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Interim Guidance: Infection Prevention and Control Measures for Health Care Workers in Long-term Care Facilities

Human Cases of Pandemic (H1N1) 2009 Flu Virus

This fact sheet has been developed to provide interim guidance for health care workers (HCWs) in long-term care (LTC) facilities for the infection prevention and control management of residents with **Influenza-like Illness (ILI)** suspected or confirmed to be due to Pandemic (H1N1) 2009 (H1N1 2009).

The goal of H1N1 2009 Infection Prevention and Control Measures in Long-term Care is to keep the facility (or major areas of the facility) completely free of the influenza virus in the first place.

This Interim Guidance is designed to help slow (mitigate) the transmission of this virus; **it is expected that the infection prevention and control recommendations (particularly recommendations related to respiratory protection) may change as further information about the epidemiology (e.g., mode of transmission) and clinical course (e.g., mild or severe disease) of this virus is available and the outbreak evolves.** In this document, a point of care risk assessment approach is used to help guide decisions regarding the type of droplet precautions/respiratory protection to apply ([LINK to Appendix A](#)).

This guidance document is being provided by the Public Health Agency of Canada in response to the Pandemic (H1N1) 2009 Flu Virus outbreak. This guidance is based on current, available scientific evidence about this emerging disease, and is subject to review and change as new information becomes available. The following guidance should be read in conjunction with relevant provincial and territorial guidance documents. The Public Health Agency of Canada will be posting regular updates and related documents at www.phac-aspc.gc.ca. The content of this document has been informed by discussion with and technical advice provided by the Infection Control Expert Advisory Group to PHAC.

At this time the evidence suggests that the incubation period for H1N1 2009 is up to 7 days and individuals may remain infectious for up to 7 days. These timelines are similar to prior experience with human swine influenza viruses. Spread of H1N1 2009 has been almost exclusively in the community setting to this point, and this is where most exposures for the general public and health care workers alike will occur. The clinical picture to date of human illness from H1N1 2009 is one of mild disease, however some will experience severe disease. H1N1 2009 is susceptible to the antiviral agents, oseltamivir and zanamivir, which represent therapeutic options for individuals in whom treatment is indicated. This information on morbidity and mortality and treatment options has been taken into account when updating this guidance. As noted above, as this virus spreads throughout the world, the clinical and epidemiological picture may change, requiring further modifications to this guidance. **One goal of this revised guidance is, using a risk assessment approach, to support use of personal protective equipment most appropriate to the risk associated with the care to be provided, thereby protecting limited resources for those situations where protection is most needed.** [Link to epi summary](#)

The following criteria for influenza-like illness (ILI) can be used to determine the need for applying the infection prevention and control measures found in this guidance:

- Acute onset of respiratory illness with cough, with or without fever (in children under 5 years of age and adults 65 years of age and older fever may not be present with infection; additionally, fever has not been a consistent symptom with H1N1 2009; in children under 5 years of age GI symptoms may also be present)
- And one or more of: sore throat, arthralgia, myalgia, or prostration that could be due to influenza

It should be noted that the ILI screening criteria will also capture individuals who meet the criteria for severe respiratory illness (SRI). Individuals with SRI have chest radiograph findings of pulmonary infiltrates in addition to the screening criteria noted below. It should also be noted that these screening criteria will be updated as the epidemiological situation evolves.

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Along with Routine Practices and Droplet/Contact Precautions required for care of residents with seasonal influenza, infection prevention and control measures in long-term care facilities to prevent H1N1 2009 from entering the facility, and control its transmission within the facility should include:

1. Source Control
2. Screening Hand Hygiene
3. Respiratory Hygiene (also known as Respiratory Cough Etiquette)
4. Accommodation
5. Contact Precautions
6. Droplet Precautions/ Respiratory Protection (Mask¹/N95 respirator; and eye/ face protection)
7. Resident Transfer
8. Cleaning and Disinfection of Equipment
9. Visitors
10. Social Activities and Outside Appointments
11. Treatment and Prophylaxis
12. Reporting

Source control, achieved through administrative and engineering measures, is the most effective way to prevent the transmission of infectious agents, including H1N1 2009, in the long term care setting.

