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To: All North Carolina Health Care Providers
From: Jean-Marie Maillard, MD, MSc, Acting State Epidemiologist
Re: **Pandemic H1N1 Influenza Virus Infection in North Carolina: Update for NC Clinicians**

Since it was first identified in April of this year, the novel influenza A (H1N1) virus has spread quickly around the globe. On June 11, 2009, the World Health Organization declared that the scientific criteria for an influenza pandemic had been met. In North Carolina, influenza activity is well above the seasonal baseline. Virologic surveillance in the state indicates that the pandemic H1N1 strain has rapidly become the predominant strain.

This memo provides guidance to NC clinicians and information regarding flu surveillance activities in North Carolina during the H1N1 pandemic. This guidance might change as the pandemic progresses; updated information is available at www.ncpublichealth.com.

CLINICAL MANAGEMENT

- Pandemic H1N1 should be considered in all patients presenting with febrile respiratory illness. **Decisions regarding treatment should be based on clinical and epidemiologic information, rather than on test results.** Updated epidemiologic data are available at www.ncpublichealth.com and at www.cdc.gov.
- Not all patients with suspected pandemic H1N1 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.
- Clinical judgment is an important factor in treatment decisions. Persons with suspected pandemic H1N1 infection who present with an uncomplicated febrile illness typically do not require antiviral treatment unless they are at high risk for influenza complications. Treatment is recommended for the following groups:
 - Patients hospitalized for confirmed or suspected pandemic H1N1 infection, regardless of time since onset
 - Patients who are at high risk for seasonal influenza complications- e.g., persons with certain chronic medical conditions, persons 65 or older, children younger than 5 years, and pregnant women).
- If antiviral treatment is prescribed, a neuraminidase inhibitor (oseltamivir or zanamavir) should be used. If oseltamivir-resistant seasonal influenza A (H1N1) viruses reemerge (as during the 2008-2009 flu season), treatment with either zanamivir or a combination of oseltamivir plus rimantadine or amantadine might be necessary to provide adequate empiric treatment or chemoprophylaxis. Information regarding currently circulating flu strains is available at www.ncpublichealth.com and at www.cdc.gov.



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TESTING

- Influenza surveillance data indicate that pandemic H1N1 is the predominant strain circulating in North Carolina. Given this information, patients with influenza-like illness should be assumed to have pandemic H1N1 infection unless another cause is identified. Decisions regarding treatment and control measures should be made accordingly. Although laboratory testing continues to play an important role in our influenza surveillance, testing for pandemic H1N1 is less critical for providing patient-care and implementing control measures.
- Confirmatory pandemic H1N1 testing at the North Carolina State Laboratory of Public Health will continue to focus on the following groups:
 1. Patients who are hospitalized with fever and respiratory signs or symptoms (see testing and treatment algorithm for clinicians, available at www.ncpublichealth.com).
 2. All patients with influenza-like illness seen at facilities participating in the Sentinel Provider Network.
- Testing at SLPH can also be considered for other patients if the local health department determines that such testing is necessary 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 specimens from patients hospitalized at facilities in the Public Health Epidemiology Network.
- Providers who would like pandemic H1N1 testing for patients in other settings are encouraged to contact the commercial or hospital laboratories with whom they do business.
- 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. Specific guidance regarding specimen collection and transport is available at www.ncpublichealth.com.
- The performance characteristics of rapid flu tests for detecting this strain are not known. If flu activity is high and pandemic H1N1 activity is known to be the predominant strain, a positive rapid flu test result is highly predictive of pandemic H1N1 infection. However, 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

- Healthcare facilities should implement all additional infection control measures normally reserved for peak flu season. Given the difficulty of distinguishing pandemic H1N1 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 H1N1 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.
- Droplet and Standard Precautions are recommended when caring for patients with suspected or confirmed novel influenza A (H1N1) infection: Surgical masks should be used for all direct patient care activities (don mask prior to entering room; if patient is in an open area, don masks within 3-6 feet of patient). Use a private room if possible and keep room door closed; if a private room is not available, make sure that the patient wears a surgical mask.



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- Airborne Precautions (e.g., N95 respirator) plus Standard Precautions and eye protection are recommended if aerosol-generating procedures are performed.
- Additional infection control guidance is available at www.ncpublichealth.com.

CONTROL MEASURES

- All patients with confirmed or suspected pandemic H1N1 infection should be instructed to stay at home for 7 days after symptom onset or 24 hours after resolution of symptoms (whichever is longer) and should be given guidance on **Home Respiratory Isolation**, available at www.ncpublichealth.com. 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.
- Postexposure 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 (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 suspect influenza A (H1N1) virus infection during that person's infectious period.
- 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 persons 65 or older.

SURVEILLANCE AND TRACKING

- 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- up to 20% during a regular flu season and possibly more in a pandemic- 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 H1N1 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 pandemic H1N1. [Note: 888-820-0520 and phpr.nc@ncmail.net are no longer available for pandemic H1N1 questions].

Information about this situation continues to evolve rapidly. We will post updates with additional guidance as warranted on www.ncpublichealth.com. Daily updates are also available from the CDC at www.cdc.gov/h1n1.

