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To: Healthcare Providers, Hospitals, Laboratories, Local Health Departments

From: NYSDOH Bureau of Communicable Disease Control and Wadsworth Laboratory

HEALTH ADVISORY: UPDATE #2--SWINE INFLUENZA A (H1N1) INFECTION
Please distribute immediately to staff in the Departments of Laboratory Medicine, Critical Care, Emergency Medicine, Family Practice, Internal Medicine, Infectious Disease, Infection Control, Pediatrics, Pulmonary Medicine, and all inpatient and outpatient units.

INTRODUCTION

This is an update to the Health Advisory released on 4/25/09. The New York State Department of Health (NYSDOH) is sending this advisory to provide updated information regarding the ongoing investigation of swine influenza A (H1N1) virus infections being conducted by the Centers for Disease Control and Prevention (CDC). The guidance in this advisory only applies to providers seeing patients outside of New York City. For guidance related to providers seeing patients in New York City, see the New York City Department of Health and Mental Hygiene (NYCDOHMH) Advisory at: www.nyc.gov/health/nycmed.

This interim information is based on currently available information and will likely change as additional information becomes available.

This 4/26/09 update is current as of 9:00 PM on 4/26/09 and contains changes or updates to the following sections:

Summary and Background (pages 1-2)

Interim Guidance for Antiviral Treatment & Prophylaxis (pages 5-6)

Public Health Notification (pages 6-7)

SUMMARY

- **Swine influenza A (H1N1) has been diagnosed in patients in California, Texas, Kansas, New York City, Ohio, and Mexico.**
- **Cases were first identified when specimens were determined to be positive for influenza A but could not be subtyped with standard methods. Subsequent subtyping at CDC determined that patients were infected with swine influenza A (H1N1).**
- **CDC and NYCDOHMH have confirmed eight cases of swine influenza A (H1N1) in a private school in New York City.**

- **NYSDOH requests local health departments (LHDs) to review their Emergency Department syndromic surveillance (ED Serv) reports daily as a method to monitor influenza activity.**
- **For all patients presenting with acute respiratory illness, NYSDOH requests that providers obtain recent travel histories to affected areas and test patients meeting the case definition for suspect swine influenza A (H1N1).**
- **Hospitals and providers should have a low threshold for contacting their LHD regarding patients who are highly suspicious for swine influenza A (H1N1), especially if the patient(s) is (are) severely ill.**
- **NYSDOH requests that providers report any outbreaks of influenza-like illness to their LHD immediately.**
- **Additional information on the outbreaks in the US and Mexico, as well as further clinical guidance, will be provided as it becomes available.**

BACKGROUND

CDC is investigating 20 human cases of swine influenza A (H1N1) virus infection that have been identified in San Diego County and Imperial County, California; San Antonio, Texas; Dickinson County, Kansas; Lorain County, Ohio, and New York City. In addition, swine influenza A (H1N1) viruses have also been confirmed by CDC from patients in Mexico. Investigations are ongoing to determine the source and extent of the infection. CDC is working with Mexican health officials, the World Health Organization (WHO), state and local officials in all affected states and cities, and other health and animal officials on investigations into these cases.

On 4/26/09, the CDC and NYCDOHMH confirmed 8 cases of swine influenza A (H1N1) virus infection in a private school in New York City. More than 100 of the school's students were absent several days this week due to fever, sore throats, and other flu-like symptoms. NYCDOHMH has interviewed more than 100 students or their families; all students have had mild symptoms and none have been hospitalized. Some family members have developed similar symptoms, suggesting spread within the family.

CDC has provided the interim guidance for providers, as detailed on the CDC web site for this investigation: <http://www.cdc.gov/flu/swine/investigation.htm>.

