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January 21, 2010 (**4 pages**) – replaces version released October 27, 2009.

To: All North Carolina Health Care Providers
From: Megan Davies, MD, State Epidemiologist
Re: **2009 Pandemic H1N1 Influenza Virus Infection in North Carolina: Update for NC Clinicians**

New in this version:

- ***Updated antiviral use guidance.***
- ***Link to infection control guidance from the Occupational Safety and Health Administration (OSHA).***
- ***Expanded recommendations for H1N1 vaccination.***

Since it was first identified in April of 2009, the 2009 pandemic H1N1 influenza virus has spread quickly around the globe. Virologic surveillance in North Carolina indicates that the 2009 pandemic H1N1 strain has been the predominant circulating strain of influenza.

This memo provides guidance to NC clinicians and information regarding flu surveillance activities in North Carolina. This guidance might change as the pandemic progresses; updated information is available at www.flu.nc.gov.

CLINICAL MANAGEMENT

- **Decisions regarding treatment should be based on clinical and epidemiologic information, rather than on test results.** Updated epidemiologic data are available at www.flu.nc.gov and at www.cdc.gov/h1n1flu. Since influenza vaccines are not 100% effective, treatment recommendations are the same for vaccinated and unvaccinated patients
- **Rapid tests cannot rule out 2009 pandemic H1N1 influenza.** The sensitivity of these tests has ranged from 10% to 70%. If clinically indicated, treatment should **not** be delayed while awaiting laboratory confirmation
- Not all patients with suspected 2009 pandemic H1N1 influenza infection need to be seen by a health care provider. Patients who report febrile respiratory illness but do not require medical care and are not at high risk for complications of influenza should be instructed to stay at home in order to decrease opportunities for transmission. Patients should seek emergency medical attention for any of the following:
 - Difficulty breathing or shortness of breath
 - Pain or pressure in the chest or abdomen
 - Sudden dizziness
 - Confusion
 - Severe or persistent vomiting
 - Flu symptoms that improve but then return with fever and worse cough
 - In babies, bluish gray skin color, lack of responsiveness, or extreme irritation.
- Clinical judgment is an important factor in treatment decisions. Persons with suspected 2009 pandemic H1N1 influenza infection who present with an uncomplicated febrile illness typically do not require



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antiviral treatment unless they are at high risk for influenza complications. Treatment is recommended for individuals with suspected or confirmed influenza who have any of the following:

- Illness requiring hospitalization,
 - Progressive, severe, or complicated illness, regardless of previous health status, or
 - Increased risk for severe disease (e.g. persons with certain chronic medical conditions, persons 65 or older, children younger than 2 years, and pregnant women).
- If antiviral treatment is prescribed, a neuraminidase inhibitor (oseltamivir or zanamivir) should be used. Oseltamivir resistance has been identified only rarely among 2009 pandemic H1N1 influenza viruses so far. If oseltamivir-resistant influenza viruses become prevalent (as during the 2008–2009 flu season), treatment with either zanamivir or a combination of oseltamivir plus rimantidine or amantadine might be necessary. Information regarding currently circulating flu strains is available at www.flu.nc.gov. Detailed antiviral use guidance- including testing and treatment for suspected oseltamivir-resistant influenza- is available at www.cdc.gov/h1n1flu/clinicians.
 - Treatment is most effective when started within 48 hours of illness onset. However, treatment of persons with prolonged or severe illness can reduce mortality and duration of hospitalization even when started more than 48 hours after onset of illness.
 - A **CDC 24/7 clinician support line (404-368-2133)** is available to provide clinical consultation with a board-certified OB/GYN regarding severe influenza infections during pregnancy.

TESTING

- Confirmatory 2009 pandemic H1N1 influenza testing at the North Carolina State Laboratory of Public Health (SLPH) is primarily intended for virologic surveillance, rather than diagnostic purposes. This testing will focus on the following groups:
 1. Patients who are admitted to the intensive care unit with fever and respiratory signs or symptoms (see testing and treatment algorithm for clinicians, available at www.flu.nc.gov).
 2. A sample of patients with influenza-like illness seen at facilities participating in the Sentinel Provider Network.
 3. Patients who die with influenza-like illness but have no laboratory evidence of influenza infection.
- Testing at SLPH can also be considered for other patients if the local health department determines that such testing is necessary for surveillance or to determine which control measures are needed. **Local Health Department approval is REQUIRED for testing at the State Laboratory of Public Health**, with the exception of specimens submitted from Sentinel Providers and hospital ICUs. If testing is desired in other circumstances, it can be requested from commercial or hospital-based laboratories.
- If testing is indicated, the following should be collected as soon as possible after illness onset: nasopharyngeal swab/aspirate or nasal wash/aspirate. If these specimens cannot be collected, a combined nasal swab with an oropharyngeal swab is acceptable. For patients who are intubated, an endotracheal aspirate should also be collected. Specimens should be placed into sterile viral transport media and immediately placed on ice or cold packs or at 4°C (refrigerator) for transport to the laboratory. Specimens should not be frozen. Specific guidance regarding specimen collection and transport is available at www.flu.nc.gov.
- **A negative rapid test result does not rule out infection.** Additional information regarding rapid flu tests is available at www.cdc.gov/h1n1flu/guidance/rapid_testing.htm

