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Advice for residential institutions and early childhood education centres on managing cases of Novel Influenza A (H1N1) 09

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Summary and key points

The Novel Influenza A (H1N1) 09 virus is now present in the community in the Auckland region. In the community, people who become sick from this virus are being managed in a way very similar to usual seasonal influenza. However, because this virus is new, people have no immunity to it so it will spread more quickly and widely than the seasonal flu. Also, while most healthy people in the community can recover at home it can be serious for some, especially people with other health problems.

Residential institutions and early childhood education centres (ECECs) are at higher risk from this virus. This document explains why, and provides advice for these institutions on planning, prevention and management for cases of the Novel Influenza A (H1N1) 09 virus.

The key points for residential institutions and ECECs are:

- Residential institutions and ECECs are at higher risk of influenza spread than the rest of the community. Strong infection control procedures are essential for residential institutions and ECECs.
- You should plan in advance for what to do if you have cases of Novel Influenza A (H1N1) 09 in your institution.
- You should take steps (outlined in this document) that will help prevent cases of Novel Influenza A (H1N1) 09 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 or ECEC attendees 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 residential institutions or ECECs.
- Residential institutions should inform ARPHS if they have a case of Novel Influenza A (H1N1) 09 **in isolation** in their institution and are seeking advice.
- Residential institutions or ECECs should contact ARPHS if you are having increasing numbers of cases, or are otherwise unable to maintain effective infection control.

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

1. About novel influenza A (H1N1) 09

This virus is also referred to as 'swine flu' or 'non-seasonal influenza'. Because this virus is new, people have no immunity to it so it may spread more quickly and widely than the seasonal flu.

Some information on this new virus is provided below. For updates on the current situation, and for further information, please visit the Ministry of Health website, <http://www.moh.govt.nz/influenza-a-h1n1>.

What are the signs and symptoms?

Signs and symptoms are similar to the symptoms of seasonal flu and can include:

- fever (a temperature $\geq 38^{\circ}\text{C}$)
- chills
- cough
- sore throat
- runny or stuffy nose
- body aches
- headache
- fatigue

Some people also experience diarrhoea and vomiting.

What counts as a 'flu-like illness'?

An influenza-like illness ("ILI" or flu-like illness) is currently defined as follows:

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

This 'case definition' is updated as the situation changes.

How does it spread?

The Novel Influenza A (H1N1) 09 virus spreads from person to person, in the same way that seasonal influenza viruses spread. The main form of transmission 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 Novel Influenza A (H1N1) 09 will have mild to moderate symptoms and will recover at home without needing medical treatment.

However, as with any influenza, a small number of people will develop more severe symptoms. People at higher risk of more severe symptoms include:

- People who are immune compromised or suppressed
- Pregnant women
- People with chronic medical conditions, such as:
 - Severe or poorly controlled congestive heart failure
 - Severe or poorly controlled chronic respiratory disease
 - Severe asthmatics (e.g. people on oral steroids, high dose steroid inhalers, or steroids and long-acting beta-agonists)
 - Renal replacement therapy

What is a 'case'?

In this document, a 'case' refers to a person who has a flu-like illness who may be infected with the Novel Influenza A (H1N1) 09 virus

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 or lived with a case, or had direct contact with respiratory secretions or bodily fluids of a 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 apply to residential institutions and early childhood education centres (ECECs). Residential institutions include aged care facilities, educational boarding institutions, prisons, refugee institutions and other residential facilities.

The advice in this document is not primarily intended for health care facilities such as hospitals, for which other guidance is available

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 the Novel Influenza A (H1N1) 09 virus:

- 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 among 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 of these institutions also serve people who are at high risk of flu complications (e.g. the elderly).

Early childhood education centres are not residential institutions, but are also a high risk setting. Young children frequently put their hands in their mouth, increasing the risk of the transmission of infection. Children aged under 5 are usually infectious to others for longer, and may also be at higher risk of influenza complications, especially in the case of infants.

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 both residents, visitors and staff.

Important issues to consider in your planning include:

- Are sick residents able to 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 people are asked to recover at home (e.g. working parents, in the case of school boarding houses or early childhood education centres)?
- 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 may be recommended for high risk residents and/or to decrease infectiousness if onset is less than 48 hours ago.

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.
- Have a clear staff illness policy that all staff are aware of. Encourage staff to call in sick if they are unwell. If staff become sick at work send them home **immediately**.
- Staff who develop an ILI can receive antiviral treatment via their GP if high risk and/or to reduce their time away from work if onset is less than 48 hours ago
- Preventive use of Tamiflu (pre-exposure prophylaxis) is not recommended for staff except where social distancing/PPE/effective isolation is impracticable (e.g. care of children with behavioural difficulties). Note that this is the same advice given to health care workers. If the situation has high risk contacts then discuss with ARPHS whether preventative Tamiflu is appropriate.

Measures for visitors

- Ensure visitors stay away if they are unwell. All people arriving should be asked about symptoms on arrival and 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. You can 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, where appropriate, to reduce the number of staff and residents who become unwell with seasonal influenza.
- 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.

If a resident or a staff member is known to have been in contact with a person with Novel Influenza A (H1N1) 09:

- Quarantine resident(s), if necessary cohort close contacts together in one area.
- Exclude staff.

- If the exposed person develops symptoms they should be isolated (or excluded) and seek medical assessment.

