

Infection Control

What type of personal protective equipment is recommended for health-care workers (HCW) and /or patients?

CDC recommends that health-care personnel participating in direct patient care of an individual with suspected or confirmed novel influenza A (H1N1) should use contact and respiratory precautions that include gloves, gown, eye protection, and N-95 mask. Check both the CDC web site at <http://cdc.gov/h1n1flu/> and the MDCH web site at <http://www.michigan.gov/flu> for updates.

How long must someone with influenza-like illness or novel influenza A (H1N1) stay home from work or school?

CDC recommends that those who are ill with symptoms of influenza-like illness (ILI) stay home from work or school until 24 hours after the fever has subsided without antipyretic medications. However, this does not apply to health-care workers (HCW). HCW with febrile respiratory illness should be excluded from work for 7 days or until symptoms have resolved, whichever is longer.

Must family members of those who are diagnosed with ILI or novel influenza A (H1N1) stay home from work or school?

Family or household member of patients diagnosed with ILI or novel influenza A (H1N1) may continue to attend school or work. They should stay vigilant for flu symptoms.

Lab Testing and Case Reporting

Who should be tested for influenza?

Due to capacity limitations, the Michigan Department of Community Health/ Bureau of Laboratories (MDCH BOL) will not be conducting influenza testing (RT-PCR) for every suspected pandemic H1N1 case in Michigan. Similar to traditional influenza seasons, influenza testing at BOL during the 2009–2010 flu season will focus on outbreak investigations and public health-directed case investigations. Testing at MDCH BOL will be limited to the following criteria:

- ✓ Outbreaks
- ✓ Patients with unusual presentations of flu (i.e., encephalopathy)
- ✓ Pregnant women with severe ILI
- ✓ Hospitalized patients (particularly in the ICU with severe ILI)
- ✓ Influenza-related deaths in both children and adults

You will need to fill out a MDCH Test Request Form found at <http://www.michigan.gov/mdchlab>. Please include the reason for testing. Pre-approval of specimens is not required at this time, but please include “reason for testing” on the request form. Depending on the volume of specimens received at BOL for influenza testing, a pre-approval process may be instituted. Check <http://www.michigan.gov/flu> for current status of any approval process.

What are the recommendations for sample collection and submission?

MDCH BOL recommends using any of the following for specimen collection.

- ✓ Nasopharyngeal (NP) swab in viral transfer media (VTM) or phosphate buffer solution (PBS)
- ✓ Nasal swab in VTM or PBS
- ✓ Dual NP/oropharyngeal swabs in VTM or PBS
- ✓ Nasal aspirates
- ✓ Viral isolates

Where do I send samples for diagnostic testing of patients who do not fit the above influenza specimen testing criteria?

Several laboratories within Michigan are now performing 2009 novel influenza A (H1N1) PCR diagnostic testing. Please refer to the MDCH BOL website at <http://www.michigan.gov/mdchlab> for a list of laboratories that perform 2009 novel influenza A (H1N1) PCR diagnostic testing.

Do I need to report cases of influenza?

Yes, effective September 1, 2009, report ALL laboratory-confirmed influenza-associated hospitalizations and deaths, including both those due to seasonal influenza strains and 2009 novel influenza A (H1N1), as soon as possible, to your local health department. Laboratory confirmation includes rapid influenza tests, RT-PCR, DFA, IFA, or culture.

Antivirals

Who should be treated with antiviral medications during the 2009–2010 influenza seasons and which antiviral(s) should be used?

According to the CDC, the vast majority of influenza viruses currently circulating in the U.S. and worldwide are the 2009 novel influenza A (H1N1) pandemic strain. This virus is resistant to both Amantadine and Rimantadine, but is sensitive to both neuraminidase

antivirals, Oseltamivir and Zanamivir. The CDC recommends that high-risk individuals or those hospitalized with severe symptoms of ILI be treated with either Oseltamivir or Zanamivir. Early empiric treatment with oseltamivir or zanamivir should be considered for persons with suspected or confirmed influenza that are at higher risk for complications including:

- ✓ Children younger than 2 years old
- ✓ Persons aged 65 years or older
- ✓ Pregnant women
- ✓ Persons of any age with certain chronic medical or immunosuppressive conditions
- ✓ Persons younger than 19 years of age who are receiving long-term aspirin therapy

Addition information regarding treatment for high-risk individuals can be found at <http://www.cdc.gov/h1n1flu/recommendations.htm>.

