

# *What are the main factors that affect TB transmission?*

## *TB Transmission*

TB is transmitted through the air. A person with TB disease of the lungs or larynx can release droplets containing *Mycobacterium tuberculosis* (*M. tb*) into the air by coughing, sneezing, talking, or breathing. These droplets, called droplet nuclei, can cause TB infection if inhaled by anyone who shares air with the person who has infectious TB.

For TB transmission to occur, three things are required, a TB patient, an air path, and a susceptible person.

Characteristics of TB transmission include:

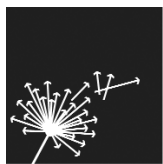
- It is assumed that a single TB droplet may be able to cause infection. Therefore, unlike many airborne pollutants, TB has no safe exposure level.
- TB is relatively difficult to become infected with compared to most diseases that are transmitted through the air, such as measles.
- The source of TB infection may not be identified. Most TB transmission is probably from undiagnosed TB patients.

The likelihood of TB transmission occurring depends on the following three factors.

### *1. Source Patient*

Patients are not equally infectious. Depending on individual factors, such as the strength of the patient's cough, how watery their mucus is, and perhaps the particular strain of TB that the person is infected with.

The most important patient factor is whether or not the patient is on effective chemotherapy. Effective therapy dramatically reduces the number of infectious droplets released by a patient.



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## *2. Exposure Time*

The probability of infection is directly proportional to the amount of time spent in the high-risk setting. Usually, but not always, a person must spend a long time in the company of a TB patient before becoming infected.

For people working in high-risk institutions, the risk is cumulative over time. That is, the more years you work, the more likely you are to become infected.

## *3. Environment*

The environment determines the path that TB droplet nuclei take after they have become aerosolized. This determines whether or not a susceptible individual can inhale these particles and possibly become infected with TB.

Characteristics of the environment include the size of the space and the ventilation. Obviously, the smaller the space and the poorer the ventilation, the higher the risk.

Engineering controls endeavor to modify the environment in order to reduce the risk of TB transmission.

This information is available at our website: [www.nationaltbcenter.edu](http://www.nationaltbcenter.edu)