

**Guidance for Infection  
Prevention and Control  
during an Influenza  
Pandemic**

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## Introduction

This document provides general guidance to the health and disability sector, other government agencies and the general public on actions and equipment to help them to protect themselves and others during an influenza pandemic. It does not contain detailed information for acute care, secondary or tertiary hospitals.

This guideline has been developed principally because the health and disability sector is preparing for an influenza pandemic (Ministry of Health 2005 ). It should be read in conjunction with the guidance material on the Ministry of Health website (<http://www.moh.govt.nz/pandemicinfluenza>), and for workplaces, on the Department of Labour website (<http://www.dol.govt.nz>).

# 1 Background Information

Influenza (commonly referred to as ‘the flu’) is a virus that causes respiratory disease. Typical symptoms include fever, cough and muscle ache. In some people, complications can cause pneumonia and death.

Due to its genetic make-up, the influenza virus can change and adapt, so new strains that are slightly different from previously circulating strains emerge regularly. Because the changes are usually small, under general circumstances, most healthy adults have some immunity and will recover if they get the flu. The most common way for the virus to spread is as tiny droplets of respiratory fluid from infected people coughing or sneezing, but it can also spread from contaminated surfaces and from hand to face contact.

A pandemic is a global disease outbreak. An influenza pandemic occurs when a new influenza A virus emerges for which the human population has little or no immunity and begins to cause serious illness, spreading easily from person to person worldwide (Centers for Disease Control and Prevention (CDC) 2005). Three influenza pandemics occurred in the 20th century. It is, however, impossible to predict the timing or severity of the next pandemic. Therefore, it is important to be prepared now.

Further information about an influenza pandemic is in *New Zealand Influenza Pandemic Action Plan* (Ministry of Health 2005a), which is the current working version of an appendix to *National Health Emergency Plan: Infectious diseases* (Ministry of Health 2004) and is available from the Ministry of Health website (<http://www.moh.govt.nz/pandemicinfluenza>). The action plan summarises possible responses to a pandemic. It is being continually updated and refined in consultation with the health sector and other government agencies.

Readers should note that the personal protection control measures set out in this document are based on the latest World Health Organization (WHO) bulletin, ‘Use of Masks by Health Care Workers in Pandemic Settings’ (November 2005). That bulletin states that, ‘available evidence suggests that transmission of human influenza viruses probably occurs through exposure to respiratory large-particle droplets’. It goes on to conclude that:

- the use of surgical masks is considered beneficial and is recommended for all health care workers who will work within 1 metre of patients who are considered potentially infectious with pandemic influenza
- the transmission of influenza viruses through small-particle aerosols at distances over 1 metre cannot be definitely ruled out based on experimental and observational studies
- in light of these considerations, WHO recognises that some countries may choose to provide particulate respirator masks (see Appendix C) in these situations but that other countries may not.<sup>1</sup>

<sup>1</sup> See WHO references:

(a) <http://www.who.int/csr/resources/publications/influenza/Mask%20Clarification10-11.pdf>, and  
(b) [http://www.who.int/csr/disease/avian\\_influenza/pharmaintervention2005\\_11\\_3/en/](http://www.who.int/csr/disease/avian_influenza/pharmaintervention2005_11_3/en/)

In making an assessment about what level of personal protection to provide in their workplaces, employers should consider the recommendations in this document alongside the provisions of the Health and Safety in Employment Act 1992 (see summary in Appendix B).

## **2 Basic Principles for Preventing the Spread of Influenza**

Everyone should follow these four basic principles at all times during an influenza pandemic to prevent influenza spreading.

### **2.1 Hand hygiene**

Hand hygiene is the single most important means of preventing the spread of infection (Wenzel 2004); in non-health care settings, it is more crucial than wearing gloves. People should wash their hands well with soap and warm water for 15 to 20 seconds then dry them thoroughly, preferably with a disposable hand towel. An antiseptic gel designed for the purpose and used for 15 to 20 seconds is a good alternative when hands are not visibly soiled. In this document, the phrase 'wash and dry hands' is used to describe hand hygiene.

Hand-to-face contact, as occurs during such activities as eating, grooming or smoking, presents a very high risk because of the potential for influenza to be transmitted from surfaces contaminated with respiratory secretions. Therefore, hands should always be washed and dried before any activity that involves hand-to-face contact and immediately after communal items are touched (eg, after handling money).