CASE DEFINITIONS FOR INFECTION WITH SWINE INFLUENZA A (H1N1) VIRUS

The CDC has developed the following case definitions for the purpose of investigation of suspected, probable, and confirmed cases of swine influenza A (H1N1) virus infection:

1. A Confirmed case of swine influenza A (H1N1) virus infection is defined as a person with an acute respiratory illness with laboratory confirmed swine influenza A (H1N1) virus infection at CDC by one or more of the following tests:
 1. real-time RT-PCR
 2. viral culture
 3. four-fold rise in swine influenza A (H1N1) virus specific neutralizing antibodies

2. A Probable case of swine influenza A (H1N1) virus infection is defined as a person with an acute respiratory illness with an influenza test that is positive for influenza A, but H1 and H3 negative.
3. A Suspected case of swine influenza A (H1N1) virus infection is defined as:
 1. A person with an acute respiratory illness who was a close contact to a confirmed case of swine influenza A (H1N1) virus infection while the case was ill **OR**
 2. A person with an acute respiratory illness with a recent history of contact with an animal with confirmed or suspected swine influenza A (H1N1) virus infection **OR**
 3. A person with an acute respiratory illness who has traveled to an area where there are confirmed or probable cases of swine influenza A (H1N1) ****INCLUDING TRAVEL TO NEW YORK CITY**

Definitions of Respiratory Illness:

1. Acute respiratory illness
Recent onset of at least two of the following:
 1. rhinorrhea or nasal congestion
 2. sore throat
 3. cough
 4. fever or feverishness
2. Influenza-like illness: fever $>37.8^{\circ}\text{C}$ (100°F) plus cough or sore throat

Patients who meet the suspect case definition should be tested for influenza. Clinicians should obtain a nasopharyngeal swab from the patient (following appropriate infection control precautions), place the swab in viral transport medium, refrigerate the specimen (do not freeze), and submit to their clinical laboratory. **Only high-priority specimens should be submitted to NYSDOH Wadsworth Center after consultation with local and state health.** Please see the detailed guidelines, “Diagnostic Laboratory Testing for Suspected Swine Influenza,” at the end of this advisory.

Any unusual clusters of febrile respiratory illness should be reported to the LHD immediately.

INTERIM GUIDANCE FOR INFECTION CONTROL

For interview and assessment of healthy individuals with epidemiologic links to suspect or confirmed cases of swine influenza, follow Standard Precautions.

For interview, assessment, and care of a suspect, probable, or confirmed swine influenza patient (meeting current case definition outlined in this advisory):

- Use an airborne infection isolation room (AIIR) with negative pressure air handling, if available; otherwise use a single patient room with the door kept closed.
- Use Standard, Droplet and Contact precautions for all patient care activities. For hospitalized patients, continue precautions for 7 days after illness onset or until symptoms have resolved.

- Personnel should wear N95 respirators (or if unavailable, surgical masks) when entering the patient room, and should don disposable gown, gloves, and goggles if coming within 6 feet of the patient for any reason.
- For suctioning, bronchoscopy, or intubation, use a procedure room with negative pressure air handling. Personnel should wear N95 respirators, gowns, gloves, and goggles for the procedure.
- When care is completed, place all personal protective equipment (PPE) in a biohazard bag for appropriate disposal.
- Maintain strict adherence to hand hygiene by washing with soap and water or using hand sanitizer immediately after removing gloves and other equipment and after any contact with respiratory secretions.

The ill person should wear a surgical mask when outside of the patient room, and should be encouraged to wash hands frequently and follow respiratory hygiene practices. Cups and other utensils used by the ill person should be washed with soap and water before use by other persons.

Routine cleaning and disinfection strategies used during influenza seasons can be applied to the environmental management of swine influenza. More information can be found at http://www.cdc.gov/ncidod/dhqp/gl_environmentinfection.html.

Emergency departments should place signage at the entrances in English and Spanish directing patients with respiratory symptoms to self-identify so that a surgical mask can be immediately placed. Supplies of masks should be available for this purpose.

INTERIM GUIDANCE FOR HEALTHCARE WORKERS (HCW) EXPOSED TO SUSPECT SWINE INFLUENZA CASES

An ‘exposed healthcare worker’ is a HCW who came within 6 feet (2 meters) of a suspect, probable, or confirmed case of swine influenza A (H1N1) to interview, examine, or collect a nasopharyngeal specimen.

Exposed healthcare workers who donned a surgical mask or N95 respirator during contact with the suspect case patient need NOT be offered post exposure prophylaxis.

Exposed healthcare workers who did not don any type of mask during contacts with the suspect case patient should be offered post exposure prophylaxis as soon as possible and within 7 days of exposure, according to the CDC guidance below.

