



Safe Handling of Human Remains of Severe Acute Respiratory Syndrome (SARS) Patients: Interim Domestic Guidance

The Centers for Disease Control and Prevention (CDC) and the World Health Organization have received reports of patients with severe acute respiratory syndrome (SARS) from Canada, China, Hong Kong Special Administrative Region of China, Indonesia, Philippines, Singapore, Thailand, and Vietnam. The most current definition can be accessed at <http://www.cdc.gov/ncidod/sars/casedefinition.htm>.

Interim recommendations for infection control precautions for patient care can be accessed at <http://www.cdc.gov/ncidod/sars/infectioncontrol.htm> and include Standard, Contact, and Airborne precautions (1).

All postmortem procedures require adherence to standard precautions with use of appropriate personal protective equipment (PPE) and facilities with appropriate safety features. Mechanical devices used during autopsies can efficiently generate fine aerosols that may contain infectious organisms. Thus, PPE should include both protective garments and respiratory protection as outlined below.

Personal protective equipment

For autopsies and postmortem assessment of SARS cases, PPE should include:

- **Protective garments:** surgical scrub suit, surgical cap, impervious gown or apron with full sleeve coverage, eye protection (e.g., goggles or face shield), shoe covers and double surgical gloves with an interposed layer of cut-proof synthetic mesh gloves.
- **Respiratory protection:** N-95 or N-100 respirators; or powered air-purifying respirators (PAPR) equipped with a high efficiency particulate air (HEPA) filter. PAPR is recommended for any procedures that result in mechanical generation of aerosols, e.g., use of oscillating saws. Autopsy personnel who cannot wear N-95 respirators because of facial hair or other fit-limitations should wear PAPR.

Autopsy procedures

For autopsies and postmortem assessment of SARS cases, safety procedures should include:

- **Prevention of percutaneous injury:** including never recapping, bending or cutting needles, and ensuring that appropriate sharps containers are available.
- **Handling of protective equipment:** protective outer garments must be removed when leaving the immediate autopsy area and discarded in appropriate laundry or waste receptacles, either in an antechamber to the autopsy suite or immediately inside the entrance if an antechamber is not available. Hands should be washed upon glove removal.

Engineering strategies and facility design

- **Air handling systems:** autopsy suites must have adequate air-exchanges per hour and correct directionality and exhaust of airflow. Autopsy suites should have a minimum of 12 air-exchanges per hour and should be at a negative pressure relative to adjacent passageways and office spaces. Air should not be returned to the building interior, but should be exhausted outdoors, away from areas of human traffic or gathering spaces (e.g., off the roof) and away from other air intake systems. For autopsies, local airflow control (i.e., laminar flow systems), can be used



to direct aerosols away from personnel; however, this safety feature does not remove the need for appropriate personal protective equipment.

- **Containment devices:** biosafety cabinets should be available for handling and examination of smaller specimens. Oscillating saws are available with vacuum shrouds to reduce the amount of particulate and droplet aerosols generated. These devices should be used whenever possible to decrease the risk of occupational infection.

References

1. Garner JS. **Guideline for isolation precautions in hospitals.** Infect Control Hosp Epidemiol 1996; 17:53-80.