



**H1N1 Update**  
**September 15, 2009**  
**Prepared for Community health care providers**

**SBAR**  
**Situation.....Background.....Assessment....Recommendations**

**Situation:**

2009 H1N1 virus infection defined as “pandemic (H1N1) 2009 influenza” by the World Health Organization due to its presence in countries around the world—was first identified in the U.S. in April 2009. By August 2009, more than 40,000 probable and suspect cases had been reported and more than one million infections were estimated in the U.S.

The epidemiology of the disease caused by 2009 H1N1 is similar to that in the U.S. last spring. Virginia (in CDC Region III) is among 13 states which reported regional influenza activity. Regional III is experiencing a normal proportion of outpatient visits for influenza-like illness (ILI).

During week 35, 97% of all subtyped influenza A viruses reported to CDC were 2009 influenza A (H1N1) viruses.

**Background:**

**Current H1N1 statistics as of September 14, 2009**

- MMWR Week 35 marks the first week of CDC reporting for the 2009-2010 flu season.
- This is the first week the CDC is reporting data from a new system for monitoring the trend in flu related hospitalizations and deaths. The new system replaces the weekly report of lab confirmed 2009 H1N1 related hospitalizations. Counts were reset to zero Aug. 30, 2009.
- During week 35 (August 30-September 5, 2009), influenza activity increased in the U.S.
  - In the U.S., CDC reported 1,380 hospitalizations and 196 deaths during week 35
  - One influenza-associated pediatric death was reported in week 34, ending Aug. 29
  - Since Sept. of 112 peds deaths, 44 were due to 2009 influenza A (H1N1) virus infections.
- The 2009-10 influenza season officially begins October 4, 2009.
- According to Virginia stats (week ending Sept. 5), our region is experiencing less than 3% of ED and urgent care visits for influenza like illness.
- Sentara EDs are also seeing an increase in visit for influenza like illness.

## **Assessment**

### **2009 H1N1 influenza is not the same as seasonal influenza**

- The age groups affected by the pandemic are generally younger, especially so for those experiencing severe or fatal illness.
- Most severe cases and deaths have occurred in adults under the age of 50 years, with deaths in the elderly comparatively rare.
- This age distribution contrasts with seasonal influenza, where around 90% of severe and fatal cases occur in people 65 years of age or older.
- People 65 and older are at lower risk of infection from 2009 H1N1 compared to younger groups.

### **Severe respiratory failure**

- Clinicians from around the world are reporting a very severe form of disease, also in young and otherwise healthy people, which is rarely seen during seasonal influenza infections.
- In these patients, the virus directly infects the lung, causing severe respiratory failure.

### **Vulnerable groups**

- An increased risk during pregnancy is now consistently well-documented across countries.
- Data continue to show that certain medical conditions increase the risk of severe and fatal illness. Approximately 70% of persons hospitalized from 2009 H1N1 influenza have had a recognized high risk condition. These include:
  - Respiratory disease, notably asthma,
  - Cardiovascular disease,
  - Diabetes, and
  - Immunosuppression.

### **Higher risk of hospitalization and death**

- Preliminary studies suggest obesity may be a factor in risk of hospitalization and death due to 2009 H1N1 influenza infection.
- Patients with obesity often have underlying conditions that put them at increased risk for complications due to 2009 H1N1, such as diabetes, asthma, chronic respiratory illness or liver disease.
- Patients with obesity should be carefully evaluated for the presence of underlying medical conditions known to increase the risk for flu complications, and receive empiric treatment when these conditions are present, or if signs of lower respiratory tract infection are present.

## **Transmission**

Spread of 2009 H1N1 virus is thought to occur in the same way that seasonal flu spreads. Flu viruses are spread mainly from person to person through coughing or sneezing by people with influenza. Sometimes people may become infected by touching something – such as a surface or object – with flu viruses on it and then touching their mouth or nose.

## **Incubation**

The incubation period is believed to be similar to seasonal flu 1-7 days, but more likely 1-4 days.

Persons with H1N1 influenza virus infection should be considered potentially contagious for 1 day prior to symptoms and for up to 7 days following illness onset or until symptoms resolve; children may be infectious for a longer period of time.

