle East Respiratory Syndrome (MERS) 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](http://www.health.govt.nz/publication/communicable-disease-control-manual-2012)).

Middle East Respiratory Syndrome (MERS) is an illness caused by a virus (more specifically, a coronavirus (<http://www.cdc.gov/coronavirus/index.html>)) called Middle East Respiratory Syndrome Coronavirus (MERS-CoV). MERS affects the respiratory system (lungs and breathing tubes). Most MERS patients developed severe acute respiratory illness with symptoms of fever, cough and shortness of breath. About 3-4 out of every 10 patients reported with MERS have died.

Since 2012 cases of MERS have been confirmed and notified to the World Health Organization (WHO). Cases of MERS-CoV infection have been reported in Several Middle Eastern countries. Other countries, including most recently the South Korea, have also reported cases of MERS-CoV infection. All cases outside the Middle East have either lived in or travelled to affected countries, had close contact with travellers returning from the Middle East and/or contact with a person with MERS.

Although sustained person-to-person transmission has not been observed in communities, secondary transmission particularly in healthcare settings has frequently been reported. Therefore, ongoing efforts to contain the nosocomial clusters occurring are important in the prevention of wider transmission. People who are most vulnerable to MERS are those with co-morbidities (i.e. chronic disease). These people are more likely to visit health facilities, and, if infected, more likely to have a severe disease and be able to spread the virus more effectively.

Updated information on case numbers and countries that have reported cases is available on the WHO coronavirus infection website ([www.who.int/csr/disease/coronavirsu\\_infections/en/](http://www.who.int/csr/disease/coronavirsu_infections/en/)).

This information in this document is largely based on advice from the World Health Organization (WHO), The United States Centres for Disease Control and prevention and Public Health England. The Ministry has also sought input from technical experts in New Zealand.

Intended users of this guidance are health care workers, laboratory workers and others, including those involved in contact tracing who may come into contact with a suspect or confirmed case of MERS-CoV infection.

## 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/our-work/diseases-and-conditions/middle-east-respiratory-syndrome-coronavirus-mers-cov](http://www.health.govt.nz/our-work/diseases-and-conditions/middle-east-respiratory-syndrome-coronavirus-mers-cov)
- *Situation updates:*
  - [www.who.int/csr/disease/coronavirsu\\_infections/en/](http://www.who.int/csr/disease/coronavirsu_infections/en/).

General information about MERS-CoV can also be found in Appendix 1 of this document.

## 1.2 What is MERS?

Coronaviruses are a large and diverse family of viruses which include viruses that are known to cause illness in humans (including the common cold and severe acute respiratory syndrome {SARS}) and animals. The Middle East Respiratory Syndrome coronavirus (MERS-CoV), had not previously been detected in humans or animals but appears most closely related to coronaviruses previously found in bats. It is genetically distinct from the SARS-CoV and appears to behave differently. There is experimental evidence supporting dromedary camels as the primary reservoir of MERS-CoV. Many of the human cases reported to date have had a history of close contact with camels.

MERS is a notifiable disease under the Health Act 1956. The attending medical practitioner and laboratory should immediately notify any suspected case to the local medical officer of health. The medical officer of health should inform the Office of the Director of Public Health by phone and email.

Any contacts of a probable or confirmed case should also be reported to the local medical officer of health

MERS is also 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 MERS under the International Health Regulations, 2005.

## 1.3 Risk assessment

The Ministry's risk assessment is that currently the risk of a MERS-CoV infection outbreak is low in New Zealand. This assessment however recognises that there is an ongoing risk of MERS-CoV infection being imported into New Zealand, especially during periods of increased disease activity and travel to affected countries in the Arabian Peninsula. Because of the continued risk of importation of cases to New Zealand after exposure in the Middle East or South Korea, awareness of MERS among travellers and health care professionals is essential.

The situation in South Korea reinforces the importance of rapidly obtaining a travel history and contact from patients and implementing strict infection prevention and control measures in hospital settings to interrupt transmission and prevent clusters of healthcare-associated infections. The challenges around the early detection of rare imported cases of respiratory infection highlight the importance of implementing adequate infection prevention and control measures for all patients showing symptoms of acute respiratory infection.

## 1.4 Local readiness and response plans

District health boards (DHBs) should already have local readiness and response plans in place.

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 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 Guidelines for health professionals

### 2.1 MERS case definitions

The current case definitions for MERS are listed on the next page.