While it is recommended that HCW don full PPE, including gown, gloves, and eye protection, donning of any or all of these items in the absence of a mask is sufficient exposure to warrant post exposure prophylaxis. Similarly, HCW who did not don any PPE other than a surgical mask or N95 respirator is considered sufficiently protected to not need post exposure prophylaxis.

All exposed HCW, independent of PPE worn, should self-monitor for signs and symptoms of respiratory illness and influenza for seven days following exposure. Any HCW displaying symptoms of illness should refrain from work and seek medical evaluation by their personal

medical provider. HCWs should call ahead to their provider to notify them of the possibility of swine influenza-related illness.

INTERIM GUIDANCE FOR ANTIVIRAL TREATMENT & PROPHYLAXIS 4/26/09
Recommendations for use of antivirals may change as data on antiviral susceptibilities become available. Please refer to the CDC website for the most up-to-date guidance on antiviral treatment at: <http://www.cdc.gov/flu/swine/investigation.htm>.

Treatment of Cases of Swine Influenza A (H1N1)

Antiviral Drug Sensitivity

Based on currently available information, this swine influenza A (H1N1) virus is sensitive (not resistant) to the neuraminidase inhibitors, oseltamivir and zanamivir, and resistant (not sensitive) to the adamantanes, amantadine and rimantadine.

Note that the seasonal human influenza A (H1N1) virus circulating in the United States this season has largely been resistant to oseltamivir, but sensitive to zanamivir and the adamantane antivirals.

Timing and Duration of Antiviral Therapy

As with seasonal human influenza, treatment should be initiated as soon as possible after the onset of symptoms and should be continued for **5 days**. Antiviral doses and schedules recommended for treatment of swine influenza A (H1N1) virus infection are the same as those recommended for seasonal influenza and are attached to this document. They are also available at the CDC website at: <http://www.cdc.gov/flu/professionals/antivirals/dosagetable.htm#table>.

Choice of Drugs

SUSPECT Swine Influenza A (H1N1) Cases

Treatment with either zanamivir alone OR a combination of oseltamivir and either amantadine or rimantadine should be initiated as soon as possible after onset of symptoms for cases meeting the suspect case definition.

CONFIRMED or PROBABLE Swine Influenza A (H1N1) Cases

Treatment with either oseltamivir OR zanamivir should be initiated as soon as possible after onset of symptoms for cases meeting the confirmed or probable case.

Patients with mild illness may be sent home with instructions to stay at home until 24 to 48 hours after their symptoms resolve and instructed on the importance of hand and respiratory hygiene. Instructions should be given to seek medical care with worsening of symptoms.

Prophylaxis of Contacts of Swine Influenza A (H1N1) Cases

Choice of Drugs, Timing, and Duration of Antiviral Therapy

When prophylaxis is indicated (see below), either oseltamivir or zanamivir should be initiated as soon as possible following the exposure and should continue for **7 days** following the last known exposure to swine influenza A (H1N1) virus infection.

Antiviral doses and schedules recommended for chemoprophylaxis of swine influenza A (H1N1) virus infection are the same as those recommended for seasonal influenza and available at the CDC website at: <http://www.cdc.gov/flu/professionals/antivirals/dosagetable.htm#table>.

Antiviral chemoprophylaxis is **recommended** for the following individuals:

1. Household close contacts who are at high-risk for complications of influenza (persons with certain chronic medical conditions, elderly) of a confirmed or suspected case.
2. School children who are at high-risk for complications of influenza (persons with certain chronic medical conditions) who had close contact (face-to-face) with a confirmed or suspected case.
3. Travelers to Mexico who are at high-risk for complications of influenza (persons with certain chronic medical conditions, elderly).
4. Border workers (Mexico) who are at high-risk for complications of influenza (persons with certain chronic medical conditions, elderly).
5. Health care workers or public health workers who had unprotected close contact with an ill confirmed or probable case of swine influenza A (H1N1) virus infection during the case's infectious period.

Antiviral chemoprophylaxis can be **considered** for the following:

1. Any health care worker who is at high-risk for complications of influenza (persons with certain chronic medical conditions, elderly) who is working in an area with confirmed swine influenza A (H1N1) cases, and who is caring for patients with any acute febrile respiratory illness.
2. Non-high risk persons who are travelers to Mexico, first responders, or border workers who are working in areas with confirmed cases of swine influenza A (H1N1) virus infection.