### **2.2 Cough and sneeze etiquette**

People who are coughing or sneezing should avoid close contact with other people. If close contact is unavoidable (eg, in the home) the following simple measures aim to reduce the transmission of the virus (CDC 2003).

- Minimise close contact with other people.
- Cover your nose and mouth when coughing or sneezing, ideally with a tissue.
- Do not spit out secretions in public. Cover your nose and mouth when clearing secretions and use a disposable tissue to contain them.
- Use disposable tissues rather than handkerchiefs and dispose of them immediately after use into a lined rubbish bin that either has no lid or has a pedal-operated lid.
- Wash and dry hands thoroughly after coughing or sneezing (CDC 2003).

### **2.3 Social distance**

If an influenza pandemic has been declared, it will be advisable (if not made mandatory) for people to avoid crowded places and large gatherings (eg, social and sporting events). Curtail activities such as shopping or social visiting.

If you need to go out in public, keep a distance of at least 1 metre between yourself and any other person (Ministry of Health 2005b ) and, where possible, avoid making physical contact with other people.

Keeping this social distance will decrease the likelihood of influenza spreading from person to person during social contact.

## **2.4 Adequate ventilation**

Influenza can spread in inadequately ventilated internal spaces.

Before an influenza pandemic, people should ensure windows can be opened and air-conditioning systems are properly designed and maintained. It is advisable that air handling systems do not re-circulate air and are vented to the outside to the maximum extent possible.

## **3 General Influenza Prevention and Control Measures**

### **3.1 Being prepared**

To be ready for an influenza pandemic, many things can be done to prepare, including the following.

- Know what you would need if you had to stay at home for a couple of weeks (eg, food and other supplies, a telephone network and a doctor's contact details). Keep the Healthline phone number (0800 611-116) in a handy place in case you need it.
- Build your emergency supply kit (see the back of Telecom's *Yellow Pages*), including medication for pain and fevers (paracetamol or ibuprofen), toilet paper or tissues, and plastic bags for the disposal of used tissues.
- Have an influenza vaccination (a 'flu jab') each year. Although the annual flu jab won't protect against pandemic influenza, the more people who are protected against circulating viruses, the less chance the virus has to mutate into a strain that could cause a pandemic (ie, reduce the opportunities for the new viruses, such as the avian flu virus and seasonal flu virus, to mix).
- If you have prescription medicines (eg, for blood pressure) always renew your prescription well before you run out.

### **3.2 Looking after yourself and others at work during an influenza pandemic**

If you work in, or have responsibility for, a workplace where workers (including employees, casual staff and contractors) have close contact with other people, consider all the options available for providing protection, such as working from home or adjusting work hours or practices, so workers have less contact with other people. Discuss the possible options and their likely effectiveness with workers.

If workers must have contact with people due to the nature of their job, follow the basic principles listed in section 2 to prevent the spread of influenza (ie, hand hygiene, cough and sneeze etiquette, social distance and adequate ventilation). Do not share items with other people, such as food, drinks or cigarettes. Wipe down surfaces likely to be used by other people (such as computer keyboards, telephones and door handles) with a disinfecting solution. One of the most effective and cheapest solutions is a bleach solution of 1 teaspoon (5 ml) of bleach to half a litre (500 ml) of water.

Depending on the nature of your job (and therefore the risk of having contact with other people who may have the influenza virus), follow Table 1 as outlined in Appendix A to identify possible personal protection measures.

Note that before an influenza pandemic employers should develop a system for workers to screen themselves for influenza-like symptoms before they come to work. In all cases, discuss likely impacts and actions with all workers, unions and others who may be affected. Agreements reached before a pandemic will prove invaluable if such an emergency occurs.

If an influenza pandemic occurs, symptomatic workers should be sent home or told to stay at home until they are well enough to return to work. They should be advised to call Healthline 0800 611 116 or their primary provider for information about their ongoing care.

The Department of Labour has developed comprehensive information about hazard identification, assessment and control strategies for workplaces. This information aligns with the hierarchy of action from the Health and Safety in Employment Act 1992 as outlined in Appendix B. It can also be found at the Department of Labour website (<http://www.dol.govt.nz>).

Businesses are encouraged to develop a preventive approach to the workplace risks arising from a pandemic by adopting a continuity and influenza management plan. The Ministry of Economic Development has developed information that will assist in this planning. Its *Business Continuity Planning Guide* (Ministry of Economic Development 2005) is available from the Ministry of Health's website under 'A planning guide for businesses' (<http://www.moh.govt.nz/pandemicinfluenza>).

