THE CITY OF NEW YORK

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

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2009 New York City Department of Health and Mental Hygiene
Health Alert #17: Novel H1N1 Influenza Update
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Please distribute to staff in the Departments of Critical Care, Emergency Medicine, Family Practice, Geriatrics, Internal Medicine, Infectious Disease, Infection Control, Pediatrics, Pharmacy, Neonatal Units, Obstetrics and Gynecology, Pulmonary Medicine and Laboratory Medicine

This Alert Provides:

- **Epidemiologic update on the outbreak of Novel H1N1 Influenza in New York City**
- **Revised reporting requirements:**
    - **DOHMH strongly recommends testing for influenza (using a commercially available rapid test [EIA], DFA or PCR) for:**
        - **All hospitalized patients with acute febrile respiratory illness including fever $\geq$ 100.4°F (38.0°C) AND influenza-like illness (Table 1), pneumonia, ARDS or respiratory distress.**
    - **Only report hospitalized patients with acute febrile respiratory illness who ALSO have a positive test for influenza A (by EIA, DFA, PCR or viral culture). Call the Provider Access Line at 1-866-NYC-DOH1 (1-866-692-3641) to report to DOHMH.**
- **Revised guidance on diagnostic testing for influenza (who should be tested)**
- **Revised guidance on antiviral treatment for influenza and febrile respiratory illness**
- **Updated guidance on antiviral prophylaxis for exposures to influenza and febrile respiratory illness**

The New York City Department of Health and Mental Hygiene (DOHMH) has been conducting intensive active surveillance for Novel H1N1 Influenza in New York City since April 24, and has prioritized the identification of any cases of severe illness due to this virus. Accumulating evidence suggests that Novel H1N1 Influenza virus is comparable to seasonal influenza in its spectrum of illness and transmission pattern, and does NOT appear to be causing unusual morbidity or mortality compared to seasonal influenza. **DOHMH is now recommending that testing, treatment and prophylaxis of influenza-like illness (ILI), and probable and confirmed novel influenza H1N1, be similar to what is done for seasonal influenza.**

Since Novel H1N1 Influenza is an emerging virus, its clinical and epidemiologic features are only now being elucidated, and these recommendations are therefore still subject to change. Also, there is no effective vaccine and we must assume that much, if not all, of the population is susceptible to the virus. It is also possible that this virus may become more virulent in the future, in which case these recommendations would be revised. Providers should check the DOHMH Novel H1N1 Influenza webpage at http://www.nyc.gov/html/doh/html/cd/cd-h1n1flu.shtml for updated information and recommendations.

Categories of urgency levels for NYC DOHMH Broadcast Notification System:
Health Alert: conveys the highest level of importance; warrants immediate action or attention
Health Advisory: provides important information for a specific incident or situation; may not require immediate action
Health Update: provides updated information regarding an incident or situation; unlikely to require immediate action

Epidemiologic Update

As of May 12, 2009, diagnostic testing has identified 167 confirmed and 6 probable cases of Novel H1N1 Influenza in New York City residents. Two clusters of ILI at Public School Q177 and the St. Francis Preparatory School are epidemiologically related. Sporadic confirmed cases occurred at several other schools in NYC as well. Of the confirmed cases, 144 can be epidemiologically linked either to exposure to an ill person associated with the two schools, or to travel to Mexico. For eight confirmed cases, as well as two probable cases, no epidemiologic links were identified by patient interview suggesting that community transmission of Novel H1N1 Influenza is occurring.

As DOHMH surveillance efforts are focusing on detection of severe illness, there may be many mild cases of Novel H1N1 Influenza that are not being diagnosed or detected. The numbers presented in the table below do not reflect the total number of cases in New York City, which is unknown and likely to be substantially larger. Providers should bear in mind that seasonal influenza (H3N2, H1N1 and B) are still circulating in NYC as well – and since most mild cases of ILI are not being tested for specific etiology, it is not possible to distinguish whether these illnesses are due to Novel Influenza H1N1, seasonal influenza, or other viral respiratory pathogens. For these reasons, after this alert, DOHMH will no longer update this table.

CONFIRMED AND PROBABLE CASES OF NOVEL INFLUENZA H1N1, as of 5/12/09

	Confirmed	Probable	Total
Total Cases to Date	167	6	173
Cases Linked to Known Clusters			
- Mexico	2	0	2
- St. Francis Prep	140	0	140
- PS 177	7	0	7
No Links to Known Clusters	11	0	11
Under investigation	7	6	13

Ten New York City residents with confirmed novel influenza H1N1 have been hospitalized. The age range of hospitalized patients was 4.5 months-23 years (median 15 years); seven were male. Three of the patients were hospitalized in the intensive care unit (ICU), two with brief stays; no patient required mechanical ventilation. The third, a 19-month-old, was hospitalized in the ICU for worsening respiratory distress and pneumonia. Of the ten hospitalized cases, five patients had pre-existing medical conditions: three patients were previously diagnosed with asthma, one had cerebral palsy and seizure disorder, and one had thalassemia. All patients have been discharged from the hospital. There have been no deaths due to confirmed Novel H1N1 Influenza in New York City.

