Ministry of Health
and Long-Term Care

Ontario

SARS Provincial Operations Centre

May 13, 2003

DIRECTIVES TO ALL ONTARIO PREHOSPITAL CARE PROVIDERS AND AMBULANCE COMMUNICATIONS SERVICES

Overall Considerations

Prehospital care personnel (Paramedics, EMA's and First Responders) in Ontario began following strict directions from the Provincial Operations Centre with regard to personal protective equipment and enhanced infection control practices in mid-March 2003. These measures have contributed to the containment of exposure to infectious agents in suspect or probable SARS patients that are contacted by Emergency Medical Services (EMS) personnel. While use of these measures has mitigated the risk of infection for prehospital care personnel, continued vigilance is necessary.

Specifically, Emergency Medical Services personnel have to be aware that the management of patients who generate significant respiratory secretions pose a particular risk when providing care to such patients. Certain droplet-generating procedures (intubation, non-invasive ventilation, aerosolized therapy, suctioning, etc.) increase the risk of contamination by respiratory secretions and therefore must only be performed when they are essential.

The current best practice for managing suspect and probable SARS patients is admission to hospital. Given the current public health practices that are in place, it is increasingly likely that paramedics and emergency medical attendants will be made aware of an individual suspected of having SARS who requires prehospital care and transport. However, prehospital care personnel work in an uncontrolled environment and routinely do not have access to the patient information relating to the prospect of SARS.

These directives are based on the current epidemiology and may be updated as further information becomes available.

A) SPECIFIC DIRECTIVES FOR THE MANAGEMENT OF ALL PATIENTS (in the prehospital care environment)

Central Ambulance Communications Centres: (CACC)

CACCs are the first point of access into the health care system for many people seeking assistance. It is essential that CACCs continue to ask the additional questions necessary to providing ambulance crews with the information necessary for the protection of the paramedics and other persons.

1. Emergency Calls:

All CACCs in the province will ask the additional questions set out below when requests for ambulance service are received for patients having the following conditions/complaints:

- Shortness of Breath/Breathing Problems (including cough)
- General Malaise
- Fever
- Severe Headache

Additional Questions:

A. "Has the patient (have you) had contact with a person known to have SARS in the last 10 days?"

B. "Is the patient (are you) under quarantine, or has the patient (have you) been contacted by public health and put on home-isolation?"

C. "Has the patient (have you) been to any of the affected areas in the last 10 days?" (CACCs can confirm and update list weekly from Health Canada Website http://www.hc.sc.gc.ca)

If there are healthcare facilities that are closed or have been closed in the last ten (10) days due to SARS, all CACCs will ask question "D"

D. "In the last ten days has the patient (have you) been to a health care facility that is closed due to SARS?"

If the answer to any one of the additional questions is "yes", the dispatcher will notify all responding agencies and providers. Responders are to be advised to treat the case as suspicious and that the patient should be managed as a SARS case, as described in section B.

2. Interfacility Transfers:

All requests for interfacility transfers must be managed as outlined in the *Provincial Inter-Facility Patient Transfer Directive May 12, 2003* (Attached).

Paramedics, EMA's and First Responders

1. General measures

- Paramedics, EMA's and First Responders who have been directed to do so, are no longer required to wear the N95 particulate respirator mask, gloves, and gown for every patient contact. However, these protective measures must still be used where warranted. (see Appendix 2).
- Paramedics, EMA's and First Responders are no longer required to be screened using the SARS screening tool prior to commencing work.
- Staff with febrile illnesses or those who are unwell and may be infectious are to exclude themselves from work in accordance with the Part B (Communicable Disease Management) set out in the "Patient Care and Transportation Standard incorporated by reference into Regulation 257/00 made under the Ambulance Act..
- Staff that become febrile while at work are to notify their supervisor..
- Personal protective equipment must be properly used and maintained consistent with the *Occupational Health and Safety Act* Reg. 67/93 s.10. N95 or equivalent masks must be qualitatively fit tested to ensure maximum effectiveness. (See NIOSH website at www.cdc.gov/niosh -Publication No.99-143)
- Hand washing/hand hygiene before and after patient care.
- Paramedic student activity in ambulance services may return to normal.

2. Emergency Calls

- All paramedics, EMA's and First Responders will ask 'additional questions' as listed below for the following complaints:

    - Shortness of Breath/Breathing Problems (including cough)
    - General Malaise
    - Fever
    - Severe Headache

    A. "Has the patient (have you) had contact with a person known to have SARS in the last 10 days?"

    B. "Is the patient (are you) under quarantine, or has the patient (have you) been contacted by public health and put on home-isolation?"