### **3.3 Looking after yourself and others at home during an influenza pandemic**

Most people live with others, so will have closer contact with each other than they would at work or in some social situations. Therefore, it is important to always follow the basic principles listed in section 2 to prevent the spread of influenza (ie, hand hygiene, cough and sneeze etiquette, social distance and adequate ventilation).

If a household member becomes sick with pandemic influenza, try to keep them as far apart from other people as possible. Move them into their own bedroom and encourage them to remain there (rather than spending time on a couch or sofa in a living room). However, if more than one person in the house gets sick with influenza, they may share a room. Make sure they do not cough or sneeze towards you.

Wearing gloves, gowns or masks is not recommended for household members providing care in the home, because it has not been shown to prevent the spread of influenza in this setting (CDC 2005).

Do not share items with other household members, such as eating utensils and drink bottles.

Make sure dishes are washed using hot water either by hand or machine (USDHHS 2005).

Put all used tissues into a disposable container (such as a plastic bag that can be tied off or has a drawstring) or burn them as soon as possible.

Use a disinfecting solution to wipe down surfaces used by people who are sick with influenza before touching them (eg, telephones, door handles and toilet and bathroom facilities). One of the most effective and cheapest disinfecting solutions is a solution of 1 teaspoon (5 ml) of bleach to half a litre (500 ml) of water.

There are no special requirements for laundry in homes in an influenza pandemic because most people catch the virus from each other, so washing machines are an unlikely means of spread.

## 4 Management of Pandemic Influenza in Workplaces

### 4.1 Assessing and managing workplace risks

Some sectors of the workforce are likely to be at higher risk than others for getting influenza during a pandemic due to particular activities that are part of their jobs. Information on masks and other protection measures in this section is provided as general guidance, but ultimately the employer needs to make a risk management decision based on the nature of the work undertaken, and the ability or otherwise to carry out the basic principles in section 2.

As with all hazards, employers should apply a hierarchy of workplace controls according to the risk of harm occurring (see Appendix B, which explains the eliminate, isolate, minimise hierarchy).

Consider and apply the guidance regarding control measures, including personal protective equipment (PPE), as outlined in the rest of this document.

It is particularly important during an influenza pandemic that sick people do not go to work and do stay at home, because their going to work could easily spread pandemic influenza to others. If people become ill at work, they should go home immediately because the onset of influenza symptoms may be rapid and acute. They should also be advised to call Healthline 0800 611 116 or their primary provider for information about their ongoing needs and care.

The Health and Safety in Employment Act 1992 requires that employers take all practicable steps to mitigate risk and protect staff at all times from workplace hazards. Because pandemic influenza could be acquired in the workplace, it is classified as a hazard (see Appendix B). Workplaces need to develop organisational policies and procedures regarding actions during an influenza pandemic before a pandemic, so workers are aware of what to do. Such policies can include details about sending ill people home and enabling staff to work in more isolated settings such as from home.

Personal protective equipment is only one method from a whole range of preventative measures against pandemic influenza. Other workplace controls include:

- training of workers in matters such as the basic principles for prevention, likely symptoms of pandemic influenza, modes of transmission, the use and limitations of the various methods to prevent exposure, vaccinations, and health surveillance procedures
- plans for changing work practices, such as remote working where possible, or delaying non-essential work procedures until the pandemic is over
- engineering controls, such as the installation of perspex isolation screens and portable high-efficiency particulate air filtration units to improve air circulation
- cleaning of common working surfaces (eg, keyboards).

When the type of PPE to be used is being considered, the question is sometimes raised about what sort of mask to use: a surgical mask, or an N95 (P2) particulate respirator mask. There is no simple answer to that question. Each of these masks potentially affords the wearer a different (ascending) level of protection (see Appendix C). In terms of the Health and Safety in Employment Act 1992, the employer must assess the level of protection afforded relative to the risk to the worker, and provide appropriate PPE. The recommendations set out in the latter part of this guideline should be considered in that light.

In particular, employers should ensure their staff and other people in the workplace are trained in, and follow, the basic principles for preventing influenza in section 2 (ie, hand hygiene, cough and sneeze etiquette, social distance and adequate ventilation), and the prevention and control measures in section 3.

Wearing full PPE is not recommended in all situations; nor is it recommended all the time during an influenza pandemic. Personal protective equipment is cumbersome and can be uncomfortable to wear for prolonged periods. Therefore, different levels of PPE are recommended for different workplace situations. For situations where the risk of transmission is high, a higher level of protection is recommended; for situations where the risk of transmission is lower, a lower, more appropriate level of protection is recommended.

