



Ministry of Health and Long-Term Care

Guidance for Management of Patients with Influenza-like Illness in Emergency Departments during Pandemic (H1N1) 2009 - Summary

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What you need to know...

During the fall and winter 2009/10, healthcare providers can expect to see patients with seasonal influenza and/or pandemic (H1N1) 2009 influenza (pH1N1), which is currently similar to seasonal influenza in clinical features, morbidity and mortality. The following is a summary of the Ministry of Health and Long-Term Care's (MOHLTC) recommendations for diagnosing and treating all influenza-like illness (ILI) in **emergency departments**; more detailed information follows this page.

- Currently, evidence indicates that pH1N1 is similar to seasonal influenza in overall clinical features, morbidity and mortality. Most people who contract pH1N1 will have a typical course of influenza; however, those with risk factors may have more severe illness. Although pH1N1 has been seen to date as being a mild pandemic strain, influenza still remains a serious illness. As such, Ontario recommends vigilance, active prevention, and early treatment where clinically indicated.
- Healthcare providers and organizations should ensure that appropriate **infection prevention and control** and **occupational health and safety measures** are in place. **Section 5** of this document outlines recommended measures for patients and healthcare providers. It is recommended that healthcare providers perform hand hygiene and wear appropriate personal protective equipment (e.g., gloves, gown, eye protection, fit-tested N95 respirator) when conducting clinical assessments. Although N95 respirators are not routinely recommended for seasonal influenza, because pH1N1 is a novel influenza virus the broadest level of precautionary measures are being recommended.
- **Screen and assess** patients according to routine Febrile Respiratory Illness (FRI) screening (see **Appendix A**).
- **Test** patients that are at risk for complications, with worsening clinical status, or will be hospitalized with ILI. Testing is **NOT** generally recommended for patients who will be discharged from emergency departments (see **Section 8**).
- **Treat** patients with antivirals only who are at high risk for complications, present with abnormal vital signs or present with worsening clinical status (see **Appendices A and B**).

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1. Purpose

This guidance document is being provided by the MOHLTC in response to pH1N1 influenza. This document replaces previous guidance to emergency departments. It is based on current, available scientific evidence and expert opinion about this emerging disease and is subject to review and change as new information becomes available.

Given that there may be seasonal influenza and pH1N1 influenza circulating in the community at the same time, this guidance should assist healthcare providers with the clinical management of ILI in emergency departments.

Note, however, that positive predictive value of the ILI clinical definition increases as the prevalence of pH1N1 influenza in the community increases.

2. Background

In the fall and winter of 2009/2010, it is anticipated that pH1N1 will become the predominant circulating influenza strain¹. Seasonal influenza is expected to circulate to a lesser degree, potentially later in the winter. During the 2009 influenza season in parts of the southern hemisphere, pH1N1 accounted for about 80% of influenza cases and seasonal influenza for only 20%.

¹ For information on influenza activity in Ontario visit the MOHLTC Ontario Influenza Bulletin website at: http://www.health.gov.on.ca/english/providers/program/pubhealth/flu/flu_09/flubul_mn.html.

Currently, evidence indicates that:

- pH1N1 is currently similar to seasonal influenza in overall clinical features, morbidity and mortality;
- pH1N1 has an incubation period of up to 4 days. People with pH1N1 are infectious for 24 hours before and up to 7 days after onset of symptoms, and possibly up to 10 days for children and people who are very ill. In each case this is longer than is the case with seasonal influenza;
- Most people who contract pH1N1 will have a typical course of influenza: they will be sick for a few days with cough and fever, and then recover;
- Most people born before 1957 are less susceptible to the pH1N1 influenza virus, and
- Although pH1N1 is a relatively mild strain, influenza can still be a serious illness, especially for people with conditions that increase their risk of complications. Ontario recommends vigilance, active prevention, and early treatment where clinically indicated.