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

People who are most vulnerable to MERS are those with co-morbidities (i.e. chronic disease). These people are more likely to visit health facilities, and, if infected, more likely to have a severe disease and be able to spread the virus more effectively.

## Case Definitions for MERS

### 1. Suspected Case (under investigation)

- a person with an acute febrile respiratory illness with clinical, radiological, or histopathological evidence of pulmonary parenchymal disease (e.g. pneumonia or Acute Respiratory Distress Syndrome)\*†

AND EITHER

- a history of residence in, or travel to, the Arabian Peninsula§ or neighbouring countries within 14 days before onset of illness,

OR

- a history of being in a healthcare facility (as a patient, worker, or visitor) in a country with healthcare facility transmission of MERS-CoV within 14 days before symptom onset.

OR

- close contact with a probable or confirmed case within 14 days before onset of illness \*\*

OR

- is a member of a cluster of patients with severe acute respiratory illness of unknown aetiology in which MERS-CoV is being evaluated.

### 2. Probable Case

- a person with an acute febrile respiratory illness with clinical, radiological, or histopathological evidence of pulmonary parenchymal disease (e.g. pneumonia or Acute Respiratory Distress Syndrome)\*†

AND

- no possibility of laboratory confirmation for MERS-CoV either because the patient or samples are not available for testing

AND

- close contact with a laboratory-confirmed case \*\*

### 3. Confirmed Case

- a person with laboratory confirmation of infection with MERS-CoV ‡

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\* This slightly differs from the description of symptoms in the previous case definition, which used the Severe Acute Respiratory Infection (SARI) surveillance definition. However, cases identified through SARI surveillance should be captured by this description.

† Immunocompromised patients may not present with typical or severe symptoms

§ Countries of the Arabian Peninsula and surrounding areas should be considered as: Bahrain, Iraq, Iran, Israel, Jordan, Kuwait, Lebanon, Oman, Palestinian territories, Qatar, Saudi Arabia, Syria, the United Arab Emirates (UAE), and Yemen. Transiting through an international airport (<24 hours stay, remaining within the airport) on the Arabian Peninsula is not considered to be risk factor for infection. Whenever available recent epidemiological information on MERS-CoV in these countries should be taken into account.

\*\* Close contact includes:

- anyone who provided care for or handled clinical samples from the patient, including a health care worker or family member, or who had other similarly close physical contact;
- anyone who stayed at the same place (e.g. lived with, visited) as a probable or confirmed case while the case was ill;
- where a case has travelled on an airplane, close contacts include passengers seated in the same row as the case and two rows in front and behind the case, and crew that have had prolonged interaction with the ill person.

‡ Currently confirmatory testing requires molecular diagnostics including either a positive PCR on at least two specific genomic targets or a single positive target with sequencing on a second. However, the interim recommendations for laboratory testing for MERS-CoV should be consulted for the most recent standard for laboratory confirmation. WHO also has additional notes regarding inconclusive testing and asymptomatic cases; see: [www.who.int/csr/disease/coronavirus\\_infections/case\\_definition/en/index.html](http://www.who.int/csr/disease/coronavirus_infections/case_definition/en/index.html).

## 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 and airborne transmission-based precautions, including the use of personal protective equipment (PPE). See Appendix 2 for detailed Infection Prevention and Control Guidance.

## 2.3 Management of a suspected case

- Initial assessment of cause of symptoms should include a risk assessment for MERS and for other diagnoses which may present in similar ways. Including other respiratory diseases.
- Care for MERS is supportive as there is no specific approved vaccine or therapeutic (antiviral drug) options currently available.
- Every secondary and tertiary hospital in the country is expected to be able to identify a suspected MERS case and provide patient care.
- If a suspected case presents in a primary care setting, the local Medical Officer of Health must be contacted immediately.
- As with all respiratory illnesses, there may be occasions where a deteriorating patient may need to be transferred to a tertiary hospital. This decision would be made by the clinical team as per normal.
- A suspected case may be released from isolation and discharged if the medical condition allows after testing negative for MERS-CoV, unless a high index of suspicion remains of another transmittable infectious respiratory disease.