Conditions that increase the risk of complications of influenza infection include:

- Chronic pulmonary, cardiovascular, renal, hepatic, hematological, or metabolic disorders (including diabetes mellitus)
- Immunosuppression
- Compromised respiratory function, including conditions which increase the risk for aspiration
- Pregnancy (note: both neuraminidase inhibitors and adamantanes are Pregnancy Category C medications)
- Elderly
- Children <4 years

PUBLIC HEALTH NOTIFICATION

Clinicians should contact their LHD to report any unusual clusters of febrile respiratory illness and any suspect case meeting the case definitions. The LHD will be the primary consultant and will work closely with hospitals and providers to determine which specimens should be submitted to the NYSDOH Wadsworth Center, according to epidemiologic criteria defined by the NYSDOH Bureau of Communicable Disease Control. Once the LHD and NYSDOH have decided that the criteria have been met, the LHD will give approval to the clinician for the patient specimen to be submitted to the NYSDOH Wadsworth Center for testing. The clinician should complete the NYSDOH Virus Detection History Form, DOH-1795

(<http://www.wadsworth.org/divisions/infdis/virology/forms/VRSLPatientHistoryFormDOH-1795.pdf>) noting testing is for a suspect case of swine influenza. Also note relevant patient clinical and travel history on this form and results of any influenza laboratory testing that has already been performed. Specimens should be shipped refrigerated (not frozen) overnight to Wadsworth Center Griffin Laboratory. Specific instructions and contact information for providers are available at: <http://www.wadsworth.org/divisions/infdis/virology/collectsubmit.htm>.

CONTINUING GUIDANCE

The NYSDOH will provide updated guidance as additional information and CDC recommendations become available. Updated information will be posted on the CDC website at: <http://www.cdc.gov/flu/swine/investigation.htm>.

SWINE INFLUENZA A (H1N1) VIRUS BIOSAFETY GUIDELINES FOR LABORATORY WORKERS

This guidance is for laboratory workers who may be processing or performing diagnostic testing, including virus isolation, on specimens from patients with suspected swine influenza A (H1N1) virus infection.

At this time the recommended front-line assay is a real-time RT-PCR assay that detects influenza A. If sub-typing assays for H1 and H3 are available, they should also be performed. If the sample is influenza A positive but H1 and H3 negative and therefore not sub-typeable, the sample should be considered as a “probable” case of swine influenza (H1N1). An assay specific for swine influenza A (H1N1) will be available shortly from the CDC and we will provide details as soon as it is available.

Diagnostic laboratory work on clinical samples from patients who are suspected cases of swine influenza A (H1N1) virus infection should be conducted in a BSL2 laboratory. All sample manipulations should be done inside a biosafety cabinet (BSC).

Viral isolation on clinical specimens from patients who are suspected cases of swine influenza A (H1N1) virus infection should be performed in a BSL2 laboratory with BSL3 practices (enhanced BSL2 conditions) as described below.

Additional precautions include:

- * Recommended Personal Protective Equipment (based on site specific risk assessment)
- * Respiratory protection – fit-tested N95 respirator or higher level of protection.
- * Shoe covers
- * Closed-front gown
- * Double gloves
- * Eye protection (goggles or face shields)

Waste

- * All waste disposal procedures should be followed as outlined in your facility standard laboratory operating procedures.

Appropriate disinfectants

- * 70% Ethanol
- * 5% Lysol

* 10% Bleach

All personnel should self monitor for fever and any symptoms of swine influenza infection, which include cough, sore throat, vomiting, diarrhea, headache, runny nose, and muscle aches. Any illness should be reported to your supervisor immediately.

For personnel who had unprotected exposure or a known breach in personal protective equipment to clinical material or live virus from a confirmed case of swine influenza A (H1N1), antiviral chemoprophylaxis with zanamivir or oseltamivir for 7 days after exposure can be considered.

