

SUPPLEMENT B: SARS SURVEILLANCE

North Carolina Department of Health and Human Services, Division of Public Health

I. Rationale and Goals

“Prompt detection of cases and their contacts, followed by rapid implementation of control measures.”
CDC *Public Health Guidance for Community-Level Preparedness and Response to Severe Acute Respiratory Syndrome (SARS) Version 2 - Supplement B*

Overall Goals:

- Ensure early detection of cases and clusters of respiratory infections that might signal SARS re-emergence or re-introduction into NC.
- If SARS is confirmed, maintain prompt and complete identification and reporting of potential cases to facilitate control of the outbreak.
- Identify and monitor contacts of SARS cases to enable early detection of illness in persons at greatest risk for disease.

II. Concepts of the NC SARS Surveillance Plan

- In diagnosing SARS, it is key to identify an epidemiologic link of exposure to another case of SARS or a setting where SARS-CoV transmission is occurring.
- Epidemiologic links must reflect the status of SARS globally and the travel risk, and the status of SARS activity in the community.
- In a setting with extensive SARS transmission, **any** febrile respiratory illness in a person should be considered SARS until proven otherwise.
- Healthcare settings and healthcare workers are likely to be the **earliest and most severely** affected by SARS.
- Healthcare providers are the key to early detection and reporting of SARS.
- Contact tracing is critical to the containment of SARS.
- Collection of appropriate and timely clinical specimens for laboratory testing is central to surveillance and control of SARS.
- Timely reporting, clinical updates, real-time analysis of data and dissemination of this information are essential for outbreak management decisions.
- Frequent communication and data sharing among healthcare providers and public health officials are needed to update the status of potential and diagnosed SARS cases.
- NC surveillance and reporting of SARS cases will occur electronically via the CDC's Secure Data Network (SDN) SARS Reporting Tool. This allows rapid and efficient reporting that facilitates real-time analysis of clinical, epidemiologic, and laboratory information at the local, state, and federal level.

III. SARS Case Definition and Statutory Authority

In March 2003, SARS became a mandatory reportable communicable disease in NC for providers and laboratories (10A NCAC 41A .0101). Thus a physician who has reason to suspect that a patient has SARS must report this within 24 hours to a local, regional, or state public health entity (NCGS § 130A-135). Similarly, laboratories must also report any positive SARS diagnostic test within 24 hours (NCGS § 130A-139).

SARS position statements and surveillance case definitions have been established by the Council of State and Territorial Epidemiologists (CSTE) and the CDC and are available on the Internet:

www.cste.org/PS/2004pdf/CSTESARScasedefrevision2003-12-11.pdf
www.cdc.gov/ncidod/sars/casedefinition.htm

IV. Plan for Surveillance of SARS Cases

Objective 1: Absence of Known SARS Activity Worldwide

Surveillance activities are aimed at early detection of cases and clusters of respiratory infections that may herald the re-emergence or re-introduction of SARS in NC.

Surveillance Activities for Healthcare Providers and Healthcare Facilities

- Screen patients hospitalized for pneumonia that would put them at higher risk for having SARS-CoV infection:
 - 1) 10 days before illness onset, travel to or close contact with other ill persons who recently traveled to a previously affected SARS area (China, Hong Kong, Singapore, Taiwan, Vietnam, Toronto),
 - 2) Employment as a healthcare worker, or
 - 3) Close contact with person(s) recently found to have radiographic evidence of pneumonia without an alternative diagnosis.
- SARS-CoV diagnostic testing should be ordered only after consultation with public health authorities to:
 - 1) Ensure timely reporting of suspect cases, and
 - 2) Optimize the positive predictive value of the test(s).
- Healthcare facilities, through their infection control activities, should conduct active surveillance for clusters of unexplained pneumonia among two or more healthcare workers within a 10-day period and who work in the same facility.

