



**Advice for residential institutions,
early childhood education centres
and schools on managing cases of
pandemic influenza H1N1 and seasonal influenza**

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Summary and key points

Influenza (the flu) is a very infectious respiratory illness caused by influenza viruses, and is much more common in the winter months. Pandemic influenza H1N1 and seasonal influenza have the same symptoms and signs, spread from person to person in the same way, and are treated similarly.

Most people who develop seasonal influenza or pandemic influenza H1N1 will have mild to moderate symptoms and will recover at home without needing medical treatment. However, some people are at higher risk of developing complications if they get influenza, and especially if they get pandemic influenza, including pregnant women, people with morbid obesity, children under 5 years of age and people with some chronic health problems.

Influenza spreads easily from person to person, especially in residential institutions, early childhood education centres (ECECs) and schools, and these institutions may also serve people who are at higher risk of complications. This document provides advice for these institutions on planning for, prevention of and management of cases and outbreaks of pandemic influenza H1N1 and seasonal influenza.

The key points for residential institutions, ECECs and schools are:

- Residential institutions, ECECs and schools are at higher risk of influenza spread than the rest of the community. Strong infection control procedures are essential for these institutions.
- Plan in advance for what to do if you have cases or an outbreak of influenza in your institution.
- Take steps that will help prevent cases or an outbreak of influenza in your institution.
- If cases occur, prompt action is necessary to prevent infection spread.
- Sick staff should not come to work. If staff develop a flu-like illness while at work, they should go home immediately.
- Residents, ECEC attendees or students who develop a flu-like illness should go home to recover if possible. If they cannot go home, they should be isolated from other people and receive priority medical attention.
- Visitors with a flu-like illness should not visit these institutions.
- Residential institutions should inform ARPHS if they have a confirmed case of pandemic influenza H1N1 in isolation in their institution and are seeking advice.
- Residential institutions, ECECs or schools also contact ARPHS if there are increasing numbers of cases, or if the institution is unable to maintain effective infection control.

This document will be updated as the situation changes. Updated versions will be available on the ARPHS website (<http://www.arphs.govt.nz>) so please check periodically.

1. About influenza and pandemic influenza H1N1

Influenza (the flu) is a very infectious respiratory illness caused by influenza viruses. Influenza can occur at any time of the year but is much more common in the winter months.

Pandemic influenza H1N1 2009 (swine flu) is a new influenza strain that emerged in 2009, spread quickly around the world and is still occurring around the world and in New Zealand in 2010.

Further information, including updates on the current situation, is available on the Ministry of Health website at <http://www.moh.govt.nz/influenza-a-h1n1>.

What are the symptoms and signs of influenza?

The symptoms and signs of seasonal influenza and pandemic influenza H1N1 are the same. Illness due to influenza usually starts very suddenly, and may include the following symptoms and signs of a 'flu-like illness':

- fever (a temperature $\geq 38^{\circ}\text{C}$)
- sore throat
- cough
- headache
- muscle aches
- chills
- runny or stuffy nose
- extreme tiredness
- nausea, vomiting and diarrhoea can occur (more common in children).

What is the definition of a 'flu-like illness'?

An influenza-like illness (a flu-like illness or 'ILI') is currently defined by the Ministry of Health as:

- (i) history of fever, chills and sweating or clinically documented fever $\geq 38^{\circ}\text{C}$, plus
- (ii) cough or sore throat

How does influenza spread?

Seasonal influenza and pandemic influenza H1N1 both spread in the same way, from person to person. The main way influenza spreads is through the coughs or sneezes of an infected person. Infected droplets are released into the air and breathed in by others. However, these droplets do not remain in the air long and generally only affect people within two metres. It is also possible to get influenza by touching contaminated surfaces, and then touching your nose, mouth or eyes.

How severe is the illness?

Most people who develop seasonal influenza or pandemic influenza H1N1 will have mild to moderate symptoms and will recover at home without needing medical treatment.

However, some people are at higher risk of developing complications if they get influenza, and especially if they get pandemic influenza. People at higher risk include people who:

- are pregnant or have recently been pregnant (up to 2 weeks after giving birth)
- have morbid obesity (are very overweight)
- have cardiovascular disease (ischaemic heart disease, congestive heart failure, rheumatic heart disease, congenital heart disease and cerebrovascular disease)
- have chronic respiratory disease (asthma if on regular preventive therapy, other chronic respiratory disease with impaired lung function)
- have diabetes
- have chronic renal disease
- have any cancer (except non-invasive basal and squamous skin cancers)
- have other conditions, including immune compromising conditions or immune suppressing treatments (autoimmune disease, HIV, transplant recipients, neuromuscular and central nervous system diseases, haemoglobinopathies, children on long term aspirin)
- are young (children under 5 years of age, especially Maori and Pacific children).

