Philadelphia Department of Public Health
Division of Disease Control

DONALD F. SCHWARZ, MD, MPH
Deputy Mayor, Health & Opportunity
Health Commissioner

NAN FEYLER, JD, MPH
Chief of Staff

CAROLINE C. JOHNSON, MD
Director, Division of Disease Control

Health Advisory

Updated Recommendations for the Use of Antiviral Medications for Treatment and Chemoprophylaxis for the 2009-2010 Influenza Season
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The Philadelphia Department of Public Health (PDPH) is providing this update to medical providers in accordance with recently issued guidance from the Centers for Disease Control and Prevention (CDC) http://www.cdc.gov/h1n1flu/recommendations.htm. As of October 3rd 2009 CDC reports that 99% of circulating influenza viruses in the United States are 2009 H1N1 viruses. These H1N1 strains are susceptible to oseltamivir and zanamivir but resistant to amantidine and rimantidine, however recommended antiviral treatment regimens might change according to new viral surveillance and antiviral sensitivity data.

In general, most healthy persons with confirmed or suspected 2009 H1N1 or seasonal influenza who present with an uncomplicated febrile illness do not require antiviral treatment. However, when antiviral medications are used, therapeutic benefit is maximized if initiated as soon as possible (optimally within 48 hours of symptom onset).

Treatment Considerations

The decision to treat empirically with antiviral medications for suspect 2009 H1N1 influenza and seasonal influenza should be based on clinical judgment, patient risk factors and severity of disease, and should not wait for definitive diagnostic test results. Treatment is still indicated for patients who meet criteria and have a negative rapid influenza diagnostic test (sensitivity of rapid tests in detecting 2009 H1N1 ranges from 10% to 70%, for more information see: http://www.cdc.gov/h1n1flu/guidance/rapid_testing.htm).

Treatment is recommended for the following people with confirmed or suspected influenza:

- Patients with severe illness and all hospitalized patients
- Patients with symptoms of lower respiratory tract or with clinical deterioration – consider antibiotic treatment if co-infection is suspected

Treatment should be considered for the following people with confirmed or suspected influenza:

- Pregnant women and women up to 2 weeks postpartum (including following pregnancy loss)
- Children younger than 2 years of age
- Adults 65 years of age and older
- Patients younger than 19 years of age who are receiving long-term aspirin therapy
- Persons of any age with certain chronic medical or immunosuppressive conditions including:
  - Chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, hematological (including sickle cell disease), or metabolic disorders (including diabetes mellitus)
  - Disorders that that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration (e.g., cognitive dysfunction, spinal cord injuries, seizure disorders, or other neuromuscular disorders)
  - Immunosuppression, including that caused by medications or by HIV

Antiviral Chemoprophylaxis

Antiviral chemoprophylaxis may be indicated to prevent illness for individuals with close contact to a person with influenza illness and who have a high-risk condition. Close contact is defined as having cared for or lived with a person who is a confirmed, probable, or suspected case of influenza, or having been in a setting where there was a high likelihood of contact with respiratory droplets and/or body fluids of such a person. Examples of close contact include sharing eating or drinking utensils, physical examination, or any other contact between persons likely to result in exposure to respiratory droplets. For these recommendations, 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.
- Healthcare personnel, public health workers, or first responders 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 based on potential exposures in the community, school, camp or other settings.
    - 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, but not during, the ill person's infectious period as defined above.

Early recognition of illness and treatment as an alternative to chemoprophylaxis:

- Healthcare providers should use clinical judgment regarding situations where early recognition of illness and treatment might be an appropriate alternative to chemoprophylaxis. Early recognition of illness and treatment when indicated is preferred to chemoprophylaxis for healthy vaccinated persons, including healthcare workers, after a suspected exposure.
- Antiviral prophylaxis will not prevent illness from developing among some contacts, therefore clinicians are advised to counsel all patients and close contacts on the importance of hand and respiratory hygeine practices.

Special Circumstances

History of H1N1 or seasonal influenza vaccine:

- Patients who present with ILI and who have a history of vaccination with the 2009 H1N1 monovalent inactivated vaccine or live attenuated vaccine may still warrant consideration for treatment with antiviral medications. It is expected by CDC that not all vaccinated individuals will acquire adequate immunity and therefore antiviral treatment may be considered based on the criteria listed above.

Outbreak management in a high-risk setting:

- Use of antiviral drugs for treatment and chemoprophylaxis of influenza has been a cornerstone for the control of seasonal influenza outbreaks in nursing homes and other

long-term care facilities that house large numbers of patients at higher risk for influenza complications.

- If outbreaks from 2009 H1N1 influenza occur, it is recommended that ill patients be treated with oseltamivir or zanamivir and that chemoprophylaxis with either oseltamivir or zanamivir be started as early as possible to reduce the spread of the virus.

Treatment and prophylaxis for children younger than 1 year of age:

- When evaluating previously healthy children with possible influenza, clinicians should be aware that, similar to seasonal influenza, the risk for developing severe disease is likely to be highest among infants and younger children. The U.S. Food and Drug Administration (FDA) has authorized oseltamivir use for children younger than 1 year old under an Emergency Use Authorization (EUA) in response to the current public health emergency involving 2009 H1N1 influenza virus. The use of oseltamivir is subject to the terms and conditions of the EUA. The EUA is available at: http://www.cdc.gov/h1n1flu/eua/tamiflu.htm.

Table 1.Antiviral medication dosing recommendations for treatment or chemoprophylaxis of 2009 H1N1 infection. (Table extracted from product information for Tamiflu® and Relenza® available at: http://cdc.gov/h1n1flu/recommendations.htm)

Medication		Treatment (5 days)	Chemoprophylaxis (10 days)
Oseltamivir			
Adults			
		75-mg capsule twice per day	75-mg capsule once per day
Children ≥ 12 months			
Body Weight (kg)	Body Weight (lbs)		
≤15 kg	≤33lbs	30 mg twice daily	30 mg once per day
> 15 kg to 23 kg	>33 lbs to 51 lbs	45 mg twice daily	45 mg once per day
>23 kg to 40 kg	>51 lbs to 88 lbs	60 mg twice daily	60 mg once per day
>40 kg	>88 lbs	75 mg twice daily	75 mg once per day
Zanamivir			
Adults			
		10 mg (two 5-mg inhalations) twice daily	10 mg (two 5-mg inhalations) once daily
Children (≥7 years or older for treatment, ≥5 years for chemoprophylaxis)			
		10 mg (two 5-mg inhalations) twice daily	10 mg (two 5-mg inhalations) once daily

Information regarding adverse events and contraindications to oseltamivir and zanamivir is available from the CDC at:http://www.cdc.gov/h1n1flu/recommendations.htm. Additional information regarding H1N1 influenza A is available on the PDPH Division of Disease Control's web site for health professionals: https://hip.phila.gov/xv/ and the CDC's 2009 H1N1 Flu website at http://www.cdc.gov/h1n1flu/.