Activities for Local, Regional and State Public Health Entities

- Local Health Departments (LHD), Public Health Regional Surveillance Teams (PHRST), and the State Division of Public Health Epidemiology Section (General Communicable Disease Control (GCDC), the State Laboratory for Public Health (SLPH), and the Office of Public Health Preparedness and Response (OPHPR)) will disseminate surveillance guidelines to healthcare providers, particularly triage, emergency department, and hospital-based providers and laboratorians.
- GCDC staff, select SLPH and OPHPR personnel and the PHRSTs are responsible for electronic disease reporting of SARS cases via the CDC SDN SARS reporting system. LHD personnel (e.g. communicable disease nurse) will be trained on the SDN SARS reporting system by the PHRSTs on an as-needed basis determined by the volume of reports generated in the jurisdiction. The State Epidemiologist will extend SDN privileges to new users by submitting the name, title, work phone number and email address to the CDC at: sarswebappinfo@cdc.gov.
- LHDs, in consultation with PHRSTs or GCDC, should investigate the following pneumonia cases with regard to the likelihood that the illness(es) might be due to SARS-CoV infection:
 - 1) Illness onset dates grouped within a 10-day period,
 - 2) Ill healthcare workers who have direct patient care responsibilities,
 - 3) Ill travelers who had contact with healthcare settings while abroad and within 10 days of illness onset,
 - 4) Clusters of pneumonia among any group of persons for whom alternative diagnoses have been reliably excluded or clusters in which one case is linked to travel to a previously affected area or to an ill healthcare worker.
- LHDs should facilitate testing for SARS-CoV infection in appropriate patients hospitalized or evaluated within their jurisdictions. Clinical specimens should be sent to SLPH. GCDC staff will consult and/or report to the CDC cases or clusters of special concern as articulated above.

- All users of the NC Health Alert Network (NCHAN) should make SARS a high priority alert on their personal notifications (e.g. beeper, cell, email, fax, home and work phone).

Objective 2: Presence of Global SARS Activity

A surveillance system should be established that promptly identifies and reports all new NC SARS cases to facilitate management and control of the outbreak.

In the event of SARS re-emergence anywhere in the world, surveillance efforts should be modified to incorporate available risk factor information, particularly new geographic transmission patterns. The scope of surveillance activities in local jurisdictions may vary greatly depending upon the extent of disease in the community and within local healthcare facilities. LHDs must be prepared to reassign resources within communicable disease control units, including designating a CDC SDN SARS reporting tool user. PHRSTs must be prepared to train LHD users on the CDC SDN, and the State Epidemiologist must approve new SDN users.

Enhanced surveillance efforts should begin in any jurisdiction or facility with SARS cases, or if changing transmission patterns are identified. Enhanced surveillance activities should include increasing the sensitivity of case detection through use of less specific clinical criteria and on evaluation of suspicious illnesses regardless of identification of epidemiologic links.

Enhanced Surveillance Activities for Healthcare Providers and Healthcare Facilities

Community-based surveillance

- Screen all patients presenting to outpatient clinics with a fever or clinical signs of lower respiratory infection (cough, shortness of breath, difficulty breathing) for SARS risk factors:
 - 1) Travel within 10 days of illness onset to a foreign or domestic location with documented or suspected recent local SARS-CoV transmission, or
 - 2) Close contact within 10 days of illness onset with a person with known or suspected SARS infection.
- Facilities should begin SARS isolation precautions for any patient with fever or evidence of a lower respiratory infection and a SARS risk factor, notify the LHD, and begin preliminary clinical assessment (see Suppl. C).
- If a SARS case is confirmed in a community without evidence of SARS risk factors, then all patients presenting with fever or lower respiratory infection in that community, regardless of whether there are SARS risk factors, should have SARS considered in the differential diagnosis.

Hospital-based surveillance, no SARS patients

- Screen all patients presenting to emergency departments or hospital clinics with fever or lower respiratory infection for SARS risk factors.
- Report any clusters of severe febrile respiratory illness among healthcare workers to the LHD, PHRST or GCDC.
- Report any suspect SARS case to the LHD, PHRST, or GCDC.

Hospital-based surveillance, caring for community-acquired SARS patients

- Monitor daily all healthcare workers caring for SARS patients. For any healthcare worker with fever or respiratory symptoms:
 - 1) Begin SARS isolation precautions,
 - 2) Notify the LHD, and
 - 3) Begin preliminary clinical assessment (See Suppl. C).
- If SARS-CoV transmission is occurring in the community, the healthcare facility should screen all patients, visitors, medical staff, and employees upon entry for fever, cough, or

shortness of breath. If symptomatic, people should be screened for SARS risk factors, and if present, should be isolated and evaluated.

Hospital-based surveillance, facilities caring for large numbers of SARS patients, or facilities with nosocomial SARS transmission

- Monitor *all* healthcare workers daily for fever, cough, or shortness of breath. If present, begin SARS isolation precautions, obtain chest x-ray, and begin preliminary workup (See Suppl. C).
- Begin active inpatient surveillance by monitoring daily for new or worsening fever, cough, or shortness of breath. If active surveillance of inpatient units identifies suspicious cases, then:
 - 1) Investigate for exposure to known or suspected SARS patients,
 - 2) Isolate the patient, and
 - 3) Test the patient for alternative respiratory illnesses and SARS-CoV infection.
- Begin surveillance for illness and absenteeism among healthcare workers.