What is a 'case'?

In this document, a 'case' refers to a person who has:

- a) laboratory confirmed pandemic influenza A (H1N1) virus infection (confirmed case), or
- b) a person with an influenza like illness who has a strong link to a confirmed case or defined cluster (probable case).

Cases are important both because they are unwell and also because they are infectious to others, particularly in the first few days and while they remain unwell.

What is a 'contact'?

A 'contact' is a person who has had close contact with a case.

Close contact is defined as having cared for, lived with, or had direct contact with respiratory secretions or bodily fluids of a probable or confirmed case (e.g. having been coughed on or sneezed on by the case).

2. Which institutions does this document cover?

This document is intended to provide advice primarily for closed residential institutions (including prisons, boarding schools, residential care facilities, refugee institutions and other residential facilities). Some of the advice in the document may also be useful for non-residential institutions (especially early childhood education centres (ECECs) and schools).

The advice in this document is not primarily intended for health care facilities such as hospitals.

3. Why are these institutions at higher risk?

There are a number of reasons why residential institutions are at higher risk from the spread of seasonal and pandemic influenza H1N1 viruses:

- They contain large numbers of people in close proximity for extended periods of time, leading to a high risk of spread.
- Due to their residential nature, these institutions may not always be able to ask people to recover at home, so may need to isolate sick people within the institution.
- Some residential institutions serve people amongst whom the flu virus is more likely to spread (e.g. those with diminished ability to self-care and/or diminished ability to comply with infection control measures).
- Some residential institutions also serve people who are at high risk of flu complications.

Early childhood education centres (ECECs) and schools are not residential institutions, but are also high risk settings for increased spread of influenza viruses (ECECs and schools) and contain people who are at increased risk of complications if they get sick (ECECs, and some schools serving special needs children).

Young children are less competent at good hand hygiene and at covering their coughs, and frequently put their hands in their mouth, increasing the risk of the transmission of infection. Children aged under 5 are also infectious to others for a longer period, can transmit infection to others even when they have no or very few symptoms themselves, and are at higher risk of developing complications of influenza.

Schools quite commonly experience high rates of seasonal influenza amongst students and staff during the annual flu season.

4. What to do if a case has not yet occurred

Use this time to ensure that your institution is prepared should a case occur.

You can also take measures to reduce the likelihood of a case occurring in your institution.

Planning measures

Review your pandemic plan, and ensure that you have an active business continuity plan to deal with illness in residents, visitors and staff.

Important issues to consider in your planning include:

- Will it be possible to exclude sick residents (see 5.1 below) so that they can recover at home?
- How likely are residents in your institution to be able to comply with isolation and infection control measures?
- If you expect to use personal protective equipment (PPE):
 - Ensure that you have access to stocks of PPE if necessary.
 - Ensure that education and training is provided to staff to ensure the equipment is used and disposed of correctly. If PPE is not used or disposed of correctly, it may increase (rather than decrease) a person's risk of transmission.
- What will be the impact on others if sick residents are asked to recover at home (e.g. working parents, in the case of school boarding houses or ECECs)?
- How high is the risk that the virus will spread within this institution (see 'Why are these institutions at higher risk?')?
- Is complete closure of the institution realistically possible?

Measures for residents

- Encourage increased attention to cough/sneeze etiquette, hand hygiene and other hygiene measures. Encourage all residents to clean hands before eating, and before and after communal activities.
- Advise residents to report flu-like symptoms at once. Residents reporting flu-like symptoms should be isolated (see 'What to do if there is a case') and receive priority GP assessment. Antiviral treatment (Tamiflu) may be recommended on clinical grounds by the GP (based on severity and/or whether case is in high risk group) and/or on public health grounds by ARPHS (to help control outbreaks in high risk settings).

