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**Directive HCP03-02**  
**December 7, 2003**

**DIRECTIVE TO HEALTH CARE PROVIDERS IN COMMUNITY**  
**SETTINGS AND HOSPITAL-AFFILIATED**  
**AMBULATORY/OUTPATIENT CLINICS UNDER OUTBREAK**  
**CONDITIONS**  
**(EXCLUDING COMMUNITY CARE ACCESS CENTRES)**

This Directive replaces the outbreak sections of the following:

- *Directive to Ontario Health Care Providers in Community Settings and Community Health Care Agencies – Directive HCP 03-01(R), June 16, 2003*

This Directive applies to health care workers and settings that provide direct clinical services to patients or clients. They are relevant to hospital-based outpatient settings and independent health care facilities.

This document requires health care providers in community settings, hospital-affiliated ambulatory/outpatient clinics and community health care agencies to undertake the practices described herein in the event of an outbreak of SARS.

All community health care providers should comply with existing and updated recommendations for infection control, such as from Health Canada – Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care <http://www.hc-sc.gc.ca/pphb-dgspsp/publicat/ccdr-rmtc/99vol25/25s4/index.html>

Notification about SARS outbreaks will originate from the local public health unit.

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## **1 SYSTEM PRACTICES**

### **1.1 Communication**

Local public health units and health care providers in their regions must ensure ongoing effective communication as to the current status of SARS and other communicable diseases in their communities and region.

Local public health units and health care providers must have an ability to access appropriate electronic means (i.e., fax or email) to ensure that they can receive the most current information.

Health care providers are responsible for notifying their local public health unit of their facility's/organisation's current contact information, including address, phone, fax and email.

### **1.2 Hand Hygiene and Healthy Behaviour Promotion**

Community health care providers and agencies must promote hand hygiene and awareness of healthy behaviours (i.e., if you are feeling unwell, especially with fever, cough or diarrhea, do not come to work or attend public events).

Hand hygiene using an alcohol-based hand sanitizer or soap and water should be performed when entering and leaving the building, as well as before and after patient contact.

Reinforce hand hygiene and healthy behaviours using signage that is designed to meet the needs of your patients, staff and community.

### **1.3 Environmental Cleaning**

All patient care areas must be cleaned regularly using a hospital-grade disinfectant (See Section 2.4). This includes horizontal surfaces, frequently touched areas (e.g., door knobs, light switches). Floors do not require the use of a disinfectant.

## **2 SARS OUTBREAK CONTROL MEASURES**

When the local public health unit has declared a SARS outbreak, health care providers must use the following SARS outbreak control measures. Additional measures may be communicated to providers as required.

### **2.1 Facility Procedures**

#### **2.1.1 Staff**

Only staff essential to providing care should be in contact with/in close proximity to patients in the office or clinical setting.

Health care providers must wash their hands using an alcohol-based hand sanitizer or soap and water before and after each patient contact.

All health care providers and their staff are directed to use Respiratory and Contact Precautions, (See Glossary of Terms, Appendix 1) when caring for patients with fever **or** respiratory illness **or** a contact history, as determined by the SARS Risk Factor Screening Tool, (Appendix 2) until SARS has been ruled out by medical assessment. (See Appendix 4, Clinical Diagnosis of SARS; See Appendix 5, SARS Activity and Response for New SARS Occurrences).

### 2.1.2 Appointment Booking

Appointments should be booked by telephone, and walk-in visits should be minimized where possible.

Adapt the sample Telephone Script (Appendix 6) for your setting. Initial telephone triage does not replace the need for all patients to complete the SARS Risk Factor Screening Tool on entry to the office/building.

### 2.1.3 Daily Log

A log of all persons entering the office/clinical setting including people attending for care as well as staff, volunteers and individuals accompanying patients or clients must be maintained on a daily basis. The log must record the printed name, date of visit and contact phone number. At a minimum, this log must be kept on record in the office/clinical setting until the outbreak is declared over by the local public health unit.

### 2.1.4 Posting of SARS Notices

Post SARS notices (Appendix 7) at all entrances and prominent locations in the building and at the entrance to the office or building when appropriate.

## 2.2 Screening

When a SARS outbreak is declared by the local Medical Officer of Health, all persons entering the office/facility, including staff, must be screened with the SARS Risk Factor Screening Tool (Appendix 2).

### 2.2.1 Screen Positive

When a patient has a positive response to the SARS Risk Factor Screening Tool (i.e., answers yes to any of Sections A or B or C), the health care provider may continue to provide the care for which the visit was initiated and take appropriate Respiratory and Contact Precautions (See Appendix 1, Glossary of Terms). These patients must also have a medical assessment for SARS.

### 2.2.2 Screen Negative

If a patient screens negative on the SARS Risk Factor Screening Tool (i.e., does not have symptoms, fever, or contact history), use Routine Practices, (See Appendix 1, Glossary of Terms)

### 2.2.3 Screening Patients

Health care workers must maintain a high index of suspicion when assessing any patient for new onset of fever or respiratory symptoms. During an outbreak, fever alone must be considered as a sign of potential SARS infection even in the absence of other signs or SARS contact history.

Surgical masks must be available upon arrival for patients who report feeling feverish or have respiratory symptoms. Apply surgical masks after patients have washed hands upon entry

A patient who screens positive must put on a surgical mask and be placed in a single exam room as soon as possible. If waiting is necessary, such patients should be separated by at least one meter from other persons whenever feasible.

Patients with fever or respiratory symptoms or contact history must be managed using Respiratory and Contact Precautions, until SARS is ruled out by medical assessment. (See Appendix 3, SARS Risk Management Algorithm For Community and Outpatient Settings Under SARS Outbreak Conditions).

