



Supplement B: SARS Surveillance

Appendix B1: Revised CSTE SARS Surveillance Case Definition

December 2003

Clinical Criteria

Early illness

- Presence of two or more of the following features: fever (might be subjective), chills, rigors, myalgia, headache, diarrhea, sore throat, rhinorrhea

Mild-to-moderate respiratory illness

- Temperature of $>100.4^{\circ}\text{F}$ ($>38^{\circ}\text{C}$)¹ and
- One or more clinical findings of lower respiratory illness (e.g., cough, shortness of breath, difficulty breathing)

Severe respiratory illness

- Meets clinical criteria of mild-to-moderate respiratory illness, and
- One or more of the following findings:
 - Radiographic evidence of pneumonia, or
 - Acute respiratory distress syndrome, or
 - Autopsy findings consistent with pneumonia or acute respiratory distress syndrome without an identifiable cause

Epidemiologic Criteria

Possible exposure to SARS-associated coronavirus (SARS-CoV)

One or more of the following exposures in the 10 days before onset of symptoms:

- Travel to a foreign or domestic location with documented or suspected recent transmission of SARS-CoV² or
- Close contact³ with a person with mild-to-moderate or severe respiratory illness and with history of travel in the 10 days before onset of symptoms to a foreign or domestic location with documented or suspected recent transmission of SARS-CoV²

Likely exposure to SARS-CoV

One or more of the following exposures in the 10 days before onset of symptoms:

- Close contact³ with a confirmed case of SARS-CoV disease or
- Close contact³ with a person with mild-moderate or severe respiratory illness for whom a chain of transmission can be linked to a confirmed case of SARS-CoV disease in the 10 days before onset of symptoms

Laboratory Criteria

Tests to detect SARS-CoV are being refined, and their performance characteristics assessed; therefore, criteria for laboratory diagnosis of SARS-CoV are changing⁴. The following are the general criteria for laboratory confirmation of SARS-CoV:

Supplement B: SARS Surveillance

(continued from previous page)

- Detection of serum antibody to SARS-CoV by a test validated by CDC (e.g., enzyme immunoassay [EIA]), *or*
- Isolation in cell culture of SARS-CoV from a clinical specimen, *or*
- Detection of SARS-CoV RNA by a reverse-transcription-polymerase chain reaction (RT-PCR) test validated by CDC and with subsequent confirmation in a reference laboratory (e.g., CDC)

Information regarding the current criteria for laboratory diagnosis of SARS-CoV is available at <http://www.cdc.gov/ncidod/sars/labdiagnosis.htm>.

Exclusion Criteria

A person may be excluded as a SARS report under investigation (SARS RUI), including as a CDC-defined probable SARS-CoV case, if any of the following applies:

- An alternative diagnosis can explain the illness fully⁵
- Antibody to SARS-CoV is undetectable in a serum specimen obtained >28 days after onset of illness⁶
- The case was reported on the basis of contact with a person who was excluded subsequently as a case of SARS-CoV disease; then the reported case also is excluded, provided other epidemiologic or laboratory criteria are not present

Case Classification

SARS RUI

Reports in persons from areas where SARS is not known to be active:

- **SARS RUI-1:** Patients with severe illness compatible with SARS in groups likely to be first affected by SARS-CoV⁷ if SARS-CoV is introduced from a person without clear epidemiologic links to known cases of SARS-CoV disease or places with known ongoing transmission of SARS-CoV

Reports in persons from areas where SARS activity is occurring:

- **SARS RUI-2:** Patients who meet the current clinical criteria for mild-to-moderate illness and the epidemiologic criteria for possible exposure (spring 2003 CDC definition for suspect cases⁸)
- **SARS RUI-3:** Patients who meet the current clinical criteria for severe illness and the epidemiologic criteria for possible exposure (spring 2003 CDC definition for probable cases⁸)
- **SARS RUI-4:** Patients who meet the clinical criteria for early or mild-moderate illness and the epidemiologic criteria for likely exposure to SARS-CoV

SARS-CoV disease classification

- Probable case of SARS-CoV disease: in a person who meets the clinical criteria for severe respiratory illness and the epidemiologic criteria for likely exposure to SARS-CoV
- Confirmed case of SARS-CoV disease: in a person who has a clinically compatible illness (i.e., early, mild-to-moderate, or severe) that is laboratory confirmed

¹A measured documented temperature of >100.4° F (>38° C) is expected. However, clinical judgment may allow a small proportion of patients without a documented fever to meet this criterion. Factors that might be considered include patient's 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. Initial case classification based on reported information might change, and reclassification might be required.

