

**PEDIATRIC CLINICAL DECISION MAKING ALGORITHM\***  
**Presenting with Symptoms of Acute Respiratory Illness**  
**During a Pandemic Influenza Period (H1N1)**

**Does the Patient Have Symptoms of Mild Influenza-like Illness (ILI)?**

**Current PHAC definition:** Acute onset of respiratory illness with fever and cough and one or more of the following: sore throat, arthralgia, myalgia or prostration.

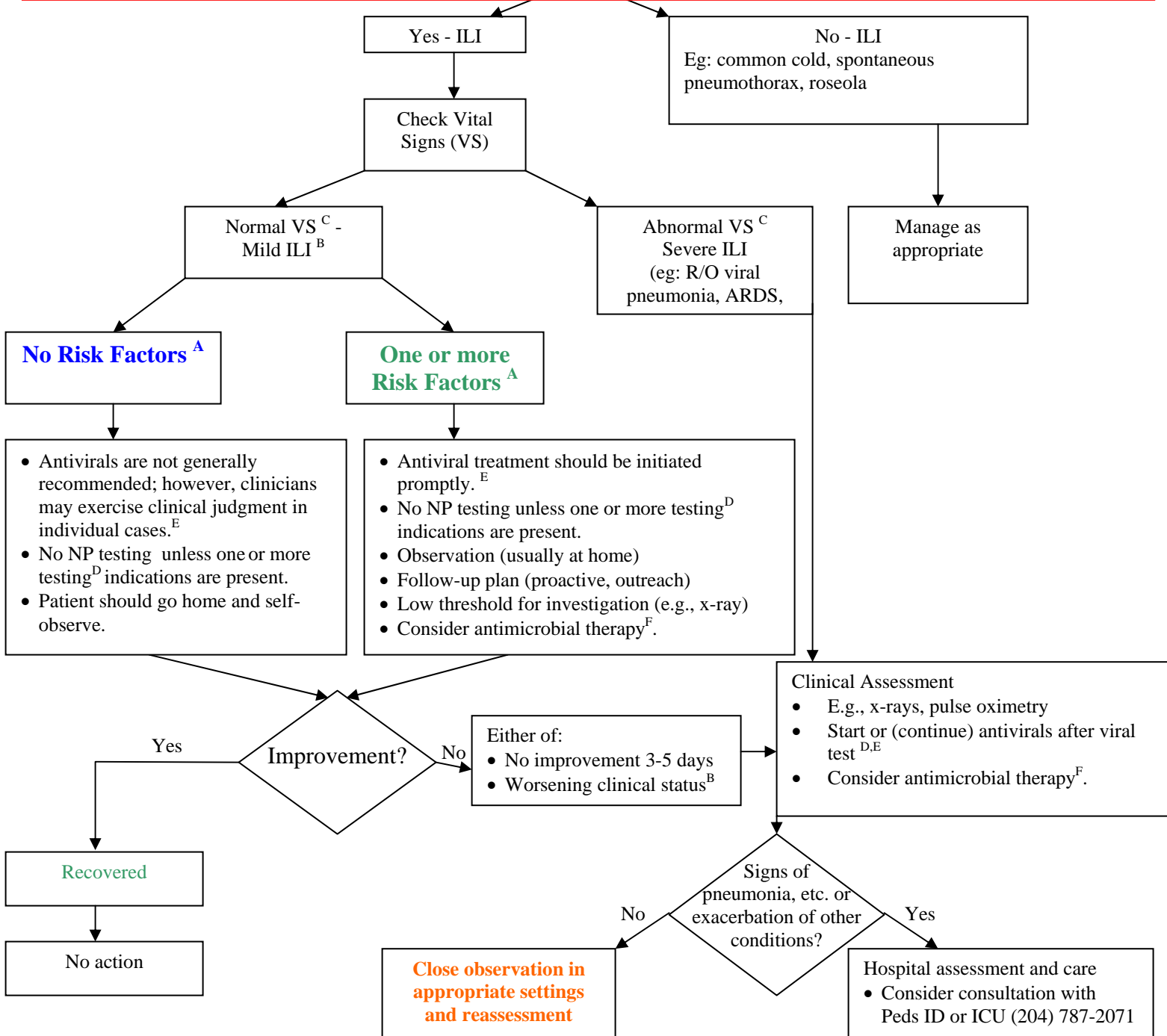
**Note I:** The following symptoms have been observed during the first wave of pandemic H1N1 and should also be considered in the clinical diagnosis of ILI at this time:

**Almost always:** Cough and Fever

**Common:** Fatigue, Muscle Aches, Sore Throat, Headache

**Sometimes:** Nausea, Vomiting, Diarrhea

**Note II:** Infants and young children may not present with fever or a history of fever; fever may be muted in patients undergoing cancer and blood disorder treatments, and with receipt of acetaminophen, ibuprofen, corticosteroids or immunosuppressive drugs; they may also present with other symptoms of respiratory illness (eg: croup, bronchiolitis), neurologic symptoms, feeding problems, exacerbations of chronic conditions, especially cardio, respiratory and neurological.



