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**CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
H1N1 INFLUENZA (SWINE INFLUENZA)
INFECTION CONTROL RECOMMENDATIONS
FOR HOSPITALIZED PATIENTS
UPDATED MAY 8, 2009**

This is an update of the May 1, 2009 California Department of Public Health (CDPH) recommendations for Infection Control for H1N1 Influenza (Swine Influenza) for Hospitalized Patients. Changes in this document do not represent any major policy changes and include updating the definition of suspected cases to be consistent with current recommendations, screening and limitation of visitors, contact information for questions about infection control, and transfer of patients from hospitals to and from long-term healthcare facilities.

These recommendations are consistent with the Center for Disease Control and Prevention (CDC) Infection Control for Patients in a Health Care Setting (http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm). Further information is available on the CDPH swine flu website at

<http://ww2.cdph.ca.gov/HealthInfo/discond/Pages/SwineInfluenzaHealthPros.aspx>.

These recommendations are subject to change. Monitor CDPH and CDC websites and your local health department for recommendations regarding H1N1 Flu. CDPH and CDC recommendations for infection control precautions are currently consistent and are not expected to change in the next few days, but may differ from those of your local health department. If you have questions about infection control issues please contact your local health department swine influenza hotline (attached).

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, or by inhalation of 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°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 H1N1 Swine Flu for infection control purposes

A **confirmed case** of H1N1 Flu infection is a person with an acute febrile respiratory illness with laboratory confirmed H1N1 Flu infection by one or more of the following tests:

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

A **probable case** of H1N1 Flu infection is 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 H1N1 Flu infection in California is any patient with an acute febrile respiratory illness, due to the transmission of H1N1 Flu throughout the state and the presentation of patients with H1N1 Flu.

Acute febrile respiratory illness is a measured temperature of $\geq 37.8^{\circ}\text{C}$ (100°F) plus recent onset of at least one of the following: rhinorrhea or nasal congestion, sore throat, or cough.

Clinicians should consider H1N1 Flu infection in the differential diagnosis of patients with febrile respiratory disease. 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 H1N1 Flu infection case is admitted to the hospital, emergency department or a potential exposure has occurred in an outpatient clinic. Hospitals should determine notification policies for patients admitted for whom swine influenza is being considered but do not meet the case definition of a suspected case.

Reporting

All cases of confirmed or probable H1N1 Flu infection in hospitalized patients 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 H1N1 Flu infection as part of their differential diagnosis should also be reported.

General Visitor Policies

There are currently no CDC or CDPH recommendations to actively screen health care facility visitors for symptoms of H1N1 Flu infection. Suggestions might range from posting signs to discourage ill persons from visitation (see below), development of an exposure questionnaire that includes information about fever and symptoms administered as the visitor enters the facility, or actively screening the visitor for fever and symptoms as they enter the facility.

To prevent transmission of H1N1 Flu in all health care settings, the CDC recommendations for Respiratory Hygiene/Cough Etiquette should be communicated to all persons entering a health care facility (www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm)

The recommendations include:

- Post visual alerts instructing all persons to report symptoms of acute respiratory febrile illness at the first point of contact.
- Offer tissues or masks to symptomatic persons.
- Provide a waste disposal container.
- Instruct persons to perform hand hygiene.
- Ensure that supplies for hand hygiene are available; soap and clean paper towels where sinks are located or dispensers of alcohol-based hand sanitizers.

Visitor Triage (Screening) and Suggested Signage

Family members and friends should be discouraged from visiting if they currently have symptoms of an acute febrile respiratory infection (temperature of $\geq 37.8^{\circ}\text{C}$ (100°F) plus recent onset of at least one of the following: rhinorrhea or nasal congestion, sore throat, or cough (with or without fever or feverishness).

If visitation is necessary, the following information should be communicated.

