

**CALIFORNIA DEPARTMENT OF PUBLIC HEALTH  
SWINE INFLUENZA  
INFECTION CONTROL RECOMMENDATIONS  
FOR HOSPITALIZED PATIENTS  
UPDATED MAY 1, 2009**

Infection preventionists should carefully review the recommendations before developing revised hospital specific procedures. 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.

Comments and suggestions for improving these recommendations as well as questions about the prevention and control of swine influenza should be addressed to [swinefluinfo@cdph.ca.gov](mailto:swinefluinfo@cdph.ca.gov). All attempts will be made to provide an answer within 24 hours.

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.

**CALIFORNIA DEPARTMENT OF PUBLIC HEALTH  
SWINE INFLUENZA  
INFECTION CONTROL RECOMMENDATIONS  
FOR HOSPITALIZED PATIENTS  
UPDATED MAY 1, 2009**

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. These recommendations will be updated as needed.

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, indirect contact of mucous membranes with small airborne droplets, and by inhaling fine aerosols. 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. These recommendations apply to all patients with febrile respiratory illness, defined as fever ( $> 37.8^{\circ}\text{C}$  or  $100^{\circ}\text{F}$ ) plus one or more of the following: rhinorrhea or nasal congestion, sore throat, or cough.

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

**Case Definitions for Infection with Swine-origin Influenza A (H1N1) Virus (S-OIV)**

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/casedef\\_swineflu.htm](http://www.cdc.gov/swineflu/casedef_swineflu.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 30, 2009 are:

A **confirmed case** of S-OIV infection is defined as a person with an acute febrile respiratory illness with laboratory confirmed S-OIV infection at CDC by one or more of the following tests:

1. real-time RT-PCR
2. viral culture

A **probable case** of S-OIV infection is defined as a person with an acute febrile respiratory illness who is positive for influenza A, but negative for H1 and H3 by influenza RT-PCR

A **suspected case** of S-OIV infection is defined as a person with acute febrile respiratory illness with onset

- within 7 days of close contact with a person who is a confirmed case of S-OIV infection, or
- within 7 days of travel to community either within the United States or internationally where there are one or more confirmed cases of S-OIV infection, or
- resides in a community where there are one or more confirmed cases of S-OIV 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).

A close contact is defined as:

- a person who is a confirmed, probable, or suspected case of swine influenza A (H1N1) virus infection, within the past 7 days OR
- travel to a community either within the United States or internationally where there are one or more confirmed swine influenza A (H1N1) cases within 7 days.

Clinicians should consider swine influenza in the differential diagnosis of patients with febrile respiratory disease and who meet the definition of a close contact. Individual hospitals may choose to implement enhanced precautions for patients not included the case definitions.

### **Notification of the Infection Preventionist (IP)**

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 must be reported within one working day to the local health department and also to the CDPH Licensing and Certification District Office. Patients with severe respiratory 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. For the present, visual alerts (in languages appropriate to community populations served) should be posted prominently 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](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 an airborne infection isolation room (AIIR) if available. If an AIIR is unavailable a single-patient room with the door kept closed can be used. AN AIIR should have negative pressure air handling with 6 to 12 air changes per hour that is exhausted directly outside or be recirculated after filtration by a high efficiency particulate air (HEPA) filter. Facilities should monitor and document the proper negative-pressure function of AIIRs, including those in operating rooms, intensive care units, emergency departments, and procedure rooms. Procedures that are likely to generate aerosols (e.g., bronchoscopy, elective intubation, suctioning, administering nebulized medications) should be done in a location with negative pressure air handling whenever feasible.

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 limited to two persons at a time and 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. If unable to wear a respirator or mask or the visitor is otherwise unable to comply with precautions, strong consideration should be given to whether they should be allowed to visit.

## 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. Guidance from the CDC is available at: [http://www.cdc.gov/h1n1flu/guidance\\_homecare.htm](http://www.cdc.gov/h1n1flu/guidance_homecare.htm). CDPH guidance will be posted on the CDPH website when developed.

## **PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Personal protective equipment includes respiratory protection (e.g., N95 or higher level respirators), gowns, gloves, and eye or face protection.

### **Respiratory Protection**

Respirators should be used in accordance with the CAL-OSHA regulations ([www.dir.ca.gov/title8/5144.html](http://www.dir.ca.gov/title8/5144.html) or [www.osha.gov/SLTC/etools/respiratory](http://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. Cal/OSHA has issued the following guidance (<http://www.dir.ca.gov/dosh/SwineFlu/SwineFlu.htm>). It includes the following:

OSHA and Cal/OSHA regulations require that employees who use respirators be included in a respiratory protection plan that includes a medical evaluation, training, and fit testing to ensure that the respirator provides an adequate seal to the employee's face. However, these requirements should not be construed as preventing employers from providing respirators as an interim measure in this emergency to employees, such as health care workers, who are at increased risk of exposure to swine flu. Employers who have not yet provided medical evaluations, fit tests, and training should make all reasonable efforts to get

employees evaluated, fit-tested and trained as soon as possible, so that they can achieve maximum protection from the respirator. For more information on respirator use, see [www.dir.ca.gov/title8/5144.html](http://www.dir.ca.gov/title8/5144.html) or [www.osha.gov/SLTC/etools/respiratory](http://www.osha.gov/SLTC/etools/respiratory).

### Respirators

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, 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, broncholavage, 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. The efficacy of goggles versus a face shield is uncertain. 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, occupants do not need to wear respiratory protection while the patient is masked but should have it available to use if needed. 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**

Instructions for specimen collection can be found at <http://www.cdc.gov/h1n1flu/specimencollection.htm>. 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\\_environmentinfection.html](http://www.cdc.gov/ncidod/dhqp/gl_environmentinfection.html).

**Other Resources**

Information regarding infection control in specific healthcare setting such as outpatient, skilled nursing, and dialysis, as well as use of antiviral medication for healthcare workers have been or will be developed by CDPH and/or CDC. Guidance documents from CDPH are available at <http://www.cdph.ca.gov/HealthInfo/discond/Pages/SwineInfluenza.aspx> and from CDC at <http://www.cdc.gov/swineflu/guidance/>. It is important to monitor these sites on a regular basis.