The infection prevention and control measures outlined below are to be practiced with symptom(s) onset and until symptom(s) have resolved.

1. Source Controls (engineering [e.g. use of partitions to establish 2 metre distance between residents with ILI and others] and administrative [e.g. limiting access for visitors with symptoms of ILI]).

The importance of applying administrative and engineering controls as the first strategy in protecting residents and HCW from exposure to infectious agents in the LTC facility cannot be overemphasized. LTC organizations should complete assessments of each area of all of their LTC facilities including the physical plant (e.g. availability of single rooms, use of partitions, ability to establish 2 metre distance between residents with ILI and others) and the types of resident care activities undertaken in residential areas. Based on these assessments, organizations need to determine what administrative and engineering controls are needed. **This is especially important for residential care areas/settings where residents are returning from visits/appointments in the community where H1N1 2009 is circulating.**

2. Screening:

2.1 Families/ Visitors - A key goal is to prevent introduction of H1N1 2009 into the facility; signage (in multiple languages, as appropriate) should be posted at all entrances to the LTC facility reminding persons entering the facility NOT to enter if they are having symptoms of ILI such as fever, cough, sore throat, arthralgia, or myalgia. Posted signage should provide clear instructions on how to perform respiratory hygiene and hand hygiene. At a minimum, passive screening² of families and visitors for respiratory symptoms should be performed. Active screening³ measures should be considered in anticipation of their being initiated if influenza is actively spreading in the community or during a community influenza outbreak.

2.2 Staff- Staff should perform self-assessment for symptoms of ILI and should not work if they are experiencing an ILI. Staff should be reminded of the importance of reporting their illness to those responsible for Occupational Health if they develop symptoms of ILI while on duty, and should be reminded to go home if they develop symptoms of ILI.

2.3 Residents - Enhanced screening of residents for symptoms of ILI should be conducted; all residents should be monitored at least once per day. Residents should be monitored for signs and symptoms of complications related to influenza and should be transferred to acute care as required (see Resident Transfer, #8 below). In the event of a local community outbreak of H1N1 2009, monitoring should be increased to twice daily.

3. Hand Hygiene:

All persons entering the facility should practice good hand hygiene.

Signage with clear instructions for residents, HCWs, other staff, visitors, contractors, etc. to perform hand hygiene should be posted.

Alcohol-based hand rub should be available at the entrances to and exits from the facility, residential units, and at point-of-care in the resident's room.

1 Surgical mask or high quality procedure mask

2 Passive Screening: family / visitor performs a self assessment for symptoms of influenza (without supervision of a HCW)

3 Active Screening: LTC facility identifies HCW to screen all visitors for symptoms of influenza upon entry into the facility

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HCWs should perform hand hygiene frequently using either alcohol based hand rubs (60-90%) or soap and water.

4. Respiratory Hygiene (Respiratory Cough Etiquette):

All residents should be taught to perform hand hygiene, if physically/ cognitively feasible (See Hand Hygiene, #3 above); if residents are unable to perform hand hygiene, they should be assisted with hand hygiene.

Residents should also be taught how to perform respiratory hygiene practices (coughing into sleeve, using tissues, wearing a mask¹), if physically/ cognitively feasible.

Residents suspected of having ILI should wear a mask (if tolerated) when HCWs, or other staff or visitors are present.

5. Accommodation:

5.1 In the Absence of an Influenza Outbreak in the LTC Facility - Any resident who is identified with symptoms of ILI should be placed on additional (Droplet/Contact) precautions without delay and should be placed in a single room, if possible. If it is not possible to place a resident with symptoms of ILI in a single room, a separation of two metres should be maintained between the bed space of the ill resident and all roommates, and privacy curtains should be drawn. Appropriate signage should be posted on the symptomatic resident's room door indicating the precautions required. The resident with ILI should be restricted to his/ her room (bed space), including during meals and any other clinical or social activity. Contact tracing should be initiated and all resident(s) who share (d) a room with the ill resident should be considered as exposed to influenza and should be monitored for symptoms of ILI at least twice per day for seven days. Exposed roommates should not be transferred to any other room for seven days after the last exposure.