Measures for staff

- Encourage increased attention to cough/sneeze etiquette, hand hygiene and other routine infection control measures. Encourage staff to clean hands before eating, and before and after communal activities.
- Have a clear staff sickness policy of which all staff are aware. Encourage staff to call in sick and stay at home if they are unwell. If staff become sick at work, send them home immediately.
- Staff who develop a flu-like illness should consult their GP, who may test for influenza and prescribe antiviral treatment if indicated.

- Preventive use of antivirals (pre-exposure prophylaxis) is *not* recommended for staff. Instead use social distancing/PPE/effective isolation of sick residents.
- Post-exposure antiviral prophylaxis for staff may be indicated on a case by case basis (e.g. if there has been a significant failure of PPE).

Measures for visitors

- Ensure sick visitors stay away. All people arriving to visit should be reminded/asked about symptoms on arrival and should use hand gel before entry. Clear information and posters will assist with this.

Cleaning measures

- The risk of infection can be reduced by increasing cleaning of areas with frequent hand contact. Clean all areas and items that are more likely to have frequent hand contact (like doorknobs, taps, handrails) routinely (e.g. daily, before/after meals, as needed) and also immediately when visibly soiled. Use the cleaning agents that are usually used in these areas. Disinfection of environmental surfaces beyond routine cleaning is not required.

Other measures to consider

- Encourage vaccination for seasonal influenza (which includes the pandemic strain), where appropriate, to reduce the number of staff and residents who become unwell with influenza.
- Influenza can spread in inadequately ventilated internal spaces. 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 wherever possible.

If a resident or a staff member is known to have been in contact with a person with confirmed pandemic influenza H1N1:

- Limit close contact between that person and others for the two days following exposure.
- If the exposed person develops symptoms they should be isolated (or excluded). Medical assessment must be arranged if the person's symptoms are getting worse and/or the person is at high risk.

5. What to do if a case occurs

The aim is to minimise exposure of other residents, staff and visitors to infectious cases, while ensuring that the needs of the case are also met.

Key points:

- Staff members with a flu-like illness should be sent home immediately, and should consult their GP, who may test for influenza and prescribe antiviral treatment if indicated.

- Visitors with a flu-like illness should be asked to leave immediately. For special circumstances where visits are high priority (e.g. a resident is terminally ill), sick visitors should wear a surgical mask, and ensure hand hygiene and cough/sneeze etiquette.
- Residents with a flu-like illness should be isolated (see below) and medically assessed by a GP, who can test for influenza and prescribe antiviral treatment if indicated clinically.
- Institutions should work with their usual primary care services for advice regarding treatment and care of ill individuals.
- Survey residents and staff to identify whether any other people have a flu-like illness.
- Doctors are required to notify confirmed cases of pandemic influenza H1N1 to the local Medical Officer of Health. (Note that seasonal influenza is not notifiable.)
- Please inform ARPHS if you have a confirmed case of pandemic influenza H1N1 in isolation in your residential institution and are seeking advice. Please also contact ARPHS if you are having increasing numbers of cases, or are otherwise unable to maintain effective infection control. The manager of the institution is likely to be the best person to communicate with ARPHS.
 - Contact details are at the beginning of this document and on the ARPHS website.
 - Normal business hours are the best time to contact ARPHS.
 - ARPHS is likely to provide advice and answer questions to assist your management of the situation. We will want to know about your institution (type, number of residents and staff, high risk residents) and the outbreak (cases and onset dates, numbers, measures already in place).
- Refer to your institution's usual processes regarding communication with residents, relatives and other agencies.

5.1 Exclusion

What does exclusion mean?

Exclusion means that people who are sick go home and do not return to the institution until they are no longer infectious.

People who are excluded should be given information about reducing spread of the virus within the household. More information is available in Appendix 2 of this document, or on the Ministry of Health website at <http://www.moh.govt.nz/influenza-a-h1n1>.

During transport from the institution to home, if they may come into contact with others (closer than 1 metre), cases should be advised to wear a surgical mask and to practise frequent hand hygiene measures. Forms of transport that minimise contact with other people should be preferred (i.e. public transport should be avoided).

Cases should be excluded until essentially well, that is not sneezing and coughing, as this is how the virus spreads. This is usually around 3 to 4 days after symptoms start, but may be up to a week. If in doubt, discuss with their doctor. Antiviral treatment may be recommended for high risk people by their GP.

Exclusion is likely to be more effective than isolation at stopping the virus from spreading within an institution, so exclusion is preferable to isolation when possible.

Is exclusion possible?