VISITORS

**IF YOU HAVE A FEVER AND SORE THROAT OR NEW COUGH
AND YOU MUST ENTER THIS HEALTH CARE FACILITY, PLEASE FOLLOW THESE
INSTRUCTIONS:**

- Place a mask, located (location of mask instructions) over your nose and mouth before entering and wear the mask at all times while in this facility,
- Cough or sneeze into a tissue or your sleeve,
- Dispose of tissues in the nearest waste receptacle after use, and
- Clean your hands when entering this facility, after contact with your respiratory secretions and after contact with any patient/resident.

THANK YOU FOR PROTECTING OUR PATIENTS/RESIDENTS AND STAFF

Visitors to Patients in Isolation Precautions

Hospitals should develop and implement procedures for visitors of patients/residents who have been placed in isolation precautions. Consider limiting visitors of patients in isolation to persons who are necessary for the patient's emotional well-being and care. Personal protective equipment for visitors may be at the discretion of the facility, and

should take into account prior exposure to the patient and the ability of the visitor to comply with isolation requirements. Procedures should minimally require visitors to sanitize their hands with an alcohol-based product prior to entering an isolation room.

GENERAL PRECAUTIONS

Hand Hygiene

Hands should be washed with soap (plain or antimicrobial) and water after unprotected (ungloved) contact with visible blood and 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 health care 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 Flu infection 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 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](#).

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.

Patients from an acute care hospital that are confirmed or probable cases of H1N1 Flu should not be transferred to a long-term health care facility until 7 days after the onset of their illness or their acute symptoms have resolved, unless the long-term health care facility is capable of maintaining appropriate infection control precautions for the appropriate duration of isolation. Patients from an acute care hospital that have a negative test for influenza A by PCR testing or have an alternative diagnosis established may be transferred as usual. Patients from an acute care hospital that have developed a febrile respiratory illness of unknown etiology within 7 days of their planned transfer should be handled on a case by case basis. Consult with your local health department if assistance is needed.

PERSONAL PROTECTIVE EQUIPMENT

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 or www.osha.gov/SLTC/etools/respiratory). This includes training and fit testing of each health care 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 or 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 Change Frequency

Cal/OSHA regulations require employers to develop policies for the use, cleaning, and decontamination and/or disposal of respirators so that they remain effective in protecting employees, and do not become a hazard. In addition, in health care settings, respirator use may be affected by infection control policies. Respirators should never be shared between employees unless the respirator has been cleaned and disinfected between users.

N-95 filtering facepiece respirators cannot be disinfected. A filtering facepiece respirator should be removed and discarded if it becomes damaged or deformed, if the sealing surfaces are compromised, if it becomes contaminated with hazardous substances, if it becomes wet or visibly dirty, or if breathing through it becomes more difficult. In addition, when used to protect against infectious agents, the respirator should be discarded if it becomes contaminated with blood, respiratory or nasal secretions, or other bodily fluids. Filtering facepiece respirators used for aerosol generating procedures should always be discarded at the end of each procedure.

A respirator that is worn continuously while caring for different patients (i.e. not removed between patients) does not pose an infection hazard to the wearer, and a 2006 report from the IOM found that materials captured by a filter are unlikely to be released even if the wearer sneezes or coughs. However, the outside of the respirator may contain infectious particles that may be transferred to the inside of the respirator or to the employee's hands during the process of taking off the respirator, or putting it on. Employees should be trained on procedures such as those in the CDC guidelines for putting on (donning) and taking off (doffing) personal protective equipment, including respirators. See <http://www.cdc.gov/ncidod/dhqp/ppe.html>. Employees should be instructed not to touch the inside surface of the respirator they are donning in order to avoid contaminating the inside surface, and also because the inside of the respirator may be contaminated with the health care worker's own secretions. Employees should

perform hand hygiene if they touch the outside surface of a respirator that may be contaminated.

