



---

DEPARTMENT OF PUBLIC HEALTH and SOCIAL SERVICES  
*DIPATTAMENTON SALUT PUPBLEKO YAN SETBISION SUSIAT*  
123 Chalan Kareta, Mangilao, Guam 96913-6304



## CLINICAL ADVISORY

August 18, 2009

### **“Oseltamivir-Resistant Novel Influenza A (H1N1) Virus Infection in Immunosuppressed Patients Receiving Oseltamivir Therapy”**

- On August 14, 2009 a Morbidity and Mortality Weekly Report (MMWR) Dispatch entitled “Oseltamivir-Resistant Novel Influenza A (H1N1) Virus Infection in Immunosuppressed Patients Receiving Oseltamivir Therapy” was published.
- On August 6, 2009 testing at CDC identified resistance to the antiviral drug, oseltamivir (trade name Tamiflu®) from clinical specimens from two patients with novel influenza A (H1N1) virus infection.
- These results were confirmed on August 11, 2009, by testing of viruses isolated from these patients.
- The two cases of oseltamivir resistance in Seattle, Washington occurred in two immunosuppressed patients who were treated with oseltamivir.

Initially, both patients were infected with oseltamivir-susceptible virus, with subsequent development of oseltamivir resistance during treatment.

Both of the oseltamivir-resistant viruses were susceptible to zanamivir (trade name Relenza®).

Antiviral resistance can develop during treatment of immunosuppressed patients, and prolonged viral shedding including shedding of oseltamivir-resistant influenza viruses has been reported.

This report highlights the importance of close monitoring for the development of antiviral drug resistance among immunosuppressed patients receiving treatment for novel influenza A (H1N1) virus infection and of adhering to infection control measures and personal protective equipment (PPE) recommendations until patients test negative for influenza.

The public health risk from these cases appears to be very low. There is no evidence that health care workers or other contacts became infected with an oseltamivir-resistant virus.

At this time, there is no evidence of on-going transmission of oseltamivir-resistant novel influenza A (H1N1) virus in the U.S. or worldwide.

## **Novel Influenza A (H1N1)**

### **Key Points on “Oseltamivir-Resistant Novel Influenza A (H1N1) Virus Infection in Immunosuppressed Patients Receiving Oseltamivir Therapy” and Background Information**

#### **BACKGROUND**

- As of August 14, 2009, 3 instances of oseltamivir resistant novel H1N1 viruses had been confirmed in U.S. residents.
- The first of these viruses was isolated in Hong Kong from a resident of San Francisco who had traveled to Hong Kong in June.
- The second and third confirmed instances of oseltamivir resistance in U.S. residents (reported in the MMWR cited above) were detected in Washington State in two immunosuppressed patients.
- As of August 14, 2009, a total of 11 novel H1N1 influenza viruses resistant to the antiviral drug oseltamivir had been reported worldwide.
- All of the oseltamivir resistant viruses have the same genetic mutation in the neuraminidase gene, known to be associated with resistance to oseltamivir. (H275Y)
- All but 1 of the 11 instances of oseltamivir resistance had occurred in conjunction with oseltamivir exposure (either for treatment or prevention).
- Results from ongoing testing of novel influenza A (H1N1) viruses indicate that oseltamivir resistance remains very rare worldwide.
- Oseltamivir resistant influenza viruses with the H275Y mutation are known to be sensitive (susceptible) to zanamivir.
- There is no evidence of genetic reassortment with seasonal influenza A (H1N1) viruses among the cases of oseltamivir resistant novel influenza A (H1N1) viruses.
- CDC recommends judicious use of antiviral medications to reduce the possibilities of the development and spread of antiviral resistant influenza viruses

Use of zanamivir or oseltamivir should be focused on treatment of persons with suspected or confirmed novel H1N1 influenza who are 1) hospitalized or 2) at higher risk for complications due to influenza, even if hospitalization is not required.

**CDC's Antiviral Recommendations for Patients with Novel Influenza A (H1N1) Virus Infection and Their Close Contacts is available at**

<http://www.cdc.gov/h1n1flu/recommendations.htm>

Furthermore, on July 9, CDC issued a Health Alert Network (HAN) Info Service Message following detection of the first Three Reports of Oseltamivir Resistant Novel Influenza A (H1N1) Viruses globally (available at <http://www.cdc.gov/h1n1flu/HAN/070909.htm>).

- The few people who have been infected with oseltamivir-resistant viruses have had illness similar to that caused by oseltamivir-sensitive viruses. Illness has not been more severe, and oseltamivir-resistant viruses have not been identified

**Key Points on “Oseltamivir-Resistant Novel Influenza A (H1N1) Virus Infection Novel Influenza A (H1N1) in Immunosuppressed Patients Receiving Oseltamivir**

- Highest priority should be placed on treating patients hospitalized with influenza or those who are ill with influenza who have an age or medical factor placing them at higher risk for more severe illness or influenza-related complications, including young children, pregnant women and people with certain chronic medical conditions.
- See Interim Guidance on Antiviral Recommendations for Patients with Novel Influenza A (H1N1) Virus Infection and Their Close Contacts for more information.
- Most persons with novel H1N1 influenza have had self-limited illness lasting several days and have recovered without need for antiviral treatment. Treatment is most beneficial for patients hospitalized with influenza or those who are ill with influenza who have an age or medical factor placing them at higher risk for more severe illness or influenza-related complications.
- Antiviral drugs should be taken as prescribed by a health care provider (Do not change the dose, frequency or length of time taken from what your health care provider directs.)
- Use of antiviral drugs to prevent illness (chemoprophylaxis) is usually reserved for certain specific situations. Widespread use of antiviral medications for chemoprophylaxis is not encouraged as inappropriate use of antiviral drugs might be a factor in causing more viruses to become resistant.