3. Risk of Infection and Complications

The following groups are at higher risk of complications from pH1N1 influenza:

- (i) People with conditions that put them at high risk of complications from influenza, such as:
 - cardiac disease
 - chronic pulmonary diseases (especially asthma)

- diabetes mellitus and other metabolic diseases
- cancer
- immunodeficiency (e.g., HIV);
- immunosuppression (e.g., transplant patients)
- renal disease
- anemia or hemoglobinopathy
- morbid obesity (BMI>40)
- conditions that compromise the management of respiratory secretions and are associated with an increased risk of aspiration (e.g., neurologic, neuromuscular, cognitive disorders)

- (ii) People over age 65 (although people over 65 years of age have the lowest risk of contracting pH1N1, they are still at highest risk of complications when they are infected)
- (iii) Children under age 5 (the risk is greater for children under 2 years old)
- (iv) Children under 18 years of age on long-term acetylsalicylic acid therapy
- (v) Pregnant women and women up to 4 weeks post-partum (the risk of developing complications from pH1N1 is higher later in pregnancy – 2nd and 3rd trimester - and up to 4 weeks post-partum)
- (vi) Persons living in rural areas remote from hospital care (e.g., remote First Nations communities)
- (vii) Residents of long-term care homes (most of whom have chronic conditions that put them at risk of complications).

4. Prevention

4.1 Public health measures

Encourage everyone to consistently use public health measures to reduce/prevent pH1N1 transmission, including:

- proper hand hygiene;
- cough and sneeze etiquette;

- social distancing (avoiding large crowds, keeping 2 metres away from people who are coughing or sneezing), and
- staying home from work when experiencing influenza symptoms or when diagnosed with influenza or ILI (see **Section 7: Clinical Management and Treatment** for recommended time off work/school).

4.2 Immunization

Because this is a different influenza season, this year's immunization campaign is also different. Ontario is implementing a three step approach to influenza immunizations this year based on what we know about the science of the virus, the groups that are most susceptible to serious illness from seasonal influenza and pH1N1, and the health system's capacity to administer immunizations.

- In October, seasonal influenza vaccine will be offered to people 65 years and older and all residents of long-term care homes.
- pH1N1 vaccine will be offered to all Ontarians who need it and want it beginning in late October/early November. pH1N1 immunizations will occur in accordance with the sequencing guidelines identified nationally².
- Following the pH1N1 immunization, seasonal influenza immunizations may be offered broadly to all Ontarians if there is seasonal influenza virus circulating.

For additional details on influenza immunization activities, contact the local public health unit.

² To see the national sequencing guidelines, visit Public Health Agency of Canada website at: <http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/vacc-eng.php>

5. Infection Prevention and Control/Occupational Health and Safety

Influenza is predominantly a droplet-borne disease; however, transmission via small airborne-sized particles cannot be ruled out. Influenza virus can also survive on surfaces so both droplet and contact precautions are recommended to prevent transmission.

Protection of workers, patients, and visitors from the transmission of influenza may be best achieved using a hierarchy of controls (see Chapter 7 of the Ontario Health Plan for an Influenza Pandemic (OHP/IP) for more information at www.health.gov.on.ca/english/providers/program/emu/pan_flu/ohpip2/ch_07.pdf).

Additional guidance for reducing the risk of exposure to seasonal and pH1N1 influenza in healthcare settings includes:

5.1 For patients

- Screen patients who present with cough, shortness of breath, fever or chills using routine active FRI screening, which has been in place since the SARS outbreak in 2003 and has been incorporated into the **Emergency Department Setting: Influenza-Like Illness Clinical Management Algorithm** in Appendix A.
- Instruct patients who report fever and/or respiratory symptoms to:
 - clean their hands with 60 to 90% alcohol-based hand rub (or soap and water);
 - put on a surgical mask, and
 - if possible, stay 2 metres away from others or in a separate room while waiting for a clinical assessment.

5.2 For emergency department staff within 2 metres of ILI patients

- Encourage staff to perform self-assessment for symptoms of ILI. In general, staff should not work if they are

experiencing ILI (see **Section 7.1: Supportive therapy** for more information). Staff should be reminded of the importance of reporting illness to those responsible for Occupational Health if symptoms of ILI develop while on duty

- Perform hand hygiene.
- Wear a fit-tested N95 respirator and eye protection³. If N95 respirators are not available, healthcare providers should use a surgical mask.
- Instruct coughing patient to wear a surgical mask over his/her nose and mouth.

5.3 For healthcare providers

Screening for healthcare providers:

- Encourage staff to perform self-assessment for symptoms of ILI. In general, staff should not work if they are experiencing ILI (see **Section 7.1: Supportive therapy** for more information). Staff should be reminded of the importance of reporting illness to those responsible for Occupational Health if symptoms of ILI develop while on duty.