## **Flu Symptoms**

- Fever (100°F [37.8°C ] or greater)
- Respiratory tract illness (cough, sore throat, runny nose)
- Headache
- Muscle aches
- Vomiting and diarrhea (in some cases)

## **Recommendations**

### **CDC recommendations for Triaging Patients with Flu Symptoms**

Mask patients with flu-like symptoms (fever and respiratory symptoms [cough and/or sore throat]) with a PROCEDURE or SURGICAL MASK unless medically contraindicated.

**CDC recommends vaccines are the best prevention for flu.**

## **Vaccines**

### **Seasonal flu vaccine recommended for:**

- children 6 months to 19 years old
- pregnant women
- anyone 50 years or older
- people with chronic medical conditions like asthma, kidney disease, diabetes, heart disease, lung disease, chronic bronchitis, weakened immune system and HIV.
- people who live in nursing homes or long-term care facilities
- family and caregivers of people at high risk like health care workers
- caregivers of children less than 6 months old (children too young to get the vaccine)

### **2009 H1N1 Vaccine recommended for:**

- Pregnant women
- Family and caregivers for children younger than 6 months old
- Health care workers and emergency services personnel
- Anyone 6 months to 24 years old

- Anyone 25 through 64 years with chronic pulmonary disorders (including asthma), cardiovascular (except hypertension), kidney, liver, and blood disorders (including sickle cell disease), neurocognitive and neuromuscular disorders, diabetes, and depressed immune systems

### Antiviral Resistance

The majority of 2009 H1N1 is sensitive to the antivirals oseltamivir (Tamiflu) and zanamivir (Relenza) but not amantadine and rimantadine. Rare cases of oseltamivir resistance has occurred worldwide including 9 cases in the U.S. All viruses retain sensitivity to zanamivir.

Seasonal H1N1 flu is sensitive to amantadine and rimantadine and zanamivir but not oseltamivir.

Seasonal H3N2 and B are sensitive to oseltamivir. and zanamivir, but resistant to amantadine and rimantadine.

All current influenza, seasonal and pandemic, is sensitive to zanamivir (Relenza).

	Influenza viruses			
Antiviral	Seasonal A (H1N1)	Seasonal A (H3N2)	Seasonal B	Pandemic H1N1
Flumadine (Rimantadine)	Susceptible	Resistant	No activity	Resistant
(Amantrel, Symadine, Symmetrel)  <b>Amantidine</b>	Susceptible	Resistant	No activity	Resistant
<b>Tamiflu</b> (Oseltamivir)	Resistant	Susceptible	Susceptible	Susceptible
<b>Relenza</b> (Zanamivir)	Susceptible	Susceptible	Susceptible	Susceptible

## Treatment

Recommendations for use of antiviral medications may change as new information is available.

Treatment with oseltamivir or zanamivir is recommended by CDC for:

- All hospitalized patients with confirmed, probable or suspected 2009 H1N1 or seasonal influenza.
- Those with high risk of complications for flu.
- Any suspected flu patient with warning symptoms (e.g., dyspnea) or signs (e.g., tachypnea, unexplained oxygen desaturation) for lower respiratory tract illness should promptly receive empiric antiviral therapy

Treatment should not wait for laboratory confirmation because laboratory testing can delay treatment and a negative rapid test for influenza does not rule out influenza.

Treatment should begin within 48 hours of onset of symptoms as studies show early treatment provides more benefit

**Persons NOT at higher risk for flu complications or who do NOT have severe influenza requiring hospitalization generally do not require antiviral medications for treatment or prophylaxis.**

Clinical judgment is an important factor in antiviral treatment decisions for all patients presenting for medical care who have illnesses consistent with influenza.

### Antiviral Chemoprophylaxis

This situation is fluid and research for H1N1 is ongoing. According to the CDC, the infectious period for 2009 H1N1 virus appears to be similar to that of seasonal influenza.

Infected persons may be infectious to others, beginning one day before they develop symptoms to up to 7 days after they become ill.

Children can shed influenza virus for longer periods. However, for this guidance, the *infectious period* for influenza is defined as one day before until 24 hours after fever ends.

