



SEVERE ACUTE RESPIRATORY SYNDROME

Interim Domestic Guidance on the Use of Respirators to Prevent Transmission of SARS

Health-care workers caring for patients with Severe Acute Respiratory Syndrome (SARS) are at risk for acquiring SARS. Although the infectivity of SARS is currently uncertain, transmission to health-care workers appears to have occurred after close contact with symptomatic individuals (e.g., persons with fever or respiratory symptoms), particularly before implementation of recommended infection control precautions for SARS (i.e., unprotected exposures). Personal protective equipment appropriate for standard, contact, and airborne precautions (e.g., hand hygiene, gown, gloves, and N95 respirators) in addition to eye protection, have been recommended for health-care workers to prevent transmission of SARS in health-care settings (see www.cdc.gov/ncidod/sars/ic.htm).

The transmission of SARS appears to occur predominantly by direct contact with infectious material, including dispersal of large respiratory droplets. However, it is also possible that SARS can be spread through the airborne route. Accordingly, CDC has recommended the use of N95 respirators, consistent with respiratory protection for airborne diseases, such as tuberculosis.

SARS, unlike tuberculosis, also appears to spread by direct contact with respiratory secretions, which makes touching contaminated objects a potential concern. Although reaerosolization of infectious material is unlikely under normal use conditions, infectious material deposited on a respirator may cause it to become a vehicle for direct or indirect transmission. Therefore, additional infection control measures applicable to this specific situation are needed.

This interim guidance provides information on the selection and handling of respirators for SARS and includes guidance for when respirators are either not available or in short supply.

1. A NIOSH-certified, disposable N-95 respirator is sufficient for routine airborne isolation precautions. Use of a higher level of respiratory protection may be considered for certain aerosol-generating procedures (see www.cdc.gov/ncidod/sars/aerosolinfectioncontrol.htm).
 - a. Respirators should be used in the context of a complete respiratory protection program in accordance with OSHA regulations. This includes training and fit testing to ensure a proper seal between the respirator's sealing surface and the wearer's face. Detailed information on respirator programs, including fit test procedures can be accessed at www.osha.gov/SLTC/etools/respiratory.
 - b. Once worn in the presence of a SARS patient, the respirator should be considered potentially contaminated with infectious material, and touching the outside of the device should be avoided. Upon leaving the patient's room, the disposable respirator should be removed and discarded, followed by hand hygiene.
2. If a sufficient supply of respirators is not available, healthcare facilities may consider reuse as long as the device has not been obviously soiled or damaged (e.g., creased or torn). Data on reuse of respirators for SARS are not available. Reuse may increase the potential for contamination; however, this risk must be balanced against the need to fully provide respiratory protection for healthcare personnel.

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If N95 respirators are reused for contact with SARS patients, implement a procedure for safer reuse to prevent contamination through contact with infectious droplets on the outside of the respirator.

- a. Consider wearing a loose-fitting barrier that does not interfere with fit or seal (e.g., surgical mask, face shield) over the respirator.
 - b. Remove the barrier upon leaving the patient's room and perform hand hygiene. Surgical masks should be discarded; face shields should be cleaned and disinfected.
 - c. Remove the respirator and either hang it in a designated area or place it in a bag. (Consider labeling respirators with a user's name before use to prevent reuse by another individual.)
 - d. Use care when placing a used respirator on the face to ensure proper fit for respiratory protection and to avoid contact with infectious material that may be present on the outside of the mask.
 - e. Perform hand hygiene after replacing the respirator on the face.
3. When elastomeric (rubber) or powered air purifying respirators (PAPRs) are used, their reusable elements should be cleaned and disinfected after use, in accordance with manufacturer's recommendations. When half- or full-facepiece elastomeric negative pressure respirators are used by more than one individual, filters should be replaced between individual users. When PAPRs are used, the filters should be replaced following manufacturer's recommendations. All used filters must be safely discarded.
 4. Respiratory protective devices with a filter efficiency of 95% or greater (e.g., N95, N99, N100) may not be available in some settings due to supply shortages or other factors. In this situation, a surgical (procedure) mask should be worn. Surgical masks will provide barrier protection against large droplets that are considered to be the primary route of SARS transmission. However, surgical masks may not adequately protect against aerosol or airborne particles, primarily because they allow for leakage around the mask and cannot be fit tested. The mask should resist fluid penetration and fit tightly around the mouth and nose when properly applied to the face.
 5. Hand hygiene is urged for all contact with suspect SARS patients or objects that may be contaminated with the virus that causes SARS, including hand washing with soap and water; if hands are not visibly soiled, alcohol-based hand rubs may be use as an alternative to hand washing.

For more information, visit www.cdc.gov/ncidod/sars or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (Español), or (866) 874-2646 (TTY)