



Preventing Transmission of Tuberculosis The Role of Ventilation

The TB Threat

With the outbreaks of tuberculosis (TB) and multiple-drug-resistant (MDR) TB occurring in hospitals, healthcare staff and patients are at a high risk for TB exposure.

The Principles of Prevention

To prevent the transmission of TB, identification, isolation, and treatment of persons with active TB are essential. This prevention strategy requires the application of basic principles, which include:

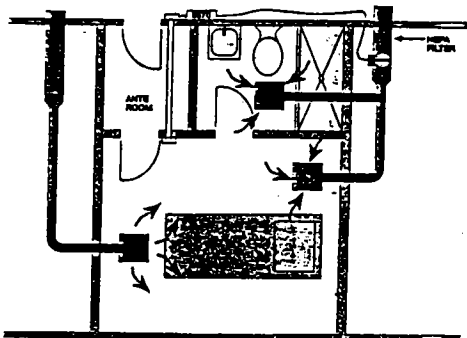
- ◆ Preventing the generation of infectious droplet nuclei.
- ◆ Preventing the spread of infectious droplet nuclei into the general air circulation.
- ◆ Reducing the number of infectious droplet nuclei in "contaminated" air.
- ◆ Adhering to guidelines for cleaning, disinfecting, and sterilizing contaminated items.
- ◆ Conducting surveillance for TB transmission to healthcare facility personnel.

Ventilation as a Means of Prevention

Good ventilation is the primary method for preventing the spread of TB in hospitals. Ventilation maintains air quality by dilution and removal of airborne contaminants. During medical procedures, ventilation can dilute the infection as it is emitted by the patient or source. Although ventilation alone cannot completely eliminate TB transmission, it can substantially reduce the risk when combined with other infection control measures.

Direction of Airflow

Establishing and maintaining the direction of airflow in healthcare facilities is crucial so that air flows from clean areas to less clean areas. In areas where TB transmission is a potential problem, trained personnel should monitor airflow frequently to ensure that appropriate conditions are maintained.



- ◆ Healthcare Facilities
- ◆ Information/Guidance
- ◆ TB Prevention by Ventilation

Some factors that influence the direction of airflow include:

- ◆ Dust in exhaust fans, filters, or ducts.
- ◆ Malfunctioning fans.
- ◆ Adjustments to the ventilation system elsewhere in the building.
- ◆ Automatic shutdown of outside air introduction during cold or hot weather.

Special Considerations

Patients with HIV. Individuals infected with the human immunodeficiency virus (HIV) are at increased risk of acquiring TB, especially the MDR strain. If the diagnosis of TB is ruled out in patients with HIV, treat them in an isolation room under positive pressure. If patients with HIV do contract TB or if its diagnosis cannot be ruled out, house them in an isolation room under negative pressure.

Patients undergoing chemotherapy. Patients undergoing chemotherapy treatment can become immunodeficient similar to a person with HIV. To protect these patients from TB, house them in an isolation room under positive pressure.