All sick staff should be excluded, except in some situations where this is difficult (e.g. staff live on-site). If sick staff are unable to be excluded, they should be isolated from other people.

For some institutions, excluding residents may be more difficult. This may include situations where:

- There are legal requirements for residents to remain within the institution (e.g. prisons).
- Residents need special care that is available within the institution and may be difficult to provide at home (e.g. some aged care residents).
- Residents do not have another home to go to (e.g. some residents at a refugee centre).
- A resident's home is very distant, so that transport to their home is difficult and could involve exposing other people (e.g. during air travel).

Exclusion may be particularly important where:

- proper, effective isolation is unlikely to be achievable
- staff are unlikely to be able to protect themselves adequately from isolated residents because social distancing is not possible and PPE supplies and/or training are not available.

Balancing these considerations may be difficult. ARPHS may be able to provide advice in such difficult situations.

5.2 Isolation

If sick residents are unable to be excluded, they should be isolated from other people.

Cases should be isolated until essentially well, that is not sneezing and coughing, as this is how the virus spreads. This is usually around 3 to 4 days after symptoms start, but may be up to a week. If in doubt, discuss with their doctor. Antiviral treatment may be recommended for high risk people by their GP.

What does isolation mean?

- Place people with a flu-like illness in isolation – preferably a single room with a dedicated ensuite or toilet.

- Arrange medical assessment, including swab taking for the first few cases, and antiviral treatment if clinically indicated.
- Signage, stating the patient is in isolation, should be posted on the door of their room or wherever the isolation zone begins.
- Movement of patients out of isolation rooms should be restricted to essential purposes.
- If possible, airflow should be vented to the exterior of the building from the room(s) such as by opening exterior windows. Influenza can spread in inadequately ventilated internal spaces.
- Non-essential staff should be prevented from entering isolation rooms.
- If possible, cases should wear surgical masks during any contact with staff and visitors.
- Staff who have contact with residents in isolation should follow the personal protective measures shown in Appendix 1. The level of personal protective measures required depends on the extent to which contact can be avoided, in particular whether staff can remain at least 1 metre from residents.
- No staff or visitors should enter the isolation room unless familiar with isolation procedures. The importance of hand hygiene after removing personal protective equipment such as masks and gloves (if using) should be highlighted to staff and visitors.
- Group together ('cohort') residents who are known or suspected to have seasonal influenza or pandemic influenza H1N1. If there are a number of cases, consider cohorting them in the same room(s) or areas/wings.
- Also 'cohort' staff who look after cases during an outbreak. This means having the same staff member(s) care for all cases, thereby minimising the number of staff who are exposed to cases.

5.3 Personal protective measures and equipment

Personal protective measures and equipment can help to reduce the spread of infection. The type of personal protective measures and equipment that should be used varies depending on the situation.

All people are currently advised to help stop the spread of flu germs by:

- Covering coughs and sneezes
- Avoiding contact with sick people and reducing time spent in crowded settings.
- Regularly washing their hands and drying them thoroughly

These are forms of personal protective measures. Additional personal protective measures are necessary when staff are in contact with residents who have Pandemic Influenza A (H1N1) 09. The level of personal protective measures required depends on the extent to which contact can be avoided, in particular whether staff can remain at least 1 metre from residents. Personal

protective equipment (PPE) will not be required in all situations. Appendix 1 contains a summary table of personal protective measures required in different situations.

Full guidance is available in the document *Infection Prevention and Control during an Influenza Pandemic* (see the section 'Where can I get further information?'), and a summary table from that document is reproduced in Appendix 1.

Education and training on the use of PPE is necessary to ensure the equipment is used and disposed of correctly. PPE that is not used and disposed of correctly may increase (instead of decrease) the risk of influenza transmission. Visitors need to be supervised by staff when putting on and taking off PPE.

5.4 Visitors

Visits to symptomatic cases should be minimised. Visitors must comply with all isolation procedures and should be supervised when putting on and removing PPE to ensure it is properly used and to ensure hand hygiene is thorough.

5.5 Cleaning

Clean all areas and items that are more likely to have frequent hand contact (like doorknobs, taps, handrails) routinely (e.g. daily, before/after meals, as needed) and also immediately when visibly soiled. Use the cleaning agents that are usually used in these areas. Disinfection of environmental surfaces beyond routine cleaning is not required.