Among patients with mild illness due to confirmed influenza H1N1 who have been interviewed (n=108), the most common symptoms have been similar to those associated with seasonal influenza, and included cough (96%), fever (94%), headache (80%), fatigue (79%), rhinorrhea (73%), chills (72%), sore throat (71%) and myalgia (71%). Slightly over one third of patients reported gastrointestinal symptoms such as nausea (39%), abdominal pain (39%) and diarrhea (30%).

For updated information on the novel influenza H1N1 outbreak in the United States and globally, see the CDC website at www.cdc.gov/swineflu and the World Health Organization website at http://www.who.int/csr/disease/swineflu/en/index.html.

Revised Reporting Requirements for Hospitalized Cases of Acute Febrile Respiratory Illness

All patients being admitted or currently hospitalized with acute febrile respiratory illness, including fever>100.4° F or 38.0 C° AND influenza-like illness, ARDS, pneumonia or respiratory distress, should be tested for influenza using a commercially available rapid test (EIA), DFA or PCR. DOHMH is now requesting that providers report only those hospitalized cases of acute febrile respiratory illness (see Table 1) who test positive for influenza A by a commercially available rapid method or by viral culture. Patients meeting these criteria should be reported immediately to the Provider Access Line at 1-866-NYC-DOH1, and will be tested for Novel H1N1 Influenza at the NYC DOHMH Public Health Laboratory (PHL). Specimens should not be submitted to PHL without prior approval of testing by DOHMH. On weekends, only specimens from critically ill patients (i.e., in the ICU) will be accepted for testing; cases can be reported during non-business hours, but specimens should be collected and held until transportation can be arranged the next business day.

DOHMH also asks medical providers to consider the diagnosis of Novel H1N1 Influenza in any fatal cases of unexplained acute febrile respiratory illness, regardless of age, and to refer such cases to the New York City Office of the Chief Medical Examiner (OCME) at 1-212-447-2030. As a reminder, all deaths in children under age 18 years with either febrile respiratory illness, laboratory evidence of influenza, or sudden death from an unknown cause should routinely be reported to DOHMH and referred to the OCME.

Revised Guidance on Diagnostic Testing for Influenza and Novel H1N1

Testing for influenza, by commercially available rapid testing (EIA), DFA or PCR, can help inform decisions regarding antiviral treatment or prophylaxis for management of patients with ILI. At the beginning of the Novel H1N1 Influenza outbreak in late April, DOHMH initially recommended that rapid testing NOT be used for patients with mild ILI due to concerns that this newly emerging virus might lead to a severe pandemic (see Table 1). This recommendation was made in order to conserve supplies of rapid test kits, and to prioritize testing for hospitalized patients with more severe disease.

As cases detected to date have mostly been mild, DOHMH is revising this recommendation and now urges providers to return to practices that they use for diagnosing and treating seasonal influenza. Please see attached IDSA guidelines for best practices (also available at http://www.journals.uchicago.edu/doi/full/10.1086/598513).

Testing for influenza is strongly recommended for:

- All patients being admitted or currently hospitalized with acute febrile respiratory illness, including fever>100.4° F or 38.0 C° AND influenza-like illness, ARDS, pneumonia or respiratory distress.
- All patients admitted to the hospital with non-respiratory syndromes who develop acute febrile respiratory illness > 48 hours after hospital admission.

Testing for influenza should be considered for the following patients with ILI:

- Outpatients who are at high risk for complications of influenza (see Table 2. List of underlying conditions).
- All patients who are household contacts of persons with conditions placing them at higher risk for complications due to influenza (including pregnancy).

Because viral shedding decreases rapidly after the first few days of illness due to influenza, specimens collected more than five days after illness onset are much less likely to yield positive results in infected

patients. Also, the technique used during specimen collection greatly influences the sensitivity of the test. See http://www.cdc.gov/h1n1flu/guidance/rapid_testing.htm for more information on using rapid influenza tests.

Specific diagnostic testing for Novel H1N1 Influenza will be performed by DOHMH on:

- Hospitalized patients with acute febrile respiratory illness who have a positive test for influenza A,
- Patients with onset of unexplained acute febrile respiratory illness >48 hours after hospital admission (e.g., suspected nosocomial cases of influenza), or
- Persons who are part of a cluster or outbreak investigation being conducted by DOHMH .