Before the clinical assessment of a patient with ILI:

- Perform hand hygiene.
- Wear a fit-tested N95 respirator and eye protection. If supplies of N95 respirators and other personal protective equipment (PPE) are limited or depleted, settings should prioritize access to ensure that staff involved in high risk activities (e.g.,

³ Eye protection may include approved safety glasses, goggles or a face shield. Prescription eye glasses are not acceptable as eye protection.

aerosol-generating medical procedures⁴, emergency intubation, CPR) are protected at all times, as recommended in Chapter 7 of the OHPIP

(www.health.gov.on.ca/english/providers/program/emu/pan_flu/ohpip2/ch_07.pdf). If N95 respirators are not available, healthcare providers should use a surgical mask.

- Put on gloves.
- Wear a gown only when there is a risk of clothing or skin contamination.

During a clinical assessment of a patient with ILI:

- Instruct coughing patient to continue to wear a surgical mask over his/her nose and mouth.
- If a nasopharyngeal swab is indicated (see **Section 8: Laboratory Testing**), lower the mask temporarily to expose the nose while still covering the mouth.

After a clinical assessment of a patient with ILI⁵:

- Remove gloves.
- Remove gown, if used.
- Perform hand hygiene.
- Remove eye or face protection first, then remove N95 respirator or mask by the straps (do not touch mask).
- Perform hand hygiene.
- Ensure surfaces touched by the patient or within droplet range are cleaned with a hospital-grade disinfectant.

⁴ Aerosol-generating medical procedures are 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.

⁵ If the healthcare provider is seeing a number of ILI patients consecutively (e.g., at a flu assessment clinic) it may not be necessary to change some types of PPE between each patient (e.g., N95 respirators). A risk assessment must be conducted by the healthcare provider.

6. Clinical Assessment and Diagnosis

6.1 Assess the patient's symptoms

The ILI clinical definition for both seasonal and pH1N1 influenza is:

- Acute onset of respiratory illness with fever and cough PLUS one or more of the following:
 - sore throat
 - arthralgia (joint pain)
 - myalgia (muscle pain)
 - prostration (extreme exhaustion)

Fever may NOT be present in young children and the elderly. As well, some people have reported diarrhea and vomiting associated with the pH1N1 influenza.

The positive predictive value of the ILI clinical definition increases as the prevalence of pH1N1 influenza in the community increases.

6.2 Take a routine travel history

This information may not be relevant for pH1N1 but is best practice for managing FRI.

6.3 Ask about contacts with ill people

This information may reveal an unusual cluster of cases (e.g., in a long term care home) that may require other public health measures.

6.4 Screen for underlying conditions

Screen for underlying conditions that put people at higher risk of complications from influenza.

6.5 Assess for abnormal vital signs

Abnormal vital signs are defined as: one or more of pulse, blood pressure, respirations and O₂ saturation by pulse oximetry if available, that are not within range of normal for age and health status.

Hypotension, tachycardia and tachypnea may be early indicators of serious illness.

6.6 Assess for worsening clinical status

Worsening clinical status is defined as: progression of signs and symptoms (including increasing signs of pneumonia, dyspnea, prostration, hypotension, tachycardia and tachypnea, dehydration, shock) indicative of pending serious illness and hospitalization.

7. Clinical Management and Treatment

7.1 Supportive therapy

Provide guidance on supportive therapy for patients with ILI that are otherwise healthy or at risk of complications, which includes the following suggestions:

- Rest.
- Drink plenty of fluids.
- Take steps to treat fever, such as wearing lightweight clothing and keep the room temperature around 20°C (68°F).
- Consider taking basic pain or fever relievers such as acetaminophen (Tylenol®), ibuprofen (Advil®, Motrin®), or acetylsalicylic acid (ASA or Aspirin®), unless contraindicated.

As well, provide guidance on basic infection prevention measures that can limit the spread of influenza to other healthy individuals in the community:

- Practice proper hand hygiene and cough and sneeze etiquette.
- Keep at least 2 metres away from other people in their households or wear a surgical mask if coughing or sneezing within 2 metres of other people.
- **Call their healthcare provider if their symptoms become worse: there have been some cases of otherwise healthy people with no other risk factors becoming very ill from pH1N1.**
- **Stay home from work or school until the fever has been absent for 24 hours and**

the person is feeling well enough to resume normal activities. It is not unusual for individuals to experience a cough for days to weeks after a respiratory infection. The presence of a cough in the absence of other symptoms is not sufficient to keep someone away from work or school.

