

West Virginia Department of Health and Human Resources Information for Community Physicians and Health Care Workers (HCW) – Severe Acute Respiratory Syndrome (SARS)

NOTE: Information about SARS is expected to change rapidly in the foreseeable future. Make certain you have the most up-to-date information.

How can I protect my patients – and myself – from SARS?

Physicians, health care workers, hospitalized patients and other close contacts have been particularly vulnerable to infection with SARS. Protect your patients – and yourself – in three steps: *screen, isolate, report*.

1. Screen

If feasible, screen patients in a *separate part* of your facility. Ask patients with fever and respiratory symptoms:

- a. Have you traveled to Hong Kong; People's Republic of China; Taiwan; Hanoi, Vietnam; Singapore; or Toronto, Canada?
- b. Have you traveled through the airport in any of these places?
- c. Have you been exposed to a person with SARS?

If 'yes,' to any of these questions, *isolate*.

2. Isolate

Immediately place a surgical mask on a SARS suspect patient and transport to isolation. Health care workers should wear an N-95 mask (or surgical mask if an N-95 mask is not available). To summarize, recommended precautions include:

- a. Standard precautions. In addition to standard precautions, HCW should use eye protection;
- b. Contact precautions (gloves, gown for HCW); and
- c. Respiratory precautions (negative pressure room for the patient and N-95 mask for the HCW).

If respiratory precautions are not feasible, *at a minimum*, place the patient in a private room with the door closed AND place a surgical mask on the patient and on health care workers attending the patient.

3. Report

- a. If the patient is to be hospitalized, immediately notify your hospital infection control practitioner (ICP). S/he will make certain that:
 - i. Appropriate screening and isolation guidelines are implemented in the hospital;
 - ii. Exposed health care workers are managed appropriately; and
 - iii. Visitors are screened and counseled.
- b. Immediately notify your local health department (LHD). Your LHD will:
 - i. Take responsibility for home isolation of suspect SARS patients who do not need hospitalization.
 - ii. Trace contacts of SARS patients and follow them to identify

- patients with symptoms immediately.
- iii. Manage potential exposures in schools and workplaces to minimize risk to the community.
- iv. Help arrange laboratory testing through CDC.
- v. Stay in communication with you about the status of SARS in your community.

Good communication with your ICP and LHD will reduce unnecessary risk to you and your patients.

What are the signs and symptoms of SARS?

Patients present with fever, chills or rigors, myalgias, malaise, headache and dizziness. Cough is universally present and usually dry. Sore throat, coryza, nausea, vomiting and diarrhea may be present in some patients. On examination, the patient is febrile and may have rales or signs of pulmonary consolidation.

Laboratory studies typically demonstrate lymphopenia. Thrombocytopenia occurs in about half of cases. A sizeable minority of patients may have elevated serum alanine aminotransferases, creatinine kinase and lactic dehydrogenase. Hyponatremia and hypokalemia may also occur. Chest X-ray show signs of peripheral consolidation in some patients. Hilar adenopathy, cavitation and pleural effusion have not been described. Subsequent progression to ARDS may occur in some patients with severe disease.

Patients with a more severe clinical course have generally been older and had underlying disease such as diabetes. Severe respiratory failure due to ARDS has been the major cause of death. Mortality in hospitalized patients was 6.5% in the series from Toronto, Canada.

What diagnostic testing is recommended?

Evaluate patients for treatable causes of community-acquired pneumonia. For patients needing hospitalization for pneumonia, initial diagnostic testing should include:

1. Chest radiograph,
2. Pulse oximetry,
3. Blood cultures,
4. Sputum Gram's stain and culture, and
5. Testing for viral respiratory pathogens, notably influenza A and B and respiratory syncytial virus.

Reserve any available clinical specimens (respiratory, blood, and serum) for additional testing until a specific diagnosis is made. Laboratory testing for SARS is available by consulting your local health department or the Infectious Disease Epidemiology Program (304-558-5358 or 1-800-423-1271, available 24/7/365). Testing of suspect patients is extremely important for epidemiological purposes. At present, the science of testing is too new to impact either treatment or isolation decisions; however, testing will help us learn more about the disease.

What treatment is suggested for SARS patients?

At this time, no specific therapy is available for SARS. Clinicians should appropriately cover other potential pathogens in the differential of community acquired pneumonia as indicated by the results of the diagnostic workup.

