State of California—Health and Human Services Agency
California Department of Public Health

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CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
SWINE INFLUENZA
INFECTION CONTROL RECOMMENDATIONS

FOR HOSPITALIZED PATIENTS

These recommendations should be distributed to all hospital departments, services and medical specialties responsible for admitting, diagnosing and treating and discharging patients with suspected swine influenza virus including, but not limited to, hospitalists, intensivists, pulmonologists and infectious disease physicians. Infection control staff should carefully review the recommendations before developing revised hospital specific procedures.

Comments and suggestions for improving these recommendations as well as questions about the prevention and control of swine influenza should be addressed to Jon Rosenberg, MD (jon.rosenberg@cdph.ca.gov or Sue Chen (sue.chen@cdph.ca.gov).

Information on swine influenza virus is available at the CDC (http://www.cdc.gov/flu/swine/) and CDPH (http://www.cdph.ca.gov/HEALTHINFO/DISCOND/Pages/SwineInfluenza.aspx) web sites.

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California Department of Public Health (CDPH) infection prevention and control recommendations for patients hospitalized with swine influenza virus include current information released by the Centers for Disease Control and Prevention (CDC), the CDPH Pandemic Influenza Preparedness and Response Plan, and recommendations developed by the CDPH Division of Communicable Disease Control. Swine influenza virus is considered a novel virus in the United States. Thus recommendations take into consideration known and potential risk, severity of disease, and uncertainty of mode of transmission.

Precautions are based on the presumption that transmission may occur through direct contact of virus in large droplets with the mucous membranes in the respiratory tract and possibly conjunctiva, or indirect contact of mucous membranes with small airborne droplets. Body fluids containing virus include respiratory secretions and may include stool. The highest priority is to protect the respiratory tract from exposure to large droplets.

Implementation of these precautions will vary depending upon the setting and availability of supplies. **These precautions are intended strictly for use for inpatients in acute care hospital settings.**

Case Definitions
The institution of infection control precautions and reporting of cases are based on current CDC case definitions. The most current definitions can be found at http://www.cdc.gov/swineflu/guidelines_infection_control.htm. These definitions are subject to change based on current knowledge of the epidemiology and transmission of swine influenza. The definitions for infection control as of April 26, 2009 are:

A *confirmed case* of swine influenza A (H1N1) virus infection is defined as a person with an acute respiratory illness with swine influenza A (H1N1) virus infection confirmed by the CDC laboratory using one or more of the following tests:

- real-time RT-PCR
- viral culture
- four-fold rise in swine influenza A (H1N1) virus-specific neutralizing antibodies

A *suspected case* of swine influenza A (H1N1) virus infection is defined as a person with acute febrile respiratory illness with onset within seven days of close contact with a person who is a confirmed case of swine influenza A (H1N1) virus infection.

Close contact is defined as within about six feet of an ill person who is a confirmed or suspected case of swine influenza A (H1N1) virus infection.

Acute respiratory illness is defined as recent onset of at least two of the following: rhinorrhea or nasal congestion, sore throat, cough (with or without fever or feverishness).

Clinicians should consider swine influenza in the differential diagnosis of patients with febrile respiratory disease who 1) live in (or traveled to) a county in California or other state where a case of swine influenza A has been confirmed or 2) who in the seven days preceding their illness onset had traveled to Mexico or were in contact with persons who had febrile respiratory illness and were in an affected U.S. county or Mexico. Individual hospitals may choose to implement enhanced precautions for patients not included the case definitions.

Notification of the Infection Preventionist
Infection preventionists should be notified immediately when a suspected swine influenza case is admitted to the hospital, emergency department or outpatient clinic services. Hospitals should determine notification policies for patients admitted for whom swine influenza is being considered but do not meet the case definition of suspected case.

Reporting
All cases of suspected swine influenza should be reported within one working day to the local health department. Patients with severe illness who have swine influenza as part of their differential diagnosis should also be reported.

GENERAL PRECAUTIONS

Hand Hygiene
Hands should be washed with soap (plain or antimicrobial) and water after unprotected (ungloved) contact with visible blood, body fluids (respiratory and nasal secretions, excretions [urine, feces], wound drainage and skin visibly soiled with blood and body fluids). If hands are not visibly soiled, an alcohol-based hand hygiene product can be used to decontaminate hands after patient contact. After handwashing or hand decontamination, avoid touching the patient, surfaces or items in the immediate vicinity of the patient (bed rails, bedside tables).

Respiratory Hygiene and Cough Etiquette Precautions
All patients who present to a health-care setting with fever and respiratory symptoms at any time of the year should be managed with Respiratory Hygiene and Cough Etiquette Precautions. Visual alerts (in languages appropriate to community populations served) should be posted at all public entrances to healthcare facilities (e.g., emergency departments, physician offices, outpatient clinics, etc.).

ISOLATION PRECAUTIONS

Patients who, at the time of triage, meet the case definition of suspected H1N1 swine influenza should be placed on isolation precautions as follows. For complete information on these precautions see http://www.cdc.gov/ncidod/dhqp/gl_isolation.html.

These precautions should be continued for seven days after onset of symptoms or until either an alternative diagnosis is established or diagnostic tests performed by the State or local health department indicate that the patient is not infected with swine influenza virus.