- **If the patient is a healthcare provider, they should remain off work until 24 hours after all symptoms other than a mild cough have resolved, typically a period of 5 to 8 days. However, healthcare providers who have been treated with oseltamivir (Tamiflu®) for 72 hours will not be as infectious and may return to work if they feel generally well except for a mild cough. Staff should consult with Occupational Health for a return to work assessment.**

7.2 Otherwise healthy patients

Treat other healthy patients with no underlying conditions with supportive therapy, as outlined in **Section 7.1: Supportive therapy**. In general, treatment with antivirals is not recommended in otherwise healthy patients.

However, individuals with ILI (including otherwise healthy patients) that live in remote areas far from medical referral centres (i.e., remote, isolated First Nation communities) should be treated with antivirals within 48 hours of the onset of ILI symptoms.

7.3 Patients at risk of complications

In addition to the supportive therapy outlined in **Section 7.1: Supportive therapy**, treat patients who have ILI and the risk conditions listed in **Section 3: Risk of Infection and Complications** with antivirals as quickly as possible and within 48 hours of developing symptoms, unless contraindicated (see **Emergency Department Setting: Influenza-Like Illness Clinical Management Algorithm in Appendix A** for dosing recommendations).

If patients are assessed/diagnosed more than 48 hours from onset of symptoms, antiviral treatment generally is not recommended, but may be initiated if clinically warranted.

Treat complications, such as bacterial infections, with antibiotics, following usual practice.

7.4 Patients with Abnormal Vital Signs

Treat anyone who presents with abnormal vital signs for his/her age and health status (see **Section 6.5: Assess for abnormal vital signs**) with antivirals and appropriate clinical management (supportive therapy/referral for hospital admission if clinically indicated).

7.5 Patients with worsening clinical status

Treat people with worsening clinical status (see **Section 6.6: Assess for worsening clinical status**) with antivirals and appropriate clinical management (supportive therapy/referral for hospital admission if clinically indicated).

7.6 Household contacts

Advise household contacts (of people with influenza) who are at risk of complications to be assessed at the first sign of symptoms.

NOTE: Antiviral prophylaxis has been shown to be effective in selected settings for seasonal influenza (e.g. influenza outbreaks in long-term care homes); however, Ontario's antiviral stockpile is not intended to provide widespread prophylaxis. The decision to provide antiviral prophylaxis should be based on the clinical assessment of the contact, taking into account the fact that most people are experiencing mild illness from both seasonal influenza and pH1N1, and overuse of prophylaxis may affect the system's ability to treat people with influenza who are at risk of complications and contribute to antiviral resistance.

8. Laboratory Testing

Nasopharyngeal (NP) swab testing is NOT generally indicated or recommended for most people including patients who will be discharged from emergency departments. It generally takes at least 48 hours to obtain NP test results so the information will not be available soon enough to assist in treatment decisions.

Settings/healthcare providers with the skills and equipment to perform NP swabs may provide testing for certain groups of patients and clinical situations:

- patients at high risk of complications where testing will affect their clinical management
- patients with worsening clinical status indicative of pending serious illness and hospitalization.
- all patients diagnosed with ILI and are hospitalized (Note: testing recommended for surveillance purposes)
- all patients who develop ILI while hospitalized (Note: testing recommended for surveillance purposes)
- detection of outbreaks in acute care facilities, long-term care homes in consultation with the local public health unit.
- Exceptional cases such as workers in the swine industry (farms and abattoirs) and healthcare providers that become ill at work and are providing direct patient care.

NOTE: Clinically diagnose and treat based on clinical management algorithm, influenza epidemiology in your region, clinical symptoms and risk factors. If testing, do not delay treatment while waiting for test result.

When requesting NP swab testing:

- ensure that both the specimen and requisition are clearly labeled
- include exposure history and clinical symptoms on the requisition form.

If requisitions are incomplete, testing at the laboratory will not be performed.

NOTE: PCR testing done by Ontario's public health laboratories is highly sensitive (>99%) and specific (>99%). Point-of-care tests (rapid antigen tests) are NOT generally recommended because of their low sensitivity 40-60% (i.e., high rates of false negatives), and are mainly used to detect outbreaks in long term care homes.

There is no role for blood influenza serology testing in the clinical management of influenza.

