

Texas Guidelines for Clinicians: Antiviral Use in Pregnancy: Swine Influenza A (H1N1) v.1.

April 28, 2009

This Guidance will be continually updated as situation evolves.

Key Points

- > **Pregnant women are at increased risk of severe complications of influenza**
- > **Pregnancy should not be considered a contraindication to oseltamivir or zanamivir use**
- > **Pregnant women who meet current case-definitions for confirmed, probable or suspected swine influenza should receive antiviral treatment for 5 days**
- > **Pregnant women who are close contacts with persons with suspected, probable or confirmed cases of swine influenza should receive antiviral chemoprophylaxis for 10 days**

Current testing indicates that the swine influenza A (H1N1) virus is sensitive to the class of antivirals named “neuraminidase inhibitors.” The antiviral medications in this class are oseltamivir and zanamivir, known as Tamiflu® and Relenza®. Tamiflu® is supplied in capsules; Relenza® in blisters that are inhaled.

Antiviral drug countermeasures are one tool of a multi-faceted containment response. It is important to remember that antivirals are limited in their scope of use to early treatment of illness and chemoprophylaxis to prevent illness. Social distancing, hand washing, and respiratory hygiene play major roles in the containment of flu and are critical to minimize the burden of disease and control of both seasonal and novel swine influenza. Because so much emphasis has been placed on antivirals for treatment and prevention rather than on non-pharmaceutical options, there may be the public perception that the government controls unlimited resources to handle the situation.

Empiric antiviral treatment should be considered for confirmed, probable, or suspected cases of swine influenza A (H1N1) infection. Antiviral chemoprophylaxis is also indicated for certain groups as outlined below. Treatment of hospitalized patients and people at high risk of complications from influenza infection, including pregnant women, should be prioritized.

Are there special considerations for pregnant women?

- **Pregnancy should not be considered a contraindication to oseltamivir or zanamivir use.**
- Oseltamivir and zanamivir are both “Pregnancy Category C” medications indicating that no clinical studies assessing the safety of use during pregnancy have been conducted. Because of unknown effects on the human embryo or fetus, these antivirals should be used only if the potential benefit justifies the potential risk.
- No adverse effects have been reported among women who received oseltamivir or zanamivir during pregnancy or with their babies.
- Pregnant women who meet current case-definitions for confirmed, probable or suspected swine influenza A (H1N1) infection (http://www.cdc.gov/swineflu/casedef_swineflu.htm) should receive empiric antiviral treatment.
- Pregnant women who are close contacts with persons with suspected, probable or confirmed cases of swine influenza A (H1N1) should receive antiviral chemoprophylaxis. These recommendations for treatment and chemoprophylaxis are the same ones used for others who are at higher risk of complications from influenza.

Which antivirals can be used for treatment of Suspect, Probable, and Confirmed cases?

Treatment of Suspect and Probable cases

- Antiviral treatment for suspect and probable swine flu cases may include either oseltamivir (Tamiflu®) or zanamivir (Relenza®) for five days.
- Initiate treatment as soon as possible after diagnosis. CDC guidance suggests that beginning treatment within 48 hours after onset of symptoms provides the best results.

Treatment of Confirmed cases

- Antiviral treatment for confirmed cases of swine influenza may include either Tamiflu® or Relenza® for five days.
- Initiate treatment as soon as possible after diagnosis. CDC guidance suggests that beginning treatment within 48 hours after onset of symptoms provides the best results.
- Refer to the CDC recommendations for dosing requirements at: <http://www.cdc.gov/flu/swine/recommendations.htm>.
- Guidelines as of 04/28/09 are listed below.
- These recommendations may change as the situation changes and antiviral susceptibilities become available.

Are there special considerations for adolescents?

- Counsel parents and patients to avoid giving any medications that contain aspirin or aspirin-derivatives to adolescents and other children 18 years old or younger for symptoms such as fever, runny nose, nausea or vomiting;
- This is due to the risk of Reyes Syndrome, a life-threatening condition associated with aspirin use in children and adolescents.

Who should receive chemoprophylaxis and which antivirals can be used for chemoprophylaxis of contacts to suspected and confirmed cases?

Chemoprophylaxis of close contacts to swine flu A (H1N1) infection

- For chemoprophylaxis, either oseltamivir or zanamivir is recommended in adults and adolescents. Duration of chemoprophylaxis post-exposure is 10 days after the last known exposure to an ill confirmed case of swine influenza A (H1N1).
- Current recommendations are for post-exposure prophylaxis. Pre-exposure prophylaxis requires a large amount of medication taken for the duration of the pandemic. The amount of antivirals necessary to accomplish pre-exposure prophylaxis successfully is frequently unavailable and/or cost prohibitive.
- Prophylaxis should be considered for close contacts of a confirmed or highly suspected case of swine influenza.
- If the lab results indicate that the influenza case to which the contact was exposed is not swine flu, but is seasonal flu, continue the course of prophylaxis to completion.
- It is important to emphasize that protection lasts only while the antiviral medication is taken.
- Refer to the CDC recommendations for dosing requirements at: <http://www.cdc.gov/flu/swine/recommendations.htm>.