**<sup>A</sup>Risk Factors for Complications of Pandemic H1N1 Influenza:**

- Children < 5 years of age (especially those < 2 years).
- Cardiac or pulmonary disorders (including bronchopulmonary dysplasia, cystic fibrosis and asthma).
- Diabetes mellitus and other metabolic diseases.
- Renal disease.
- Hemoglobinopathy.
- Conditions that compromise the management of respiratory secretions and are associated with an increased risk of aspiration.
- Children under 19 years of age with conditions treated with long-term acetylsalicylic acid (ASA).
- Cancer, immunodeficiency, immunosuppression (due to underlying disease and/or therapy).
- Obesity and/or malnutrition.
- Other conditions (e.g., smoking, substance abuse, alcoholism, homelessness).
- Persons of Aboriginal ancestry are at increased risk for severe illness even in the absence of known or declared risk conditions.
- Pregnant women of all ages and women within six weeks post-partum.

### **<sup>B</sup> Management of Mild Illness:**

Patients with mild illness should 1) be assessed and provided with advice 2) be encouraged to rest at home until well enough to resume activities and 3) follow routine precautions to prevent spread to family members and the community. If the patient's condition worsens they should seek medical help by calling their primary health provider or [Health Links-Info Santé at 788-8200 in Winnipeg](tel:788-8200) or toll-free at 1-888-315-9257, or if severe call 911.

### **<sup>C</sup> Vital Signs (VSs) in Children < 18 Years of Age:**

Vital Sign	Agegroup	Normal or Abnormal Values		
		Awake	Mean	Sleeping
<b>§Pulse/Heart Rate: Normal Range</b> <i>Note: It is expected that children with fever, dehydration or other clinical conditions may have an elevated heart rate.</i>	Newborn to 3 mos:	85 – 205	140	80 - 160
	3 mos to 2 years	100 – 190	130	75 - 160
	2 – 10 years	60 – 140	80	60 - 90
	> 10 years	60 – 100	75	50 - 90
<b>§Respiratory Rate: Normal Range</b>	Infant (< 1 year):	30 - 60 / min		
	Toddler (1 – 3 years):	24 - 40 / min		
	Preschool (4 – 5 years):	22 - 34 / min		
	School Age (6 – 12 years):	18 – 30 / min		
	Adolescent (13 – 18 years):	12 - 16 / min		
<b>§Abnormal Blood Pressure:</b> <i>Hypotension by systolic blood pressure and age.</i>	Neonates (1 – 30 days):	< 60 mm Hg		
	Infants (1 – 12 mos):	< 70 mm Hg		
	Children (1 – 10 years):	< [70 + (2 x age in years)] mm Hg		
	Children and Adolescents (> 10 years):	< 90 mm Hg		

♣ Ontario Health Plan for an Influenza Pandemic, August 2008, Chapter #18A: Paediatric Services Tools, p. 18A-16.

§Pediatric Advanced Life Support (PALS)

**<sup>D</sup> Nasopharyngeal (NP) Test Sampling:** The specimen will not be processed unless one or more of the following indications are recorded on the Cadham Provincial Laboratory (CPL) requisition:

- hospitalized patients (for differential diagnosis and monitoring for severity)
- immunocompromised patients (monitoring for antiviral resistance);
- patients being observed in emergency departments, observation units, etc. (for surveillance);
- patients seen at designated sentinel sites, as authorized by regional and provincial public health authorities (for surveillance).

If the indication and other information is not recorded, specimen testing may be delayed. In exceptional circumstances, specimens may not be tested. Inadequately labeled and packaged specimens (e.g., leaking) may not be processed. A nasopharyngeal aspirate should be taken for children < 5 years of age. For all others, a nasopharyngeal swab is preferred. Pediatric swabs, if available, are preferred for use in the 5 to 15 year population. A fact sheet about these procedures for testing can be found at:

[http://www.gov.mb.ca/health/publichealth/sri/docs/nasopharyngeal\\_collection.pdf](http://www.gov.mb.ca/health/publichealth/sri/docs/nasopharyngeal_collection.pdf)