## 2.4 Laboratory testing for diagnosis of MERS

### Who do I test for MERS?

Testing should be considered for:

1. Individuals with pneumonia or pneumonitis, and history of residence in, or travel to, the Arabian Peninsula<sup>1</sup> or neighbouring countries or a history of being in a healthcare facility (as a patient, worker, or visitor) in a country with healthcare facility transmission of MERS-CoV, within 14 days before onset of illness.
2. Individuals with acute respiratory infection and history of contact with those in point 1 above, or contact with a probable or confirmed case within 14 days before symptom onset.
3. Health care workers with pneumonia, who have been caring for patients with severe acute respiratory infections, particularly patients requiring intensive care, without regard to place of residence or history of travel, where another cause has not been confirmed.

Clinicians should be aware that immunocompromised patients may not present with typical or severe symptoms.

<sup>1</sup> Countries of the Arabian Peninsula and surrounding areas should be considered as: Bahrain, Iraq, Iran, Israel, Jordan, Kuwait, Lebanon, Oman, Palestinian territories, Qatar, Saudi Arabia, Syria, the United Arab Emirates (UAE), and Yemen. Transiting through an international airport (<24 hours stay, remaining within the airport) on the Arabian Peninsula is not considered to be risk factor for infection. Whenever available recent epidemiological information on MERS-CoV in these countries should be taken into account.

***Please contact your local Medical Officer of Health to notify any suspected cases.***

***Any clusters of severe acute respiratory infection in health-care workers should be thoroughly investigated.***

### **How do I test for MERS-CoV?**

WHO recommendations on laboratory testing for MERS-CoV can be found on the WHO website.

These have been updated as of September 2014 at:

[http://www.who.int/csr/disease/coronavirus\\_infections/WHO\\_interim\\_recommendations\\_lab\\_detection\\_MERSCoV\\_092014.pdf?ua=1](http://www.who.int/csr/disease/coronavirus_infections/WHO_interim_recommendations_lab_detection_MERSCoV_092014.pdf?ua=1)

- Routine tests for acute pneumonia should be performed where indicated, including bacterial culture, serology, urinary antigen testing and tests for respiratory viruses, including influenza. This testing should not delay testing for MERS-CoV.
- It is recommended that both upper and lower respiratory tract specimens be collected whenever possible. There is considerable evidence that lower respiratory tract specimens such as bronchoalveolar lavage, sputum and tracheal aspirates contain the highest viral loads and these should be collected when possible. A report of a case series of MERS-CoV infections detected in Saudi Arabia has also demonstrated the importance of upper respiratory tract specimens such as nasopharyngeal/oropharyngeal swabs for detecting the virus. If initial testing of a nasopharyngeal swab is negative in a patient strongly suspected to have MERS-CoV infection, consideration should be given to retesting using a lower respiratory specimen.
- Respiratory samples including upper respiratory tract viral swabs, nasopharyngeal swabs and aspirates, sputum, endotracheal aspirate, bronchoalveolar lavage fluid, lung biopsies and post-mortem tissues are suitable for testing for MERS-CoV.
- To increase the likelihood of detecting the virus, multiple sampling over time and also from multiple sites over the course of the illness should be considered (depending on the individual patient). Even after the initial detection of the virus, continued sampling and testing will add to current knowledge about the duration of virus shedding and is strongly encouraged. Virus has been detected in urine and faeces but at levels below those found in the lower respiratory tract. To date, there is little information on the value of whole blood as a specimen for MERS-CoV detection.
- Standard Precautions as well as Airborne and Contact Precautions should be followed when collecting specimens. The collection of specimens should occur in an airborne infection isolation room. Hand hygiene should be performed in accordance with the '5 moments for hand hygiene'.
- Laboratory staff should handle clinical specimens under PC2 conditions in accordance with *AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment*. However, viral isolation for a PCR-confirmed specimen should be handled under PC3 conditions (WHO interim recommendations for laboratory biorisk management: [http://www.who.int/csr/disease/coronavirus\\_infections/NovelCoronavirus\\_InterimRecommendationsLaboratoryBiorisk\\_190213/en/index.html](http://www.who.int/csr/disease/coronavirus_infections/NovelCoronavirus_InterimRecommendationsLaboratoryBiorisk_190213/en/index.html) ).
- While PCR testing for MERS-CoV may be undertaken in any PC2 laboratory, positive samples should be sent to Institute of Environmental Science and Research (ESR) for confirmatory testing. The Ministry contracts the ESR to provide microbiological reference and specialised testing for communicable diseases, which includes MERS-CoV. Samples should therefore be referred to the ESR Clinical Virology Laboratory at the National Centre for Biosecurity and Infectious Diseases (NCBID), Wallaceville, for free confirmatory testing. The laboratory should be notified about the referral and samples should be transported in accordance with current regulatory requirements. Please refer to the Annex for the procedure for shipping respiratory samples.