Antiviral chemoprophylaxis, pre- or post-exposure, is **RECOMMENDED** for the following:

- Household contacts who are at high-risk for complications of flu (e.g., children younger than 5 years old, **pregnant women**, certain chronic medical conditions, persons 65 and over) and have had close contact with either a confirmed, probable, or suspected case.
- School children, including **pregnant adolescents**, who are at high-risk for complications of flu (certain medical conditions, elderly) and have had close contact with either a confirmed, probable, or suspected case.
- Travelers to Mexico who are at high-risk for complications of flu (e.g., children younger than 5 years old, **pregnant women**, certain chronic medical conditions, persons 65 and over)
- Border workers (Mexico) are at high-risk for complications of flu (e.g., children younger than 5 years old, **pregnant women**, certain chronic medical conditions, persons 65 and over)

- Health care workers or public health workers who had unprotected close contact with an ill confirmed case of swine influenza A (H1N1) flu during the case's infectious period.

Antiviral chemoprophylaxis, pre- or post-exposure, is *CONSIDERED* for the following:

- Any health care worker who is at high risk for complications of flu (e.g., children younger than 5 years old, **pregnant women**, certain chronic medical conditions, persons 65 and over) and who is working in an area with confirmed swine influenza A (H1N1) cases, and who is caring for patients with any acute febrile respiratory illness.
- Non-high risk persons who are travelers to Mexico, first responders, or border workers who are working in areas with confirmed cases of swine influenza A (H1N1) infection.

Agent	Treatment (as of 04/28/2009)	Chemoprophylaxis
Oseltamivir - Adults	75 mg capsule twice per day for 5 days	75 mg capsule 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

How do patients obtain antivirals?

- Antivirals should come from each patient's regular healthcare sources, the same way as other medications. The patient who needs treatment or chemoprophylaxis with antivirals should get a prescription from the physician caring for her and fill it at a pharmacy.
- If the patient is uninsured or underinsured and cannot afford to purchase the antivirals prescribed, contact the local health department for assistance.

Additional Background on Influenza and Pregnancy:

Human infections with a swine influenza A (H1N1) virus that is easily transmissible among humans were first identified in April 2009 with cases in the United States and Mexico. The epidemiology and clinical presentations of these infections are currently under investigation. There are insufficient data available at this point to determine who is at higher risk for complications of swine influenza A (H1N1) virus infection. However, in 1988 a previously healthy 32-year-old pregnant woman was hospitalized for pneumonia and died 8 days later after infection with another variant of swine influenza virus. For seasonal influenza and during prior pandemics, pregnant women have been at higher risk for complications. It is reasonable to assume that pregnant women are also at higher risk for swine influenza complications.

Evidence that influenza can be more severe in pregnant women comes from observations during previous pandemics and from studies among pregnant women who had seasonal influenza. An excess of influenza-associated deaths among pregnant women were reported during the pandemics of 1918–1919 and 1957–1958. Adverse pregnancy outcomes have been reported following previous influenza pandemics, with increased rates of spontaneous abortion and preterm birth reported, especially among women with pneumonia. Case reports and several epidemiologic studies conducted during interpandemic periods also indicate that pregnancy increases the risk for influenza complications for the mother and might increase the risk for adverse perinatal outcomes or delivery complications.

Clinical Presentation in pregnancy

Pregnant women with swine influenza would be expected to present with typical acute respiratory illness (e.g., cough, sore throat, rhinorrhea) and fever or feverishness. Many pregnant women will go on to have a typical course of uncomplicated influenza. However, for some pregnant women, illness might progress rapidly, and might be complicated by secondary bacterial infections including pneumonia. Fetal distress associated with severe maternal illness can occur. Pregnant women who have suspected swine influenza A (H1N1) virus infection should be tested (<http://www.cdc.gov/swineflu/specimencollection.htm>), and specimens from women who have unsubtypeable influenza A virus infections should have specimens sent to the state public health laboratory for additional testing to identify swine influenza A (H1N1).

Treatment and chemoprophylaxis

The currently circulating swine influenza A (H1N1) virus is sensitive to the neuraminidase inhibitor antiviral medications zanamivir and oseltamivir, but is resistant to the adamantane antiviral medications, amantadine and rimantadine. Pregnant women who meet current case-definitions for confirmed, probable or suspected swine influenza A (H1N1) infection (http://www.cdc.gov/swineflu/casedef_swineflu.htm) should receive empiric antiviral treatment. Pregnant women who are close contacts with persons with suspected, probable or confirmed cases of swine influenza A (H1N1) should receive antiviral chemoprophylaxis. These recommendations for treatment and chemoprophylaxis are the same ones used for others who are at higher risk of complications from influenza.