5.2 During an Influenza Outbreak in the LTC Facility - If the LTC facility has an Influenza Isolation Area (IIA) consider opening the IIA to accommodate residents (depending on their care needs) with symptoms of ILI. Any resident (i.e. new admissions, residents returning from the community, residents acquiring influenza while in the LTC facility) who is identified with symptoms of ILI should be immediately transferred to the IIA. Additional precautions should be implemented without delay. Appropriate spatial separation should occur and privacy curtains should be drawn between all residents. Appropriate signage should be posted on the room door indicating the precautions required. Where possible, HCWs and other staff should be identified to work exclusively in the IIA. Residents admitted to the IIA should be expected to remain for a minimum of seven days (i.e. one period of communicability) (and symptoms are resolving before returning to their regular room).

Recommendations in 5.1 for accommodation should be followed if an IIA is not opened.

6. Contact Precautions:

Should wear gloves when entering the room of a resident suspected to have ILI.

Should remove gloves just before leaving the room and dispose of them in an appropriate receptacle.

Gowns should be required as per Routine Practices. When worn, gowns should be removed just before leaving the room and disposed of in a hands-free receptacle.

Should use alcohol based hand rubs or soap and water after removing gown and gloves, and after leaving the resident's room.

7. Droplet Precautions/Respiratory Protection (A mask¹/N95 respirator; and eye/face protection):

Should wear a mask¹ (droplet precautions) or N95 respirator (respiratory protection) when within 2 metres of a resident with ILI. The choice between a mask¹ and N95 respirator should be based on the following:

A mask¹ should be worn:

- If within 2 metres of a resident with ILI

An N95 respirator should be worn:

- If conducting an aerosol-generating medical procedure, such as tracheal or oral suctioning (see AGMP² below for detailed list of AGMP examples) on a resident with ILI, personnel in the room should be

¹ Surgical mask or high quality procedure mask

² Aerosol-generating Medical Procedures (AGMPs): any procedure carried out on a patient that can induce the production of aerosols of various sizes, including droplet nuclei. Examples include: non-invasive positive pressure ventilation (BIPAP, CPAP); endotracheal intubation; respiratory/airway suctioning; high-frequency oscillatory ventilation; tracheostomy care; chest physiotherapy; aerosolized or nebulized medication administration; diagnostic sputum induction; bronchoscopy procedure; autopsy of lung tissue.

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- limited to only those necessary. It is preferred that AGMP⁴ be done in single patient rooms. All individuals in the room should wear an N95 respirator.

Whenever a mask¹ or N95 respirator is required, the HCW should also wear eye or face protection (i.e. goggles, safety glasses or face shield). Eye or face protection should be removed after leaving the resident's room and disposed of in either a hands-free waste receptacle (if disposable) or in a separate receptacle to go for reprocessing (if reusable).

The mask¹ or N95 respirator should be removed by the straps, being careful not to touch the mask¹ or respirator itself, after leaving the resident's room and disposed of in a hands-free waste receptacle.

HCWs should perform hand hygiene before and after removing the mask¹/respirator and eye/face protection and after leaving the resident's room.

8. Resident Transfer:

Residents with ILI who require urgent medical attention and transfer to an acute care facility should wear a mask¹, if tolerated.

In addition to Routine Practices, HCWs involved in transporting the resident should wear mask¹/respirator, eye or facial protection, and gloves as per above recommendations.

Notify the EMS and receiving hospital of the need for Additional Precautions due to the resident's illness.

9. Cleaning and Disinfection of Equipment:

Equipment and environmental surfaces should be cleaned and disinfected daily.

Any equipment that is shared between residents should be cleaned and disinfected before moving from one resident to another.