Process for Respiratory and Contact Precautions:

During a SARS outbreak, any patient with a fever or respiratory illness or a SARS contact history, requires the following precautions:

- Isolate the patient immediately from other patients and staff.
- If tolerated, the patient must wear a surgical mask when he/she is in a public setting or when other persons are in the same room.
- While with the patient, use respiratory and contact precautions (gown, gloves, protective eyewear and N95 mask or equivalent).
- Assess the patient or arrange for physician assessment.
- Contact the local public health unit.
- If SARS is possible or if hospitalization is required arrange for the patient to be taken to an Emergency Department for evaluation (call ahead).
- Transportation for medical examination must be by private vehicle<sup>1</sup> or medical transport with the client wearing a surgical mask during transport.
- After there is no further contact with the patient, remove personal protective equipment (PPE) in the following order:
  - Remove gloves, clean hands, remove gown, clean hands, remove eye protection and finally the N95 mask.
  - Wash hands carefully after removing the final PPE.
  - Avoid touching other objects or people until after removing PPE and washing hands.
  - Avoid touching your own eyes, nose or mouth until after removing PPE and washing hands.

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<sup>1</sup> Private vehicle refers to the patient's vehicle. Patients directed to a SARS Assessment Clinic or Emergency Department for a medical assessment must travel unaccompanied in the private vehicle. If the patient is unable to operate a vehicle, then arrange for medical transport.

#### 2.2.4 Screening Health Care Providers

Health care providers who know they will screen positive on the SARS Risk Factor Screening Tool must not come to work or have patient contact until assessed medically and found to not have SARS.

Health care providers who screen positive on the SARS Risk Factor Screening Tool when arriving at work must be directed to take action as per the SARS Risk Management Algorithm, (Appendix 3). If they need to travel to a SARS assessment clinic (if available) or Emergency Department to obtain a medical assessment, then other staff will arrange for this transfer and will advise the receiving facility. The health care provider must use a private vehicle or medical transport with the provider wearing a surgical mask during transport. The local public health unit and the employer's joint health and safety committee must also be advised

Health care providers who develop a fever or respiratory symptoms while at work should immediately stop work, and put on a surgical mask. The provider should arrange for transfer to a SARS assessment clinic, if available or Emergency Department, (as per the paragraph above) for medical assessment and advise the receiving facility. The local public health unit and the employer's joint health and safety committee must also be advised (See Appendix 8, Follow-up Instructions for Patients with Fever and Respiratory Illness).

#### 2.2.5 Screener Protection

The person doing screening during a SARS outbreak must wear an N95 or equivalent mask, protective eyewear, gloves and gown.

If there is any further contact with a patient who screens positive on the SARS Risk Factor Screening Tool then take appropriate Respiratory and Contact Precautions.

### 2.3 Personal Protective Equipment (PPE)

Health care providers must wear an N95 mask, or equivalent mask, protective eyewear, gloves and gown when managing persons with fever or symptoms of a respiratory infection (e.g., unexplained new or worsening fever, cough, shortness of breath or difficulty breathing) or contact history (See Appendix 9, Guidelines for Safe and Proper N95 Mask Use).

Health care providers expected to wear N95 or equivalent masks in outbreak settings, should be qualitatively fit tested to ensure maximum effectiveness. (See NIOSH website at <http://www.cdc.gov/niosh> – publication No. 99-143 and CSA Standard Z94.4, October, 2002. Personal protective equipment must be properly used and maintained consistent with the *Occupational Health and Safety Act* Reg. 67/93 s. 10

### 2.3.1 Removal of PPE

After there is no further contact with the patient, remove PPE in the following order:

- Remove gloves, wash hands, remove gown, wash hands, remove eye protection and finally the N95 mask.
- Wash or disinfect hands carefully after removing the final PPE.
- Avoid touching other objects or people until after removing PPE and washing hands.
- Avoid touching your own eyes, nose or mouth until after removing PPE and washing hands.

### 2.3.2 Personal Protective Equipment for Patients with Possible Exposure (contact history)

Persons who are positive for possible exposure on the SARS Risk Factor Screening Tool (i.e., persons with a contact history or currently under quarantine), and who do not have symptoms, must wear a surgical mask during assessment/treatment and following the visit.

The provider or agency must notify the local public health unit and send the person home into quarantine or for further SARS related assessment using a private vehicle, or medical transport, with the patient wearing a surgical mask.

### 2.3.3 Personal Protective Equipment for People Accompanying Patients

If the patient screens positive on basis of fever or symptoms on the SARS Risk Factor Screening Tool, anyone in the company of the patient must wear an N95 or equivalent mask, protective eyewear, gown, and gloves when with the person. People accompanying patients must also be screened again.

## 2.4 Cleaning the Office

The person cleaning the office must wear gloves, protective eyewear and an N95 mask or equivalent. Once cleaning is completed, avoid touching other objects or people until after removing PPE and washing hands.

Cleaning the office following a visit with a patient who may have SARS:

#### The Exam Room

- The exam room used by the patient must not be used again until all surfaces are disinfected.
- Thoroughly clean all horizontal and frequently touched surfaces such as doorknobs, equipment etc.
- A hospital grade disinfectant should be used.

#### Discarding Personal Protective Equipment

- When discarding personal protective equipment, remove gloves, clean hands, remove disposable gowns, clean hands and then remove mask. All may be discarded with routine waste.

## Eyewear

- Wash protective eyewear with soap and hot water or clean with disposable disinfectant wipes and then rinse.

## Waiting Room Items

- If the patient waited in the waiting room, disinfect or destroy magazines, toys and touched surfaces if there is any possibility that they may have been contaminated.

## Non-Disposable Equipment

- Disinfect all non-disposable equipment prior to reuse (e.g., stethoscope).

## Use of Disinfectants

- Disinfectants that may be used should be hospital grade and include stabilized accelerated hydrogen peroxide products phenolics, quaternary ammonium compounds, or freshly-mixed 1/100 dilution of household bleach.

## 2.5 Home Visits

The health care provider (or delegate) must screen all persons in the home with whom there will be contact, prior to providing care.

The SARS Risk Factor Screening Tool must be employed either by calling ahead or immediately upon arrival in the home.

If screening on arrival, the person doing screening must wear an N95 or equivalent mask and protective eyewear. Those screened must include any visitors or family members who will be in contact with the health care provider during the visit.