As is recommended for other persons who are treated, antiviral treatment with zanamivir or oseltamivir should be initiated as soon as possible after the onset of influenza symptoms, with benefits expected to be greatest if started within 48 hours of onset based on data from studies of seasonal influenza. However, some data from studies on seasonal influenza indicate benefit for hospitalized patients even if treatment is started more than 48 hours after onset. Recommended duration of treatment is five days, and for chemoprophylaxis is 10 days. Oseltamivir and zanamivir treatment and chemoprophylaxis regimens recommended for pregnant women are the same as those recommended for adults who have seasonal influenza. Recommendations for use of antivirals for pregnant women might change as additional data on the benefits and risks of antiviral therapy in pregnant women become available (<http://www.cdc.gov/swineflu/recommendations.htm>).

Several studies have shown that fever during pregnancy is associated with an increased risk of birth defects and other adverse outcomes. For this reason, fever in pregnant women should be treated. Acetaminophen appears to be the best option for treatment of fever during pregnancy.

Other ways to reduce risk for pregnant women

The risk for swine influenza A (H1N1) might be reduced by taking steps to reduce the chance of being exposed to respiratory infections. There is no vaccine available yet to prevent swine influenza A (H1N1). These actions include frequent handwashing, covering coughs, and having ill persons stay home, except to seek medical care, and minimize contact with others in the household who may be ill with swine flu. Additional measures that can limit transmission of a new influenza strain include voluntary home quarantine of members of households with confirmed or probable swine influenza cases, reduction of unnecessary social contacts, and avoidance whenever possible of crowded settings. If used correctly, facemasks and respirators may help reduce the risk of getting influenza, but they should be used along with other preventive measures, such as avoiding close contact and maintaining good hand hygiene. A respirator that fits snugly on the face can filter out small particles that can be inhaled around the edges of a facemask, but compared with a facemask it is harder to breathe through a respirator for long periods of time.

Breastfeeding considerations

Women who are breastfeeding can continue while receiving antivirals. However, women who are ill with swine influenza A (H1N1) should take steps to reduce the risk to their infants, such as frequent hand washing and possibly wearing a mask (see below). The risk for swine influenza transmission through breast milk is unknown. However, reports of viremia with seasonal influenza infection are rare. Consideration may be given to separating the infant during the mother's illness, if possible, to be cared for by someone who is well and is meticulous with infection control measures.

Efforts to identify the risk for pregnant women from swine influenza A (H1N1) during 2009 are underway. Enhanced surveillance for hospitalized patients with swine influenza A (H1N1) has been initiated. Additional information about swine influenza is available at <http://www.cdc.gov/swineflu/> or www.dshs.state.tx.us.

Case Definitions for Infection with Swine Influenza A (H1N1) Virus

A **confirmed case** of swine influenza A (H1N1) virus infection is defined as a person with an acute febrile respiratory illness with laboratory confirmed swine influenza A (H1N1) virus infection at CDC by one or more of the following tests:

1. real-time RT-PCR
2. viral culture

A **probable case** of swine influenza A (H1N1) virus infection is defined as a person with an acute febrile respiratory illness who is:

- positive for influenza A, but negative for H1 and H3 by influenza RT-PCR, or
- positive for influenza A by an influenza rapid test or an influenza immunofluorescence assay (IFA) plus meets criteria for a suspected case

A **suspected case** of swine influenza A (H1N1) virus infection is defined as a person with acute febrile respiratory illness with onset

- within 7 days of close contact with a person who is a confirmed case of swine influenza A (H1N1) virus infection, or
- within 7 days of travel to community either within the United States or internationally where there are one or more confirmed swine influenza A(H1N1) cases, or
- resides in a community where there are one or more confirmed swine influenza cases.

Infectious period for a confirmed case of swine influenza A (H1N1) virus infection is defined as 1 day prior to the case's illness onset to 7 days after onset.

Close contact is defined as: within about 6 feet of an ill person who is a confirmed or suspected case of swine influenza A (H1N1) virus infection during the case's infectious period.

Acute respiratory illness is defined as recent onset of at least two of the following: rhinorrhea or nasal congestion, sore throat, cough (with or without fever or feverishness)

High-risk groups: A person who is at high-risk for complications of swine influenza A (H1N1) virus infection is defined as the same for seasonal influenza (see [MMWR: Prevention and Control of Influenza: Recommendations of the Advisory Committee on Immunization Practices \(ACIP\), 2008](#)).

Source:

[Interim Guidance on Antiviral Recommendations for Patients with Confirmed or Suspected Swine Influenza A \(H1N1\) Virus Infection and Close Contacts](#) Apr 28, 2009, 05:00 AM ET

CDC Interim Guidance located at: <http://www.cdc.gov/swineflu/recommendations.htm>

Draft Interim Guidance: Pregnant Women and Swine Influenza: Considerations for Clinicians; CDC April 28, 2009