Enhanced Surveillance Activities for Local, Regional, and State Public Health Entities

- Issue an alert on NCHAN notifying users of a change from basic to enhanced surveillance for SARS.
- Disseminate any modified surveillance information via NCHAN.
- Facilitate reporting from hospitals; GCDC may consider deploying a Public Health Hospital Epidemiologist to a hospital with a large number of SARS admissions.
- LHDs should identify, evaluate and monitor exposed contacts of SARS cases (see Part V. below).
- Using the CDC SDN SARS reporting tool, GCDC and SLPH staff should review SARS reports daily to:
 - 1) Reassess the level of risk for SARS,
 - 2) Ensure adequate testing is done to rule out SARS-CoV,
 - 3) Identify new clusters,
 - 4) Identify contacts to make sure the LHD is aware, and
 - 5) Monitor epidemiologic trends.
- GCDC shall report cases under investigation and other information on SARS activity to the CDC to meet national surveillance objectives as outlined by CSTE and CDC.
- GCDC and/or SLPH shall report to CDC any positive SARS-CoV test results.

V. Plan for Surveillance of Contacts of SARS Cases

Objective 1: Prepare to conduct surveillance of contacts by ensuring the availability of personnel and other resources

Activities for Local, Regional, and State Public Health Entities

- GCDC shall designate an epidemiologist to coordinate activities related to the tracing, interviewing, evaluation, and monitoring of contacts. This person will manage this activity statewide using appropriate communication with LHDs and PHRSTs. A standard line-list form should be used (Appendix) to monitor all contacts of SARS cases.
- Other personnel may be deployed to manage contact tracing in NC including Disease Intervention Specialists from the HIV and STD Prevention and Care Branch and TB Prevention and Control nurses within GCDC. These personnel will be trained on the CDC SDN SARS reporting tool by PHRSTs and the State Epidemiologist will approve them as new SDN users.

Objective 2: Identify all contacts of SARS cases

Contact tracing is the systematic identification of persons who may have been exposed to patients with SARS-CoV during the infectious period. The extent of contact investigation will depend upon the index of suspicion and available resources with priority given to newly identified confirmed or probable cases and lower priority to suspect SARS patients with ambiguous clinical presentations and less convincing SARS exposure (Appendix B-1).

Activities for Local, Regional, and State Public Health Entities

- The LHD should initiate identification of a patient's contacts as soon as possible after a diagnosis of SARS.
- The LHD should obtain information about the case and their contacts during the case's infectious period from the case, next-of-kin, workplace representative or others with knowledge of the case-patient's recent whereabouts and activities.
- In special circumstances, identifying persons who had contact with the case-patient before the patient's onset of illness should be done (e.g. an index among a group of tourists).

Objective 3: Prioritize contacts on the basis of estimated risk of exposure

Activities for GCDC

- Depending upon the extent of a SARS outbreak in NC, the state Division of Public (DPH) Health, GCDC staff, may develop algorithms as a means for prioritizing contact investigations based upon:
 - 1) The strength of evidence supporting the diagnosis of SARS in the index case,
 - 2) Duration and nature of the contact's exposure to the case including the case-patient's severity of illness at the time of contact, and
 - 3) Host factors.
- After reviewing the contact priority list and available resources, NC DPH may limit contact tracing to the highest priority group(s).
- In all situations, contact tracing shall be done on all household and other close contacts of probable and confirmed SARS cases.

Objective 4: Ensure adequate counseling, evaluation, and monitoring of contacts

Activities for Local, Regional, and State Public Health Entities

- LHDs should communicate with contacts about their potential exposure and provide instructions regarding health monitoring and directions for seeking medical care.
- Monitoring may be active (e.g. regular workplace temperature measuring) or passive (self-monitoring).
- Contacts may be quarantined by the LHD as needed (see Suppl. D).
- LHDs may partner with community occupational health personnel to ensure adequate resources for the evaluation and monitoring of workplace contacts.

Objective 5: Ensure the use of proper procedures during contact tracing activities

Activities for Local, Regional, and State Public Health Entities

- Use appropriate personal protective equipment when interacting closely with contacts (see Suppl. C).
- If contact information is unknown or incomplete, use any data source available (e.g. phone directory, voting lists, neighborhood interviews, etc.). Consider media announcements if necessary.
- Locate and interview each contact and:
 - 1) Confirm exposure to SARS case,
 - 2) Document the presence or absence of fever or respiratory symptoms, and
 - 3) Identify additional contacts who may not have been listed.
- For asymptomatic contacts, initiate symptom monitoring for 10 days after the last contact with the SARS case.
- For symptomatic contacts, make arrangements for appropriate medical evaluation using recommended precautions (see Suppl. C).
- Counsel, interview, and report symptomatic contacts as a suspected SARS case. Identify his/her contacts.
- For contacts who have left the state, notify GCDC for interstate notification.