Room Placement and Patient Precautions
Patients with suspected or confirmed case-status should be placed in a *single-patient room* with the door kept closed. If available, an airborne infection isolation room (AIIR) with negative pressure air handling with 6 to 12 air changes per hour can be used. Air can be exhausted directly outside or be recirculated after filtration by a high efficiency particulate air (HEPA) filter. For suctioning, bronchoscopy, or intubation, use a procedure room with negative pressure air handling

Currently the number of patients meeting the case definition and requiring hospitalization is small; if this increases and placement options become limited, a revised guidance will be issued.

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.

Visitors
A system for screening visitors for fever or respiratory symptoms (e.g., cough or shortness of breath) should be developed and implemented. Close contacts (e. g., family members and friends) with either fever or respiratory symptoms should not be allowed to enter the hospital. This information should be posted at all entrances and written instructions should be provided to persons such as volunteers or security personnel who staff hospital information booths. Asymptomatic visitors should be restricted to persons 16 years of age or older and, limited to two persons at a time who are instructed to wear personal protective equipment. Visitors may be offered respiratory protection (i.e., N95 respirator) and should be instructed on the use of the respirator before entering the room (as per CDC recommendations for tuberculosis, December 30, 2005);

Hospitals should educate visitors about infection control procedures, including hand hygiene, to be taken upon entering and before leaving the patient's room.

Hospital Discharge
The local health department should be notified within 24 hours prior to discharging a patient with swine influenza or if the patient leaves the hospital against medical advice. The local health department may provide guidance on home care at the time of discharge.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal protective equipment includes respiratory protection (e.g., N95 or higher level respirators), gowns, gloves, and eye or face protection. It is recommended that healthcare workers change out of their work clothing prior to going home. If working another job, they should change their uniform prior to beginning work at the second facility.

Respiratory Protection

Respirators should be used in accordance with the CAL-OSHA regulations (www.dir.ca.gov/title8/5144.html or www.osha.gov/SLTC/etools/respiratory). This includes training and fit testing of each healthcare worker, regardless of job classification, who may be exposed to a patient with swine influenza virus to ensure a proper fit between the respirator's sealing surface and the wearer's face. Staff should also be medically cleared and trained for safe removal and disposal, and medical contraindications to respirator use.

Disposable Respirators

Disposable, NIOSH-certified, fit-tested N95 respirators should be worn when entering the room and removed immediately after leaving the room. Once worn in the presence of a patient with swine influenza virus, the outside of the respirator should be considered potentially contaminated with infectious respiratory particles and touching the outside face piece of the device should be avoided. After leaving the patient's room the respirator should be removed by grasping only the head straps and discarded in a non-biohazard waste receptacle. Hands should be immediately washed or decontaminated with an alcohol-based hand hygiene product.

Respirator Reuse

If the supply of N95 respirators becomes limited, a guidance on reuse will be issued.

Elastomeric and Powered Air Purifying Respirators

A higher level of respiratory protection should be considered for certain aerosol-generating procedures (e.g., endotracheal intubation, nebulizer treatment, bronchoscopy, and resuscitation involving emergency intubation or cardiac pulmonary resuscitation). When elastomeric (rubber) or powered air purifying respirators (PAPR) are used by more than one healthcare worker, the reusable elements should be cleaned and disinfected after each use according to manufacturer's suggested recommendations. When half- or full- face elastomeric negative pressure respirators are used by more than one healthcare worker, the filters should be replaced between each individual user. If PAPR are used the filters should be replaced using the manufacturer's suggested recommendations. Used filters should be discarded according to manufacturer's instructions.

Facial Protection

Eye Protection

Wear goggles or a disposable or reusable face shield when in the room of a suspected or probable swine influenza patient. Goggles are preferable if available since face masks may not be protective against aerosols. Remove the goggles by grasping the elastic head straps. Goggles and reusable face shields should be cleaned with soap and water and wiped with an EPA-registered disinfectant after each use and before assignment to another healthcare worker.

Gowns

Disposable gowns should be worn upon entry into the room and for any interaction with the patient or the patient's environment. Gowns should be fastened in the back. After use, they should be carefully removed and discarded in a non-biohazardous waste receptacle before exiting the room.

Gloves

Disposable gloves that cover the cuffs of the gown should be worn when entering the room. Gloves should be removed before exiting the room and discarded in a non-biohazardous waste receptacle.

Transporting Patients

Patients should not be transported to other areas of the hospital unless absolutely necessary. If patients must be transported, place a surgical mask over patient's nose and mouth, if tolerated. If an elevator is used to transport patients, all occupants should wear personal protective equipment including N95 respirators. If an infant or young child needs to be transported who cannot wear a mask, a blanket or sheet can be placed loosely over the crib for transport.

Laboratory Specimens

Specimens should be placed in zip-lock bags that are tightly sealed and properly labeled.

Patient Care Equipment

Patient care equipment (e.g., thermometers, blood pressure cuffs, stethoscopes and commodes) should be kept in the patient's room. Use disposable equipment whenever possible. Reusable equipment should be disinfected at the end of each shift. Upon patient discharge, reusable equipment should be placed in an appropriately labeled container, sealed and transported to central services for reprocessing. If reusable equipment is cleaned by persons other than from central services, it should be cleaned and sanitized or disinfected according to manufacturer's instructions prior to use by another patient.

Environmental Services

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_environinfection.html.