9. Special Considerations for Pregnant Women

9.1 Treatment of pregnant women

Pregnant women are no more likely to contract pH1N1 than the rest of the population, but they are more likely than non-pregnant women to develop complications from influenza.

Almost all pregnant women who acquire pH1N1 will have a typical course of uncomplicated influenza. They will be sick for a few days with fever and cough, and then recover. A very small number may become severely ill and require hospitalization. This may be due to the weakening of the immune system that can happen with pregnancy. The risk of developing complications or severe illness is greater in later stages of pregnancy⁶.

To reduce their risk of pH1N1, all pregnant women should:

- receive the pH1N1 vaccination;
- practice proper hand hygiene, and cough/sneeze etiquette at home, at work and in the community.

Pregnant women should know the symptoms of influenza and seek medical treatment at the first sign of symptoms. Health practitioners and pregnant women may wish to discuss the symptoms of influenza during

⁶ Jamieson DJ, Honein MA, Rasmussen SA et al. (2009). H1N1 2009 influenza virus infection during pregnancy in the USA. *Lancet*, 374, 451-58.

an early prenatal visit, as well as the steps pregnant women should take if they develop symptoms.

Early treatment is key to preventing complications. Healthcare providers should treat the following individuals with antivirals within 48 hours of their developing symptoms, and should not wait for confirmed test results:

- pregnant women (the risk of developing complications is higher in the 2nd and 3rd trimester);
- women in labour, and
- women who are up to 4 weeks post-partum.

The treatment dosing for pregnant women⁷ is the same as other adults:

- oseltamivir (Tamiflu®) - 75 mg capsule every 12 hours for 5 days, or
- zanamivir (Relenza®) - two 5mg inhalations (10mg total) every 12 hours for 5 days.

More information can be located in the appropriate product monograph.

Due to the anti-infective benefits of human milk for infants and the low dosages of antiviral passed to the baby through breast milk, it is recommended that women continue to breastfeed their baby when taking antivirals. Both Tamiflu and Relenza are considered to be compatible with breastfeeding⁷.

The positive predictive value of the ILI clinical definition increases as the prevalence of pH1N1 influenza in the community increases.

⁷ Public Health Agency of Canada. (2009). Interim Clinical Guidance for Pregnant and Breastfeeding Women with Influenza-Like Illness in the context of the Pandemic H1N1 2009 Virus. Retrieved on September 4, 2009 from: www.phac-aspc.gc.ca/alert-alerite/h1n1/guidance-orientation-07-09-eng.php

Stay Connected, Keep Informed...