Whatever the level of PPE to be used, workers and other workplace participants need to ensure:

- the protection afforded is commensurate with the level of workplace risk
- education and training is provided to ensure the equipment is used and disposed of correctly, so the equipment's effectiveness is maintained and the PPE is prevented from becoming a means of transmission.

Facilities should follow their usual waste disposal policies in ensuring PPE is disposed of correctly. Masks must be disposed of as soon as they become moist or after any cough or sneeze into them. After discarding a used mask, wash and dry hands thoroughly.

## **4.2 Most workplaces**

For many workplace situations, most people will be able to keep at least 1 metre away from other people during an influenza pandemic. In addition, all workers must follow the basic principles in section 2 (ie, hand hygiene, cough and sneeze etiquette, social distance and adequate ventilation) and be aware of their workplace's organisational policies about an influenza pandemic.

The Ministry of Health recommends that when possible during an influenza pandemic, workers are encouraged to work from home and to replace personal contact with increased use of computers and telephones. When this is not possible, it is strongly suggested protective barriers are used (eg, clear plastic shields that allow vision and communication).

In the event of an influenza pandemic, many workplaces will not be operating to full capacity. However, some people's work situation means they may be put at risk by having to be in close contact with people infected or potentially infected with the influenza virus (eg, telephone service providers, electricity supply workers, health care providers, and other service and essential industry workers).

If the basic principles (section 2) are followed and workers use protective barriers or maintain a distance of at least 1 metre from other people, the risk of transmission of pandemic influenza will be minimised. There may be certain situations where the use of distancing or protective barriers is impossible to implement and, in these situations, a mask can be worn when contact with people likely to be infected with pandemic influenza is anticipated. If it is anticipated that masks may have to be used, it is essential that the employer provides training and education in fitting, wearing, removal and disposal. Without such training there is a real risk of the masks themselves becoming a means of virus transmission.

### **4.3 First responders**

For the purposes of planning for an influenza pandemic, first responders include those workers who, when responding to emergencies, may come into close contact with members of the public who have, or are incubating, pandemic influenza. Such first responders will include police, fire and ambulance staff, and primary health care workers who are carrying out triage screening and assessments. Some workers in these situations may be unable to maintain a distance of at least 1 metre from people with pandemic influenza due to the type of interaction required, or the non-compliance of people being assisted.

Depending on the nature of tasks being performed, first responders may encounter low-risk, medium-risk or high-risk situations. The level of PPE required depends on the level of risk (see section 4.1 above). This does not preclude employers adopting other protection measures.

### **4.4 Health care workers and support staff**

Health care workers, including those caring for infected people in community and primary care settings, and support staff should have received education and training in infection prevention and control relevant to their jobs, and be supplied with some PPE where necessary before an influenza pandemic.

Health care workers, who routinely visit patients at home, should consider cancelling non-essential visits. If it is essential that they visit patients in the home, they should follow the infection control policies the relevant District Health Board's Infection Prevention and Control Service has developed.

## **5 Management of Pandemic Influenza in Health Care Settings**

### **5.1 All health and disability facilities**

Effective infection prevention and control is the cornerstone for preventing the spread of pandemic influenza within health care settings.

All facilities should promote the basic principles outlined in section 2 (ie, hand hygiene, cough and sneeze etiquette, social distance and adequate ventilation). In addition, it is important to have the mechanisms and amenities available so people can carry out these principles. This includes providing the following.

- Signs that promote cough and sneeze etiquette in common areas such as waiting areas, cafeterias and toilets. Signs should remind people to:
  - cover their nose and mouth when coughing or sneezing
  - use tissues to contain respiratory secretions
  - dispose of tissues into a rubbish bin immediately after use
  - wash and dry their hands after contact with respiratory secretions.
- Tissues and no-touch receptacles into which used tissues can be placed (eg, lined waste containers with pedal-operated lids or rubbish bins without lids).
- Dispensers of antiseptic hand rub or soap and disposable towels for hand washing when sinks are available.

Ensure coughing people sit as far away as possible (at least 1 metre) from other people in common waiting areas. It is preferable that symptomatic people wait in a separate room from those without symptoms.

Make sure signs (in appropriate languages) at health and disability service entrances (including outpatient clinics) instruct people with respiratory symptoms to inform reception staff and health care personnel that they are symptomatic. Limit visiting to people who are asymptomatic with no known exposure.