Diagnostic testing for Novel H1N1 Influenza is currently only available at public health laboratories, but may be available in some commercial laboratories in the near future. The New York City Public Health Laboratory (PHL) currently performs RT-PCR testing for influenza A and B, and can identify seasonal influenza A subtypes H1N1 and H3N2. Untypeable specimens that are positive for influenza A are considered probable cases of Novel H1N1 Influenza. The PHL now has the capacity to confirm novel influenza H1N1 by RT-PCR.

Nasopharyngeal swabs are the preferred specimens for testing at PHL (see attached instructions for obtaining specimens for diagnostic testing for Novel Influenza H1N1). Swabs should be placed in viral transport media and refrigerated. If approved for testing, DOHMH will arrange for specimen transportation to PHL. If specimens cannot be submitted within 72 hours of collection, they should be frozen, ideally at -70° C, until pick-up. **Cases must be reported to DOHMH and approved for testing prior to the submission of specimens. Report to the Provider Access Line at 1-866-NYC-DOH1 (1-866-692-3641).**

Since the rapid EIA test is known to have poor sensitivity (i.e., 50-70% even with optimal specimen quality), DOHMH may agree to test some patients for novel H1N1, despite negative rapid diagnostic tests for influenza A. If the patient is critically ill, or if there is a strong clinical suspicion that an individual hospitalized patient has Novel H1N1 Influenza, providers should report the case and discuss the particulars with DOHMH staff. If approved, in limited instances, additional testing at PHL for influenza, including novel H1N1, may be arranged.

Revised Guidance on Antiviral Treatment for Novel H1N1 Influenza

This guidance was modified from CDC recommendations found at http://cdc.gov/h1n1flu/recommendations.htm:
Detailed information on antiviral dosing, precautions and adverse effects is provided in the attached document, which is also posted on the NYC DOHMH website at http://www.nyc.gov/html/doh/html/cd/cd-h1n1flu.shtml.

For antiviral treatment of novel influenza (H1N1) virus infection, either oseltamivir or zanamivir are recommended. Recommendations may change as data on antiviral effectiveness, clinical spectrum of illness, adverse events from antiviral use, and any changes in antiviral susceptibility data become available. Clinical judgment is an important factor in treatment decisions. Persons with suspected novel influenza H1N1 who present with an uncomplicated febrile illness typically do not require treatment unless they are at high risk for influenza complications.

Antiviral treatment is recommended for:

- All hospitalized patients with influenza, including confirmed or probable Novel H1N1 Influenza
- Outpatients with ILI who are at high risk for seasonal influenza complications (Table 2).

Empiric antiviral treatment should be considered for:

- Patients being admitted or currently hospitalized with unexplained acute febrile respiratory illness, pending definitive testing for influenza (RT-PCR or viral culture). (A negative RT-PCR essentially rules out influenza and justifies the discontinuation of antiviral therapy.) This recommendation is subject to revision if surveillance data suggest substantial reduction in influenza virus circulation in NYC.

If a patient is not in a high-risk group or is not hospitalized, healthcare providers should use clinical judgment to guide treatment decisions. Since the outbreak was first recognized in the United States in mid-April, most patients who have had novel influenza (H1N1) virus infection, but who are not in a high-risk group have had a self-limited respiratory illness similar to typical seasonal influenza. For most of these patients, the benefits of using antivirals may be modest. Therefore, testing, treatment and prophylaxis should be directed primarily at persons who are hospitalized or at higher risk for influenza complications.

Once the decision to administer antiviral treatment is made, treatment with zanamivir or oseltamivir should be initiated as soon as possible after the onset of symptoms. Evidence for benefits from antiviral treatment in studies of seasonal influenza is strongest when treatment is started within 48 hours of illness onset. However, some studies of oseltamivir treatment of hospitalized patients with seasonal influenza have indicated benefit, including reductions in mortality or duration of hospitalization even for patients whose treatment was started more than 48 hours after illness onset. Recommended duration of treatment is five days.

Antiviral doses recommended for treatment of Novel H1N1 Influenza virus infection in adults or children 1 year of age or older are the same as those recommended for seasonal influenza. Oseltamivir use for children <1 year old was recently approved by the U.S. Food and Drug Administration under an Emergency Use Authorization, and dosing for infants <1 year is age- rather than weight-based.

Note: NYC also continues to have seasonal influenza activity. The majority of seasonal influenza identified in recent weeks in NYC has been influenza A H3N2, which has similar susceptibility to antiviral medications as novel H1N1.