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:

- Any staff member, visitor or resident with a flu-like illness should be considered to have Novel Influenza A (H1N1) 09 until proven otherwise.
- Prompt action is needed for cases of Novel Influenza A (H1N1) 09
- Staff members with a flu-like illness should be sent home **immediately**. After medical assessment a GP can access free antivirals to speed up return to work.
- Visitors with a flu-like illness should be asked to leave **immediately**. Guidance is available from ARPHS for special circumstances where visits are high priority.
- Residents with a flu-like illness should be **excluded** (sent home) if possible and practical (see below). Residents who cannot be sent home, or who cannot be sent home immediately, should be **isolated** (see below) and given priority medical assessment by a GP, including antiviral treatment for high risk residents and/or to decrease infectiousness if onset is less than 48 hours ago.
- 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.
- Please inform ARPHS if you have a case of Novel Influenza A (H1N1) 09 **in isolation** in your institution and are seeking help or antiviral treatment. 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.
- 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 the Ministry of Health website, <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, depending on duration of the illness and on treatment. If in doubt, discuss with their doctor or ARPHS, antiviral treatment may be recommended for high risk residents and/or to decrease infectiousness if onset is less than 48 hours ago.

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

Is exclusion possible?

All sick staff should be excluded. If there are exceptional cases (e.g. staff live on-site), then management should discuss the situation with ARPHS.

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 help advise in such difficult situations.

5.2 Isolation

If 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, depending on the duration of the illness and on treatment. If in doubt, discuss with their doctor or ARPHS.

What does isolation mean?

- Place people with a flu-like illness in isolation – preferably a single room with dedicated ensuite or toilet.
- Arrange medical assessment, including swab taking for the first few cases, and antiviral treatment for high risk residents and/or to decrease infectiousness if onset is less than 48 hours ago
- 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 Novel Influenza A (H1N1) 09. 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 minimising the number of staff who are exposed to cases: having the same staff member(s) care for all 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 Novel 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 personal protective equipment to ensure it is properly used and to ensure hand hygiene is thorough.

5.4 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. You can 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 a case of Novel Influenza A (H1N1) in isolation in your institution, 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 Novel Influenza A (H1N1) 09 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 a case occurs, a case log should be kept of all residents and staff who have flu-like symptoms. This will help you and ARPHS to keep track of whether case numbers are increasing or decreasing and whether the spread of infection is under control. 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):

- 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 done (and date)
- Whether antivirals (Tamiflu, Relenza) 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. In such cases, discuss with ARPHS the best approach. It may be appropriate to provide prophylactic antiviral treatment. Continue to follow the above infection control measures that can practically be followed, such as cleaning, staff and visitor policies.

5.10 Tamiflu, swab testing and contact management

In some cases, it may be useful to consider the following measures:

- Swab testing of cases for Novel Influenza A (H1N1) 09
- Tamiflu treatment of resident cases in isolation to reduce infectiousness
- Tamiflu prophylaxis and/or quarantine of high risk contacts (in general we do not recommend quarantine for asymptomatic contacts)

The need for these measures will be assessed by ARPHS on a case-by-case basis.

Quarantine and antiviral treatment of staff cases to enable quicker return to work is available. Antiviral prophylaxis of well staff, is not normally part of the support provided by ARPHS. However, institutions may consider it as part of their occupational health and safety policy or pandemic plan. In such instances they would need medical advice from their usual medical advisors.

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 is a case 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, ARPHS and other agencies as appropriate (e.g. Ministry of Education for educational institutions)

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

Much of the advice for residential institutions is also relevant for early childhood education centres (ECECs), particularly the section 'What to do if a case has not yet occurred'. Aspects of the section '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 residential institutions is that it is always possible to exclude (send home) children from ECECs, so long-term isolation is not required.

The following key points are relevant to ECECs:

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 at work should go home **immediately**.

Managing children

- Parents should be specifically asked not to bring their children to ECEC if they have a flu-like illness.
- Children who have flu-like symptoms (fever plus respiratory symptoms such as cough) should have their parents called to collect and be isolated from other children until 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 if they are unwell. Clear information and posters will assist with this.

Cleaning

- See cleaning advice in sections 4 and 5.4. Increase cleaning if a staff member or child develops a flu-like illness while in attendance at the ECEC.

Other measures

- Keep your sickness log up to date for children and staff who are absent due to flu-like symptoms, and if numbers appear to be increasing contact the public health service. 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'.
- Inform ARPHS if you are having increasing numbers of cases, are otherwise unable to maintain effective infection control, or are seeking help or antiviral treatment.

8. Further information

Where can I get more information?

The following websites and documents contain useful information on Novel Influenza (H1N1) 09 and infection control in a pandemic:

- 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. URL: <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>
- CDC website (USA): <http://www.cdc.gov/h1n1flu/>

Some institutions, such as those working in aged care, are already familiar with ARPHS guidelines for managing norovirus outbreaks. Many of the principles for managing cases of Novel 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.

- ARPHS Guidelines for the Management of Norovirus Outbreaks in Hospitals and Elderly Care Institutions: <http://www.arphs.govt.nz/Guidelines/guidelines.asp>

ARPHS has also produced cleaning guidance for households with cases of influenza, which may also be useful for institutions, available at <http://www.arphs.govt.nz/notifiable/InfluenzaBrochures.asp>.

Contact details

You can contact ARPHS on +64 9 623 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 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.

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 document *ARPHS Cleaning Guidance for Households with Cases of Influenza A* (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 furnishing 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 (or an alcohol-based sanitiser) for at least 20 seconds and dry them for 20 seconds 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>.