### Screen Negative

- If the answers are no to all of Sections A, B, **and** C on the SARS Risk Factor Screening Tool, then the screen is negative, and care should be provided using Routine Practices (See Section 3.2, Infection Control).

### Screen Positive

- If anyone in the home answers yes to any of Sections A or B or C on the SARS Risk Factor Screening Tool, then the health care provider may continue to provide the care for which the visit was initiated and take appropriate Respiratory and Contact Precautions.
- The patient (or applicable family member) must be given a surgical mask and the health care provider must contact the local public health unit.



## **2.6 Persons Under Quarantine**

If SARS symptoms develop:

- Persons under quarantine who develop symptoms of SARS must be referred to the nearest Emergency Department or SARS assessment clinic, with advance notification.
- Persons must be transported by private vehicle or medical transport with the person wearing a surgical mask.

Home Care for Persons under Quarantine:

- Persons under quarantine who do not have symptoms of SARS and who require care that cannot wait beyond the quarantine period, may be seen at home or in a clinical setting. They must wear a surgical mask and remain isolated.
- Health care providers in contact with the quarantined person must wear an N95 or equivalent mask and protective eyewear.
- Further additional protection (gown and gloves) must be used when procedures warrant it.

## **2.7 Facility Directives**

Health care providers operating in buildings associated with, but not physically part of, an acute or non-acute facility (e.g., hospital) are subject to that facility's hospital SARS Category (e.g., from Category 0-3, see Appendix 10) and practices that stem from this classification, unless they can convincingly demonstrate to the facility's leadership (e.g., hospital CEO), the Medical Officer of Health, and where required the MOHLTC, that operations are distinct without possibility of cross contamination.

## **2.8 Duration of SARS Outbreak Control Measures**

SARS outbreak control measures will remain in effect until the local public health unit, in conjunction with the MOHLTC, lifts the outbreak. This will normally happen after two full incubation periods have elapsed since the last identified case in the community or health care facility.

# **3 RESOURCES**

## **3.1 SARS Information**

- Ontario – <http://www.health.gov.on.ca>
- Health Canada – <http://www.sars.gc.ca>
- U.S. Centers for Disease Control - <http://www.cdc.gov/>
- World Health Organization - <http://www.who.int/csr/sars/en/>

### 3.2 Infection Control

- Health Canada – Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care; Recommendations for Ambulatory Care – <http://www.hc-sc.gc.ca/pphb-dgspsp/publicat/ccdr-rmtc/99vol25/25s4/index.html>
- College of Physicians and Surgeons of Ontario – Infection Control in the Physician’s Office – <http://www.cpso.on.ca/publications/infect.htm>

### 3.3 Situation Reports

A list of areas with recent local transmission of SARS is available from:

- World Health Organization at <http://www.who.int/csr/sarsareas>
- Health Canada at <http://www.sars.gc.ca>
- Ontario Ministry of Health and Long-Term Care at: [http://www.health.gov.on.ca/english/providers/program/pubhealth/sars/sars\\_mn.html](http://www.health.gov.on.ca/english/providers/program/pubhealth/sars/sars_mn.html)

## 4 LIST OF APPENDICES

- Appendix 1: Glossary of Terms
- Appendix 2: SARS Risk Factor Screening Tool
- Appendix 3: SARS Risk Management Algorithm, for Community and Outpatient Settings Under SARS Outbreak Conditions
- Appendix 4: Clinical Diagnosis of SARS
- Appendix 5: SARS Activity and Response for New SARS Occurrences
- Appendix 6: Sample Telephone Script
- Appendix 7: Sample SARS Notice
- Appendix 8: Follow Up Instructions for Patients with Fever or Respiratory Illness
- Appendix 9: Guidelines for Safe and Proper N95 Mask Use
- Appendix 10: Health Care Facilities SARS Categories

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## APPENDIX 1

### GLOSSARY OF TERMS

**Active Surveillance Program:** a term to describe surveillance activities for SARS within an acute care facility. The intent of such a program is the early detection of clusters of potential SARS cases requiring investigation.

**ARDS:** Adult Respiratory Distress Syndrome is the rapid onset of progressive malfunction of the lungs usually associated with the malfunction of other organs due to the inability to take up oxygen. The condition is associated with extensive lung inflammation and small blood vessel injury in all affected organs.

**Cluster:** a grouping of cases of a disease (e.g., respiratory illness indicative of SARS) within a specific time frame and geographic location suggesting a possible association between the cases with respect to transmission.

**CXR:** Chest x-ray (roentgenogram).

**Droplet Precautions:** (see also Routine Practices) The use of surgical or procedure masks and eye protection or face shields for patients who have respiratory infections especially if associated with coughing, sneezing, felt to be transmissible principally by large respiratory droplets particularly when within 1 meter of such a patient. Also used where appropriate to protect the mucous membranes of the eyes, nose and mouth during procedures and patient care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions (e.g., air way suctioning).

**Febrile Respiratory Illness (FRI):** temperature greater than 38<sup>0</sup> C and new or worsening cough or shortness of breath. During non-outbreak conditions this includes a fever of greater than 38<sup>0</sup> C **and** new or worsening cough or shortness of breath to increase the specificity of this designation. During outbreak conditions, to maximize the sensitivity to potential SARS infection, this includes a fever of greater than 38<sup>0</sup> C **or** new or worsening cough or shortness of breath. The context in which FRI is determined must take the outbreak vs. non-outbreak conditions into account.

**Hand Hygiene:** hand washing with soap and running water or alcohol-based hand sanitizers.

**Health Care Facility:** a location where ill people are examined and assessed by health care workers and/or provided with direct health care services. Locations may range from private physician offices, ambulatory clinics or diagnostic facilities, to hospitals.

**Health Care Facilities SARS Categories:** a categorization system established by the Ministry of Health and Long-Term Care to determine precautionary measures to be taken during a SARS outbreak. The levels are as follows:

**SARS Category 0:** Health care facility has no known cases of SARS (suspect or probable).

**SARS Category 1:** No unprotected SARS exposure – staff and/or patients. Health care facility has one or more cases of SARS (suspect or probable).

