



**North Carolina Department of Health and Human Services  
Division of Public Health • Epidemiology Section**

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Beverly Eaves Perdue, Governor  
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August 21, 2009 (2 pages)

To: All North Carolina Health Care Providers  
From: Megan Davies, MD, State Epidemiologist  
Re: **Health Alert: Oseltamivir-Resistant Pandemic Influenza A (H1N1) Virus**

On August 14 and 19, 2009, CDC identified oseltamivir resistance in pandemic influenza A (H1N1) isolates from two epidemiologically linked patients in North Carolina. Both developed illness in July while receiving oseltamivir (Tamiflu<sup>®</sup>) chemoprophylaxis for presumed exposure to an ill person. Their illnesses were mild and resolved without complications.

To date, there have been only sporadic reports of oseltamivir-resistant pandemic influenza A (H1N1) virus with no evidence of on-going transmission of resistant virus anywhere in the world. As a reminder, pandemic influenza A (H1N1) virus is resistant to the adamantanes, amantidine and rimantidine.

**In light of these events, the North Carolina Division of Public Health reminds clinicians of the following:**

- Antiviral chemoprophylaxis should be used judiciously to decrease opportunities for development of antiviral resistance.
  - Chemoprophylaxis for prevention of illness in healthy children or adults following exposure to ill persons is not indicated.
  - Antiviral chemoprophylaxis may be considered for persons at higher risk from complications due to influenza or for health care workers with an exposure to influenza secondary to inadequate personal protective equipment.
  - Careful observation for symptoms following an exposure combined with early treatment if symptoms develop could be an appropriate alternative to chemoprophylaxis in some settings, and could reduce the potential for oseltamivir resistance.
  - Development of symptoms while receiving prophylaxis does not necessarily indicate antiviral resistance.
- Healthy patients with uncomplicated illness need not be treated with antivirals and such treatment is not recommended by the CDC or WHO.
- Antiviral treatment with either oseltamivir or zanamivir (Relenza<sup>®</sup>) is recommended for all patients with confirmed, probable or suspected cases of pandemic influenza A (H1N1) virus infection who are hospitalized or who are at higher risk for influenza complications.
  - If antiviral treatment is indicated in a patient whose symptoms developed >48 hours after beginning oseltamivir prophylaxis, consider use of zanamivir. (Note: Zanamivir is not licensed for treatment of children <7 years of age and is contraindicated in persons with underlying airway disease.)
- Isolation of ill persons, good hand and respiratory hygiene, and vaccination (when available) should be the cornerstones of strategies to prevent transmission of pandemic influenza A (H1N1) viruses.





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Surveillance for antiviral resistance is ongoing in North Carolina and throughout the United States. Testing for antiviral resistance in clinical settings is not widely available. If infection with oseltamivir-resistant pandemic influenza A (H1N1) virus is suspected, observe treatment and infection control recommendations above. Testing for antiviral resistance might be available in certain situations after consultation with local and state health departments.

Complete CDC recommendations regarding antiviral treatment and chemoprophylaxis are available at [www.cdc.gov/h1n1flu/recommendations.htm](http://www.cdc.gov/h1n1flu/recommendations.htm).