Note that before a pandemic of influenza, facilities should develop a system to screen all workers for influenza-like symptoms before they come to work. In the event of a pandemic, symptomatic workers must be sent home or told not to come to work until they are well.

Follow the usual practices for cleaning and disposing of equipment and waste during an influenza pandemic and wear the usual attire for performing such tasks.

Health and disability service providers should maintain contact with, and follow the direction of, their regular infection prevention and control advisor before, during and after an influenza pandemic.

## 5.2 Primary health care

Primary health care facilities where general practitioners, practice nurses, nurse practitioners and other people who see patients directly (such as people working in a prison medical facility) are likely to be overwhelmed for a time during a significant influenza pandemic.

In addition to the guidance in 5.1 for all health and disability facilities, the following information is designed to protect workers as well as to prevent the spread of pandemic influenza in the work environment.

- Triage patients with influenza symptoms who phone for appointments and discourage all non-urgent visits.
- Consider setting up a separate triage area for people presenting with influenza symptoms.
- Ensure the waiting area is set up so patients can sit at least 1 metre from each other.

To further support and protect primary health care workers, detailed information on community-based assessment centres for triage, assessment and antiviral distribution is being developed by the Ministry of Health. This will be available on the Ministry of Health website (<http://www.moh.govt.nz/pandemicinfluenza>).

The purpose of these centres is to, as much as possible, separate patients who have, or may have, symptoms suggestive of pandemic influenza from patients without such symptoms but who still require primary health care services.

Workers who can maintain a distance of at least 1 metre from patients should follow the basic principles in section 2 (ie, hand hygiene, cough and sneeze etiquette, social distance and adequate ventilation).

It is recommended that workers who are unable to maintain a distance of at least 1 metre from patients wear a surgical mask and other PPE (as set out in Table 1 in Appendix A and outlined in section 6) when in contact with patients showing symptoms of pandemic influenza.

## 5.3 Long-term care and residential facilities

In addition to the guidance in 4.1 for all health and disability facilities, long-term care and residential facilities should note the following points. This information is designed to protect workers as well as to prevent the spread of pandemic influenza within a facility.

- Notify the Medical Officer of Health if a case, or cases, of pandemic influenza is suspected.
- Work with your usual primary care services for advice regarding treatment and care.
- If symptoms of pandemic influenza are apparent, implement droplet precautions (see Appendix C for details) for the resident and their roommates, pending confirmation of pandemic influenza virus infection. Do not separate residents and roommates or move them out of their rooms unless medically necessary.

- Once a patient is diagnosed with pandemic influenza, treat roommates as exposed.
- Group together residents and staff who are known or suspected to have pandemic influenza.
- Limit movement within the facility (eg, temporarily close the dining room and serve meals in residents' rooms, cancel social and recreational activities and limit visiting).
- Ensure all rooms are well ventilated.

## **5.4 Ambulance services**

Patients with severe pandemic influenza or disease complications may require emergency transport to hospital. The following information is designed to protect ambulance staff when transporting such patients as well as to prevent the spread of pandemic influenza by ambulance services.

Screen patients for symptoms of influenza before transporting them.

Personal protective equipment as outlined in Table 1 (see Appendix A) is recommended, depending on the closeness of anticipated contact. If possible, place a procedure or surgical mask (as described in Appendix C) on patients symptomatic of pandemic influenza to help contain droplets expelled during coughing. If this is not possible (ie, when it would further compromise the patient's respiratory status or it is difficult for the patient to wear), have the patient cover their mouth and nose with a tissue when sneezing or coughing, or use the most practical alternative to contain respiratory secretions.

Notify the receiving facility that a patient with possible pandemic influenza is being transported, so the facility can prepare for their safe admission.

Follow standard operating procedures for the routine cleaning of the emergency vehicle and reusable patient care equipment.

## **5.5 Ambulatory health care facilities**

Hospitals and ambulatory care facilities should follow their established infection prevention and control policies and develop specific procedures that will be implemented in an influenza pandemic.

Additional guidance for the development of such policies is available from the Public Health Agency of Canada (<http://www.phac-aspc.gc.ca>, specifically Appendix F about infection control) and United States Department of Health and Human Services (<http://www.hhs.gov/pandemicflu/plan/>) (USDHHS 2005).

Ambulatory health care facilities provide services ranging from haemodialysis, day-surgery and dental treatments and, along with hospitals, may see patients who have been exposed to, or are symptomatic of, pandemic influenza. In addition to the guidance in 4.1 (for all health and disability facilities), the following is recommended for ambulatory health care facilities.