Persons who are not at higher risk for complications or who do not have severe influenza requiring hospitalization generally do not require antiviral medications for treatment. As the type of strains and resistance of the virus may change throughout the season, we urge you to refer periodically to both the CDC website <http://cdc.gov/h1n1flu> and MDCH's website at <http://www.michigan.gov/flu>.

Who should get prophylaxis?

High-risk individuals who have had close contact with a suspected or confirmed case of 2009 novel influenza A (H1N1) should be considered for prophylaxis with Oseltamivir or Zanamivir. HCWs with a recognized unprotected exposure to 2009 novel influenza A (H1N1) may be considered for post-exposure prophylaxis. Health care personnel, who have occupational exposures, can be counseled about the early signs and symptoms of influenza and advised to immediately contact their health care provider for evaluation and possible early treatment if clinical signs or symptoms develop. For more information please check the CDC website at <http://cdc.gov/h1n1flu/recommendations.htm>.

What are the recommended doses for treatment and prophylaxis?

Please see the following table for recommended doses for treatment and prophylaxis in adults and children. For renal dosing, refer to <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr57e717a1.htm>.

**Antiviral medication dosing recommendations for 2009 novel influenza A (H1N1)
treatment or chemoprophylaxis**

Agent, group		Treatment (5 days)	Chemoprophylaxis (10 days)
Oseltamivir			
Adults		75-mg capsule twice per day	75-mg capsule once per day
Children ≥ 12 months	15 kg or less	60 mg per day divided into 2 doses	30 mg once per day
	16–23 kg	90 mg per day divided into 2 doses	45 mg once per day
	24–40 kg	120 mg per day divided into 2 doses	60 mg once per day
	>40 kg	150 mg per day divided into 2 doses	75 mg once per day
Zanamivir			
Adults		Two 5-mg inhalations (10 mg total) twice per day	Two 5-mg inhalations (10 mg total) once per day
Children		Two 5-mg inhalations (10 mg total) twice per day (age, 7 years or older)	Two 5-mg inhalations (10 mg total) once per day (age, 5 years or older)

Note: Table was extracted from product information for Tamiflu® and Relenza®.

Should children <1 year of age be treated or given prophylaxis with antiviral medications?

Yes, the CDC recommendations for antiviral treatment or chemoprophylaxis dosing for infants <12 months of age are displayed below.

Dosing recommendations for antiviral treatment or chemoprophylaxis for children <1 year of age

Age of child	Recommended treatment dose for 5 days	Recommended prophylaxis dose for 10 days
<3 months	12 mg twice daily	Not recommended unless situation judged critical, due to limited data on use in this age group
3–5 months	20 mg twice daily	20 mg once daily
6–11 months	25 mg twice daily	25 mg once daily

Note: Table was extracted from product information for Tamiflu® and Relenza®.

When dispensing oral suspension, Tamiflu for children younger than 1 year of age, the included oral dosing dispenser in the Tamiflu package should always be removed. Pharmacists and health care providers should provide an oral syringe that is capable of accurately measuring the prescribed milliliter (mL) dose, and counsel the caregiver how to administer the prescribed dose. Some experts recommend weight-based dosing for infants <12 months of age. Please see <http://cdc.gov/h1n1flu/recommendations.htm> for more information. For pediatric dosing, Oseltamivir can be compounded by a pharmacist. Because of the lack of safety and dosing data on children <12 months of age, the FDA has issued an Emergency Use Authorization (<http://www.fda.gov/downloads/Drugs/DrugSafety/InformationbyDrugClass/UCM153547.pdf>). Clinicians are advised to monitor patients for adverse events.

Should pregnant women be treated or given prophylaxis with antiviral medications?

Oseltamivir and Zanamivir are "pregnancy category C" medications, indicating that no clinical studies have been conducted to assess the safety of these medications for pregnant women. Because pregnant women are considered to be at high-risk for complications, treatment should be started as early as possible and should not be postponed waiting for laboratory confirmation. Post-exposure prophylaxis for pregnant women may be considered. For more information, please go to http://www.cdc.gov/h1n1flu/pregnancy/antiviral_messages.htm.