**SARS Category 2:** Any unprotected SARS exposure within the last 10 days but without transmission to staff or patients. The health care facility may or may not currently have one or more cases of SARS (suspect or probable).

**SARS Category 3:** Unprotected SARS exposure with transmission to health care workers and/or patients. The health care facility may or may not currently have one or more case of SARS (suspect or probable).

**High-Risk Respiratory Procedure:** any procedure with the potential to generate respiratory droplets, including, but not limited to nebulized therapy, endotracheal intubation, bronchoscopy, bag-valve mask ventilation, non-invasive ventilation (CPAP, BiPAP), and ventilation using high frequency oscillation.

**Home Quarantine:** To prevent potential transmission of SARS virus by persons who have been in contact with a known, probable or suspected case of SARS and may be in the incubation period of illness.

Measures include but are not limited to the following:

- 1) Remain home during the period of quarantine
- 2) No visitors during the period of quarantine
- 3) A surgical or procedure mask to worn when in the presence of other persons. Masks should be changed approximately every 4 hours if worn for extended periods of time
- 4) Meals are to be taken away from other household members
- 5) Persons under quarantine should sleep alone in a separate room
- 6) Frequent hand washing is emphasized to all household members
- 7) Body temperature is to be taken twice daily. Any temperature reading 38 degrees Celsius is to be reported to the local public health unit right away
- 8) Any new onset of cough or shortness of breath is to be reported to the local public health unit right away

**Non-Outbreak:** *Non-outbreak* refers to the conditions once a SARS Outbreak is declared over by the local Medical Officer of Health (MOH) or in a region where no SARS outbreak has occurred. Facilities within the region may have one or more SARS patient(s), either local cases or those imported through travel activity, provided there has been no transmission within the hospital population.

**Outbreak:** For the purposes of SARS activity, an *outbreak* is defined as local transmission of SARS. The local Medical Officer of Health is responsible for declaring a SARS outbreak. An outbreak may be setting-specific (e.g., a hospital with transmission) or health unit wide (e.g. transmission in more than one setting or significant community exposure). In declaring an outbreak the local Medical Officer of Health takes into account global and neighbouring jurisdiction conditions and the potential impact of those conditions.

**Personal Protective System (PPS):** a full body suit or equivalent protective apparatus consisting of head, face and neck protection with or without enclosed body protection; or a powered air purifying respirator (PAPR). PPS is to be used for any health care worker involved in a high-risk respiratory procedure.

**Respiratory and Contact Precautions (RCP):** infection control procedures for institutional and community-based settings with the intent of protecting the health care worker from SARS.

1. Common Elements for both institutional and community-based settings:

*A. Personal protective equipment, (PPE):*

- Staff to use an N95 or equivalent mask, eye protection, gown, and gloves.
- Remove PPE after there is no further contact with the patient/client in the following order: Remove gloves, clean hands, remove gown, clean hands, remove eye protection and finally the N95 or equivalent mask. Wash hands carefully after removing the final PPE. Avoid touching other objects or people until after removing PPE and washing hands.
- Disinfect non-disposable equipment (e.g.: stethoscope, testing items) and anything the client used or touched before it is used for others.
- When the patient leaves the examining room it should be cleaned with a hospital grade disinfectant.

*B. Patient Management:*

- Isolate the patient/client immediately from other patients/clients and staff.
- Whenever the patient/client is in a public setting (e.g., in the hallway, or waiting room), in the same room with others, and during transport, the patient/client must wear a surgical mask, unless medically contraindicated.
- Limit visitation to the symptomatic patient/client except for essential or compassionate reasons. Visitors should wear PPE.

## 2. For Institutional Settings:

*Patient Accommodation for Hospitals:* Patients are to be placed as follows (in order of decreasing preference):

1. Single room with negative pressure ventilation, with at least 6 air exchanges per hour or 12 air exchanges if the building is a new facility, as per Canadian Standards Association, Sept 2001 (highest preference)
2. single room with HEPA filtration unit which achieves at least 9 air exchanges per hour
3. single room, with no special air handling
4. semi-private room, cohorted with patients with similar SARS risk factors and/or symptoms or diagnosis

## 3. For Community-Based Settings:

*Includes physician's offices, community health practice settings, non-acute care facilities, and home and community care:*

- Physician, or nurse practitioner, if present, to assess the patient
- If SARS is possible, or if hospitalization is required, arrange for the patient/client to be taken to an Emergency Department for evaluation (call ahead)
- Transportation for medical examination must be by private vehicle or medical transport with the patient/client wearing a surgical mask during transport.
- Contact the local public health unit, as appropriate

**Respiratory and Contact Precautions (Enhanced) (RCP[E]):** an enhanced form of infection control procedures, which require the following in addition to procedures under Respiratory and Contact Precautions:

*A. Personal Protective Equipment:* also includes a full face shield and hair covering

*B. Patient accommodation in hospitals:* patients assessed to be at risk for having SARS, based on the SARS Risk Management Algorithms, have priority for the highest level of accommodation

**Respiratory Symptoms:** new or worse cough (onset within 7 days) OR new or worse shortness of breath (worse than what is normal for the patient).

**Routine Practices (See also “Droplet precautions”):** The Health Canada term to describe the system of infection prevention recommended in Canada to prevent transmission of infections in health care settings. These practices describe prevention strategies to be used with all patients during all patient care, and include:

- Hand washing or cleansing with an alcohol-based sanitizer before and after any direct contact with a patient.
- The use of additional barrier precautions to prevent health care worker contact with a patient's blood and body fluids, non intact skin or mucous membranes.

- Gloves are to be worn when there is a risk of body fluid contact with hands; gloves should be used as an additional measure, not as a substitute for hand washing.
- Gowns are to be worn if contamination of uniform or clothing is anticipated.
- The wearing of masks and eye protection or face shields where appropriate to protect the mucous membranes of the eyes, nose and mouth during procedures and patient care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions.