- Screen people for influenza-like illness by phone or before they come into the facility and reschedule appointments where possible for people who have potential symptoms.
- Cancel all non-emergency services when pandemic influenza is in the community.

## **6 Risk Categorisation for Health Care Workers and First Responders**

During an influenza pandemic, a range of people who do not have influenza will continue to seek medical care. It is important that health care workers and first responders follow the basic principles in section 2 (ie, hand hygiene, cough and sneeze etiquette, social distance and adequate ventilation) as well as their usual work practices.

When PPE is to be worn or used, education and training of workers should always have been carried out first, and is the responsibility of employers.

In addition to the specifics listed below, all workers should continue to use or wear the routinely used or worn PPE in their workplace, follow standard precautions, and use standard safety equipment.

Table 1 (see Appendix A) summarises the following information.

### **6.1 Lower/medium risk**

Lower/medium risk workers are health care workers and first responders who may have contact with patients with influenza or surfaces that patients with influenza have been in contact with, but who can maintain at least a one-metre distance from a patient (eg, porters, orderlies, dieticians, ward clerks, receptionists, community pharmacists, cleaners, housekeeping staff, police in non-rescue situations and prison staff undertaking general duties).

These workers should follow the basic principles outlined in section 2 (ie, hand hygiene, cough and sneeze etiquette, social distance and adequate ventilation) to minimise the likelihood of their acquiring pandemic influenza. Depending on the risk of exposure, employers should consider implementing additional protection or control measures.

### **6.2 Medium risk**

Medium risk workers are health care workers and first responders who can keep at least 1 metre from people with pandemic influenza but, due to the nature of their work, may encounter particular situations where it is difficult to predict whether they can maintain at least 1 metre from people with pandemic influenza. In these situations, they should wear surgical masks and gloves (acknowledging that wearing gloves does not preclude hand hygiene) if direct physical contact is anticipated.

These workers should also follow the basic principles outlined in section 2 (ie, hand hygiene, cough and sneeze etiquette, social distance when possible, and adequate ventilation).

### **6.3 Medium/higher risk**

Medium/higher risk workers are health care workers and first responders who have a likelihood of potential contact with some respiratory secretions while working within

1 metre of people who have pandemic influenza (eg, paramedics, primary health care physicians, nurses and others who provide in-room patient care, and emergency department staff).

These health care workers and first responders should, after receiving education and training, wear medium-level PPE (eg, surgical masks, gloves and a gown or apron) as well as following the appropriate basic principles outlined in section 2 (ie, hand hygiene, cough and sneeze etiquette, social distance and adequate ventilation).

## **6.4 Higher risk**

Higher risk workers are health care workers and first responders who have a high likelihood of direct contact with respiratory secretions, particularly via aerosols, while needing to perform procedures<sup>2</sup> on people with pandemic influenza within 1 metre of those people for significant periods.

These workers include first responders needing to resuscitate people, intensive care unit staff, recovery room staff, physiotherapists providing breathing treatments, and first responders with patients producing large amounts of respiratory secretions.

For these higher risk workers, it is recommended high level PPE is worn. This involves wearing disposable particulate respirator masks, eye protection, gloves, a gown or apron as well as adhering to the appropriate basic principles outlined in section 2 (ie, hand hygiene, cough and sneeze etiquette, social distance and adequate ventilation).

<sup>2</sup> Aerosol-generating procedures include invasive procedures such as suctioning, intubation, extubation, tracheostomy care, bronchoscopy, collecting nasopharyngeal swabs or aspirates, and nebulising patients.

## Appendix A: Personal Protection Measures

**Table 1:** Personal protection measures for workers who need to be in the workplace due to the nature of their role and associated risk level

		Hand hygiene	Social distance	Cough and sneeze etiquette	Adequate ventilation	Masks <sup>3</sup>	Gloves	Gown or apron	Eye protection
<b>Lower/medium</b>	People who can maintain more than 1 metre contact distance from people with potential influenza or can implement protective barriers (eg, receptionists, telephone triage personnel, pharmacy staff, orderlies, cleaners, and dieticians).								
<b>Medium</b>	People who, due to the nature of their job, may be unable to maintain more than 1 metre contact distance from people with potential influenza (eg, police, prison staff, ambulance staff and health care workers).					Surgical	If direct contact likely		
<b>Medium/higher</b>	People who, due to the nature of their job, cannot maintain at least 1 metre contact distance from people with potential influenza (eg, primary care personnel, emergency department staff).					Surgical			
<b>Higher</b>	People who, due to the nature of their job, cannot maintain at least 1 metre contact distance from people with potential influenza AND have a high likelihood of potential contact with aerosolised respiratory secretions from invasive procedures – ventilation, sectioning etc (eg, ICU staff, recovery room staff, people providing hands-on hospital care to people in droplet isolation).					N95/P2			