10. Visitors:

10.1 In the Absence of an Influenza Outbreak - Passive screening measures (as in Screening, #2 above) should be practiced, reminding persons NOT to enter if they are having symptoms of ILI such as fever, cough, sore throat, arthralgia, or myalgia. Families and visitors should be asked to stay away until 24 hours after symptoms resolve or 7 days after the onset of their illness, whichever is longer. If an ill visitor is allowed to visit for compassionate reasons, the visitor should be asked to wear a mask at all times when in the facility and SHOULD NOT participate in activities in the long-term care setting while ill.

10.2 During Active Influenza or an Influenza Outbreak in the Community - Consideration should be given to restricting visitor entrances to the LTC facility to a single door. Active screening of all family and visitors for symptoms of ILI should be initiated. Any family or visitor with symptoms of ILI should be restricted from entering (except for visitation of terminally ill residents). If an ill visitor is allowed to visit for compassionate reasons, the visitor should be asked to wear a mask at all times when in the facility and SHOULD NOT participate in activities in the long term care setting while ill.

10.3 All visitors to a resident with ILI should be offered the same Droplet/Contact protection (i.e., personal protective equipment) as that worn by HCWs.

11. Social Activities and Outside Appointments:

11.1 In the Absence of an Influenza Outbreak in the LTC Facility and Community - For the resident with ILI, all social activities and outside appointments for that resident should be postponed unless medically necessary (See Resident Transfer, #8). No restrictions for residents without symptoms are suggested.

11.2 During an Influenza Outbreak in the LTC Facility - Organized social activities should be cancelled.

11.3 During an Influenza Outbreak or Active Influenza in the Community - Organized community social activities should be cancelled. All family home visits, especially to homes where a family member has symptoms compatible with ILI should be discouraged. All outside appointments should be postponed unless medically necessary (See Resident Transfer, #8).

12 Treatment and Prophylaxis:

The use of antiviral drugs to control outbreaks of influenza in closed facilities such as long-term care is to include treatment for residents with influenza and to provide prophylaxis to contacts (residents and staff). During an influenza outbreak, antiviral prophylaxis may involve the whole facility, or an individual unit if the outbreak is restricted to that unit, and there is very little mixing of staff or residents between units. Further information can be found in Interim Guidance for the Management of Pandemic H1N1 2009 outbreaks in

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closed facilities¹ (LINK).

Please refer to Annex E, Section 5.3.4, and 'Canadian Pandemic Influenza Plan for the Health Sector. The Use of Antiviral Drugs during a Pandemic', version May 12, 2009, Section 5.4, available at: http://www.phac-aspc.gc.ca/cpip-pclcpi/pdf-e/annex_e0513-eng.pdf and 'Use of antivirals to treat H1N1 flu virus (Human Swine Flu)' available at <http://www.phac-aspc.gc.ca/alert-alerte/swine-porcine/antiviral-antiviraux05-01-eng.php>.

13 Reporting:

Notify the person responsible for infection prevention and control at the LTC facility of residents with symptoms of ILI. The person responsible for infection prevention and control at your facility will notify Public Health of suspected or confirmed cases of H1N1 2009.

References and Additional Information:

- 1) Public Health Agency of Canada website, posted June 8, 2009 at:
<http://www.phac-aspc.gc.ca/alert-alerte/swine-porcine/surveillance-eng.php>
 - 2) Centers for Disease Control and Prevention, posted June 8, 2009 at:
<http://www.cdc.gov/h1n1flu/update.htm>
- ILI protocols and case-investigation form available at the following websites:
http://www.phac-aspc.gc.ca/eri-ire/pdf/02-ILI-Surveillance-Protocol_e.pdf
http://www.phac-aspc.gc.ca/eri-ire/pdf/03-ILI-Report-Form_e.pdf
 - Nosocomial and Occupational Infections Section, Centre for Communicable Diseases and Infection Control, PHAC <http://www.phac-aspc.gc.ca/nois-sinp/index-eng.php>

