Appendix A: Disease-Specific Chapters

Chapter: Severe Acute Respiratory Syndrome (SARS)

Ontario

Severe Acute Respiratory Syndrome (SARS)

☒ Communicable
☒ Virulent

Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

Health Protection and Promotion Act:
Ontario Regulation 95/03 – Specification of Virulent Diseases

1) Aetiologic Agent:	SARS is caused by a coronavirus similar on electron microscopy to animal coronaviruses (1). Coronaviruses are large, enveloped RNA viruses (2).

2) Case Definition:

Surveillance Case Definition	See Appendix B
Outbreak Case Definition	The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition: 1. Clinical, laboratory and/or epidemiological criteria; 2. A time frame for occurrence; 3. A geographic location(s) or place(s) where cases live or became ill/exposed, and 4. Special attributes of cases (e.g. age, underlying conditions). Cases should be classified by levels of probability (i.e. confirmed, probable or suspect).

3) Identification:

Clinical Presentation	SARS illness generally presents with malaise, myalgia and fever, quickly followed by respiratory symptoms including cough and shortness of breath. Diarrhea may occur. Symptoms may worsen for several days coinciding with viraemia at 10 days after onset (1). Nearly all confirmed infected adult cases developed pneumonia or acute respiratory distress syndrome (2).
Diagnosis	See Appendix B **Note:** Serology and virology tests confirm SARS and include PCR, ELISA and IFA;

	clinical specimens include Nasal Pharyngeal Swabs (NPS) and stools. Clinical presentation and epidemiological evidence supports the diagnosis.

4) Epidemiology:

Occurrence	First recognized in February 2003; the disease is thought to have originated in the Guandong province of China, with emergence into human populations sometime in November 2002. By July 2003, major outbreaks had occurred at 6 sites: Canada, China (Guandong Province, and Special Administrative Region of Hong Kong) Taiwan, Singapore, and Viet Nam (1). The disease occurred in more than 20 additional sites throughout the world, following major airline routes. Most cases occurred in hospitals and among families and close contacts of hospital workers (1). There have been no cases of SARS identified anywhere in the world since the 2003 outbreaks. More information on the occurrence of SARS is available at: http://www.health.gov.on.ca/english/providers/program/pubhealth/sars/sars_mn.html and in the other resources and references listed below.
Reservoir	Unknown (1)
Modes of Transmission	SARS is transmitted from person to person by close contact (i.e. within 1 or 2 metres); caring for, living with, or direct contact with infectious respiratory secretions or body fluids of a suspected, or confirmed case of SARS. The SARS virus is thought to be transmitted most readily through respiratory droplets produced when an infected individual coughs or sneezes and possibly through fomites (a surface or object contaminated with infectious droplets). In one instance, the virus is thought to have been transmitted from person to person through some environmental vehicle, possibly aerosolised sewage or transport of sewerage by mechanical vectors. Retrospective studies of this particular mode of transmission continue (1).
Incubation Period	3 – 10 days (1)
Period of Communicability	Not yet completely understood. Initial studies suggest that transmission does not occur before onset of clinical signs and symptoms, and that maximum period of communicability is less than 21 days. During the 2003 outbreak, health workers were at great risk of disease acquisition, especially when exposed to aerosol-generating procedures such as intubations or nebulisation, In 2003, health care workers served as an entry point of the disease into the community in North America (1).
Susceptibility and Resistance	Unknown but susceptibility is assumed to be universal. At present race and gender do not appear to alter susceptibility. Because of the small number of cases reported among children, it has not been possible to assess the influence of age (1). The clinical course appears to be much milder and shorter among cases less than 12 years of age (2).

5) Reporting Requirements:

To Local Board of Health	Confirmed and suspected cases shall be reported **by phone immediately** to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act,* R.S.O. 1990.
To Public Health Division (PHD)	The local board of health shall notify the Public Health Division **by phone as soon as possible after receiving a report** of a suspect or probable case of SARS, and after ruling out any other similar illness (PHD Call center: 416-212-6361). Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry **within one (1) business day of receipt of initial notification** as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (5). The minimum data elements to be reported for each case are specified in the following: • *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA); • The disease-specific User Guides published by the Ministry, and • Bulletins and directives issued by the Ministry.

6) Prevention and Control Measures:

Personal Prevention Measures	Measures: • Since there is no SARS vaccine, the most effective measure to prevent SARS is to prevent transmission from infected persons to susceptible persons; • All individuals presenting to a health care facility with symptoms of a febrile respiratory illness (FRI) should receive information about, and the importance of, respiratory etiquette and hand hygiene, and • Ensure early recognition and prevention of transmission of SARS-CoV and other respiratory viruses at the initial encounter with a health care facility using the assessment protocol including travel history found in the PIDAC document Ontario Ministry of Health and Long-Term Care, Provincial Infectious Diseases Advisory Committee. Preventing Febrile Respiratory Illnesses, Protecting Patients and Staff. Sept 2005 Revised Aug 2006.
Infection Prevention and Control Strategies	Strategies focus on the use of routine infection prevention and control practices in healthcare settings and among health care workers • All health care workers (HCWs) should be educated in regards to Routine Practices related to infection prevention and control. • All HCWs should wear appropriate Personal Protective Equipment (PPE) when assessing patients with suspect respiratory illness. Educate health care staff about the importance of strict adherence to, and

	proper use of, routine infection prevention and control measures especially hand hygiene as well as isolation procedures and use of appropriate PPE. Encourage and maintain respiratory hygiene and cough etiquette in order to reduce transmission of all forms of respiratory pathogens, including SARS-CoV. Persons with signs and symptoms of respiratory infection should: • Cover their nose and mouth when coughing and sneezing; • Use tissues to contain respiratory secretions; • Dispose of tissue in the nearest waste receptacle after use, and • Perform hand hygiene after contact with respiratory secretions and contaminated objects and materials. Cases should not go to work, school, or other public areas until 10 to 14 days after fever and respiratory symptoms have resolved.
Management of Cases	Investigate the case to determine source of infection. Refer to Ontario Regulation 569 for relevant data to collect. Case detection, patient isolation and contact tracing can reduce the number of people exposed to each infectious SARS case and eventually break the chain of transmission. • Epidemiological investigation o Symptoms and date of symptom onset o Travel history o History of exposure or risk factors o Earliest and latest exposure dates o Occupational history o Residency/attendance at a facility or institution • Contact identification and tracing o Contact history during period of communicability o Assessment of type of contact and probability of transmission o Identification of contacts for follow-up including patients with febrile respiratory illness (FRI) or suspected FRI o Occupational history o Residency/attendance at a facility or institution While receiving institutional health care, SARS-infected cases should be placed on droplet precautions. Appropriate PPE should be worn and appropriate personal protective measures performed (e.g. hand hygiene) by health care workers caring for patients infected with SARS. There are no specific treatment recommendations for SARS. (The application of intensive supportive therapy and empirical antimicrobial therapy, to cover other infective agents is the usual approach). While ribavirin, corticosteroids, oseltamivir, protease inhibitors and other medications have been used in the treatment of SARS, thus far there is no consensus on an optimal treatment regimen. Cases should not go to work, school, or other public areas until 10 to 14 days after fever and respiratory symptoms have resolved. During this time, infection prevention and control precautions for SARS patients should be followed. Refer to the PHAC document, Public Health Management of SARS Cases and

	Contacts Interim Guidelines: http://www.phac-aspc.gc.ca/sars-sras/pdf/phmanagementofcases12-17_e.pdf
Management of Contacts	A contact is a person who cared for, lived with, or had direct contact with the respiratory secretions, body fluids and/or excretion of a suspected or confirmed SARS case (1). Identify all contacts of each case and follow-up each daily, including health checks and possible voluntary home quarantine. Provide information on the signs and symptoms and means of transmission to each contact (1). Place under active surveillance for 10 days and recommend voluntary quarantine at home and record temperature daily, stressing that fever is usually the first symptom (1). Public Health staff should call the contact daily to assess fever and status. Management of symptomatic contacts: • Immediate clinical investigation (including chest x-ray and laboratory investigation) at a site where appropriate infection prevention and control precautions can be ensured. Symptomatic contacts would be a probable or suspect case and would likely be hospitalized, and • Monitor results of clinical investigation including radiographic evidence of infiltrates consistent with pneumonia or respiratory distress and laboratory results, which may result in a change of case status (i.e., change to “probable” or “confirmed” case or exclusion of the case based on determination of an alternative diagnosis that can fully explain the illness). Management of asymptomatic contacts: • If asymptomatic and afebrile for 10 days discontinue quarantine. • If it has been less than 10 days since their last contact with the potential exposure source, then instruct to self-monitor for symptoms for the remainder of the 10 days. Refer to the PHAC document, Public Health Management of SARS Cases and Contacts Interim Guidelines: http://www.phac-aspc.gc.ca/sars-sras/pdf/phmanagementofcases12-17_e.pdf
Management of Outbreaks	**One suspected, probable or confirmed case of SARS will constitute an outbreak**. Provide public health management of outbreaks or clusters in collaboration with Public Health Division in order to identify the source of illness, stop the outbreak and limit secondary spread. As per this Protocol outbreak management shall comprise of but not be limited to the following general steps: • Confirm diagnosis and verify the outbreak; • Establish an outbreak team; • Develop an outbreak case definition; • Implement prevention and control measures; • Implement and tailor communication and notification plans depending

	on the scope of the outbreak; • Conduct epidemiological analysis on data collected; • Conduct environmental inspections of implicated premise where applicable; • Coordinate and collect appropriate clinical specimens where applicable; • Prepare a written report, and • Declare the outbreak over in collaboration with the outbreak team. Refer to the PHAC document, Public Health Management of SARS Cases and Contacts Interim Guidelines http://www.phac-aspc.gc.ca/sars-sras/pdf/phmanagementofcases12-17_e.pdf
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