Surfaces can be cleaned using standard disinfectants such as bleach. Allow an interval of at least 30 minutes after wiping surfaces with bleach solution before resuming use of that space.

Further information on cleaning is provided in Appendix 3.

5.6 Other infection control measures

If there is an outbreak of seasonal influenza or pandemic influenza H1N1 in your institution (i.e. many cases, or the number of cases is increasing), it may be advisable to limit movement within the facility. For example, this may involve cancelling social and recreational activities, or considering temporarily closing the dining room and serving meals in residents' rooms, if applicable.

5.7 Residents transferring to other institutions

If you have cases of seasonal or pandemic influenza H1N1 in your institution and you are transferring a patient, please inform the receiving institution or hospital and transporter prior to arranging transfer.

5.8 Case log for residents and staff

Once an influenza case occurs, a case log should be kept of all residents and staff who have flu-like symptoms. This will help you to keep track of whether case numbers are increasing or decreasing and whether the spread of

infection is under control, and will enable ARPHS to advise you appropriately. Advise ARPHS if the number of cases appears to be increasing.

The case log should include the following information for each person with flu-like symptoms (e.g. as columns in a table or spreadsheet):

- Name
- Age
- Gender
- Whether person is a staff member or resident
- Date symptoms started
- Date symptoms stopped
- List of symptoms (e.g. fever, cough, sore throat, etc)
- Whether swab was done (and date)
- Whether antivirals (Tamiflu, Relenza) were taken (and dates)

5.9 Institutions that have difficulty with the above measures

For a small number of institutions, it may be difficult to effectively implement measures such as exclusion or isolation. For example, a provider of care for children with behavioural difficulties in a small-scale, home-style institution may find it difficult to effectively isolate cases. Continue to follow the above infection control measures that can practically be followed, such as cleaning, staff and visitor policies. In such cases, ARPHS may be able to provide advice on the best approach. In certain circumstances, on a case by case basis, post-exposure prophylaxis with antivirals (such as Tamiflu) may be indicated for close contacts.

5.10 Antivirals, swab testing and contact management

In some situations (e.g. outbreaks in residential institutions), it may be useful to consider the following measures:

- Testing the first few cases for pandemic influenza H1N1 (i.e. the GP takes a nasopharyngeal swab).
- Treatment of cases with antivirals (for those at high risk of complications and/or to reduce infectiousness).
- Post-exposure prophylaxis with antivirals for close contacts and/or quarantine of particularly high risk contacts.

The need for these measures should be assessed on a case by case basis. ARPHS may be able to provide advice in such situations.

6. Closure of residential institutions

Residential institutions could either be closed to new residents, or closed completely.

Closure to new residents may be considered if there are influenza cases within the institution, and new residents are at high risk of developing complications from influenza (e.g. have chronic medical conditions).

Closure of an institution may be considered if there are ongoing cases among residents and/or staff despite full implementation of outbreak control measures.

However, closing an institution is a last resort. Any decision to close should be made in discussion between the management of the institution, other agencies as appropriate (e.g. the Ministry of Education for ECECs and schools) and ARPHS.

Other considerations:

- For some residential institutions it may be very difficult to close, while for others it may be less difficult.
- In some situations, part of an institution may be able to close while other parts remain open.
- High staff illness rates may also affect any decision to close an institution if replacement staff cannot be found. Business continuity planning should address this possibility in advance.
- National guidance and policy should be considered in any decision to close an institution.
- Other events may affect closure decisions e.g. school holidays, planned gatherings, etc.
- Any decision to close an institution should be communicated to all relevant agencies and persons using the usual communication channels. Be aware that this may generate media interest.

7. Early childhood education centres and schools

Much of the advice for residential institutions is also relevant for ECECs and schools, particularly section 4 ('What to do if a case has not yet occurred'). Aspects of section 5 ('What to do if a case occurs') are also relevant, though children will not need to be isolated for long periods of time.

An important difference between ECECs and day schools, compared with residential institutions (including boarding schools), is that it is always possible to exclude children from ECECs and day schools (i.e. send them home), so long-term isolation is not required.

The following key points are relevant to ECECs and schools:

Planning and prevention

- Refer to relevant parts of section 4, 'What to do if a case has not yet occurred'.

Managing staff

- Staff who are unwell should not come to work. Staff who develop a flu-like illness while at work should go home. Staff should stay at home until they are well.