Case definition for SARS:

(use this definition dated 05/20/03 to make a tentative diagnosis of SARS)

Case Definition

(June 05, 2003)

Clinical Criteria

- Asymptomatic or mild respiratory illness
- Moderate respiratory illness
 - Temperature of $>100.4^{\circ}\text{F}$ ($>38^{\circ}\text{C}$)*, and
 - One or more clinical findings of respiratory illness (e.g., cough, shortness of breath, difficulty breathing, or hypoxia).
- Severe respiratory illness
 - Temperature of $>100.4^{\circ}\text{F}$ ($>38^{\circ}\text{C}$)*
 - One or more clinical findings of respiratory illness (e.g., cough, shortness of breath, difficulty breathing, or hypoxia), and
 - radiographic evidence of pneumonia, or
 - autopsy findings consistent with pneumonia or respiratory distress syndrome without an identifiable cause

Epidemiologic Criteria

- Travel (including transit in an airport) within 10 days of onset of symptoms to an area with current or recently documented or suspected community transmission of SARS (see Table), or
- Close contact § within 10 days of onset of symptoms with a person known or suspected to have SARS infection

Travel criteria for suspect or probable U.S. cases of SARS

Area	First date of illness onset for inclusion as reported case††	Last date of illness onset for inclusion as reported case††
China (mainland)	November 1, 2002	Ongoing
Hong Kong	February 1, 2003	Ongoing
Hanoi, Vietnam	February 1, 2003	May 25, 2003
Singapore	February 1, 2003	June 14, 2003
Toronto, Canada	April 23, 2003	Ongoing
Taiwan	May 1, 2003	Ongoing

Laboratory Criteria ¶

- Confirmed
 - Detection of antibody to SARS-CoV in specimens obtained during acute illness or >21 days after illness onset, or
 - Detection of SARS-CoV RNA by RT-PCR confirmed by a second PCR assay, by using a second aliquot of the specimen and a different set of PCR primers, or
 - Isolation of SARS-CoV
- Negative
 - Absence of antibody to SARS-CoV in convalescent serum obtained > 21 days after symptom onset
- Undetermined: laboratory testing either not performed or incomplete

Case Classification **

- Probable case: meets the clinical criteria for severe respiratory illness of unknown etiology and epidemiologic criteria for exposure; laboratory criteria confirmed, negative, or undetermined
- Suspect case: meets the clinical criteria for moderate respiratory illness of

unknown etiology and epidemiologic criteria for exposure; laboratory criteria confirmed, negative, or undetermined

Exclusion Criteria

A case may be excluded as a suspect or probable SARS case if:

- An alternative diagnosis can fully explain the illness***
- The case was reported on the basis of contact with an index case that was subsequently excluded as a case of SARS (e.g., another etiology fully explains the illness) provided other possible epidemiologic exposure criteria are not present.

* A measured documented temperature of $>100.4^{\circ}$ F ($>38^{\circ}$ C) is preferred. However, clinical judgment should be used when evaluating patients for whom a measured temperature of $>100.4^{\circ}$ F ($>38^{\circ}$ C) has not been documented. Factors that might be considered include patient self-report of fever, use of antipyretics, presence of immunocompromising conditions or therapies, lack of access to health care, or inability to obtain a measured temperature. Reporting authorities might consider these factors when classifying patients who do not strictly meet the clinical criteria for this case definition.

§ Close contact is defined as having cared for or lived with a person known to have SARS or having a high likelihood of direct contact with respiratory secretions and/or body fluids of a patient known to have SARS. Examples of close contact include kissing or embracing, sharing eating or drinking utensils, close conversation (<3 feet), physical examination, and any other direct physical contact between persons. Close contact does not include activities such as walking by a person or sitting across a waiting room or office for a brief period of time.

‡‡ The WHO has specified that the surveillance period for China should begin on November 1; the first recognized cases in Hong Kong, Singapore and Hanoi (Vietnam) had onset in February 2003. The dates for Toronto and Taiwan are linked to CDC's issuance of travel recommendations.

† The last date for illness onset is 10 days (i.e., one incubation period) after removal of a CDC travel alert. The case patient's travel should have occurred on or before the last date the travel alert was in place.

¶¶ Assays for the laboratory diagnosis of SARS-CoV infection include enzyme-linked immunosorbent assay, indirect fluorescent-antibody assay, and reverse transcription polymerase chain reaction (RT-PCR) assays of appropriately collected clinical specimens (Source: CDC. Guidelines for collection of specimens from potential cases

of SARS. Available at http://www.cdc.gov/ncidod/sars/specimen_collection_sars2.htm). Absence of SARS-CoV antibody from serum obtained < 21 days after illness onset, a negative PCR test, or a negative viral culture does not exclude coronavirus infection and is not considered a definitive laboratory result. In these instances, a convalescent serum specimen obtained > 21 days after illness is needed to determine infection with SARS-CoV. All SARS diagnostic assays are under evaluation.

** Asymptomatic SARS-CoV infection or clinical manifestations other than respiratory illness might be identified as more is learned about SARS-CoV infection

*** Factors that may be considered in assigning alternate diagnoses include the strength of the epidemiologic exposure criteria for SARS, the specificity of the diagnostic test, and the compatibility of the clinical presentation and course of illness for the alternative diagnosis.

For more information:

Information about SARS is expected to change rapidly in the foreseeable future. Excellent current information is available at www.cdc.gov and www.who.int/en. For recommendations on diagnosis and management of community-acquired pneumonia, see: *Clinical Infectious Diseases*, 2000;31:347-82.