Post exposure antiviral chemoprophylaxis with either oseltamivir or zanamivir can be considered for the following:

- Persons who are at higher risk for complications of influenza and are a close contact of a person with confirmed, probable, or suspected 2009 H1N1 or seasonal influenza during that person's infectious period.
- Health care personnel who have had a recognized, unprotected close contact exposure to a person with confirmed, probable, or suspected 2009 H1N1 or seasonal influenza during that person's infectious period..

Antiviral agents should not be used for post exposure chemoprophylaxis in healthy children or adults

- Chemoprophylaxis generally is not recommended if more than 48 hours have elapsed since the last contact with an infectious person.
- Chemoprophylaxis is not indicated when contact occurred before or after the ill person's infectious period.
- **An emphasis on early treatment is an alternative to chemoprophylaxis after a suspected exposure for some persons. See "Actions to Reduce Delays in Treatment" section.**
- Persons at ongoing occupational risk for exposure (e.g., health care personnel working in communities with influenza outbreaks) should carefully follow guidelines for appropriate personal protective equipment.

### **Patients at Risk of Flu Complications**

Groups at higher risk for 2009 H1N1 influenza complications are similar to those at higher risk for seasonal influenza complications:

- Children younger than 5 years old. However, the risk for severe complications from seasonal influenza is highest among children younger than 2 years old.
- Adults 65 years of age or older
- Pregnant women
- Persons with the following conditions:
  - Chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, hematological (including sickle cell disease), neurologic, neuromuscular, or metabolic disorders (including diabetes mellitus);
  - Immunosuppression, including that caused by medications or by HIV;
  - Persons younger than 19 years of age who are receiving long-term aspirin therapy, because of an increased risk for Reye syndrome.

### **Testing Recommendations for 2009 H1N1**

Testing for 2009 H1N1 influenza infection with real-time reverse transcriptase-polymerase chain reaction (rRT-PCR) should be prioritized for persons with suspected or confirmed influenza requiring hospitalization and based on guidelines from local and state health departments.

The sensitivity of rapid tests can range from 10 % to 70%. View information on the use of [rapid influenza diagnostic tests \(RIDTs\)](http://www.cdc.gov/h1n1flu/guidance/rapid_testing.htm) at [www.cdc.gov/h1n1flu/guidance/rapid\\_testing.htm](http://www.cdc.gov/h1n1flu/guidance/rapid_testing.htm).

## **Actions to reduce delays in treatment:**

- Identify and educate your patients at higher risk for flu complications of signs and symptoms of influenza and need for early treatment;
- Ensure rapid access to telephone consultation and clinical evaluation for these patients as well as patients who report severe illness;
- Consider empiric treatment of patients at higher risk for influenza complications based on telephone contact if hospitalization is not indicated and if this will substantially reduce delay before treatment is initiated.
- Providers might also choose to provide selected patients at higher risk for influenza-related complications (e.g., patients with neuromuscular disease) with prescriptions that can be filled at the onset of symptoms **after telephone** consultation with the provider.
- Based on global experience to date, 2009 H1N1 influenza viruses likely will be the most common influenza viruses among those circulating in the coming season, particularly those causing influenza among younger age groups. Circulation of seasonal influenza viruses during the 2009-10 season is also expected. Influenza seasons are unpredictable, however, and the timing and intensity of seasonal influenza virus activity versus 2009 H1N1 circulation cannot be predicted in advance.
- Persons with suspected 2009 H1N1 influenza or seasonal influenza who present with an uncomplicated febrile illness typically do not require treatment. However, some groups appear to be at higher risk for influenza-related complications.
- Currently circulating 2009 H1N1 viruses are susceptible to oseltamivir and zanamivir, but resistant to amantadine and rimantadine; however, antiviral treatment regimens might change according to new antiviral resistance or viral surveillance information.
- Information on the dose and dosing schedule for oseltamivir and zanamivir is provided in this document.