C. "Has the patient (have you) been to any of the affected areas in the last 10 days?" (CACCs can confirm and update list weekly from Health Canada Website http://www.hc.sc.gc.ca)

If there are healthcare facilities that are closed or have been closed in the last ten (10) days due to SARS, all paramedics, EMA's and First Responders will ask question "D"

D. "In the last ten days has the patient (have you) been to a health care facility that is closed due to SARS?"

If the answer to any one of the additional questions is "yes", all other responding agencies and providers must be notified. Responders should treat the case as suspicious and manage the patient as a SARS case, as described in section B.

3. Upon Entering a Category 2 Or 3 Facility

- All Paramedics, EMA's and First Responders entering a category 2 facility must use SARS precautions (N95 mask or equivalent, gown, gloves, and protective eye wear) while in any areas of the hospital affected by an unprotected exposure
- All Paramedics, EMA's and First Responders entering a category 3 facility must use SARS precautions (N95 mask or equivalent, gown, gloves, and protective eye wear) at all times throughout the facility
- Patients (who can tolerate same) should wear a surgical mask while in these facilities
- Equipment used for manual bagging should be disposed of after use, not cleaned.

4. Measures During Procedures

- Bag-Valve-Mask Ventilation (BMV) & Endotracheal Intubation:
    - Non-essential bystanders and patient care personnel must leave the patient care area.
    - A disposable protective face shield or flip-down hood is to be worn by any provider providing direct airway management.
    - Prior to putting on a disposable protective mask, the provider must be wearing double gloves, double gown, an N95 mask or equivalent and eye goggles.
    - Put on the disposable protective face shield or flip-down hood according to established procedure.
    - When patient care is completed, remove the disposable face shield, followed by the outer gown, followed by the outer gloves.
    - Dispose of first layer of removed personal protective equipment according to established procedures.

- Second layer of personal protective equipment can then be removed.
- Dispose of removed personal protective and single-use patient care equipment according to established procedures.
- Personnel using this personal protective equipment must receive proper instruction on the application and removal to avoid contamination.
- The use of hydrophobic antimicrobial filters is mandatory in all cases where the BVM or endotracheal tubes are used. Filters should be changed when fluid buildup impedes ventilation. Filters are to be placed in a biohazardous bag for disposal.
- Providers using BVM devices should only use the minimum oxygen flow needed to fill the reservoir bag. Where pulse oximetry is available, it should be used to guide the provider in maintaining a minimum oxygen saturation of ≥ 92% in adults and 95% in paediatric populations.
- The endotracheal tube should not be used as a route to deliver medications or solutions unless it has an integrated medication port.
- Intubation protocols where existing, using appropriate sedatives, cough-suppressing narcotics, adequate doses of topical analgesia and possibly paralytics should be used to perform intubation on "awake" patients.
- Suctioning activities should be restricted to those patients who have observable or highly suspected mucous, fluid or foreign matter, or where there is a need to assess patency of an endotracheal tube.

- Nebulized Therapy

  - Nebulized therapies should be avoided if possible. The use of atomized solutions for patients in the pre-hospital care setting should also be avoided unless the equipment used results in a closed system. If these therapies are used, paramedics must use droplet precautions (N95 mask, eye protection, gown and gloves).

- Oxygen Therapy

  - Oxygen should be delivered DRY. Where pulse oximetry is available, it should be used to guide the provider in selecting an appropriate oxygen delivery device to maintain a minimum oxygen saturation of ≥ 92% in adults and 95% in paediatrics.
  - Providers using non-rebreather devices should only use the minimum oxygen flow needed to fill the reservoir bag.

5. **<u>Transport and Vehicle Cleaning Measures</u>**

   - Land Ambulance

     - The door/window between driver and patient compartments (if present) should be closed during patient transport. The provider driving the ambulance must still wear all protective gear enroute to hospital.

- Exhaust fans should be on in the patient compartment. If a vehicle does not have separate compartments, the outside air vents in the driver compartment should be open, and the rear exhaust ventilation fans should be turned on at the highest setting to provide relative negative pressure in the patient care compartment.
- If the paramedic, EMA and First Responder assuming driving duties had any contact with patient and/or equipment they should remove the outer gloves and gown prior to entering the driver's compartment. Prior to reestablishing patient/equipment contact they should don another gown and gloves.