¹ Use of antiviral drugs to control outbreaks of influenza in closed health facilities is standard practice. During an outbreak, early treatment (i.e. antiviral medications started less than 48 hours after onset of symptoms) is generally recommended for all cases in both residents and staff, especially those with risk factors for complications from influenza.[2] In determining the appropriate prophylaxis strategy, consideration of the severity of illness, its transmissibility and the vulnerability of the resident population is indicated. Elderly appear to be less susceptible to pandemic H1N1 2009. Pandemic H1N1 2009 outbreaks in long term care facilities have been rare to date and when they have occurred, have been mild with little transmission. In the presence of mild disease with little transmission, prophylaxis may not be necessary. With limited transmission, post-exposure prophylaxis may be indicated only for those in the affected unit or geographic area. If there is sustained and widespread transmission, it may be indicated for the entire facility. Medical directives, dispensing plans, advanced consent for the cognitively impaired, and staff illness policies can facilitate rapid outbreak control. As the pandemic progresses, it may be necessary to develop protocols for quickly accessing antivirals from the National Antiviral Stockpile.

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Appendix A

Point of Care Risk Assessment Tool for Pandemic (H1N1) 2009

Prior to any patient interaction, all health care workers (HCWs) have a responsibility to always assess the infectious risk posed to themselves and to other patients, visitors, and HCWs. This risk assessment is based on professional judgement about the clinical situation and up-to-date information on how the specific healthcare organization has designed and implemented engineering and administrative controls, along with the availability and use of Personal Protective Equipment (PPE).

Point of Care Risk Assessment (PCRA) is an activity performed by the HCW before every patient interaction, to:

1. Evaluate the likelihood of exposure to H1N1 2009,
 - from a specific interaction (e.g., performing/ assisting with aerosol-generating medical procedures, other clinical procedures/ interaction, non-clinical interaction (i.e., admitting, teaching patient/ family), transporting patients, direct face-to-face interaction with patients, etc.),
 - with a specific patient (e.g., infants/ young children, patients not capable of self care/ hand hygiene, have poor-compliance with respiratory hygiene, copious respiratory secretions, frequent cough/ sneeze, early stage of influenza illness, etc.),
 - in a specific environment (e.g., single rooms, shared rooms/ washrooms, hallway, influenza assessment areas, emergency departments, public areas, therapeutic departments, diagnostic imaging departments, housekeeping, etc.),
 - under available conditions (e.g., air exchanges in a large waiting area or in an airborne infection isolation room, patient waiting areas);

AND

2. Choose the appropriate actions/ PPE needed to minimize the risk of patient, HCW/ other staff, visitor, contractor, etc. exposure to Human H1N1 2009 /suspect ILI case

PCRA is not a new concept, but one that is already performed regularly by professional HCWs many times a day for their safety and the safety of patients and others in the healthcare environment. For example, when a HCW evaluates a patient and situation to determine the possibility of blood or body fluid exposure or chooses appropriate PPE to care for a patient with an infectious disease, these actions are both activities of a PCRA.

References

1. Health Canada, December 17, 2003. Infection Control Precautions for Respiratory Infections Transmitted by Large Droplet and Contact: Infection Control Guidance if there is a SARS Outbreak Anywhere in the World, When an Individual Presents to a Health Care Institution With a Respiratory Infection (Draft)
2. New York State Nursing Association (NYSNA), Nursing Practice Alert. Emergency Department Overcrowding/Preparedness. Website accessed May 2, 2009.
http://www.nysna.org/practice/alerts/alert_1104.htm

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The PCRA tool consists of tables 1 to 4. A step-by-step description on how to use them follows:

- Step 1:** In Table 1, choose one of the physical setting and level of patient interaction options (in the highlighted column) using the description and example columns in the table.
- Step 2:** In Table 2, choose one of the patient clinical status and source control capability options (in the highlighted column) using the description and patient presentation column in the table.
- Step 3:** Using the matrix on Table 3, match the physical setting and level of patient interaction option from Table 1 (Step 1) with the patient clinical status and source control capability option identified from Table 2 (Step 2), to determine the appropriate level of precautions.
- Step 4:** From Table 4, determine what specific measures and personal protective equipment are indicated for the level of precautions identified in Table 3 (Step 3).