Diagnostic Laboratory Testing for Suspected Swine Influenza

- Collect one nasopharyngeal swab or nasopharyngeal aspirate or nasopharyngeal wash, for submission to the Wadsworth Center for molecular testing. Note: preferred specimen is nasopharyngeal swab in viral transport medium. **Use Dacron or rayon swabs with a fine-tip flexible metal shaft swab, or NP-flocked swab with flexible plastic shaft, for nasopharyngeal swab. Do not use calcium alginate or wooden-shafted swabs. Place swab in sterile vial containing 2ml of viral transport medium. Keep sample cold (4°C) after collection.**

Collection Guidelines:

- **Nasopharyngeal swab:** Use a swab with a fine, flexible metal shaft and Dacron or rayon tip, or a flocced swab with long, flexible, plastic shaft, specific for nasopharyngeal swab sample collection. Insert swab into posterior nasopharynx. Rub swab against mucosal surface and leave in place for 5 seconds to absorb secretions. Collection of specimens from both nostrils increases amount of material available for analysis. Place swab in a vial of viral transport medium. Use scissors to cut metal shaft, or snap plastic shaft of flocced swab, so that top of vial can be screwed on tightly.
 - **Nasopharyngeal aspirate:** Requires source of suction (syringe, vacuum pump, or wall suction), specimen trap with two outlets, and catheter (no. 6 to 14 depending on size of patient). Without applying suction, insert catheter through nose into posterior nasopharynx (approximately the distance from tip of the nose to the external opening of the ear when measured in a straight line). Apply gentle suction, leaving catheter in place for a few seconds, then withdraw slowly. Suction contents of a vial of viral transport medium or non-bacteriostatic saline through catheter tubing to assist in moving material from tubing into trap and to add viral transport media to specimen. Transfer specimen to a screw cap tube for transport to laboratory.
 - **Nasopharyngeal wash:** Use rubber bulb (1-2oz for infants) or syringe to instill 3-5 ml of non-bacteriostatic saline into one nostril while occluding the other. If patient is able to co-operate, instruct them to close glottis by making a humming sound with mouth open. If a rubber bulb is used, release pressure on bulb to allow saline and mucus to enter bulb. Remove from nose and squeeze into vial of transport media. If syringe is used, apply suction to syringe to recover saline and nasal secretions. Alternately, hold sterile container such as urine cup under patient's nose and ask patient to expel material into it. In either case, add recovered saline-nasal secretions to a vial of viral transport media.
- Results of testing of initial cases suggest that rapid EIA influenza tests may be insensitive for the detection of swine influenza A (H1N1) and these assays should not be relied on as screening tests for this agent. However, a rapid influenza antigen detection test may be performed on the nasopharyngeal/oropharyngeal sample using standard BSL2 work practices in a Class II biological safety cabinet. Regardless of the result, specimens should still be

referred to the Wadsworth Center for further testing.

- Submit a completed Virus Reference and Surveillance Laboratory patient history form (<http://www.wadsworth.org/divisions/infdis/virology/forms/VRSLPatientHistoryFormDOH-1795.pdf>) with the specimens.
- Viral culture may be performed on respiratory specimens from patients suspected of having swine influenza A (H1N1) infection, who meet the surveillance criteria as described in the advisory update. All specimen manipulations and viral culture procedures should be performed under BSL2 containment with enhancements as described in the laboratory safety guidelines.
- It is essential that specimens be sent to the Viral Reference and Surveillance Laboratory at the Wadsworth Center Griffin Laboratory as soon as possible after collection. If shipped within two days of collection, store at 4°C post-collection and ship with cold packs to maintain temperature at 4°C. Do not use wet ice. If shipment is delayed >2days, then the specimens should be stored frozen at -70°C and shipped on dry ice.
- It is the shipper's responsibility to ensure that appropriate shipping materials are used. Please contact your carrier for shipping and packaging information. Patient specimens must be shipped as "Diagnostic Specimens." All specimens must be shipped "Priority Overnight" and received within 24 hours via chosen carrier. Specimens should ONLY be shipped Sunday - Thursday so that appropriate laboratory personnel can be present to accept and accession specimens Monday - Friday.

Address for courier shipping:

Wadsworth Center, NYSDOH
Griffin Laboratory
Virus Reference and Surveillance Laboratory
5668 State Farm Road (Rt. 155)
Slingerlands, NY 12159