Information for Healthcare Providers

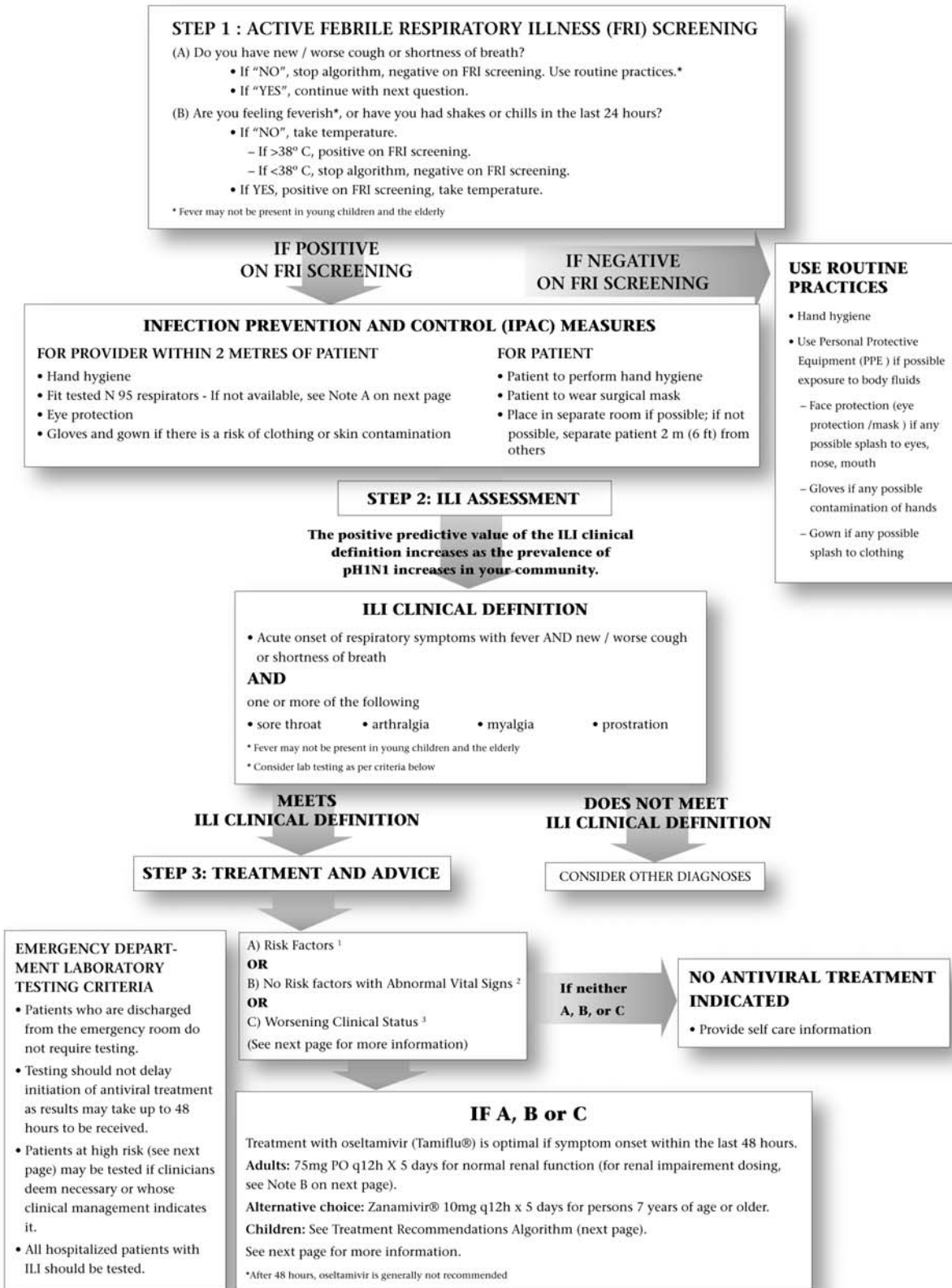
- Visit the MOHLTC's pH1N1 website at ontario.ca/flu (click on the link to "Healthcare Professionals" in the left-hand side column)
- Call the MOHLTC's Healthcare Providers Hotline at 1-866-212-2272
- Sign up to receive the MOHLTC's Important Health Notices at publichealthontario.ca
- Provide updated contact information to the appropriate association, regulatory college, and local public health unit

Information for the Public

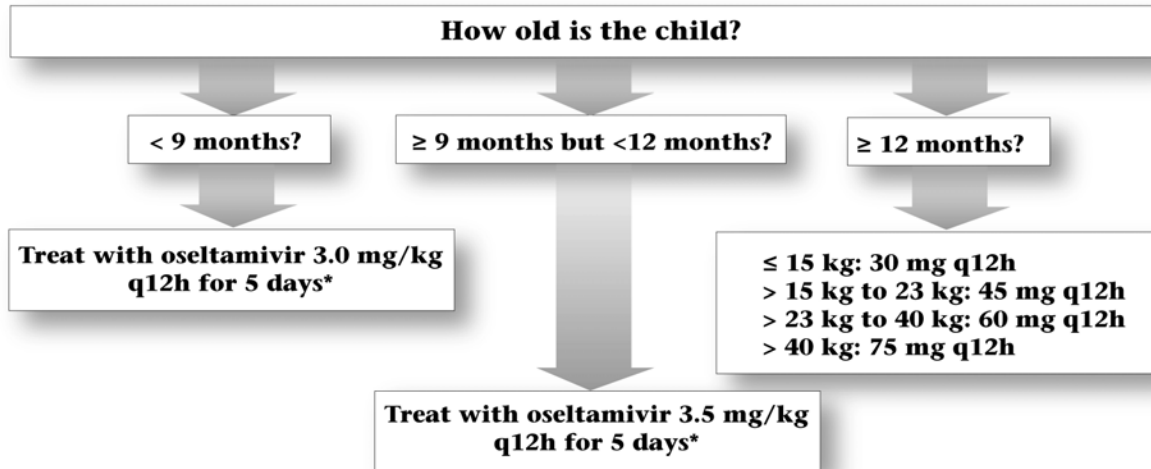
- Visit the MOHLTC's pH1N1 website at ontario.ca/flu (click on the link to "Public Information" in the left-hand column)

Appendix A

EMERGENCY DEPARTMENT SETTING : INFLUENZA -LIKE ILLNESS (ILI) CLINICAL MANAGEMENT ALGORITHM



Treatment Algorithm for Children < 5 years of Age using Oseltamivir



*D Kimberlin et al. Oseltamivir (OST) and OST Carboxylate (CBX) Pharmacokinetics (PK) in Infants: Interim Results from a Multicenter Trial. Abstract accepted to Infectious Diseases Society of America meeting, October 2009.

