HEALTH SERVICES AGENCY

STANISLAUS COUNTY STANDING STRONG

# *H1N1 and Pregnancy*

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Dear Colleague,

H1N1 is affecting a disproportionate number of women of childbearing age. Severe illnesses among pregnant women and infants have been reported in this outbreak. This mirrors what has occurred in past pandemic influenza outbreaks.

It is of utmost importance that all pregnant women receive the following messages:

1. Pregnant women need to take any illness seriously
2. They need to call their provider if:
    a. They have a fever or any respiratory symptoms
    b. If they have been exposed, or think they have been exposed, to pandemic H1N1
3. Receive both seasonal and pandemic H1N1 flu vaccine when available
4. Practice risk reduction activities[3] (Frequent hand washing, minimizing contact with sick individuals, having ill persons cover coughs, avoiding, whenever possible, crowded settings in communities having outbreaks of novel influenza A (H1N1) virus, having ill persons stay home (except to seek medical care), and using facemasks and respirators correctly if they are used.[1])

In the obstetric setting, the goal is to minimize exposure to healthy pregnant women. Screen and isolate an ill pregnant woman in a separate room when she comes in for obstetric care. Women who have symptoms of influenza-like-illness (defined as any patient with a fever (>37.8°C or 100°F) and new onset of cough or any patient whom a health care provider believes, based on the patient's history and illness, to have a high likelihood of being infected with pandemic (H1N1) 2009 influenza virus[4]) should be treated as if they had influenza.[2]

**Healthy Pregnant Women & Infants** who have not been in close contact with persons with suspected, probable, or confirmed pandemic H1N1 can be managed in a normal way using universal precautions.[2]

**Pregnant Women Exposed to H1N1:** Post exposure antiviral chemoprophylaxis can be considered for pregnant women who are close contacts of persons with suspected or laboratory confirmed novel influenza A (H1N1) virus infection. If chemoprophylaxis medications are being taken, exposed pregnant women can be managed in the usual way in compliance with established

infection control guidance.[2]

**Pregnant Women with Confirmed, Probable, or Suspected H1N1**: Women who have symptoms of influenza-like-illness should be treated as if they had influenza. Initiate appropriate antiviral treatment as soon as possible (within 48 hours of symptoms if possible). In general, guidance for control of novel H1N1 flu infection in obstetric settings is consistent with that in other healthcare settings but also includes special considerations for prevention of infection in the newborn.[2]

**Pregnant Woman in Labor & Delivery**:
Initiate appropriate antiviral treatment as soon as possible if not already done. Isolate the ill mother from healthy pregnant women, and place a surgical mask on the ill mother during labor & delivery, if tolerable, to decrease exposure to the newborn, healthcare personnel, and other labor and delivery patients.

Place the ill mother in isolation after delivery. The mother who has influenza-like-illness at delivery should consider avoiding close contact with her infant until the following conditions have been met: she has received antiviral medications for 48 hours, her fever has fully resolved, and she can control coughs and secretions. Meeting these conditions may reduce, but not eliminate, the risk of transmitting influenza to the baby.

Before these conditions are met, the newborn should be cared for in a separate room by another person who is well, and the mother should be encouraged and assisted to express her milk. Breast milk is not thought to be a potential source of influenza virus infections.

As soon as all conditions are met, the mother should be encouraged to wear a facemask, change to a clean gown or clothing, adhere to strict hand hygiene and cough etiquette when in contact with her infant, and begin breastfeeding (or if not able to breastfeed, bottle feeding).

She should continue these protective measures, both in the hospital setting and at home, for at least 7 days after the onset of influenza symptoms. If symptoms last more than 7 days, she should discuss the symptoms with her doctor. Protective measures might need to be continued until she is symptom-free for 24 hours. People who are once again well 7 days after getting sick are thought to be at low risk for transmitting the virus to others.[2]

**Treatment:**
Early treatment with influenza antiviral medications is recommended for pregnant women with suspected influenza illness. Clinicians should not wait for test results to initiate treatment since these medications work best if started as early as possible after illness onset. Oseltamivir and zanamivir treatment and chemoprophylaxis regimens recommended for pregnant women are the same as those recommended for adults who have seasonal influenza. Pregnancy should not be considered a contraindication to oseltamivir or zanamivir use. Pregnant women appear to be at higher risk for severe complications from novel influenza A (H1N1) virus infection, and the benefits of treatment or chemoprophylaxis with oseltamivir or zanamivir outweigh the theoretical risks of antiviral use.