The full description of routine practices to prevent transmission of nosocomial pathogens can be found on the Health Canada website ([http://www.hc-sc.gc.ca/pphb-dgsp/dpg\\_e.html#infection](http://www.hc-sc.gc.ca/pphb-dgsp/dpg_e.html#infection)).

**RSV:** respiratory syncytial virus, a common respiratory virus especially common in winter months and recognized as a common cause of symptomatic respiratory infection in children, the elderly and individuals who are immunocompromised.

**SARS Contact History:** SARS contact history in a patient with febrile and/or respiratory illness is defined as any one of:

- Unprotected contact with a person with SARS in the last 10 days prior to the onset of this illness
- Were present in a health care facility closed due to SARS before the onset of symptoms, 10 days prior to the onset of this illness
- Instructed by the local public health unit to be in quarantine or isolation.
- Travel to a SARS affected area in the 10 days prior to the onset of illness

**SARS Risk Management Algorithm:** a tool to be used by health care workers to assist in the management of a patient based on information derived from the SARS Risk Factor Screening Tool. There are various algorithms to reflect patient care in different settings.

**SARS Risk Factor Screening Tool:** a tool to be used by health care workers during triage, admitting, and outpatient /ambulatory settings. This tool gathers information from the patient regarding temperature, respiratory illness, contact history and SARS risk factors.

**SARS Risk Factors:** SARS risk factors in a patient with febrile and/or respiratory illness are defined as:

- Travel (patient or household/close family) to a former or current SARS affected area in the last 30 days.
- Admission to a hospital\* or long-term care facility\* in the 10 days prior to the onset of this illness.
- Household members or other close contacts with fever or pneumonia.
- Health care worker with direct patient contact in a healthcare facility.

(\*Only facilities in Toronto, York, Durham regions of Ontario or Taiwan, China, Singapore or Hong Kong are considered as positive risk factors.)

**Working Quarantine:** To prevent the potential transmission of SARS virus by persons who have been in contact with a known probable or suspected case of SARS and may be in the incubation period of illness and those who work in an area where exposures to SARS may have occurred. The precautionary measures are to be applied to those who meet the above criteria and whose work has been identified as essential (e.g., health care workers during a SARS outbreak).

Measures include but are not limited to the following:

- 1) Arrive at the workplace wearing a mask
- 2) Go directly to the quarantine workplace area
- 3) Take breaks and meals in the designated quarantine area
- 4) Use Respiratory and Contact Precautions, which include gown, gloves, N95 mask or equivalent, and eye protection, while working in the quarantined area
- 5) Leave work wearing a clean procedure mask
- 6) Avoid public transit
- 7) For persons who were exposed to SARS virus and considered contacts, follow home quarantine measures



## APPENDIX 2

### SARS RISK FACTOR SCREENING TOOL

Patient Name/Information

Date \_\_\_\_\_

Unit \_\_\_\_\_

#### SECTION A: SARS Symptoms

Are you experiencing any of the following symptoms?

- |   |    |     |
|---|----|-----|
| • New / worse cough (onset within 7 days) <b>OR</b>                   | NO | YES |
| • New / worse shortness of breath (worse than what is normal for you) | NO | YES |

#### SECTION B: Temperature

Are you feeling feverish, had shakes or chills in the last 24 hours? NO YES *If yes to symptoms in Sections A or B record temperature*

RECORD TEMPERATURE  Is the temperature above 38°C? NO YES

#### SECTION C: SARS Contact History

- |   |    |     |                        |
|---|----|-----|------------------------|
| 1. Have you had contact with a person with SARS while not wearing protection against SARS in the 10 days prior to onset of this illness?      | NO | YES |                        |
| 2. Have you been in a healthcare facility designated as Category 2 or 3 in the last 10 days prior to onset of this illness? (insert facility) | NO | YES |                        |
| 3. Has Public Health asked you to be in home quarantine or isolation in the 10 days prior to onset of this illness?                           | NO | YES |                        |
| 4. Have you been to any of the following SARS affected areas in the last 10 days? (facility to insert areas)                                  | NO | YES | If yes, identify area? |

#### SECTION D: SARS Risk Factors

- |  |    |     |                             |
|--|----|-----|-----------------------------|
| 1. Have you, or a member of your household or someone you have had close contact with, traveled within the last 30 days to China?  | NO | YES | If yes, identify area? Who? |
| 2. Have you been admitted to a hospital* in the 10 days prior to the onset of this illness?  | NO | YES | If yes, name facility:      |
| 3. Does anyone in your household, or a close contact, have fever or pneumonia?   | NO | YES | If yes, who?                |
| 4. Are you a healthcare worker with direct patient contact in a healthcare facility?   | NO | YES | If yes, where?              |
| 5. Do you live in a nursing home* that has had a respiratory infection outbreak in the 10 days prior to the onset of your illness? | NO | YES | If yes, name facility:      |

**Apply the appropriate Assessment Algorithm to data**

\_\_\_\_\_  
Patient Signature

\_\_\_\_\_  
Interviewer Signature

\_\_\_\_\_  
Nurse Signature (required if admitted)

\*Only facilities in Toronto, York, Durham regions of Ontario or Taiwan, Singapore or Hong Kong are considered as positive Risk Factors.