Contact precautions have been recommended for H1N1 influenza. Therefore, it is recommended that filtering facepiece respirators be discarded after removal, and that elastomeric (plastic) respirators with removable cartridges or filters be disinfected prior to putting the respirator back on. However, if a respirator must be taken off and put on multiple times during a shift, the respirator should be stored during periods it is not worn in a clean container in a manner that protects the inside of the respirator from contamination. If the respirator is stored in a plastic bag, then the bag should be disposed of after the respirator is put on, to prevent contamination of the inside of the respirator when it is stored. Filtering facepiece respirators should be discarded as frequently as necessary, and at the end of the employee's shift.

N-95 respirators may be labeled as "single use", disposable devices. The FDA has clarified this labeling to mean that "if your respirator is damaged or soiled, or if breathing becomes difficult, you should remove the respirator, discard it properly, and replace it with a new one. To safely discard your N95 respirator, place it in a plastic bag and put it in the trash. Wash your hands after handling the used respirator."

<http://www.fda.gov/cdrh/ppe/masksrespirators.html#4>

Cal/OSHA regulations also require that respirators be used as approved by the National Institute for Occupational Safety and Health (NIOSH), and must not be altered. Therefore surgical masks should not be placed over the respirator. Respirators can, however, be used with a face shield so long as the face shield does not touch the respirator or otherwise interfere with its function.

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, bronchial lavage, and resuscitation involving emergency intubation or cardiac pulmonary resuscitation). When elastomeric (rubber) or powered air purifying respirators (PAPR) are used by more than one health care 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 health care 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. The efficacy of goggles versus a face shield is uncertain; goggles provide a tighter seal but may interfere with the fit of a respirator. 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_ environinfection.html.

Other Resources

Information regarding infection control in specific health care settings 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.

Local Health Department
H1N1 Flu Hotline Phone Numbers

County	Flu Info/Hotline Phone Numbers	County	Flu Info/Hotline Phone Numbers
Alameda	1-888-604-4636	Orange	800-564-8448
Alpine	530-694-2146	Pasadena City	626-744-6012
Amador	209-223-6407	Placer	530-889-7161
Berkeley City	510-981-5340 or 510-981-2489	Plumas	530-283-6330
Butte	1-866-444-2405	Riverside	951-358-5107
Calaveras	209-754-6460	Sacramento	916-875-5881
Colusa	530-458-0380	San Benito	831-637-5367
Contra Costa	925-313-6469	San Bernardino	1-800-782-4264
Del Norte	707-465-0319	San Diego	877-358-0202
El Dorado	530-621-6188	San Francisco	415-554-2830
Fresno	1-888-993-3003	San Joaquin	209-469-8200
Glenn	530-934-6588	San Luis Obispo	805-788-2903
Humboldt	707-476-4945	San Mateo	650-573-3927
Imperial	760-482-4438	Santa Barbara	1-888-722-6358 or 805-681-5280
Inyo	760-873-7868	Santa Clara	408-885-3980
Kern	1-877-818-4787	Santa Cruz	831-454-4343
Kings	559-584-1401	Shasta	800-971-1999
Lake	707-994-9433 or 707-263-1090	Sierra	530-993-6705
Lassen	530-251-8183	Siskiyou	530-841-2100
Long Beach City	562-570-4499	Solano	707-553-5402
Los Angeles	213-351-7800	Sonoma	707-565-4477
Madera	559-675-7893	Stanislaus	209-558-8872
Marin	415-473-6007	Sutter	530-822-7215
Mariposa	1-800-459-4466	Tehama	530-527-6824
Mendocino	707-472-2675	Trinity	530-623-8218
Merced	209-381-1180	Tulare	559-687-6965
Modoc	530-233-6311	Tuolumne	209-533-7401
Mono	760-924-1830	Ventura	805-981-5175
Monterey	831-755-1280	Yolo	530-666-8645
Napa	707-253-4540	Yuba	530-749-6366
Nevada	530-265-7258		