Vaccines

When should we start seasonal flu vaccinations for healthcare workers and the general population?

The federal Advisory Committee on Immunization Practices (ACIP) recommendations posted on August 28, 2009 state, “All persons currently recommended for seasonal influenza vaccine, including those aged ≥ 65 years, should receive the seasonal vaccine as soon as it is available (<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5810a1.htm>).”

What type of vaccine for 2009 novel influenza A (H1N1) will be available?

Influenza A (H1N1) 2009 monovalent vaccine is being produced by five different manufacturers, and will be available as an inactivated injection (multi-dose or single dose) or as a live attenuated nasal spray.

Is the influenza A (H1N1) 2009 monovalent vaccine safe?

The 2009 novel influenza A (H1N1) is a strain change from the seasonal influenza. The influenza A (H1N1) 2009 monovalent vaccine is produced using the same well-established process used in manufacturing seasonal influenza vaccines. The influenza A (H1N1) 2009 monovalent vaccine is now undergoing rigorous clinical trials at several sites across the United States and has been FDA approved. The safety of this vaccine, and all other vaccines, is under constant monitoring. Any adverse effects associated with the vaccine should be reported immediately through the VAERS monitoring system at www.cdc.gov/vaccinesafety/vaers/.

How do clinics become vaccine providers?

To assure accurate vaccine tracking, patient recall, and adverse event monitoring, all providers are required to use the Michigan Care Improvement Registry (MCIR) to track and document vaccine administration and dispensing. Providers will need to complete the MCIR provider user/usage agreement form by going to

<http://www.mcir.org/providercontent.html>. To become an influenza A (H1N1) 2009 monovalent vaccine provider, clinics will also need to fill out an Provider Agreement /Enrollment form can be found in the H1N1 2009 Provider Toolkit at <http://www.michigan.gov/flu>, and submit this form to their local health department <http://www.malph.org/page.cfm/18/>.

Can a private clinic bill or charge for the influenza A (H1N1) 2009 monovalent vaccine?

Private clinics cannot charge or bill for the vaccine itself or for any supplies used in the administration of the influenza A (H1N1) 2009 monovalent vaccine. Private clinics may bill a third-party payer or charge the patient an administration fee or co-pay for administration of the vaccine. The administration fee charged to the patient cannot exceed the regional Medicare vaccine administration fee. More information is located under “*Program*” in the H1N1 2009 Provider Toolkit at <http://www.michigan.gov/flu>.

What liability coverage exists for healthcare professionals that participate in vaccination efforts?

Specific immunity from tort liability is provided through the Public Readiness and Emergency Preparedness (PREP) Act for the administration of medical countermeasures. Please see the US Department of Health and Human Services web page for frequently asked questions regarding the PREP act at:

<http://www.hhs.gov/disasters/emergency/manmadedisasters/bioterrorism/medication-vaccine-qa.html>, or in the H1N1 2009 Provider Toolkit at www.michigan.gov/flu.

Who should get the influenza A (H1N1) 2009 monovalent vaccine?

ACIP recommends vaccinating as many persons as possible, with an initial focus on groups at higher risk for complications from influenza A (H1N1) 2009. As supply increases, vaccinations can be expanded to include larger populations. Please allow for flexibility because vaccine availability and demand for vaccination will vary. ACIP recommends that the following groups be targeted to receive the vaccination as early as possible:

- ✓ Pregnant women
- ✓ Persons who live with or provide care for infants aged <6 months (e.g., parents, siblings, and daycare providers)
- ✓ Health-care and emergency medical services personnel
- ✓ Persons aged 6 months–24 years
- ✓ Persons aged 25–64 years who have medical conditions that put them at higher risk for influenza-related complications

Once providers meet the demand for vaccine among persons in these initial target groups, vaccination is recommended for all persons 25 through 64 years of age. Current studies indicate that the risk for infection among persons age 65 or older is less than the risk for younger age groups. However, once vaccine demand among younger age groups has been met, programs and providers should offer vaccination to people 65 or older.

How many doses of influenza A (H1N1) 2009 vaccine will someone need?