Note: **Basic principles:** Hand hygiene, social distancing, safe cough/sneeze etiquette, and good ventilation constitute the basic principles for the prevention of influenza spread. The additional measures (ie, the wearing of masks, gloves, gowns/aprons, and eye protection) should be subject to prudent workplace hazard or risk assessment. **Masks:** A range of masks are available to provide respiratory protection to workers in medium- to high-risk situations. These vary in the degree of protection offered, but essentially there are two options:

- surgical masks, designed primarily to contain droplet spread from the wearer, but offering a degree of protection from external infection
- P2 or N95 particulate masks, which provide a higher degree of filtration of respiratory protection, when appropriately worn and handled.

The appropriate level of protection should be chosen for the degree of risk of infection remaining after all other control measures have been taken. In laboratory conditions, the relative effectiveness of these different measures is easily measured. However, in actual workplace settings, this is harder to measure, because of all the various factors that come into play, such as the degree of exposure to infection, how well the mask fits, hand contact with the mask and the wearer's face and so on. These factors can greatly limit the effectiveness of even face masks that would otherwise offer a high degree of protection.

<sup>3</sup> Information provided on the choice of masks and other protection measures is for guidance to assist employers and staff in specific workplace practices, based on current advice from CDC and WHO. Final decisions with regard to individual workplace risk rests with the employer. This document will be updated to reflect further technical information as it becomes available.

# Appendix B: Employer's Obligations under the Health and Safety in Employment Act 1992

## Introduction

In addition to the requirements under the Civil Defence Emergency Management Act 2002, continuity planning should include your business's obligations under the Health and Safety in Employment Act 1992. In this context, the most relevant sections of the Health and Safety in Employment Act are:

- all practicable steps
- the hierarchy of action for the management of workplace hazards
- the involvement of employees in workplace health and safety matters.

## All practicable steps: sections 6–10 of the Health and Safety in Employment Act 1992

Employers must take all practicable steps to mitigate risk and protect employees, especially those at potentially higher risk, such as health care staff, support staff and first responders (ie, fire, police, ambulance and other emergency workers) from pandemic influenza.

Employers need to plan actively to cover their risks, the risks to their workers and the public.

All practicable steps applies to the general duties that must be carried out by employers, employees, self-employed people in control of workplaces and 'principals', who are people who engage contractors to carry out work for them.

These people are required to take all steps that are **reasonably** practicable. A step is practicable if it is possible or capable of being done. Whether a step is also reasonable takes into account:

- the nature and severity of any harm that may occur
- the degree of risk or the probability of harm occurring
- how much is known about the hazard and the ways of eliminating, isolating, or minimising it
- the availability and cost of the available controls.

The degree of risk and severity of potential harm must be balanced against the cost and feasibility of the control measure. The cost of providing the control protection has to be measured against the consequences of failing to do so. It is not simply an assessment of whether the employer can afford to provide the necessary control protection. Where there is a risk of serious or frequent harm, a greater cost in the provision of protection may be reasonable.

Any judgement about whether a control measure is 'reasonably practicable' is to be made taking common practice and knowledge throughout the industry into account.

Section 6 of the Health and Safety in Employment Act, all practical steps:

“Every employer shall take all practicable steps to ensure the safety of employees while at work; and in particular shall take all practicable steps to –

- (a) provide and maintain for employees a safe working environment; and
- (b) provide and maintain for employees while they are at work facilities for their safety and health.”

### **Hierarchy of management controls**

Sections 7 to 10 describe a hierarchy of action for managing hazards. Where a significant hazard, including the likelihood of pandemic influenza, is identified, the Act sets out the steps an employer must take.

