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**TO:** General Acute Care Hospital Administrators  
Infection Control Professionals and Directors of Nursing  
Emergency Departments  
Departments of Medicine  
Pulmonologists, Intensivists, Hospitalists, and Infectious Diseases  
Specialists

**Subject:** Severe Acute Respiratory Syndrome (SARS) – Infection Control  
Recommendations

Patients with a condition called severe acute respiratory syndrome (SARS) have been reported to the Centers for Disease Control and Prevention (CDC) and the World Health Organization from China (Guangdong Province), Hong Kong, and Hanoi, Viet Nam. The cause of the syndrome is unknown and is being investigated. Cases have also been reported following travel to those affected countries in Canada, Indonesia, Philippines, Singapore, and Thailand. As of March 17, no cases had been reported in the U.S., although a possible case is under evaluation in Los Angeles. The following advisory was developed by the California Department of Health Services (CDHS) to assist hospitals in the management of patients with suspected SARS.

Early manifestations in patients with SARS have included influenza-like symptoms such as fever, myalgias, headache, sore throat, dry cough, shortness of breath, or difficulty breathing. In some cases these symptoms are followed by hypoxia, pneumonia, and occasionally acute respiratory distress requiring mechanical ventilation and death. Laboratory findings may include thrombocytopenia and/or leukopenia. Some close contacts, including healthcare workers, have developed similar illnesses. Information on SARS is available at the CDC (<http://www.cdc.gov/ncidod/sars/>) and WHO (<http://www.who.int/en/>) web sites.

In response to these developments, the California Department of Health Services (CDHS) in conjunction with CDC is initiating surveillance for cases of SARS among recent travelers or their close contacts. Alerts have also been prepared for health care providers and for local health departments. Cases of suspected SARS who meet the case definition should be reported to the local health department. Until a mode of transmission is identified, patients with suspected SARS who require hospitalization should be placed on contact and airborne isolation precautions, in a negative pressure room, if possible.



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**CDC Interim Case Definition (subject to change as more information is available)**

Persons with respiratory illness of unknown etiology with onset since February 1, 2003.

**Suspect Case:**

A person presenting with one or more signs or symptoms of respiratory illness including cough, shortness of breath, difficulty breathing, hypoxia, or radiographic findings of pneumonia or acute respiratory distress syndrome;

AND fever ( $>38^{\circ}$  C);

AND one or more of the following:

Close contact\* within 10 days of onset of symptoms with a person under investigation or suspected of having SARS;

Travel within 10 days of onset of symptoms to an area with documented transmission of SARS (see list).

Note: Suspect cases with either radiographic evidence of pneumonia or respiratory distress syndrome; or evidence of unexplained respiratory distress syndrome by autopsy are designated "probable" cases by the WHO case definition.

\* Close contact is defined as having cared for, having lived with or having had direct contact with respiratory secretions and /or body fluids of a patient suspected of having SARS.

List of areas with transmission of SARS (through 3-17-03): Hong Kong Special Administrative Region and Guangdong province, Peoples' Republic of China; Hanoi, Vietnam; Singapore; and Toronto, Canada.

**Reporting:**

All cases of suspected SARS that meet the above case definition should be reported immediately to the local health department.

**Diagnostic Evaluation:**

Clinicians should evaluate persons meeting the above description and, if indicated, admit them to the hospital. Initial diagnostic testing should include chest radiograph, pulse oximetry, blood cultures, sputum Gram's stain and culture, and testing for viral respiratory pathogens, notably influenza A and B and respiratory syncytial virus. Clinicians should save any available clinical specimens (respiratory, blood, and serum) for additional testing until a specific diagnosis is made. The local health department, in conjunction with CDHS, will determine the need for additional testing.

**Treatment:**

Because the etiology of these illnesses has not yet been determined, no specific treatment recommendations can be made at this time. Empiric therapy should include coverage for organisms associated with any community-acquired pneumonia of unclear etiology, including agents with activity against both typical and atypical respiratory pathogens. Treatment choices may be influenced by severity of the illness. Infectious disease consultation is recommended.

### **Infection Control Practitioner**

Infection control practitioners (ICP) should be notified of all patients admitted with suspected SARS. Until the etiology and route of transmission of SARS is identified, hospital staff should follow the isolation precautions outlined below. Many ill persons are likely to report to the hospital emergency room or to their health care provider. With the assistance of ICP, isolation precautions should be specifically adapted to alternative care situations.

### **Isolation Precautions**

Airborne precautions (including an isolation room with negative pressure relative to the surrounding area and use of an N-95 respirator for persons entering the room) should be used in addition to contact precautions.

#### **Room Placement**

Patients with SARS should be isolated, ideally, in negative pressure rooms with adjoining anterooms. However, these facilities may be limited or, in some hospitals, non-existent. Several options for isolating patients with SARS are presented. Plan A or B is the best approach for a limited number of cases. Plan C may have to be implemented to accommodate increasing numbers of patients.

Plan A: - Airborne (Negative Pressure) Isolation Room: Place the patient in a private room that has (1) monitored negative air pressure in relation to the exterior surrounding areas, (2) 6 -12 air changes per hour (ACH), and (3) appropriate venting of contaminated air to the outside. If 6 – 12 ACH cannot be achieved, place a HEPA filtration unit in the room. The windows and doors should remain closed and the patient should remain in the room.

Plan B: – No Negative Pressure Room: Place the patient in a private room, equipped with a HEPA filtration unit if available. The windows and doors should remain closed and the patient should remain in the room.

Plan C: – Designated Nursing Unit: If the number of patients requiring hospitalization and isolation increases, consider designating a wing of a nursing unit or, preferentially, an entire nursing unit. Infection control practitioners should develop a plan consistent with the structure of the hospital and the ability to effectively isolate infected patients from non-infected patients.

#### **Visitors**

Visitors should be limited to immediate the family or significant others. If this is not an option, visitors should be instructed to wear PPE, including a N-95 respirator.

#### **Personal Protective Equipment (PPE)**

Respirators: Disposable, NIOSH-approved, fit-tested N-95 respirators should be worn when entering the room and removed after leaving the room. If patients cannot be placed in negative pressure or HEPA filtered rooms, N-95 respirators should be worn at all times when entering a designated SARS unit.

Facial Shields or Eye Protectors: Face shields or eye protectors with side shields should be worn when entering the room.

Gowns: Disposable gowns or coveralls should be worn when entering the room if substantial contact with patient or environmental surfaces is anticipated.

Gloves: Disposable gloves should be worn when entering the room.

Dietary Trays and Eating and Drinking Utensils: Disposable dietary trays and eating and drinking utensils are not recommended.

### **Handwashing**

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

### **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 N-95 respirators.

### **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 placed in an appropriately labeled container, sealed and transported to central service for reprocessing.

### **Environmental Services**

Daily Cleaning: Disinfect environmental surfaces in the patient's room and bathroom with a properly diluted Environmental Protection Agency (EPA) approved disinfectant such as a quaternary ammonium compound or a phenolic according to hospital policy.

Terminal Cleaning: should be performed according to standard hospital policy.

### **Soiled Linen**

Soiled Linen should be according to standard hospital policy.

### **Biohazard Waste**

Disposable items removed from the patient's room should be handled according to standard hospital policy.

### **Deceased Patient**

Deceased patients should be transferred to the morgue in a leak-proof body bag.