Managing children

- Parents should be specifically asked/reminded not to bring their children to ECEC or to school if they have a flu-like illness.
- The parents/caregivers of children who have flu-like symptoms should be called to collect them, and should be isolated from other children until the parents arrive. Consider personal protective measures for staff supervising children in isolation in accordance with Appendix 1. You need to plan what to do if personal protective measures are unable to be taken by staff supervising children with flu-like symptoms.
- Children under 5 years old are often infectious for longer than adults. They should not return to the ECEC while they still have symptoms. Discuss with their doctor or ARPHS if in doubt.

Managing visitors

- Ensure visitors stay away from the ECEC or school if they are unwell. Clear information and posters will assist with this.

Cleaning

- See cleaning advice in sections 4 and 5.5. Increase cleaning if a staff member or child develops a flu-like illness while in attendance at the ECEC or school.

Other measures

- Keep a sickness log up to date for children and staff who are absent due to flu-like symptoms. If you do not have a template for such a log, the case log in the ARPHS Guidelines for the Management of Norovirus Outbreaks can be adapted for this purpose (see 'Where can I get more information?'). See also the information in section 5.8, 'Case log for residents and staff'.
- Contact ARPHS if you are noticing increasing numbers of children and/or staff with flu-like symptoms (beyond what is usual for the time of year i.e. if an outbreak is suspected), or if you are seeking advice.

8. Further information

8.1 Where can I get more information?

The following websites and documents contain useful information on seasonal and pandemic influenza H1N1 and infection control:

- Ministry of Health website: <http://www.moh.govt.nz/influenza-a-h1n1>

- *Infection Prevention and Control during an Influenza Pandemic*. Wellington: Ministry of Health, 2006. Available at: <http://www.moh.govt.nz/moh.nsf/pages/MH4594>
- Information for employers and employees is available on the Department of Labour website at: <http://www.dol.govt.nz/initiatives/workplace/pandemic/index.asp>
- Centers for Disease Control and Prevention (CDC) website (USA): <http://www.cdc.gov/h1n1flu/>
- Some institutions, such as those working in aged care, are already familiar with the ARPHS guidelines for managing norovirus outbreaks. Many of the principles for managing cases of Pandemic Influenza A (H1N1) 09 are similar, including the need for isolation and other infection control measures. However, there are also some important differences, including how the virus spreads and the cleaning measures that are required. The ARPHS *Guidelines for the Management of Norovirus Outbreaks in Hospitals and Elderly Care Institutions* are available at: <http://www.arphs.govt.nz/Guidelines/guidelines.asp>
- ARPHS has produced several fact sheets about influenza, aimed at individuals/households but which may also be useful for institutions: an *Influenza fact sheet* and a *Fact sheet on hand hygiene and influenza-like illness*, both available at: http://www.arphs.govt.nz/notifiable/disease_fact_sheets.asp; and *Cleaning guidance for households with cases of influenza*, available at: <http://www.arphs.govt.nz/notifiable/InfluenzaBrochures.asp>.

8.2 ARPHS contact details

You can contact ARPHS on 09 623 4600. Please restrict after hours calls to urgent matters.

Appendix 1: Personal protective measures and equipment

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 ³	Gloves	Gown or apron	Eye protection
Lower/medium	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).								
Medium	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		
Medium/higher	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			
Higher	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.

³ 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.

Source: Ministry of Health. *Infection Prevention and Control during an Influenza Pandemic*. Wellington: Ministry of Health, 2006.

Appendix 2: 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 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.

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.

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

Source: Ministry of Health. Infection Prevention and Control during an Influenza Pandemic. Wellington: Ministry of Health, 2006.

Appendix 3: Cleaning guidance

The following guidance comes from the ARPHS document *Cleaning guidance for households with cases of influenza* (see the section 'Where can I get more information?'). Many institutions may already have their own cleaning protocols in place. This information is provided primarily to assist institutions who do not already have such protocols.

During an outbreak of influenza, householders living in the same house as those suffering from influenza are at particularly high risk of contracting the disease. Additional measures should be implemented to minimise the risk of influenza transmission. These guidelines have been developed to advise householders of cleaning strategies to reduce this risk. The influenza virus can contaminate the environment through coughing, and sneezing as droplets fall onto environmental surfaces. The virus can also be transmitted by contaminated hands that pick up it up from objects in the every day environment. The virus can live for minutes to hours depending on the type of surface, thus enhanced cleaning of rooms, toilets and bathrooms used by cases should be undertaken. Surfaces that are frequently touched with hands should also be cleaned often, ideally several times a day, particularly hard surfaces such as door handles, taps, benches and bathroom fixtures.