## APPENDIX 3

### SARS RISK MANAGEMENT ALGORITHM, FOR COMMUNITY AND OUTPATIENT SETTINGS UNDER SARS OUTBREAK CONDITIONS

For responses on the SARS Risk Factor Screening Tool:

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If “Yes” to any question in Section A or B (symptoms or fever)

AND

“Yes” to any question in Section C (Contact History)

- Surgical mask on patient
- Isolate as soon as feasible
- Use N95 or equivalent mask, eye protection, gloves and gown when in contact with the patient
- Arrange for ED or SARS Clinical assessment (call ahead)
- Notify local public health unit

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If “Yes” to any question in Section A or B (symptoms or fever)

AND

“No” to all questions in Section C (Contact History)

AND

Irrespective of “Yes” or “No” to any question in Section D (Risk Factors):

- Surgical mask on patient
- Isolate as soon as feasible
- Use N95 or equivalent mask, eye protection, gloves and gown when in contact with the patient
- Arrange medical assessment
- Notify local public health unit

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If Yes to any question in Section C (Contact History):

- Quarantine applies
- Surgical mask on patient
- Isolate as soon as feasible
- Use N95 or equivalent mask, eye protection, gloves and gown when in contact with the patient
- Assess for health care problem, including symptoms of SARS
- If symptoms, arrange ED or SARS Clinical assessment
- Notify local public health unit
- If not requiring admission, follow up in 72 hours
  - If worsening, consider Emergency Department or SARS Clinical assessment

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If “No” to all questions in Sections A, B & C

- Routine practices
-

## APPENDIX 4

### CLINICAL DIAGNOSIS OF SARS<sup>2</sup>

#### Annex 1

##### **Aetiology**

Severe acute respiratory syndrome (SARS) is a disease caused by SARS coronavirus (SARS-CoV).

##### **Epidemiology**

Nosocomial transmission of SARS CoV has been a striking feature of the SARS outbreak. The majority of the cases are adults. Children are rarely affected.

The mean incubation period is 5 days with the range of 2-10 days although there are isolated reports of longer incubation periods. There have been no reports of transmission occurring before the onset of symptoms.

##### **Natural history of the disease**

###### *Week 1 of illness*

Patients initially develop influenza-like prodromal symptoms. Presenting symptoms include fever, malaise, myalgia, headache, and rigors. No individual symptom or cluster of symptoms has proven specific. Although history of fever is the most frequently reported symptom, it may be absent on initial measurement.

###### *Week 2 of illness*

Cough (initially dry), dyspnoea and diarrhea may be present in the first week but more commonly reported in the second week of illness. Severe cases develop rapidly progressing respiratory distress and oxygen desaturation with about 20% requiring intensive care. Up to 70% of the patients develop diarrhea which has been described as large volume and watery without blood or mucus. Transmission occurs mainly during the second week of illness.

##### **Clinical outcomes**

Based on an analysis of data from Canada, China, Hong Kong SAR, Singapore, Viet Nam and the United States the case fatality ratio (CFR) of SARS is estimated to range from 0% to more than 50% depending on the age group affected, with an overall CFR estimate of approximately 11% (see [Update 49 - SARS case fatality ratio, incubation period](#) ). Higher mortality has also been associated with male sex and presence of co-morbidity in various studies.

##### **Elderly and paediatric cases and SARS in pregnancy**

Atypical presentations such as afebrile illness or concurrent bacterial sepsis/pneumonia have been highlighted as a particular problem in the elderly. Underlying chronic conditions and their

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<sup>2</sup> Extract from the World Health Organization website: <http://www.int/csr/sars/postoutbreak/en/>

more frequent use of health facilities have both contributed to initially unrecognized nosocomial transmission events.

SARS occurred less frequently and was observed to be a milder illness in the paediatric population.

Known cases of SARS in pregnancy have suggested an increase in fetal loss in early pregnancy and maternal mortality in later pregnancy.

### **Radiological findings**

Early chest radiograph or CT changes are observed in most of the patients as early as days 3-4 of illness in spite of the absence of respiratory signs. These typically show patchy consolidation starting with a unilateral peripheral lesion which progress to multiple lesions or ground glass appearance. Some lesions follow a shifting pattern. Features during the later stages have sometimes included spontaneous pneumothorax, pneumomediastinum, sub-pleural fibrosis and/or cystic changes.

### **Haematological and biochemical findings**

There are no haematological or biochemical parameters specific for SARS; however, studies have consistently highlighted the following:

#### *Haematological findings*

Lymphopenia is common on presentation and progresses during the course of the illness. Sometimes thrombocytopenia and prolonged APTT are observed.

#### *Biochemical findings*

LDH is frequently high and some reports have suggested association with poor prognosis. ALT, AST and CPK elevation are less frequently reported. Abnormal serum electrolytes have also been reported on presentation or during hospitalization including hyponatraemia, hypokalaemia, hypomagnesaemia and hypocalcaemia.

## **Annex 2**

### **Guidance regarding the diagnosis of SARS in the post-outbreak period – A concern for all health care workers (HCWs)**

Making a diagnosis of SARS sufficiently early in the disease to implement effective infection control and public health measures will prove a challenge that requires all HCWs to always incorporate risk-based infection control measures in care provision. This will only occur within a culture that treats infection prevention and control as everyone's responsibility. All HCWs should be encouraged to consider the possibility of SARS in a patient under their care. If there are features suggestive of SARS then any concerns should be raised promptly and trigger risk-based infection control measures. There must be monitoring and feedback on this process.

The non-specific nature of the presentation of SARS could lead to concern being raised in a vast number of patients who will ultimately prove to have another diagnosis. In practice, concern about the possibility of SARS may often be expressed at the stage where atypical pneumonia is suspected.

This process should not rely wholly on clinicians but should be responsive to the concerns raised by other HCWs.

### **Concern of SARS raised by clinicians**

For clinicians the process of diagnosis from initial concern to confirmation or exclusion of a SARS diagnosis (see case description) is usually an incremental one following sequential information gathering from various sources that include:

- clinical history
- clinical examination
- bedside monitoring
- radiology investigations
- haematology investigations
- biochemistry investigations
- microbiology and virology investigations
- response to treatment
- epidemiological information obtained from the individual, the health facility or the community.

### **Concern about SARS raised by other health professionals**

Concerns regarding SARS may be raised by any HCW. All HCWs need to ensure they are fully aware of what constitutes a clinical concern about SARS and how, in the course of their duties they could be involved in the presentation, investigation or treatment of an unrecognized SARS case.

They should be encouraged to raise concerns with both the clinicians and infection control team who should provide monitoring and feedback on the process.