## **Know Warning Signs for Urgent Medical Treatment**

### **Emergency Warning Signs in Children that need urgent medical attention:**

- Fast breathing or trouble breathing
- Bluish or gray skin color
- Not drinking enough fluids
- Severe or persistent vomiting
- Not waking up or not interacting
- Being so irritable that the child does not want to be held
- Flu-like symptoms improve but then return with fever and worse cough

### **In adults, emergency warning signs that need urgent medical attention include:**

- Difficulty breathing or shortness of breath
- Pain or pressure in the chest or abdomen
- Sudden dizziness
- Confusion
- Severe or persistent vomiting
- Flu-like symptoms improve but then return with fever and worse cough

## 2009–10 Seasonal Influenza Vaccine Dosage Chart

### Inactivated, Injectable Influenza Vaccine

Trade Name	Manufacturer	Age	Dose—Presentation	Number of Doses	Route—Site
Fluzone®	sanofi pasteur	6 through 35 months <sup>1</sup>	0.25 mL—prefilled syringe <sup>1</sup>	1 or 2 <sup>2</sup>	Intramuscular <sup>3</sup>
Fluvirin®	Novartis Vaccine	4 years and older	0.5 mL—multidose vial	1 or 2 <sup>2</sup>	Intramuscular <sup>3</sup>
FLUARIX®	GlaxoSmithKline	18 years and older	0.5 mL—prefilled syringe	1	Intramuscular <sup>3</sup>
FluLaval™	GlaxoSmithKline	18 years and older	0.5 mL—multidose vial	1	Intramuscular <sup>3</sup>
Afluria®	CSL	18 years and older	0.5 mL—prefilled syringe	1	Intramuscular <sup>3</sup>

<sup>1</sup> Children age 6 through 35 months should receive 0.25 mL vaccine per dose. Children age 36 months through adults should receive 0.5 mL vaccine per dose. See footnote 2 to determine number of doses.

<sup>2</sup> Children 6 months through 8 years who are receiving injectable influenza vaccine for the first time should receive two doses of vaccine separated by 4 weeks. Children who received influenza vaccine for the first time **during the previous influenza season**, and got only one dose, should receive two doses this season. However, children who were given influenza vaccine during **any prior influenza season** should receive only one dose.

<sup>3</sup> Children 6 months through 2 years of age should be vaccinated in the anterolateral aspect of the thigh. Older children and adults should be vaccinated in the deltoid muscle if muscle mass is adequate. The anterolateral aspect of the thigh may be used as an alternate.

### Live Attenuated Nasal Spray Influenza Vaccine (LAIV)

Trade Name	Manufacturer	Age	Dose—Presentation	Number of Doses	Route
FluMist®	MedImmune	2 through 49 years if healthy and non-pregnant	0.2 mL—Spray ½ of dose into each nostril as indicated on the syringe.	1 or 2 <sup>4</sup>	Intranasal

<sup>4</sup> Healthy children 2 through 8 years of age who are receiving live attenuated influenza vaccine (LAIV) for their first influenza vaccine should receive two doses separated by 4 weeks. Children who received influenza vaccine for the first time during the previous influenza season, and got only one dose, should receive two doses this season. However, children who were given influenza vaccine during any prior influenza season should receive only one dose.

For more information call 800-CDC-INFO (800-232-4636) Website [www.cdc.gov/flu](http://www.cdc.gov/flu)

## **Stay at Home Recommendations for Healthcare Workers**

According to CDC, health care workers providing direct patient care (or those working in direct patient care facilities), who have had influenza symptoms, should remain out of work for 7 days from onset of symptoms or until symptoms resolve, whichever period is longer.

Resolution of symptoms includes being free of fever, a temperature of 100° F or 37.8°C for 24 hours, without using fever-reducing medications.

Personnel not working in care giving facilities may return to work 24 hours after free of fever or signs of fever without the use of fever-reducing medications. A fever is defined as a temperature of 100° F or 37.8°C.

### **Source:**

*FluView Aug. 30 - September 5, 2009* prepared by CDC, Influenza Division

Information provided by Edward C. Oldfield, III, M.D. Professor of Medicine and Director, Division of Infectious Diseases, Eastern Virginia Medical School

*2009 H1N1 Flu: International Situation Update*, CDC, September 11, 2009

*Updated Interim Recommendations for the Use of Antiviral Medication in the Treatment and Prevention of Influenza for the 2009-2010 Season*, CDC, September 8, 2009