



RESPIRATORY PROTECTION PROGRAM FOR PREVENTING THE TRANSMISSION OF TB

PURPOSE: At MCVH, respiratory protection is required by a) persons entering rooms where patients with known or suspected infectious TB are being isolated, b) persons present during cough-inducing or aerosol-generating procedures performed on such patients, and c) persons in other settings where administrative and engineering controls are not likely to protect them from inhaling infectious airborne droplet nuclei. The purpose of this policy is to establish criteria for MCVH staff to follow to effectively utilize respiratory protection for the prevention of TB transmission.

TB INFECTION CONTROL: The *MCVH TB Infection Control Program* requires early identification, isolation, and effective treatment of persons who have active TB. The program is based on a hierarchy of control measures. The first level of the hierarchy, and that which affects the largest number of persons, is using administrative measures intended primarily to reduce the risk for exposing uninfected persons to persons who have infectious TB. These measures include a) developing and implementing effective written policies and protocols to ensure the rapid identification, isolation, diagnostic evaluation, and treatment of persons likely to have TB; b) implementing effective work practices among MCVH staff (e.g., correctly wearing respiratory protection and keeping doors to isolation rooms closed); c) educating, training, and counseling MCVH staff about TB; and d) screening MCVH staff for TB infection and disease.

The second level of the hierarchy is the use of engineering controls to prevent the spread and reduce the concentration of infectious droplet nuclei. These controls include a) direct source control using local exhaust ventilation, b) controlling direction of airflow to prevent contamination of air in areas adjacent to the infectious source, c) diluting and removing contaminated air via general ventilation, and d) air cleaning via air filtration or ultraviolet germicidal irradiation (UVGI).

The first two levels of the hierarchy minimize the number of areas in the health-care facility where exposure to infectious TB may occur, and they reduce, but do not eliminate, the risk in those few areas where exposure to *M. tuberculosis* can still occur (e.g., rooms in which patients with known or suspected infectious TB are being isolated and treatment rooms in which cough-inducing or aerosol-generating procedures are performed on such patients). Because persons entering such rooms may be exposed to *M. tuberculosis*, the third level of the hierarchy is the use of personal respiratory protective equipment in these and certain other situations in which the risk for infection with *M. tuberculosis* may be relatively higher. This policy is designed to address this level of TB infection control.

RESPIRATORY PROTECTION PROGRAM: In accordance with Centers for Disease Control and Prevention (CDC) [Guidelines for Preventing the Transmission of *Mycobacterium*](#)

tuberculosis in Health-Care Facilities, 1994, and the Occupational Safety and Health Administration, *respiratory protection standard* (CFR 1910.134), the following procedures are applicable to MCVH staff designated to wear respiratory protection for the prevention of TB infection.

I. Assignment of Responsibility - *Hospital Epidemiology* will be responsible for program implementation, identifying staff with high risk exposures, and assist in employee training. *Employee Health Services* will provide medical surveillance and technical guidance. The VCU *Office of Environmental Health & Safety* will provide fit-testing, employee training and technical assistance.

II. Standard Operating Procedures (SOPs) - The following procedures outline the steps necessary to properly select, use, maintain, and store respirators in accordance with this program:

A.) **Respirator Selection** - Respirators selected for use in this program meet requirements of CFR 42 Part 84 - filter class: "N-Series" air-purifying, particulate-filter respirators.

Respirator selection was based upon hazard (TB infection) and CDC recommendations. Currently, the TECNOL, Model PFR95 has been chosen for all MCVH employees who are able to be fitted with this mask.

B.) **Limitations of Use** - The limitations of the selected respirator are considerations of hygiene, damage, and breathing resistance. They will be disposed of whenever they are damaged, soiled, or cause noticeable breathing resistance (causing discomfort to wearer). The selected respiratory protection will be used only for non-oil aerosols.

C.) **Storage** - While not in use, respirators will be maintained in a clean, convenient, and sanitary area if they are to be re-used.

D.) **Availability** - Respirators will be provided to MCVH staff at no cost. They will be purchased through General Stores and an ample supply will be stored in a clean, convenient, and sanitary area in each department. MCVH staff will not share respirators.

E.) **Use** - Respirators will be inspected for damage and fit-checked prior to use. These respirators are not to be worn in oxygen-deficient atmospheres. If at any time, the respirator user has difficulty breathing, they must leave the area, remove the respirator, and report to their supervisor. Follow-up medical evaluation will be necessary prior to continued respirator use.

F.) **Fit-testing** - All MCVH staff required to wear a respirator will be qualitatively fit-tested (using the "Saccharin Solution Aerosol Protocol"). Fit-testing will be documented by the department and *Hospital Epidemiology*. Staff not able to achieve an adequate fit-test will be offered and re-fitted with another type of respirator with the same or greater effectiveness.

G.) **Medical Surveillance** - Medical surveillance will be provided for each MCVH staff member required to wear a respirator. MCVH staff will not be required to wear respiratory protection unless it has been determined that they are physically able to perform their duties while wearing a respirator. The respirator user's medical status will be reviewed periodically, based upon age and previous physical condition.

H.) **Training** - All employees required to wear respiratory protection will be informed of the elements of this program, including proper use, storage, and limitations of respiratory protection; the nature, extent, risks and specific hazards of TB transmission; the description of engineering controls and work practices and the reasons why they do not eliminate the need for respiratory protection; and, how the respirator should be inspected, fit checked, and correctly

worn. Documentation of training will be maintained by the department and Hospital Epidemiology.

III. Medical Screening - MCVH staff will not be assigned a task requiring use of respirators unless they are physically able to perform the task while wearing the respirator. *Employee Health Services* will screen affected staff for pertinent medical conditions utilizing a brief, questionnaire (attached). The results of the screening will be used to identify MCVH staff who require further evaluation. Routine physical examination or testing with chest x-rays or spirometry is not necessary or required according to CDC and OSHA guidelines. Few medical conditions preclude the use of the selected N-series, disposable respirators.

IV. Program Review - This program will be reviewed annually by *Hospital Epidemiology*, *Employee Health Services*, and the *VCU Office of Environmental Health & Safety*. Both the written operating procedures and program administration will be revised as necessary based upon the results of this review. Elements of the program that will be evaluated include work practices and employee acceptance of respirator use (i.e., subjective comments made by employees concerning comfort during use and interference with duties).