Severe acute respiratory syndrome (SARS)

Epidemiology in New Zealand

A large outbreak of a new respiratory disease, termed severe acute respiratory syndrome (SARS), began in the Guangdong province of southern China in November 2002. The disease had a high mortality rate and was caused by a new coronavirus, termed SARS coronavirus (SARS-CoV), thought to have been transmitted from animals (such as the palm civet) to humans in wild animal markets. No cases of SARS have been diagnosed in New Zealand.

Since July 2003 there has been no reported human-to-human transmission at outbreak sites. There have, however, been a few international incidents of laboratory worker infection, with secondary spread to two close contacts in one instance.

Case definition

Clinical description

Relatively insidious onset with fever, myalgia, malaise and headache, followed a few days to 1 week later by dry cough and dyspnoea. About 25 percent of cases have diarrhoea. Symptoms of upper respiratory tract infection (rhinorrhea and sore throat) are uncommon. Chest X-rays typically show scattered peripheral and lower zone opacification. About 25 percent of cases develop severe pulmonary disease that may lead to death from respiratory failure.

The illness is similar but a little milder in children.

Laboratory test for diagnosis

Laboratory confirmation requires at least one of the following:

- detection of diagnostic levels of serum antibody to SARS-CoV
- isolation (for example, in cell culture) of SARS-CoV from a clinical specimen
- detection of SARS-CoV nucleic acid in two clinical specimens either collected from different sources or collected from the same source on different days.

Consult a reference laboratory to discuss testing. Information regarding the current World Health Organization (WHO) advice for laboratory diagnosis of SARS-CoV is available at: www.who.int/csr/sars/guidelines/en/SARSLabmeeting.pdf and www.who.int/csr/sars/guidelines/en
Case classification

- **Under investigation:** A person who has been referred to the public health service for investigation of possible SARS-CoV infection.

- **Suspected case:** A person presenting with all of the following:
  - sudden onset of high fever (> 38°C)
  - one or more of the following respiratory symptoms: cough, sore throat, shortness of breath, difficulty breathing
  - onset of symptoms within 10 days of either travelling to one of the areas that has been listed as a focus area of transmission of SARS or being in close contact with a person who has travelled to such an area.

- **Probable case:**
  - a suspected case with chest X-ray findings of pneumonia or adult respiratory distress syndrome, or
  - a person with an unexplained respiratory illness resulting in death, with a post-mortem examination demonstrating the pathology of respiratory distress syndrome without an identifiable cause.

- **Confirmed case:** A clinically compatible illness that is laboratory confirmed.

- **Not a case:** A case that has been investigated and subsequently found not to meet the case definition.

Spread of infection

Incubation period

Range of 2–10 days, with a median of 5 days. Case reports suggest incubation periods longer than 10 days have occurred.

Mode of transmission

Person to person, by droplet transmission, direct contact with respiratory tract secretions and possibly fomites. Health care workers are at high risk, especially those undertaking aerosol-generating procedures, such as intubation or nebulisation.

Period of communicability

From onset of symptoms until 10 days after resolution of fever. Communicability is variable: it is higher in cases with more severe disease and in a subgroup of cases known as ‘super-spreaders’. The virus is stable in faeces from cases with diarrhoea for up to 4 days and has been detected by polymerase chain reaction for more than 1 month in stool specimens from cases in whom the initial illness has resolved.
**Notification procedure**
Attending medical practitioners or laboratories must immediately notify the local medical officer of health of suspected cases. Notification should not await confirmation.

Laboratory notification of suspected cases should also be made directly to the Ministry of Health, including the Director of Public Health, preferably by telephone.

**Management of case**

**Investigation**
Obtain a history of travel, possible contacts and any occupational risk activities. Ensure laboratory confirmation has been attempted; for example, SARS-CoV has been detected in upper and lower respiratory tract, blood, stool and urine specimens of cases. Stool samples in the second week of illness give the highest rate of positivity.

**Restriction**
In hospital, place cases under airborne and contact precautions throughout the period of communicability. Staff should also wear eye protection and footwear that can be decontaminated or disposed of and use disposable equipment for the case wherever possible.

Outside hospital, cases should be isolated at home or in some other suitable facility throughout the period of communicability. During this time, household members who are not providing care should be relocated if possible. If household members cannot be relocated, they should minimise their contact with the case. People at risk of serious SARS complications (for example, people with underlying heart or lung disease or diabetes mellitus or who are elderly) should not have contact with the case.

**Treatment**
Consult an infectious diseases physician.

**Counselling**
Advise the case and their caregivers of the nature of the infection and its mode of transmission.

**Management of contacts**

**Definition**
All those who have cared for, lived with or had unprotected direct contact with respiratory secretions and/or body fluids of a case or suspected case during the period of clinical illness or subsequent communicability.
Investigation
Nil.

Restriction
Recommend voluntary isolation at home and record temperature daily for 10 days following contact. Ensure contact is visited or telephoned daily by a member of the public health service to determine whether fever or other symptoms of SARS-CoV infection are developing. Clinical evidence of SARS in a contact requires immediate clinical assessment and isolation.

Prophylaxis
Nil.

Counselling
Advise all contacts of the incubation period and typical symptoms of SARS-CoV infection. Encourage them to seek early medical attention if symptoms develop.

Other control measures

Identification of source
Check for other cases in the community.

Disinfection
Clean and disinfect surfaces and articles soiled with respiratory secretions or faeces, using a product with antiviral activity. For further details, see Appendix 1: Disinfection.

Health education
Consider a media release and direct communication with local health professionals to encourage prompt reporting of symptoms and to provide advice (for both the public and professionals).

Reporting
Ensure complete case information is entered into EpiSurv.

On receiving a notification, medical officers of health should immediately notify the Communicable Diseases Team and the Director of Public Health at the Ministry of Health.

The International Health Regulations National Focal Point in the Ministry must notify WHO of events involving any case of smallpox, poliomyelitis, SARS or human influenza caused by a new subtype.
If a cluster of cases occurs, contact the Ministry of Health Communicable Diseases Team and outbreak liaison staff at the Institute of Environmental Science and Research (ESR), and complete the Outbreak Report Form.