- Serological tests for MERS-CoV have been developed overseas (see WHO laboratory document). Serological tests may be useful in those strongly suspected of having MERS-CoV but who have not had a diagnosis confirmed with nucleic acid tests or in special sero-epidemiological studies. The role and usefulness of these tests are still being determined.

## 2.5 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.

#### Close contact includes:

- anyone who provided care for the patient, including a health care worker or family member, or who had other similarly close physical contact
- anyone who stayed at the same place as (eg, lived with or visited) a probable or confirmed case while the case was ill
- where a case has travelled on an aeroplane, any passenger seated in the same row as the case or up to two rows in front of or behind the case and any crew member who has had prolonged interaction with the case.

#### Investigation

Close contacts of probable and confirmed cases should be actively monitored by the public health unit daily and asked to report symptoms such as fever, respiratory symptoms, headache, muscle pain or diarrhoea develop to their local public health unit. They should be tested for MERS-CoV infection if respiratory symptoms develop (regardless of the severity of illness).

#### Restriction

Quarantine of asymptomatic contacts is not required as current evidence shows limited person-to-person transmission of MERS-CoV. Current evidence does not show that the disease is transmissible in the pre-symptomatic or early symptomatic stages.

On a case by case basis, public health staff may require additional controls or restrictions for close contacts.

#### Counselling

Advise all contacts of the estimated incubation period and typical symptoms of MERS. Encourage them to contact their local public health unit and seek early medical attention if symptoms develop.

## 2.6 Management of a confirmed case of MERS

- The case should remain in negative pressure room.
- Use standard precautions plus droplet and airborne transmission-based precautions, including the use of personal protective equipment (PPE). See Appendix 2 for detailed Infection Prevention and Control Guidance.
- There is insufficient information to make generic treatment recommendations and patients have to be assessed on a case by case basis.

## **2.7 Special situations**

### **Outbreaks in health care facilities**

If one or more suspected, probable or confirmed MERS 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 the local public health unit. 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.

## **Appendix 1:**

### **General information about MERS**

Middle East Respiratory Syndrome (MERS) is an illness caused by a virus (more specifically, a coronavirus (<http://www.cdc.gov/coronavirus/index.html>)) called Middle East Respiratory Syndrome Coronavirus (MERS-CoV). MERS affects the respiratory system (lungs and breathing tubes). Most MERS patients developed severe acute respiratory illness with symptoms of fever, cough and shortness of breath. About 3-4 out of every 10 patients reported with MERS have died.

Health officials first reported the disease in Saudi Arabia in September 2012. Through retrospective investigations, health officials later identified that the first known cases of MERS occurred in Jordan in April 2012. So far, all cases of MERS have been linked back to countries in and near the Arabian Peninsula.

MERS-CoV has spread from ill people to others through close contact, such as caring for or living with an infected person.

MERS can affect anyone. MERS patients have ranged in age from younger than 1 to 99 years old. However, people who are most vulnerable to MER are those with co-morbidities (i.e. chronic disease). These people are more likely to visit health facilities, and, if infected, more likely to have a severe disease and be able to spread the virus more effectively.

### **Transmission**

MERS-CoV, like other coronaviruses, is thought to spread from an infected person's respiratory secretions, such as through coughing. However, the precise ways the virus spreads are not currently well understood.

Person-to-person spread of MERS-CoV, usually after close contact, such as caring for or living with an infected person, has been well documented. Infected people have spread MERS-CoV to others in healthcare settings, such as hospitals. Researchers studying MERS have not seen any ongoing spreading of MERS-CoV in the community.

All reported cases have been linked to countries in and near the Arabian Peninsula. Most infected people either lived in the Arabian Peninsula or recently traveled from the Arabian Peninsula before they became ill. A few people became infected with MERS-CoV after having close contact with an infected person who had recently traveled from the Arabian Peninsula.

Public health agencies continue to investigate clusters of cases in several countries to better understand how MERS-CoV spreads from person to person.

It has been shown that MERS-CoV can survive on surfaces for up to 48 hours.