### **<sup>E</sup> Treatment:**

- **Oseltamivir (Tamiflu®) must be given within 48 hours of symptom onset.** NOTE: Clinical benefit from antiviral treatment is documented if instituted within 48 hours of illness onset, but there are limited data beyond this time. If the duration of illness is greater than 48 hours when the patient presents to a health care provider, consultation is recommended with Infectious Diseases to determine if antivirals are still appropriate. **Infectious Diseases may be paged at (204) 787-2071.**
- **Adults and children ≥ 13 years of age:** Oseltamivir (Tamiflu®) 75 mg orally twice daily for 5 days.
- Children < 13 years of age: by weight, as per the table below.
- Antiviral Use for Pregnant and Post-partum Women: Refer to the Manitoba Health and Healthy Living document *Manitoba Interim Clinical Care Guidance for Pregnant and Post-partum Women Presenting with Symptoms of Acute Respiratory Illness During a Pandemic Influenza Period (H1N1)* available at: [http://www.gov.mb.ca/health/publichealth/sri/docs/interim\\_guidance\\_clinicians\\_pregnancy.pdf](http://www.gov.mb.ca/health/publichealth/sri/docs/interim_guidance_clinicians_pregnancy.pdf)
- More information on oseltamivir and zanamivir including reconstitution guidelines/instructions can be found in the Product Monograph. For recent Health Canada drug advisories please refer to: <http://www.hc-sc.gc.ca/dhp-mpps/medeff/advisories-avis/new-neuf-advisories-avis-eng.php>. Adverse reactions should be reported to the Marketed Health Products Directorate at Health Canada at: [http://www.hc-sc.gc.ca/dhp-mpps/pubs/medeff/guide/2009-ar-ei\\_anti\\_guide-ldir/index-eng.php](http://www.hc-sc.gc.ca/dhp-mpps/pubs/medeff/guide/2009-ar-ei_anti_guide-ldir/index-eng.php)

**Antiviral treatment dosing\* recommendations for Infants and Children** [Table based on IDSA guidelines for seasonal influenza, *CID* 2009; 48: 1003-1032: [www.idsociety.org/content.aspx?id=9202#flu](http://www.idsociety.org/content.aspx?id=9202#flu) ] and Public Health Agency of Canada Interim Guidance for emergency use of oseltamivir (Tamiflu®) in children under one year of age in the context of 2009 (H1N1) pandemic at <http://www.phac-aspc.gc.ca/alert-alerte/swine-porcine/guidance-orientation-07-20-eng.php> ].

Age Group	Weight	Drug	Dosing Schedule
Infants and children	≤ 15 kg	Oseltamivir (Tamiflu®)	2 mg/kg/dose orally twice daily x 5 days
Children < 13 years of age	>15-23 kg	Oseltamivir (Tamiflu®)	45 mg orally twice daily x 5 days
	>23-40 kg	Oseltamivir (Tamiflu®)	60 mg orally twice daily x 5 days
	> 40 kg	Oseltamivir (Tamiflu®)	75 mg orally twice daily x 5 days
Children ≥ 13 years of age		Oseltamivir (Tamiflu®)	75 mg orally twice daily x 5 days
Children ≥ 7 years of age		Zanamivir (Relenza®)	2 inhalations twice daily x 5 days

\* Dosages may need to be modified based on the presence of renal disease or other co-morbidities. Refer to product monograph for details and/or consult with an Infectious Diseases specialist or a Nephrologist. For potential medication errors with liquid Tamiflu®, please see: [http://www.hc-sc.gc.ca/ahc-asc/media/advisories-avis/2009/2009\\_158-eng.php](http://www.hc-sc.gc.ca/ahc-asc/media/advisories-avis/2009/2009_158-eng.php) for more information.

### **Other considerations for the use of antivirals for treatment of H1N1 influenza:**

Recommendations for use of antiviral medications may change as information on antiviral effectiveness, clinical spectrum of illness, adverse events from antiviral use, or resistance among circulating viruses become available. At this time, oseltamivir-resistant 2009 H1N1 viruses have rarely been identified and are typically found among persons who develop illness while receiving oseltamivir for chemoprophylaxis or among immunocompromised patients with influenza who are being treated. For more information on H1N1 antiviral resistant strains, refer to *WHO Pandemic (H1N1) 2009 briefing note 12- Antiviral use and the risk of drug resistance*. [http://www.who.int/csr/disease/swineflu/notes/h1n1\\_antiviral\\_use\\_20090925/en/index.html](http://www.who.int/csr/disease/swineflu/notes/h1n1_antiviral_use_20090925/en/index.html).

**<sup>F</sup> Antimicrobial Therapy:** Due to the high risk of bacterial superinfections in patients with influenza, there should be a low threshold for starting antimicrobial therapy in patients. Consider initiation of antimicrobial therapy based upon clinical history & assessment. Consultation with Pediatric Infectious Diseases is recommended (204) 787-2071.

\*\*These guidelines may change as more information on infection with pandemic influenza (H1N1) becomes available. Updated guidelines are at: <http://www.gov.mb.ca/health/publichealth/sri/index.html>