Some examples are given:

- infection control staff e.g., noting an increase in hospital acquired pneumonias
- nursing staff e.g., noting a pattern of deterioration in a patient suggestive of SARS
- staff involved in care of the elderly e.g., noting an increase in severe illness
- occupational health staff e.g., noting staff sickness compatible with atypical pneumonia
- physiotherapists e.g., noting a pattern of atypical pneumonia
- radiographers e.g., noting a pattern of atypical pneumonia
- radiologists e.g., noting a pattern of atypical pneumonia

- haematologists e.g., noting a profile suggestive of atypical pneumonia
- biochemists e.g., noting a profile suggestive of atypical pneumonia
- microbiologists e.g., noting an increase in undiagnosed pneumonias
- virologists e.g., noting an increase in requests for respiratory serology
- pharmacists e.g., noting an increase in prescribing for pneumonia

### Atypical pneumonia

Common bacteria, such as *Streptococcus pneumoniae* and *Haemophilus influenzae* cause so-called "typical pneumonia". Cases of typical pneumonia present with fever, respiratory symptoms (cough, which is usually early in the illness and often productive, shortness of breath etc.), elevated white cell count and well-defined changes on the chest radiograph. They tend to respond to antibiotic therapy for community acquired pneumonia.

In contrast, "atypical pneumonia" is defined as pneumonia or lower respiratory tract infection with an atypical presentation often with a gradual onset of symptoms such as non-productive, dry cough, a variable white blood cell count and the chest radiograph changes. These include patchy, poorly defined changes, which may be often more severe than the clinical picture would suggest. The causative agents include, *Mycoplasma pneumoniae*, *Chlamydia spp.*, *Legionella pneumophila*, *Coxiella burnetii*.

Diagnosis of atypical pneumonia is in itself challenging but will be assisted by careful clinical assessment (including non-respiratory symptoms), and given the likely absence of auscultatory signs, accurate measurement of respiratory rate and oxygen saturation (where available) becomes even more important. Chest radiography is of great use in achieving diagnosis and should be considered even in the absence of respiratory signs.

### Features of SARS that may commonly help with clinical diagnosis<sup>3</sup>

SARS	Example	Caution
Clinical history	Sudden onset of flu-like prodrome, dry cough, non – respiratory symptoms e.g., diarrhoea common	Take a travel history, history of hospitalisation and history of contact with healthcare facility. The absence of such a history should not automatically exclude diagnosis of SARS.
Clinical examination	Does not correlate with chest radiology changes	Lack of respiratory signs particularly in groups such as the elderly

<sup>3</sup>Extract from the World Health Organization website: <http://www.int/csr/sars/postoutbreak/en/>

<b>SARS</b>	<b>Example</b>	<b>Caution</b>
Bedside monitoring	Hypoxia	Temperature may not be elevated on admission, respiratory rate should be documented
Haematology investigations	Low lymphocyte count	
Biochemistry investigations	Raised LDH	Check profile for electrolytes and liver function
Radiology investigations	CXR changes poorly defined, patchy, progressive changes	May present as a lobar pneumonia, pneumothorax and pneumomediastinum may occur
Microbiology investigations	Investigate for community, and hospital acquired pneumonias including atypical pneumonias	Concurrent infections may occur
Virology investigations	Investigate for other causes of atypical pneumonia	Interpret SARS test results with caution
Treatment	As yet there is not proven treatment for SARS, supportive measures are recommended	Lack of response to treatment with standard antibiotics for community acquired pneumonia including atypical pneumonia may be indicative of SARS

## APPENDIX 5

### SARS ACTIVITY AND RESPONSE FOR NEW SARS OCCURRENCES

1. The local Medical Officer of Health, in consultation with the Public Health Branch of the Ministry of Health and Long-Term Care, will identify the appropriate SARS Activity and Response levels for his or her jurisdiction (health unit) based on an assessment of the reported SARS activity in the local and related / connected jurisdictions. Details of Activity and Response levels are found in the Ontario Protocol for Public Health Management of SARS Occurrences.
2. When one setting or jurisdiction is severely affected, more aggressive measures may be recommended for other settings than would be anticipated by their current level of reported SARS activity.
3. The Medical Officer of Health, in consultation with the Public Health Branch, is responsible for declaring an outbreak within the health unit jurisdiction as follows:
  - In a specific setting when there is evidence of unprotected exposure or transmission in that setting, or
  - Across the health unit, when there is more than one setting involved or there is significant community exposure from an outbreak in a defined setting.

For the purposes of the SARS directives, an outbreak is defined as local transmission of SARS, rather than as a single case or several imported cases.

4. When an unprotected SARS exposure or evidence of SARS transmission occurs in a health care setting, the facility's outbreak management team and the Medical Officer of Health, in consultation with the Public Health Branch, will decide on the measures to be taken in line with current directives and science. Depending on the circumstances, these may or may not be facility wide.
5. The Medical Officer of Health is responsible for informing health care providers when he or she activates additional local measures such as reintroduction of a SARS screening tool or declares an outbreak in their jurisdiction.



## **APPENDIX 6**

### **SAMPLE TELEPHONE SCRIPT**

Are you calling because you are ill? If NO (ignore script); if YES please listen to the full message...

You have reached [HEALTH PROFESSIONAL'S] office. Due to the current outbreak of Severe Acute Respiratory Syndrome or (SARS), this office is taking precautions to control the spread. If you've been in contact with someone with SARS, or if you have visited a health care facility that is now closed due to SARS or travelled to [AFFECTED AREAS] AND you have a fever, cough or shortness of breath please DO NOT COME INTO THE OFFICE. You should call TeleHealth Ontario at 1-866-797-0000 or go to the nearest Emergency Department or SARS clinic.

When you come to the office, please do not bring anyone else with you unless absolutely necessary.

APPENDIX 7 - SAMPLE SARS NOTICE

# STOP

## Read Carefully Before Entering

Have you been in unprotected contact with a patient with SARS in the past 10 days?      **OR**  
In the past 10 days, have you been to a health care facility that is closed due to SARS?