### **Incubation period, signs and symptoms**

Most people confirmed to have MERS have had severe acute respiratory illness with symptoms of:

- fever
- cough
- muscle pain
- shortness of breath

Some people also had gastrointestinal symptoms including diarrhea and nausea/vomiting. For many people with MERS, more severe complications followed, such as pneumonia and kidney failure. About 3-4 out of every 10 people reported with MERS have died. Most of the people who died had an underlying medical condition. Some infected people had mild symptoms (such as cold-like symptoms) or no symptoms at all; they recovered.

Based on what researchers know so far, people with pre-existing medical conditions (also called comorbidities) may be more likely to become infected with MERS-CoV, or experience severe disease. Pre-existing conditions from reported cases for which we have information have included diabetes; cancer; and chronic lung, heart, and kidney disease. Individuals with weakened immune systems are also at higher risk for getting MERS or having a severe case.

Based on information we have to date, the incubation period for MERS (time between when a person is exposed to MERS-CoV and when they start to have symptoms) is usually about 5 or 6 days, but can range from 2-14 days.

# Appendix 2: Infection prevention and control management plan for suspected or confirmed cases of MERS

## Purpose

This guideline outlines the infection prevention and control measures for patients with suspected or confirmed MERS-CoV infection.

As in all cases steps should be taken to ensure that all persons with symptoms of respiratory infection adhere to respiratory hygiene, cough etiquette and hand hygiene.

It is important that patients identified as at risk of having MERS-CoV infection are identified and isolated early.

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

- the lack of a safe and effective vaccine for MERS-CoV
- incomplete information about transmission of MERS-CoV
- a relatively high reported rate of morbidity and mortality among MERS-CoV infected patients
- absence of confirmed or probable MERS cases in New Zealand
- the international situation with documented nosocomial infection
- concern for health and safety of healthcare workers.
- initial diagnosis not likely to be known and patient may have another respiratory illness rather than MERS.

## Guideline principles and goals

This guideline takes a precautionary approach and recommends a high level of infection prevention and control measures 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 confirmed to have MERS**

## Key documents this guidance is based on

1. CDC. Interim Infection prevention and control recommendations for hospitalised patients with Middle East Respiratory Syndrome Coronavirus (MERS-CoV). Updated June 2015.  
[www.cdc.gov/coronavirus/mers/infection-prevention-control.html](http://www.cdc.gov/coronavirus/mers/infection-prevention-control.html)
2. Public Health England Infection Control Advice: Middle East Respiratory Syndrome MERS-CoV  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/361569/MERS-CoV\\_infection\\_control.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/361569/MERS-CoV_infection_control.pdf)

## Infection prevention and control

Infection control measures should be those applicable to control the transmission of pathogens that can be spread by the airborne route.

Any person entering the room must adhere to the correct infection prevention and control procedures and must be made aware of the potential transmission risks and factors that are known to increase the risk of severe disease (eg co-morbidities).

1. Maintain a log of all people entering the room.
  - Use of a checklist to ensure that all people (including visitors) entering the clinical care area use personal protective equipment (PPE) correctly – the wearing of correct PPE and the safe removal of PPE.
2. Ensure appropriate signage is displayed.

### Patient placement

- The patient should be placed in an airborne infection isolation room (negative pressure room) An ante room and en-suite bathroom is highly desirable. Note: 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. 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, mask, and eye protection). 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.

### Hand hygiene

- Staff should wash their hands with soap and water if any visible soiling, or use alcohol-based hand rubs (ABHR) 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.

### Personal protective equipment (PPE)

Protective clothing should be worn by **ALL** staff and visitors entering the room

Staff should be trained in procedures to put on and take off PPE. Clear instructions should be available on what PPE should be used and the disposal of used PPE.

- **Gloves** – Non sterile surgical gloves
- **Gowns** – Long sleeve, fluid repellent disposable gown
- **Masks** – Use a fluid resistant surgical mask that does not collapse against the mouth. For all aerosol-generating procedures wear a particulate respirator (N95/P2 mask)<sup>2</sup> (see Airborne Precautions below). Ensure that all staff who will be wearing such masks are familiar with 'fit

<sup>2</sup> 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.

checking'. Guidance should be sought from IPC personnel if staff have any queries. Masks should comply with AS/NZS 1716:2012 respiratory protective devices.

- **Eye Protection** – wear a disposable single use full facial shield (surgical masks with integral eye shields do not protect the entire face) or goggles.