Revised Guidance on Antiviral Prophylaxis for Novel H1N1 Influenza

Hospitals should review their current policies and recommendations regarding prophylaxis of health care workers for exposures to influenza. In general, hospitals and other medical facilities should manage exposures to ILI, laboratory positive cases of influenza, and probable and confirmed Novel H1N1 Influenza as they usually do during the influenza season.

The indication for post-exposure chemoprophylaxis is based upon close contact with a person who has laboratory evidence of influenza virus, including seasonal or Novel H1N1 Influenza, during the infectious period of the case. The infectious period for persons infected with the Novel H1N1 Influenza virus is assumed to be similar to that observed in studies of seasonal influenza. With seasonal influenza, studies have shown that people may be able to transmit infection beginning one day before they develop symptoms to up to 7 days after they get sick. Children, especially younger children, might potentially be infectious for longer periods. However, for this guidance, the *infectious period* is defined as one day before until 7 days after the case's onset of illness. If the contact occurred with a case whose illness started more than 7 days before contact with the person under consideration for antivirals, then chemoprophylaxis is not necessary.

Post-exposure antiviral chemoprophylaxis with either oseltamivir or zanamivir can be considered for the following:

1. Close contacts of patients with laboratory evidence of influenza (seasonal or novel H1N1) who are at high-risk for complications of influenza
2. Health care workers who have had a recognized, unprotected close contact exposure while providing direct patient care to a person with laboratory evidence of influenza (seasonal or novel H1N1) during that person's infectious period. DOHMH guidance on infection control in medical settings, including recommendations on personal protective equipment is available at http://www.nyc.gov/html/doh/downloads/pdf/cd/2009/09md16.pdf.

Pre-exposure antiviral chemoprophylaxis should only be used in limited circumstances, and in consultation with your infectious disease, infection control or hospital epidemiology departments. Certain persons at ongoing occupational risk for exposure who are also at higher risk for complications of influenza should carefully follow guidelines for appropriate personal protective equipment or consider temporary reassignment. For *pre-exposure* chemoprophylaxis, antiviral medications should be given during the potential exposure period and continued for 10 days after the last known exposure to a person with Novel H1N1 Influenza virus infection during the cases infectious period.

Special Considerations for Pregnant Women

- Oseltamivir and zanamavir are Category C agents for use in pregnancy. However, pregnancy also places women at high risk for complications due to influenza. Pregnancy is NOT a contraindication for the use of oseltamivir and zanamavir.
- Pregnant women who meet the current case-definition for confirmed or probable Novel H1N1 Influenza infection should receive antiviral treatment.
- Pregnant women with ILI should be tested for influenza before antiviral treatment is considered. However, due to the insensitivity of rapid tests for influenza, and the risk of severe influenza in pregnant women, clinical judgment should be used to decide whether to treat pregnant women with ILI empirically, or when rapid influenza testing is negative.
- Antiviral prophylaxis can be considered for pregnant women who are close contacts of persons with influenza A, including probable or confirmed cases of Novel H1N1 Influenza. Obstetricians caring for pregnant women with suspected Novel H1N1 Influenza may wish to consult with an infectious diseases specialist for advice on whether to use prophylactic antiviral medications in individual cases.
- Recommendations for the use of antiviral medications in pregnant women may change as additional data on the benefits and risks of antiviral therapy in pregnant women become available. For more information, see the CDC website at http://www.cdc.gov/h1n1flu/clinician_pregnant.htm.

As always, we greatly appreciate the cooperation of the medical community in New York City and will update you with further information when it becomes available.

Sincerely,

The Novel H1N1 Influenza Investigation Team
New York City Department of Health and Mental Hygiene

Table 1:
NYC DOHMH Case Definitions (as of 5/11/2009):

A **confirmed case** of Novel H1N1 Influenza infection is defined as a person with influenza-like illness with laboratory confirmed Novel H1N1 Influenza infection by one or more of the following tests:

- real-time RT-PCR, or
- viral culture (currently only performed at CDC).

A **probable case** of Novel H1N1 Influenza infection is defined as a person with an influenza-like illness who is positive for influenza A, but negative for H1 and H3 by influenza RT-PCR.

Influenza-like illness is defined as fever>100.4° F or 38.0 C° AND cough or sore throat.

Table 2:
Underlying conditions which increase the risk of complications due to influenza infection

Chronic pulmonary, cardiovascular, renal, hepatic, hematological, or metabolic disorders
Immunosuppression, including HIV-related or caused by medication
Compromised respiratory function, including conditions which increase the risk for aspiration,
Long-term aspirin therapy
Pregnancy
Age $\geq$ 65 years
Age < 2 years
Residents of nursing homes or other chronic care facilities