If the answer to **EITHER** of these questions is **YES**, please contact your local Public Health Unit.

**AND**

If you have any of the following: unexplained muscle aches, severe fatigue, severe headache, a cough that started in the last week, shortness of breath worse than usual, or any fever, you should not enter the office and please go to the Emergency Department or SARS clinic.

(contact phone numbers)

Have you returned from [AFFECTED AREAS] in the past 10 days?

**AND**

Do you have any of the following: unexplained muscle aches, severe fatigue, severe headache, a cough that started in the last week, shortness of breath worse than usual, or any fever?

If the answer to **BOTH** of these questions is **YES**, you should not enter the office. You should go to the nearest Emergency Department or SARS Clinic immediately.

## **APPENDIX 8**

### **FOLLOW UP INSTRUCTIONS FOR PATIENTS WITH FEVER OR RESPIRATORY ILLNESS**

**My doctor has sent me home on self-monitoring. What does this mean and what should I do?**

Your doctor feels that your symptoms are mild enough to send you home for observation. However, while at home it is important that you monitor your own health to be sure that your symptoms do not progress. In addition, you must take proper precautions so that you do not pass an infection on to others.

**How do I self-monitor?**

- Measure your temperature with your own thermometer twice a day over the next 72-hour period. Record the results on a piece of paper with the dates and times.
- If you develop a new fever (over 38° C/100.4° F), you should call your doctor and/or Telehealth Ontario at 1-866-797-0000 (TTY 1-866-797-0007) where you will be advised how to seek medical attention.
- If you begin to develop other new symptoms such as shortness of breath, difficulty breathing, or if your symptoms worsen, you should immediately call your doctor and/or Telehealth Ontario at 1-866-797-0000 (TTY 1-866-797-0007) where you will be advised how to seek medical attention.

**What precautions do I take to prevent my family members and friends from becoming ill?**

- Remain at home for the next 72 hours or until you are feeling better. Do not go to work, school or public places.
- Wash your hands frequently.
- Remind others in your household to wash their hands often, especially if they have spent time in the same room as you.
- Limit your contact with other people.
- Cover your mouth with a tissue when you cough or sneeze. Wash your hands immediately after covering your mouth, and after blowing your nose.
- Do not share personal items, such as towels, drinking cups, cutlery, thermometers, and toothbrushes.
- Dispose of used tissues directly into a garbage bag used only by you.
- Rest and drink plenty of fluids.
- Family members who become ill must stay home and call their physician.
- At the end of 72 hours, if you are feeling entirely well, you can return to work or school and resume normal activity. If your symptoms persist, call your doctor. If your doctor is unavailable, contact Telehealth Ontario at 1-866-797-0000.

## APPENDIX 9

### GUIDELINES FOR SAFE AND PROPER N95 MASK USE

#### **Routine Practice**

- Masks should be used and maintained according to manufacturers recommendations.
- Inspect the mask to determine that it is not moist, soiled or damaged.
- Check that the mask straps hold the mask tightly against the face. If not, discard the mask. Do not attempt to alter the fit of the mask by knotting or cutting the straps.
- Perform a seal test to assess whether air escapes around the borders of the mask.<sup>4</sup>. There must be a tight facial seal to effectively wear the mask. Facial hair (e.g. beards and sideburns) presents a higher risk of disease transmission as hair may interfere with the sealing surface of the mask and the face. The best solution is to remove all hair that may interfere with the mask and face seal.
- Always ensure that the mask is maintained in proper position when being worn; i.e. do not leave mask hanging around neck, to be re-applied when use is desired.
- Usual duration of use is approximately eight to twelve hours. Masks may be re-used on a single day, providing it is stored clean and dry in a labelled paper bag in between uses. Do not use the mask on multiple days. Do not store in a sealed plastic bag, as this traps moisture onto the mask surface. Humidity, dirt and crushing affect the efficiency of the mask.

#### **For use concerning suspect or probable SARS patients**

- If the wearer is entering a room with a SARS patient, a new mask must be used with each encounter.
- Masks must be discarded after there is no further contact with the patient, and before contact with other people. Wash hands after removing PPE.
- If the wearer is NOT in a room with a SARS patient, a mask need not be changed during the shift duration (up to twelve hours)

#### **Eyewear**

- Ensure that eyewear is worn in a manner that does not interfere with the face and mask seal.

#### **Changes in Physical Condition of the Wearer**

- Changes in the wearer's physical condition could affect mask fit (e.g. facial scarring, dental changes, cosmetic surgery, and obvious change in body weight). The user may have to change the size or make of the N95 mask as a result

#### **Facial Structure**

- Variations in facial structure may require the provision of more than one size, make or model to ensure that a properly fitting mask is available for all users. Masks may vary in size from manufacturer to manufacturer and users may be able to get a better fit by trying a mask made by another manufacturer.

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<sup>4</sup> Example method for cup face masks – Always follow manufacturers recommendations

- Place both hands completely over the mask, being careful not to disturb the mask's position, and exhale sharply
- If air leaks around your nose, adjust the nosepiece as required to ensure a closed fit.
- If air leaks at mask edges adjust the straps back along the sides of your head.

## **APPENDIX 10**

### **HEALTH CARE FACILITIES SARS CATEGORIES**

**Health Care Facilities SARS Categories** - a categorization system established by the Ministry of Health and Long-Term Care to determine precautionary measures to be taken during a SARS outbreak.

The levels are as follows:

**SARS Category 0:** Health care facility has no known cases of SARS (suspect or probable).

**SARS Category 1:** No unprotected SARS exposure – staff and/or patients. Health care facility has one or more cases of SARS (suspect or probable).

**SARS Category 2:** Any unprotected SARS exposure within the last 10 days but without transmission to staff or patients. The health care facility may or may not currently have one or more cases of SARS (suspect or probable).

**SARS Category 3:** Unprotected SARS exposure with transmission to health care workers and/or patients. The health care facility may or may not currently have one or more case of SARS (suspect or probable).