INFECTION CONTROL



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- Facilities should use a hierarchy of controls approach to prevent exposure of healthcare personnel and patients and prevent influenza transmission within healthcare settings. Given the difficulty of distinguishing 2009 pandemic H1N1 influenza from other causes of respiratory illness, consistent infection control measures should be applied for ALL patients who present with acute febrile respiratory illness.
- Outpatient medical providers who are referring suspected or confirmed cases of 2009 pandemic H1N1 influenza to emergency departments or other medical facilities should call ahead to alert the facility that the patient is arriving, and have the patient wear a surgical mask when entering the hospital. The patient should also be instructed to notify the receptionist or triage nurse immediately upon arrival that he or she has respiratory symptoms.
- Additional infection control guidance is available at www.cdc.gov/h1n1flu/guidelines_infection_control.htm and through the Occupational Safety and Health Administration (OSHA) at <http://www.osha.gov/dsg/topics/pandemicflu/>. **Note:** Previous NC DPH guidance for infection control in healthcare settings was withdrawn on October 16, 2009.

CONTROL MEASURES

- Vaccination with seasonal and 2009 pandemic H1N1 influenza vaccines is the best way to prevent infection, and is recommended for anyone who wishes to protect themselves from influenza.
- All patients with confirmed or suspected 2009 pandemic H1N1 influenza infection should be instructed to stay at home for at least 24 hours after resolution of fever (100°F [37.8°C]) *without* the use of a fever-reducing medication. Patients should be given guidance on **Home Respiratory Isolation**, available at www.flu.nc.gov. Contact your Local Health Department for questions regarding additional control measures.
- Household contacts should be instructed to monitor themselves closely for illness. If they develop illness, they should stay at home and follow the guidance on home respiratory isolation.
- Post-exposure prophylaxis is not recommended for prevention of illness among healthy persons in community settings, or if >48 hours have elapsed since the last close contact. Post-exposure prophylaxis with either oseltamivir or zanamivir should be considered for the following:
 - Close contacts of cases (confirmed or suspected) who are at high-risk for complications of influenza, including pregnant women (see above).
 - Health care workers, public health workers, or first responders who had a recognized, unprotected close contact exposure to a person with confirmed, probable, or suspected 2009 pandemic H1N1 influenza virus infection during that person's infectious period.
- Early recognition and treatment of illness should be emphasized as an alternative to prophylaxis.
- Please use every opportunity to educate patients regarding the importance of good respiratory hygiene, hand washing, and other basic protective measures. Also, please check that pneumococcal vaccine has been administered to all patients for whom it is indicated, including those 65 or older.

SURVEILLANCE AND TRACKING

- Beginning October 1, 2009, physicians and Local Health Departments are required to report all **influenza-associated deaths in persons ≥18 years of age, whether due to pandemic or seasonal flu**. Physicians and local health departments should continue reporting all influenza-associated deaths in children <18 years of age, whether due to 2009 pandemic H1N1 or seasonal flu, as previously required.



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- If you are caring for any **pregnant or immediately postpartum women (within 6 weeks of delivery) who are admitted to an intensive care unit for treatment of any type of influenza**, please call the NC DPH epidemiologist on-call at 919-733-3419 to report the case.
- The North Carolina Division of Public Health conducts very intensive surveillance for influenza using several systems. These include surveillance of all visits to emergency departments across the state, as well as surveillance and laboratory testing of patients seen by any of the providers in our Influenza Sentinel Provider Network- more than 90 practices across the state. We also monitor hospitalizations and deaths that could be related to influenza in order to better understand the severity of the virus. Our testing and surveillance strategies are consistent with recommendations from CDC and make use of the strong influenza surveillance systems already in place in North Carolina.
- Influenza surveillance is different from many types of disease surveillance conducted by state and local health departments. Because flu is easily spread from person-to-person and affects a large percentage of the population, testing and reporting of every person with flu-like illness is not a practical or reliable way to monitor flu activity. For this reason, surveillance of influenza in North Carolina is not based on the reporting of individual cases. Even if resources were available to perform 2009 pandemic H1N1 influenza testing for every patient with flu-like illness, this information would be hard to interpret for public health purposes since- unlike data from our existing systems- it would not be collected systematically and there would be no baseline with which to compare.

Health care providers should contact their Local Health Departments or the Communicable Disease Branch for questions about 2009 pandemic H1N1 influenza. [Note: 888-820-0520 and phpr.nc@ncmail.net are no longer available for pandemic H1N1 questions].

We will post updates with additional guidance as warranted on www.flu.nc.gov. Updates are also available from the CDC at www.cdc.gov/h1n1flu.



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