A Summary of H1N1 Influenza Guidelines for Infants and Pregnant and Breastfeeding Women

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In order to prepare for a possible pandemic of H1N1 influenza, clinicians are concerned about the prevention and treatment of this virus in pregnant and breastfeeding women. Recent guidelines encompass vaccinations, chemoprophylaxis (prophylactic treatment following exposure), and treatment for infants and pregnant and breastfeeding women. This article briefly summarizes the recent public health advisories from the U.S. Centers for Disease Control and Prevention (CDC), and an Emergency Use Authorization from the CDC to the Food and Drug Administration.

Vaccinations

In an advisory dated September 24, 2009, the Centers for Disease Control and Prevention advised that pregnant women and people who live with or care for infants the under the age of 6 months receive both a regular flu vaccination and an H1N1 vaccination as soon as it becomes available. The general flu vaccination will not protect against H1N1. The recommendation for pregnant women is based on a higher H1N1 mortality rate among pregnant women than in the general public (6% vs. 1%).

Of the two types of flu vaccines, pregnant women should get the "flu shot" rather than the nasal-spray flu vaccine (FluMist), which contains live attenuated influenza vaccine. FluMist is not approved for use in pregnant women. Because of concerns about thimerosal, manufacturers will produce a preservative-free seasonal and H1N1 vaccines in single-dose syringes for pregnant women and young children.

Antiviral Chemoprophylaxis

For people who have been exposed to the H1N1 virus, post-exposure antiviral chemoprophylaxis can be considered. This involves treating people with either oseltamivir (Tamiflu) or zanamivir (Relenza) as a preventative measure. Chemoprophylaxis is not recommended as routine for healthy children or adults based on potential exposures. However, people at higher risk for complications can be considered, as can health care or public health workers or first responders. Chemoprophylaxis is not recommended if more than 48 hours have elapsed since exposure or if contact occurred before or after, but not during, the ill person's infectious period.

An alternative to chemoprophylaxis is early treatment (see below). Persons who have been exposed can be educated about the early signs of H1N1 influenza and be urged to contact their health care providers if any of these symptoms appear. The guidelines also urge health care providers to use their clinical judgment as to whether chemoprophylaxis or early treatment would be the preferred course. People who have potential exposures should also continue to follow the recommendations for hand and respiratory hygiene to prevent the spread of antiviral-resistant viruses.

Early Empiric Treatment

The CDC has also recommended early empiric treatment for persons with suspected or confirmed influenza who are designated as being at high risk for complications. Pregnant women and children under the age of two have been identified as two of the high-risk groups. The CDC recommended that treatment should not wait for laboratory confirmation of influenza because laboratory testing can delay treatment and a negative test does not rule out influenza. The rationale for this treatment strategy is that the rates of hospitalization are substantially higher for pregnant women and young children. For example, the rates of hospitalization are 2.5 times higher for children under age 2 than they are for 2 to 4 year olds.

As of September 12, 2009, the 2009 H1N1 viruses are susceptible to oseltamivir and zanamivir. These viruses are resistant to amantadine and rimantadine. These medication recommendations may change according to new antiviral resistance or as viral surveillance information becomes available. Patients are still potentially infectious to others for up to four days after beginning treatment. This is especially true for younger children and persons who are immune compromised. The dosing recommendations for adults are listed on Table 1.

Treatment and Chemoprophylaxis for Children Younger than 1 year of Age

Since children under the age of 1 have substantially higher rates of flu-related complications and hospitalizations, the CDC has issued an Emergency Use Authorization (EUA) to the Food and Drug Administration for use of oseltamivir in children younger than one year of age. This EUA addresses both treatment and prophylaxis of H1N1 in pediatric patients. Some preclinical animal studies have raised possible concerns about using this medication in infants and young children. However, the possibility of an influenza pandemic lead to a different risk/benefit conclusion.

The CDC notes that health care providers should be aware of the lack of data on safety and dosing in a seriously ill young infant when using oseltamivir for a confirmed case of H1N1 or following exposure to a confirmed H1N1 case. They urge monitoring infants for possible adverse effects.

The dosing schedule for patients less than one year of age is once daily vs. twice daily for older infants (see Table 2). Because there are no pharmacokinetic data to guide dosing in infants less than 3 months, the Centers for Disease Control does not recommend routine prophylaxis in this age group. Tamiflu should only be used when exposure is significant and risk of severe illness is considered high. The CDC considers oseltamivir the only option for infants younger than 1 year of age.

Breastfeeding Women

Oddly, breastfeeding women are not mentioned in any of these health advisories. However, there are no contraindications to breastfeeding women receiving either flu shots or H1N1 vaccinations. FluMist has not been approved for breastfeeding mothers. Mothers may prefer the thimerosal-free vaccinations. The guidelines recommend that anyone caring for a young infant be vaccinated. Also, precautions regarding hand washing and respiratory hygiene should be followed. And breastfeeding itself will be an important source of protection for infants.

References

Centers for Disease Control and Prevention (2009, September 22). *Updated interim recommendations for the use of antiviral medications in the treatment and prevention of influenza for the 2009-2010 season.* www.CDC.gov/h1n1/antiviral.htm).

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Centers for Disease Control and Prevention (2009). *Emergency Use Authorization (EUA) Review: Oseltamivir Phosphate for Swine Influenza A.* www.cdc.gov/h1n1

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Further updates will be posted on www.BreastfeedingMadeSimple.com

Table 1

Antiviral medication adult dosing recommendations for treatment or chemoprophylaxis of 2009 H1N1 infection

Medication	Treatment (5 days)	Chemoprophylaxis (10 days)
Oseltamivir		
	75-mg capsule twice per day	75-mg capsule once per day
Zanamivir		
	10 mg (two 5-mg inhalations) twice daily	10 mg (two 5-mg inhalations) once daily

Source: Centers for Disease Control and Prevention, *Updated interim recommendations for use of antiviral medications in the treatment and prevention of influenza for the 2009-2010 season*. (September 22, 2009) www.cdc.gov

Table 2

Dosing recommendations for antiviral treatment or chemoprophylaxis of children younger than 1 year using oseltamivir

Age	Recommended treatment dose for 5 days	Recommended prophylaxis dose for 10 days
Younger than 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

Source: Centers for Disease Control and Prevention, *Updated interim recommendations for use of antiviral medications in the treatment and prevention of influenza for the 2009-2010 season*. (September 22, 2009) www.cdc.gov