1. When practicable, **eliminate** the significant hazard (section 8). This may involve removing the hazard or hazardous work practice from the workplace.
2. If elimination is not practicable, **isolate** the significant hazard (section 9). This may involve isolating or separating the hazard or hazardous work practice from people not involved in the work or the general work areas. It could mean reducing the potential for contamination by changing work practices to achieve a greater degree of social distancing or installing screens or barriers.
3. If it is impracticable to eliminate or isolate the hazard, **minimise** the likelihood that the hazard will harm employees (section 10). In addition, employers, when appropriate, must undertake the following:
  - Provide, make available to, and ensure the use of suitable clothing and equipment to protect employees from any harm arising from the hazard.
  - Monitor employees' exposure to the hazard.
  - Seek the consent of employees to monitor their health and once consent is given, monitor their health. This includes introducing work practices that reduce the risk and could mean limiting the time a person is exposed to the potential hazard, or using protective clothing or equipment.

In special situations (ie, when work must continue for humane reasons or to maintain civil order), minimising the hazard may involve using prophylactic antiviral medicines.

### **Section 19B of the Health and Safety in Employment Act 1992**

Section 19B of the Health and Safety in Employment Act 1992 says every employer must provide reasonable opportunities for the employer's employees to participate effectively in ongoing processes for improving health and safety in the employee's workplace.

### **Section 28A of the Health and Safety in Employment Act 1992**

Section 28A of the Health and Safety in Employment Act 1992 says employees have the right to refuse to perform work if they believe it is likely to lead to their suffering serious harm. However, their belief must be on reasonable grounds, and they must

have attempted to resolve the matter with their employer before they can continue to refuse. The right to refuse unsafe work does not apply unless the understood risks of the work have increased materially. Therefore, the right of an ambulance worker or a nurse to refuse is different to that of, say, a carpenter. It is also different to that of a sworn staff-member of the police, fire service or armed forces.

Independent contractors and volunteers have the right to withdraw their labour or services at any time, including when they feel the work environment presents an unsatisfactory level of risk.

# Appendix C: Additional Precautionary Measures

## Standard precautions

Always follow standard precautions in all situations when dealing with patients in any setting.

Standard precautions are designed to reduce the transmission of micro-organisms, particularly blood-borne pathogens, by putting barriers in place. In addition to hand hygiene, barriers include the wearing of gloves, a gown or apron, masks or eye protection whenever contact with body fluids is anticipated. Other measures relate to needle safety, patient placement, the appropriate cleaning of equipment and linen, and waste disposal.

See CDC (1996b, [http://www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_standard.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html)).

## Droplet precautions

Droplet precautions involve the wearing of a mask in addition to taking the standard precautions to prevent transmission of pathogens that are spread by droplets (eg, the influenza virus). According to the Centers for Disease Control and Prevention, transmission from large-particle droplets requires close contact between the source and recipient person, because droplets do not remain suspended in the air and generally travel only short distances, usually up to 1 metre, through the air. See Garner and Hospital Infection Control Practices Advisory Committee (2004) and CDC (1996a, [http://www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_droplet.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html)).

## Masks

Surgical masks (also known as procedure masks) are expected to minimise droplet transmission of respiratory secretions from an infectious person to other close contacts (see Figure 1). Surgical masks have been designed to resist fluids, such as those generated by splashing, coughing or sneezing, so protect the wearer.

P2 (N95) masks are expected to minimise air-borne and droplet transmission of respiratory secretions from an infectious case to an attending person (see Figure 2).

P2 masks are also known as particulate respirator masks because in addition to protection from fluids, they filter particles to 95 percent efficiency (see Figure 2).

If these masks are used, they should be properly fit tested (Australian Government Department of Health and Ageing 2005).

**Figure 1:** Disposable surgical mask



*Alberta SARS Response: Infection prevention and control guidelines for acute febrile respiratory illness and SARS in acute care settings* (Alberta Health and Wellness, Disease Control and Prevention 2004: 9) defines 'surgical mask' as:

A pliable, disposable covering for the mouth and nose, manufactured for medical purposes that acts as a barrier for exposure to microorganisms contained in droplets. Surgical masks will capture large, wet particles from the nose and mouth of the wearer, thus preventing the spread from the wearer to others. The mask also prevents the wearer from inhaling droplets produced by others.

**Figure 2:** Disposable P2 (N95) health care particulate respirator mask



*Alberta SARS Response: Infection prevention and control guidelines for acute febrile respiratory illness and SARS in acute care settings* (Alberta Health and Wellness, Disease Control and Prevention 2004: 8) defines an 'N95 mask' as:

A personal protective device that is worn on the face and covers at least the nose and mouth to reduce the wearer's risk of inhaling airborne particles, in this instance infectious agents. ... For airborne pathogen protection, masks should filter particles one micron in size and provide a tight facial seal.

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