- Rotor Wing/Fixed Wing Air Ambulance

  - SARS patients should be transported on a dedicated SARS Aircraft whenever possible.
  - There should not be any patients or passengers who do not have SARS on board other than Medical and Flight Crews
  - Service providers should consult manufacturer(s) of their aircraft to identify cabin airflow characteristics, including: HEPA filtration and directional airflow capabilities, air outlet location, presence or absence of air mixing between cockpit and patient-care cabin during flight, and the time and aircraft configuration required to perform a post-mission airing-out of the aircraft.
  - Aircraft with forward-to-aft cabin airflow and a separate cockpit cabin are recommended for transport of SARS patients. The flight deck/cockpit crew in aircraft with forward-to-aft cabin airflow and separate patient-care compartment are not required to wear respirators unless they enter the patient-care compartment.
  - Aft-to-forward cabin airflow may create a significant risk or airborne transmission to both cabin and flight deck personnel. If an aircraft with aft-to-forward airflow must be used, all personnel on board must wear fit-tested N-95 respirators throughout the flight.
  - Aircraft that re-circulate cabin and flight deck air without HEPA filtration should not be selected for SARS patient transport.
  - Aircraft ventilation should remain on at all times during transport of SARS patients, including during ground delays.
  - Aircraft that provide separate upwind cabin space for crew members to perform necessary personal activities (eating, drinking, handling contact lenses, etc.) should be selected for flights likely to exceed 4 hours.
  - SARS patients should be positioned as far downwind with regard to cabin airflow as possible.
  - If the aircraft uses vertical litter tiers, SARS litter patients should be placed in the lowest position in the tier.
  - Ambulatory SARS patients should be seated next to the cabin sidewall.

- If a non-SARS patient must be transported simultaneously with SARS patient(s), the non-SARS patient must wear an N-95 respiratory during transport and should not be positioned downwind from, or within 3 feet of, the SARS patient.
- If several SARS patients are transported, they may be moved as a group (cohorted) in an aircraft that provides appropriate airflow and filtration characteristics as described above.
- Air flow during transport in a rotor-wing aircraft should follow the recommendations stipulated in the Canadian Helicopters EMS memorandum entitled, "Air Management and Positive Ventilation in the S-76 helicopter" (April 23, 2003).
- EMS approved disinfectants must be used to clean all reusable patient care equipment used on each call as well as contaminated surfaces in the patient care and driver compartments.

B) SARS PATIENTS IN THE PREHOSPITAL CARE ENVIRONMENT (field and inter-facility settings)

- **Protection/Equipment**

  - All prehospital care providers must be wearing gloves, gown, an N95 mask or equivalent and eye goggles during management or transport of a suspected or probable SARS patient. Removal and disposal of personal protective equipment should follow standard procedures.
  - Non-essential personnel should not be in the area where patient care is being provided including during the transport phase of the call.
  - Clean up of ambulance and equipment should be done in such a way as to reduce the re-release of aerosols.

- **Procedures**

  Endotracheal Intubation: *Almost all SARS patients who deteriorate to the point of requiring intubation will do so in the hospital. Therefore it is extremely unlikely that a patient known to have SARS will require intubation in the pre-hospital environment. Intubation practices in the prehospital care setting are addressed in section A.*

  Note: Infectious respiratory secretions from SARS patients will contaminate respiratory equipment and be expelled into the surrounding environment.

  - Endotracheal Intubation in the hospital setting:

    - EMS personnel should leave the patient care area when an intubation is to be performed.

- Only those paramedics equipped and trained in the use of full head, face and neck protection should be involved in the intubation if their assistance is required.

- Management of SARS patients with mechanical transport ventilators or manual resuscitation bags:

  - A hydrophobic submicron filter must be placed between the endotracheal tube and the ventilator circuit tubing/manual resuscitation bag.
  - Filters should be changed when fluid build-up impedes ventilation.
  - Disposal of filters is to be considered a high-risk exposure and staff must protect themselves using full personal protective equipment following the maximal precautions policy.
  - Filters and ventilator circuits are to be bagged, sealed, and then placed in a biohazardous bag for disposal.

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Appendix 1

Definitions:

SARS Precautions:	A new category of precautions requiring the use of N95 masks, eye protection (prescription eyeglasses are not protective), gowns, and gloves for contact of all persons under investigation (PUI), suspect or probable SARS cases.
Hand Hygiene:	This includes hand washing with soap and running water or alcohol-based hand sanitizers.
SARS Category 0:	Healthcare facility has no known cases of SARS (suspect or probable)
SARS Category 1:	No unprotected SARS exposure – staff and/or patients. Healthcare 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 healthcare 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 HCWs and/or patients. The healthcare facility may or may not currently have one or more cases of SARS (suspect or probable).

APPENDIX 2

SUMMARY OF SARS TRANSMISSION PREVENTION PRACTICES

The following protective precautions are recommended until aetiology is established, or patient is afebrile for 24 hours:

Diagnostic Category	Hand washing before and after patient contact	N95 mask on paramedic and persons accompanying patient	Eye protection	Gown	Gloves	Surgical mask on patient
Respiratory Symptoms (unexplained cough, shortness of breath, hypoxia) Suggestive of an Infectious Disease	YES	YES	YES	NO	YES	YES*
• Persons Under Investigation (PUI) • SARS probable and suspect	YES	YES	YES	YES	YES	YES*

* Apply surgical mask to patient if medical status allowed unless otherwise contraindicated (e.g., paediatric patients)