Although a few adverse effects have been reported in pregnant women who took these medications, no relation between the use of these medications and those adverse events has been established.[1]

Treatment Recommendations

Pregnant women with influenza-like illnesses should receive empiric antiviral treatment. Because of its systemic activity, the drug of choice for treatment of pregnant women is oseltamivir. Recommended duration of treatment is five- days.[1]

Chemoprophylaxis Recommendations

Post exposure antiviral chemoprophylaxis can be considered for pregnant women who are close contacts of persons with suspected or laboratory confirmed novel influenza A (H1N1) virus infection. The drug of choice for prophylaxis is probably zanamivir because of its limited systemic absorption. However, respiratory complications that may be associated with zanamivir because of its inhaled route of administration need to be considered, especially in women at risk for respiratory problems. For these women, oseltamivir is a reasonable alternative. Recommended duration of chemoprophylaxis is for 10 days after the last known exposure to novel influenza A (H1N1). In situations where multiple exposures are likely to occur, such as within families, the total length of chemoprophylaxis for a pregnant woman may depend on clinical considerations. Close monitoring for influenza like illness in exposed pregnant women is recommended.[1]

Fever Treatment

One of the more well-studied adverse effects of influenza is its associated hyperthermia. Studies have shown that maternal hyperthermia during the first trimester doubles the risk of neural tube defects and may be associated with other birth defects and adverse outcomes. Limited data suggest that the risk for birth defects associated with fever might be mitigated by antipyretic medications and/or multivitamins that contain folic acid. Maternal fever during labor has been shown to be a risk factor for adverse neonatal and developmental outcomes, including neonatal seizures, encephalopathy, cerebral palsy, and neonatal death. Even though distinguishing the effects of the cause of fever from the hyperthermia itself is difficult, fever in pregnant women should be treated because of the risk that hyperthermia appears to pose to the fetus. Acetaminophen appears to be the best option for treatment of fever during pregnancy.[1]

**Newborns:** Because the risk for transmission of novel H1N1 flu from mother to fetus is unknown, consider the newborn to be potentially infected if the delivery occurs during the 2 days before through 7 days after illness onset in the mother. With these newborns follow H1N1 infection control procedures and monitor the infant for signs & symptoms of flu. If signs or symptoms develop, testing should be performed, infection control measures should be continued, and treatment with anti-influenza medications should be considered. Oseltamivir is approved for prevention of influenza in patients 1 year of age and older; however, an emergency use authorization (EUA) has been issued for oseltamivir for influenza treatment and prevention in patients less than 1 year of age.

Chemoprophylaxis of infants less than 3 months of age is not typically recommended, as there are very limited data available on the safety and effectiveness of chemoprophylaxis for infants less than 3

months. However, in situations which are judged to be critical, chemoprophylaxis with oseltamivir can be considered.[2]

**Infant Feeding:**

Infants who are not breastfeeding are more vulnerable to infection and hospitalization for severe respiratory illness than infants who are breastfeeding. Women who are not ill with influenza should be encouraged to initiate breastfeeding early and feed frequently. Ideally, babies should receive most of their nutrition from breast milk. Eliminate unnecessary formula supplementation, so the infant can receive as much maternal antibodies as possible.

Infants are thought to be at higher risk for severe illness from novel influenza A (H1N1) infection and very little is known about prevention of novel H1N1 flu infection in infants. If possible, only adults who are not sick should care for infants, including providing feedings. The risk for novel influenza A (H1N1) transmission through breast milk is unknown. However, reports of viremia with seasonal influenza infection are rare, which suggests that the risk of virus crossing into breast milk is also probably rare. Sick women who are able to express their milk for bottle feedings by a healthy family member should be encouraged to do so. Antiviral medication treatment or prophylaxis is not a contraindication for breastfeeding.

Careful adherence to hand hygiene and cough etiquette is critical, especially for sick women who do not have anyone to help with infant care while they are ill. Women with influenza-like illness are recommended to use facemasks when providing infant care and feedings.

Instruct parent and caretakers on how to protect their infant from the spread of germs, like novel influenza A (H1N1) virus, that cause respiratory illnesses:

- Practice hand hygiene and cough etiquette at all times.
- Keep the infant away from persons who are ill and out of crowded areas.
- Limit sharing of toys and other items that have been in infants' mouths. Wash thoroughly with soap and water any items that have been in infants' mouths. [1]

Reference:

1. CDC. June 30, 2009. Pregnant women and novel influenza A (H1N1) Virus: Considerations for clinicians. *http://www.cdc.gov/h1n1flu/clinician_pregnant.htm*

2. CDC. July 6, 2009. Considerations regarding novel H1N1 flu virus in obstetric settings. *http://www.cdc.gov/h1n1flu/guidance/obstetric.htm/?breaknews*

3. CDC. May 3, 2009. What Pregnant Women Should Know About H1N1 (formerly called swine flu) Virus. *http://www.cdc.gov/h1n1flu/guidance/pregnant.htm*

4. CDPH. Pandemic (H1N1) 2009 Influenza Updated Recommendations for Health Care Settings, August 20, 2009. *http://www.cdph.ca.gov/HealthInfo/discond/Documents/H1N1UpdatedRecforHealthCareSettings.pdf*