²Types of locations specified will vary (e.g., country, airport, city, building, floor of building). The last date a location may be a criterion for exposure for illness onset is 10 days (one incubation period) after removal of that location from CDC travel alert status. The patient's travel should have occurred on or before the last date the travel alert was in

Supplement B: SARS Surveillance

(continued from previous page)

place. Transit through a foreign airport meets the epidemiologic criteria for possible exposure in a location for which a CDC travel advisory is in effect. Information regarding CDC travel alerts and advisories and assistance in determining appropriate dates are available at <http://www.cdc.gov/ncidod/sars/travel.htm>.

³Close contact is defined as having cared for or lived with a person with SARS or having a high likelihood of direct contact with respiratory secretions and/or body fluids of a person with SARS (during encounters with the patient or through contact with materials contaminated by the patient) either during the period the person was clinically ill or within 10 days of resolution of symptoms. 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 time.

⁴The identification of the etiologic agent of SARS (SARS-CoV) led to the rapid development of EIAs and immunofluorescence assays (IFAs) for serologic diagnosis and RT-PCR assays for detection of SARS-CoV RNA in clinical samples. These assays can be very sensitive and specific for detecting antibody and RNA, respectively, in the later stages of SARS-CoV disease. However, both are less sensitive for detecting infection early in illness. The majority of patients in the early stages of SARS-CoV disease have a low titer of virus in respiratory and other secretions and require time to mount an antibody response. SARS-CoV antibody tests might be positive as early as 8–10 days after onset of illness and often by 14 days after onset of illness, but sometimes not until 28 days after onset of illness. Information regarding the current criteria for laboratory diagnosis of SARS-CoV is available at <http://www.cdc.gov/ncidod/sars/labdiagnosis.htm>.

⁵Factors that may be considered in assigning alternate diagnoses include the strength of the epidemiologic exposure criteria for SARS-CoV disease, the specificity of the alternate diagnostic test, and the compatibility of the clinical presentation and course of illness for the alternative diagnosis.

⁶Current data indicate that >95% of patients with SARS-CoV disease mount an antibody response to SARS-CoV. However, health officials may choose not to exclude a case based on lack of a serologic response if reasonable concern exists that an antibody response could not be mounted.

⁷Consensus guidance between CDC and CSTE on which groups are most likely to be first affected by SARS-CoV if it re-emerges is in development. In principle, SARS-CoV disease should be considered at a minimum in the differential diagnosis for persons requiring hospitalization for radiographically confirmed pneumonia or acute respiratory distress syndrome without identifiable etiology and who have one of the following risk factors in the 10 days before the onset of illness:

- Travel to mainland China, Hong Kong, or Taiwan, or close contact with an ill person with a history of recent travel to one of these areas, *or*
- Employment in an occupation associated with a risk for SARS-CoV exposure (e.g., healthcare worker with direct patient contact or worker in a laboratory that contains live SARS-CoV), *or*
- Part of a cluster of cases of atypical pneumonia without an alternative diagnosis

Guidelines for the identification, evaluation, and management of these persons are available at <http://www.cdc.gov/ncidod/sars/absenceofsars.htm>.

⁸During the 2003 SARS epidemic, CDC case definitions were the following:

Suspect case

- Meets the clinical criteria for mild-to-moderate respiratory illness and the epidemiologic criteria for possible exposure to SARS-CoV but does not meet any of the laboratory criteria and exclusion criteria *or*
- Unexplained acute respiratory illness resulting in death in a person on whom an autopsy was not performed and who meets the epidemiologic criteria for possible exposure to SARS-CoV but does not meet any of the laboratory criteria and exclusion criteria

Probable case

- Meets the clinical criteria for severe respiratory illness and the epidemiologic criteria for possible exposure to SARS-CoV but does not meet any of the laboratory criteria and exclusion criteria

For more information, visit www.cdc.gov/ncidod/sars or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (Español), or (866) 874-2646 (TTY)