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

**Note:** aerosol generating procedures lead to an increased risk of transmission. Such procedures include; nebulised medication, bronchoscopy, open suctioning of airway secretions, resuscitation involving emergency intubation or CPR, bilevel positive airway pressure (BiPAP), sputum induction and endotracheal intubation.

Note: Cases not meeting the definition of a probable or confirmed case after investigation should have Standard, Contact and Droplet Precautions applied, except when respiratory samples are being taken; for this procedure Airborne Precautions are also required

## **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.

- All respiratory equipment must be protected with a high efficiency filter. Disposable respiratory equipment should be used wherever possible. Re-usable equipment must, as a minimum, be disinfected in accordance with the manufacturer's instructions.

## **Environmental control**

Coronaviruses can survive up-to 48 hours in the environment, therefore , it is important that the patient environment remains clean. Staff performing environmental cleaning should be appropriately trained and familiar with donning and removing PPE. 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.

As coronaviruses have a lipid envelope, a wide range of disinfectants and detergents are effective. Please discuss with your Infection Prevention and Control Nurse Specialist for advice on cleaning and disinfectant agents.

## **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 ensuite toilet bowl, close the lid and flush the toilet. If no ensuite 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 area with 1% bleach solution after disposal of contents.

## **Linen**

All linen (disposable or otherwise). Used linen should be bagged in accordance with procedures for infected linen.

## **Management of waste**

- Dispose of all waste as clinical waste
- Waste to be handled as per local policy

## **Movement of deceased bodies**

- The handling/movement of a recently deceased body might be sufficient to expel small amounts of air from the lungs and therefore present a minor risk.
- Consider using a body bag to transfer the body to the mortuary as per normal procedures.
- All staff handling the deceased body (including orderlies), should wear the appropriate PPE. This also applies where a body bag is not available.
- Once in hospital mortuary, it is acceptable to open the body bag to allow viewing of the body.
- **The Funeral Director should be informed in advance that the body is infectious so the appropriate arrangements can be made by the funeral director.**

## **Cleaning of the room after patient discharge**

Discuss cleaning requirement with your local IPC specialist or refer to DHB policy.

## **Occupational health response for potential exposures**

### **Occupational health**

- A record of all staff providing care to a suspected, confirmed or probable MERS case should be maintained.
- All such staff should be provided with information about the symptoms associated with MERS that they need to watch out for. There should be clear instructions regarding who they should contact if symptoms occur.
- Standard occupational health and safety responses should be undertaken in the event that a staff member develops symptoms of disease.

# Appendix 3:

## **What is the current situation?**

Please refer to WHO website [http://www.who.int/csr/disease/coronavirus\\_infections/en/index.html](http://www.who.int/csr/disease/coronavirus_infections/en/index.html).

## **Has the WHO recommended any travel restrictions related to this new virus?**

The WHO has not recommended that any travel restrictions be applied. The WHO will continue to provide updated information as necessary.

The WHO has produced some information for pilgrimages, available at the following link: <http://www.who.int/ith/updates/20140603/en/>

## **Countries with Lab-confirmed MERS cases.**

Countries in or near the Arabian Peninsula with Cases:

Saudi Arabia, United Arab Emirates (UAE), Qatar, Oman, Jordan, Kuwait, Yemen, Lebanon, Iran

Countries with Travel –Associated Cases:

United Kingdom (UK), France, Tunisia, Italy, Malaysia, Philippines, Greece, Egypt, United States of America (USA), Netherlands, Algeria, Austria, Turkey, Germany, South Korea, China

## **Who is most at risk?**

The age distribution of reported cases is weighted heavily to the middle-aged and elderly, immunocompromised or with co-morbidities (particularly type II diabetes) have an increased case fatality rate.

## **Are health workers at risk from MERS-CoV?**

MERS-CoV has been transmitted in healthcare settings in Europe (France and UK), the Middle East and South Korea, and in some of these cases health-care workers have been infected. The particular conditions or procedures that led to transmission in hospital settings have not yet been determined. However, no sustained person-to-person transmission has been identified. Infection control recommendations in this document aim to provide the highest level of protection for health care workers, given the current state of knowledge. Health care workers should follow infection prevention and control procedures in line with local and international standards.



Published in June 2015  
by the Ministry of Health, PO Box 5013, Wellington 6145.  
ISBN 978-0-478-44443-8 (online)