Note A: Where supplies of N95 respirators and other personal protective equipment (PPE) are limited or depleted, N95 respirator and PPE use by healthcare workers should be prioritized as recommended in chapter 7 of the OHPIP (www.health.gov.on.ca/english/providers/program/emu/pan_flu/ohpip2/ch_07.pdf). If an N95 respirator is not available, health care workers are advised to don a surgical mask wherever an N95 respirator is called for and, if possible, to put a surgical mask on their patient.

Note B: Tamiflu® adult renal impairment dosing (for patients with creatinine clearance (CrCL) between 10 mL/min and 30 mL/min) is 75 mg once daily for 5 days. Not recommended for use when CrCL is less than 10mL/min. No recommended dosing regimens are available for patients undergoing routine hemodialysis and continuous peritoneal dialysis treatment with end-stage renal disease.

¹ Risk Factors

- People with chronic health conditions, including
 - Cardiac disease
 - Pulmonary disorders, particularly asthma
 - Diabetes mellitus and other metabolic diseases
 - Cancer
 - Immunodeficiency (e.g. HIV)
 - Immunosuppression (e.g. transplant patients)
 - Renal disease
 - Anemia or hemoglobinopathy
 - Conditions that compromise the management of respiratory secretions and are associated with an increased risk of aspiration – e.g. chronic neurologic/neuromuscular/cognitive disorders that increase risk of aspiration
- Morbid obesity (i.e. BMI>40)
- People > 65 years old
- Children < 5 years old (risk greater <2 years old)
- Children <18 on long-term acetylsalicylic acid therapy
- Pregnant women and women up to 4 weeks post-partum (The risk of developing complications from pH1N1 is higher later in pregnancy – 2nd and 3rd trimester – and up to 4 weeks post-partum)
- Persons living in rural areas remote from hospital care (e.g. remote First Nations communities)
- Residents of long-term care homes (most of whom have chronic conditions that put them at risk of complications)

² Abnormal Vital Signs

- One or more of pulse, blood pressure, respirations and O₂ saturation by pulse oximetry if available, that are not within range of normal for age and health status. Hypotension, tachycardia and tachypnea may be early indicators of serious illness

³ Worsening Clinical Status

- Progression of signs and symptoms (including increasing signs of pneumonia, dyspnea, prostration, hypotension, tachycardia and tachypnea, dehydration, shock) indicative of pending serious illness and hospitalization

Appendix B

Lab Testing and Antiviral Treatment Recommendations

Clinical Presentation	NP Swab Testing Recommendations	Antiviral Treatment Recommendations
Mild upper respiratory illness that does not meet the case definition for influenza like illness (ILI)	No testing recommended	Treatment not recommended
ILI with no risk factors and normal vital signs	No testing recommended	Treatment not recommended
ILI in individuals with risk factors or ILI in individuals with abnormal vital signs * for their age and health status	No testing recommended except where testing will affect their clinical management	Initiate treatment within 48 hours of illness onset unless contraindicated, with or without testing For patients presenting more than 48 hours of illness onset, antiviral treatment is not recommended, but may be initiated if clinically warranted
ILI symptoms and worsening clinical status- Progression of signs and symptoms (including increasing signs of pneumonia, dyspnea, prostration, hypotension, tachycardia and tachypnea, dehydration, shock) indicative of pending serious illness and hospitalization	Testing recommended	Initiate treatment Do not wait for NP swab test results to begin treatment
Diagnosed with ILI and hospitalized or Develop ILI while hospitalized	Testing recommended	Initiate treatment Do not wait for NP swab test results to begin treatment

* Abnormal vital signs are defined as:

- One or more of pulse, blood pressure, respirations and O2 saturation by pulse oximetry if available, that are not within range of normal for age and health status.
- Hypotension, tachycardia and tachypnea may be early indicators of serious illness