Anyone 10 years of age and older will only need 1 dose. Children 9 years of age and under will need 2 doses of vaccine even if they have had seasonal flu vaccine in the past. This is different from the seasonal influenza guidelines that recommends children 8 years of age and under get 2 doses of seasonal flu vaccine if this is the first year they are getting a flu vaccine. This means that some children will need 4 doses of flu vaccine (2 seasonal doses and 2 Influenza A H1N1 2009 doses).

Who is eligible to get the nasal spray forms of the influenza A (H1N1) 2009 and/or seasonal flu vaccines?

Healthy persons between the ages of 2 and 49 years of age are eligible to get the nasal influenza vaccine. Those that have underlying medical problems, pregnant women or children who have a history of asthma or wheezing should not get the nasal influenza

vaccines. Household and close contacts of persons who are severely immunosuppressed requiring a protective environment should be vaccinated with injectable flu vaccine or if receiving nasal 2009 H1N1 vaccine, they should refrain from contact with these persons for 7 days.

Which health care workers should not get the LAIV nasal spray form of the influenza A (H1N1) 2009 and/or seasonal flu vaccine?

Only health care workers who are performing direct care of individuals who are severely immunosuppressed (e.g. persons in a protective environment, such as, bone marrow transplant patients) should **not** get the live attenuated influenza vaccine (LAIV). All other health care workers under the age of 49 years, who are otherwise healthy and **not** pregnant, are eligible to get LAIV. Health care personnel who are pregnant or have chronic medical conditions other than severe immunosuppression may administer nasal 2009 H1N1 vaccine.

Should vaccines for seasonal influenza and the novel influenza A (H1N1) be given at the same visit?

It depends on the type of vaccine. Whether for seasonal influenza or novel influenza A (H1N1), do not give the live attenuated vaccines together at the same visit. The use of LAIV for both seasonal influenza and novel influenza A (H1N1) vaccines is permissible as long as the doses are separated by 4 weeks.

Administration of the different types of vaccines for seasonal and 2009 novel influenza A (H1N1)

Vaccines	Can be given at the same time?
TIV & Inactivated Novel H1N1	Yes
TIV & Live Attenuated Novel H1N1	Yes
LAIV & Inactivated Novel H1N1	Yes
LAIV & Live Attenuated Novel H1N1	No

Who is included as part of the target group of health-care providers (HCP)?

Health-care providers include those who have the potential for exposure to patients or contaminated materials/surfaces. This includes (but are not limited to) physicians, nurses, nursing assistants, therapists, technicians, emergency medical service personnel, dental personnel, pharmacists, laboratory personnel, autopsy personnel, students and trainees, and contractual staff not employed by the health-care facility (MMWR 58 (RR-10), Aug 28, 2009).

HCP in acute-care hospitals, nursing homes, skilled nursing facilities, physicians' offices,

urgent care centers, outpatient clinics, home health care, and emergency medical services would also be part of the HCP target group. Those staff who are not involved in direct patient care (i.e., housekeeping personnel, clerks) but who have the potential for exposure to infectious agents that can be transmitted to or from HCP should be considered as part of this target group. It is anticipated that frontline HCP and those with the greatest risk for exposure would be the first to receive vaccine.

Should patients on antivirals get a vaccine for seasonal flu or novel influenza A (H1N1)?

Administration of trivalent inactivated seasonal influenza vaccine (TIV) or influenza A (H1N1) 2009 monovalent vaccine and influenza antivirals during the same medical visit is acceptable. The effect on safety and effectiveness of LAIV co-administration with influenza antiviral medications has not been studied. However, because influenza antivirals reduce replication of influenza viruses, LAIV should not be administered until 48 hours after cessation of influenza antiviral therapy. Furthermore, influenza antiviral medications should not be administered for 2 weeks after receipt of LAIV. Persons receiving antivirals within the period 2 days before to 14 days after vaccination with LAIV should be revaccinated at a later date. More information can be found at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr57e717a1.htm>.

Do people who were diagnosed with flu still need to get vaccinated?

Unless MDCH BOL diagnosed an individual as a confirmed case of 2009 novel influenza A (H1N1), then that individual should be immunized with influenza A (H1N1) 2009 monovalent vaccine. Please see the CDC web site at http://www.cdc.gov/h1n1flu/vaccination/clinicians_qa.htm for more information.