Table 1: Identification of the Physical Setting and Level of Patient Interaction

Physical Setting and Level of Patient Interaction	Description	Example
No Patient Interaction, Non-Clinical	Area with no patient access (restricted areas)	Non-clinical setting (medical record department, administrative office, central pharmacy, information technology office, central storage area, mail room, central maintenance areas, business office, etc.).
No Direct Patient Interaction and No Indirect Contact	No face-to-face interaction and no indirect contact with patients.	Hallways, cafeteria, public areas, clinical areas with no patient access (charting room, office, storage room, staff lounge, medication room, etc.), totally enclosed reception/triage areas with physical barrier between HCW and patient.
Indirect Contact	No direct patient interactions; Indirect contact only with patient environment or contaminated inanimate objects	Discharge patient room cleaning, equipment cleaning.
Direct Patient Interaction	Direct, face-to-face interaction with patient (within 2m of the patient)	Providing patient care, home care visit, assisting with Activity of Daily Living (ADL), diagnostic imaging, phlebotomy services, physiotherapy, occupational therapy, recreational therapy, intra-hospital transport/portering, non-enclosed triage/registration area, cleaning patient bedspace while occupied, routine ambulance or inter-facility transport.
Direct Patient Interaction with Potential for Aerosol Generation	Performing and/or assisting with Aerosol Generating Medical Procedures (AGMP)	Open endotracheal suctioning, bronchoscopy, endotracheal intubation, tracheostomy procedures, nebulized therapy, cardiopulmonary resuscitation.

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Table 2: Identification of the Patient Clinical Status and Source Control Capability

Patient Clinical Status and Source Control Capability	Description	Patient Presentation
Recovered from Influenza	Patient recovered from influenza	Influenza-infected patient, beyond the known period of communicability
Influenza and Compliant or Weak Cough and Not Compliant	1) Patient with symptoms compatible with influenza with cough	Cough of any intensity and Adherence with respiratory hygiene Adherence to hand hygiene
	2) Patient with symptoms compatible with influenza with weak or no cough	Weak or no cough and Not adherent with respiratory hygiene Not adherent to hand hygiene
Influenza and Forceful Cough and Not Compliant	Patient with symptoms compatible with influenza	Forceful cough and Not adherent with respiratory hygiene Not adherent to hand hygiene
Influenza and AGMP	Patient with symptoms compatible with influenza	And an Aerosol Generation Medical Procedure (AGMP) is being performed

Note: If more than one risk level identified (e.g., multiple concurrent patient interactions), select the higher risk level.

Table 3: Level of Precautions Matrix

Patient Clinical Status and Source Control Capability	Physical Setting and Level of Patient Interaction				
	No Patient Interaction Non clinical	No Direct or Indirect Patient Interaction	Indirect Contact	Direct Patient Interaction	Direct Patient Interaction with AGMP
Recovered from Influenza	I	I	II	II	II
Influenza and Compliant or Weak Cough and Not Compliant	I	I	II	III	IV
Influenza and Forceful Cough and Not Compliant	I	I	II	III	IV
Influenza and AGMP	I	I	II	IV	IV

Note: It is anticipated that the majority of patients with H1N1 2009 will be cared for using level II and III and a minority would be cared for using level IV precautions.

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Table 4 Personal Protective Equipment Suggested for the Level of Precautions for Human Cases of H1N1 2009

	Hand hygiene	Respiratory hygiene	N95 Respirator	Mask*	Eye Protection	Gown	Gloves
Level I	Yes	Yes	No Patient Contact – Not Required				
Level II	Yes	Yes	No, Except as per Additional Precautions*	As Per Routine Practices			
Level III	Yes	Yes	No, Except as per Additional Precautions*	Yes	Yes	As Per Routine Practices	
Level IV	Yes	Yes	Yes	No	Yes	As Per Routine Practices	

*Additional Precautions recommend an N95 respirator for known or suspected active tuberculosis or measles