Virtually all household cleaning agents have activity against influenza A virus, but bleach is cheap and effective.

Household bleach is a high level disinfectant capable of killing the influenza virus. In order to work properly bleach disinfectant needs:

- Enough time to kill – at least 30 minutes contact time is ideal.
- Sufficient strength or concentration.
- A surface free of dirt

Supermarket bleaches (e.g. Janola, White Magic; Domestos) are suitable and cheap disinfectants to use to wipe down surfaces that are regularly used by others.

Supermarket bleaches are sold in different strengths, usually 2-5% sodium hypochlorite solution. The strength is written on the label. The recommended concentration of bleach disinfectant is 1000ppm (0.1%) hypochlorite. To achieve this, the following table provides a guide to diluting supermarket bleach of differing concentrations.

Original strength of bleach		Disinfectant Recipe		Amt of bleach in a standard 10 litre bucket
%	Parts per million	Parts of bleach	Parts of water	
1	10,000	1	9	1000mls
2	20,000	1	19	500mls
3	30,000	1	29	333mls
4	40,000	1	39	250mls
5	50,000	1	49	200mls

- Make the bleach solution up fresh each day and discard any leftovers after 24 hours.
- Keep diluted bleach covered, protected from sunlight & heat, in a dark container (if possible) and keep out of reach of children. A spray bottle is an effective way to use bleach solution.
- When cleaning, wear non-sterile gloves.
- Spray the bleach solution onto hard surfaces for 10 minutes before wiping off. If items are being placed into a bleach solution then it is recommended that the item is soaked for 30 minutes.
- Bleach should not be used on soft furnishings. Soft furnishings contaminated by respiratory secretions should be cleaned with hot soapy water.
- Once an item or surface is disinfected allow it to air dry.
- Disposable cloths should be used for cleaning surfaces and disposed of after use. If reusable cloths are used soak in bleach solution and allow to air dry.
- Make sure dishes are washed using hot water either by hand or a dishwasher. If possible wear rubber gloves when washing dishes by hand.
- There are no special laundry requirements.
- All gloves worn during cleaning should be removed and disinfected or disposed of if disposable. Those carrying out cleaning should avoid touching their faces with gloved or unwashed hands.
- Wash hands with warm soapy water for at least 20 seconds and dry them for 20 seconds, or clean hands with an alcohol-based hand sanitizer, immediately after the gloves are removed.
- Do not share items with other household members, such as eating utensils and drink bottles.

Appendix 4: Further information on personal protective measures and equipment

Cough and sneeze etiquette

People who are coughing or sneezing should be kept at home to avoid spread of any flu type to other people. To reduce the risk of spread of any type of influenza, provide the following advice:

- Cough or sneeze into a tissue, or into your own elbow.
- Cover your nose and mouth when blowing your nose, use a tissue.
- Only spit into a tissue or into the toilet, do not spit in public places.
- Immediately throw the tissue into a rubbish bin.
- Try to stay 1 metre away from people who are coughing or sneezing.
- Use hand hygiene after coughing or sneezing.

Hand hygiene

Good hand hygiene includes the following:

- Wash hands well with soap and water for 20 seconds (especially before eating, after coughing or sneezing, and after going to the toilet) AND dry hands thoroughly for 20 seconds, preferably with a disposable hand towel.
- Alternately use an antiseptic hand gel for 20 seconds.
- Keep your hands away from your mouth, nose, ears and eyes.

Social distancing

If possible, keep a distance of at least 1 metre between yourself and any other person, and avoid making physical contact with other people (e.g. hand shaking). Keeping this social distance will decrease the likelihood of influenza spreading from person to person during social contact.

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.

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. 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 wearing the mask.

P2 masks are also known as particulate respirator masks because in addition to protection from fluids, they filter particles to 95 percent efficiency. If these masks are used, they should be properly fit tested.

More details regarding the use of masks for infection control is available in the Ministry of Health's document *Infection Prevention and Control during an Influenza Pandemic* (see 'Further Information' section for how to find this document). The Department of Labour website also provides further information for employers and employees about the use of masks:
<http://www.dol.govt.nz/initiatives/workplace/pandemic/respirators.asp>.