



State of Louisiana

Department of Health and Hospitals
Center for Community & Preventive Health

Louisiana Health Alert to Clinicians

Small Numbers of 2009 H1N1 Flu Viruses Resistant to Oseltamivir (Tamiflu) Detected in Louisiana

January 22, 2014

Summary:

Louisiana Department of Health and Hospitals routinely submits viruses to a national surveillance system that monitors for resistance to antiviral drugs in circulating influenza viruses. Testing of influenza viruses for resistance to neuraminidase inhibitors (oseltamivir and zanamivir) is performed at Center for Disease Control and Protection (CDC) and at some public health laboratories. A small number of oseltamivir-resistant 2009 H1N1 viruses have been detected in Louisiana this year. Among 144 2009 H1N1 viruses from Louisiana tested to date, 9 (6%) were resistant to oseltamivir (trade name Tamiflu®). All of the viruses were sensitive to zanamivir (trade name Relenza®). All circulating influenza viruses (including (2009 H1N1) are resistant to adamantanes (amantadine and rimantadine). At this time, oseltamivir and zanamivir are still recommended for use in Louisiana. However, clinicians should be aware that a small number of oseltamivir-resistant viruses have been detected in Louisiana and infection with an oseltamivir-resistant virus should be considered in patients with severe or progressive illness who are not responding to treatment.

Key Points:

- Oseltamivir resistance was detected in 9 (6%) of 144 2009 H1N1 viruses submitted by Louisiana to national surveillance. All resistant viruses had a genetic change associated with oseltamivir resistance – a substitution of histidine for tyrosine at position 275 (H275Y). All 2009 H1N1 viruses are susceptible to zanamivir.
- Oseltamivir resistance can occur during treatment. Two of the patients infected with the oseltamivir-resistant 2009 H1N1 virus received oseltamivir prior to collection of the specimen with the resistant virus; a specimen from before treatment was not available for testing. Six of the patients did not receive oseltamivir before the specimen was collected for testing, suggesting that these viruses were circulating in the community. Information on oseltamivir use is pending for one patient.
- Among the 9 patients infected with oseltamivir-resistant viruses, two viruses were collected from hospitalized patients and the others from patients seen in outpatient clinics. Both hospitalized patients had chronic underlying medical conditions that put them at higher risk for complications from influenza. Of 6 patients for whom vaccination information is available, 1 had received influenza vaccine. As of now, we are not aware of any epidemiologic links between patients.

- In conjunction with the CDC, the Louisiana Department of Health and Hospitals has been working closely to monitor this situation. Enhanced surveillance to monitor for antiviral resistance is ongoing across the state.

Recommendations for Clinicians:

- Influenza vaccines are the first and most important step in preventing the flu, and are expected to be effective in preventing infection with 2009 H1N1 viruses, including oseltamivir-resistant 2009 H1N1 viruses. Clinicians should encourage all patients 6 months of age and older who have not yet received an influenza vaccine this season to be vaccinated against influenza.
- Oseltamivir and zanamivir are recommended for treatment of influenza. Antiviral treatment with oseltamivir or zanamivir is recommended as early as possible for patients with confirmed or suspected influenza who have severe or progressive illness, who require hospitalization, or who are at high risk for influenza-related complications, regardless of illness severity. Guidance for antiviral use is available at www.cdc.gov/flu/professionals/antivirals/index.htm.
- Clinicians in Louisiana should be aware of the small number of oseltamivir-resistant 2009 H1N1 viruses detected in Louisiana this season. Infection with an oseltamivir-resistant virus should be considered in patients with severe or progressive illness who are not responding to treatment, in addition to clinical judgment. **For severely ill patients with oseltamivir-resistant 2009 H1N1 virus infection, CDC recommends that investigational use of intravenous (IV) zanamivir may be considered.**
- IV zanamivir is an investigational product available only by enrollment in a clinical trial, or under an emergency investigational new drug (EIND) request to the manufacturer for use in hospitalized adult and pediatric patients with severe influenza. Inquiries regarding IV zanamivir should be made to the GSK Clinical Support Help Desk via email (gskclinicalsupportHD@gsk.com) or by calling 1-877-626-8019 or 1-866-341-9160.
- Tests for the molecular marker H275Y, associated with oseltamivir resistance in 2009 H1N1 viruses, is available from some commercial, academic, and public health laboratories, including CDC. Testing must be performed on influenza A viruses that have been subtyped as 2009 H1N1 (e.g., A(H1N1)pdm09 viruses).
- Inhaled zanamivir is an option for treatment of outpatients who are older than 6 years of age and who do not have chronic pulmonary disease. Inhaled zanamivir has not been evaluated in hospitalized patients.

If you have questions please email or call the Influenza/Viral Respiratory Disease Coordinator, Julie Hand at julie.hand@la.gov, 504-568-8298 (office); 504-615-5993 (cell); 1-800-256-2748 (24 hr Infectious Disease Epi on call phone)

For media inquiries please contact the Louisiana Department of Health and Hospitals Bureau of Media and Communications at 225-342-1532.