



A Union of Professionals

Health and Safety Program

TUBERCULOSIS: THE "NEW" EPIDEMIC

Tuberculosis, once thought to be a disease of the past, has come back to haunt us. It is now approaching epidemic proportions in many major urban areas. The epidemic has grown more threatening with the appearance of multi-drug resistant (MDR) strains of TB.

TB on the Rise

Several trends account for the dramatic rise of new TB cases, most notably: (1) activation of old infections (in the elderly populations); (2) TB infection in HIV-positive individuals; (3) immigration (the rate of infection among Asian immigrants is eight times the national average); and (4) a rising homeless population (rate of infection among the homeless is 150 to 300 times the national average).

The Course of TB

Tuberculosis is a complex disease caused by a rod-shaped bacterium (bacillus), *Mycobacterium tuberculosis*.

Infection with *M. tuberculosis* does not automatically mean disease. Everyone does not respond to a TB infection in the same way. Generally, in a population of newly infected individuals, we can expect that:

- The immune system of most individuals will limit multiplication of the TB bacillus for two to 10 weeks after infection.
- Only one percent of infected persons will develop a case of active TB (fulminant disease) shortly after infection.
- Five percent to 10 percent of individuals who develop active TB will develop the disease one to two years after infection.

The transition from infection to mild or severe disease depends on many factors. For example, persons with diabetes have less resistance to active disease; the same is true for people who are malnourished, under a great deal of stress or receive steroid treatment. Infants and children are especially susceptible, as are individuals who are immunocompromised (e.g., HIV-positive individuals, cancer patients, etc.).

Early symptoms of active disease are fatigue, fever and weight loss. Coughing up blood, chest pain and hoarseness may appear in the later stages of the disease.

TB Transmission

Individuals who have active TB can carry the TB bacillus in their saliva and in sputum coughed up from the lungs. When these patients cough and sneeze, they release droplets (droplet nuclei) containing the bacillus into the air. Workers and others who inhale these droplets can become infected.

WORK
shouldn't
HURT

Infection depends on the concentration of infectious droplet nuclei in an area, ventilation and recirculation of contaminated air.

Detection of Infection

The intradermal Mantoux tuberculin skin test is the standard method used to detect infection. A multiple puncture or tine test is not recommended. A tiny amount of tuberculin (purified protein derivative or ppd) is injected under the skin. Persons who recently convert from a negative skin test to a positive skin test or have respiratory symptoms with a positive reaction should receive a chest x-ray. These persons may be candidates for preventative therapy.

Multi-Drug Resistant Tuberculosis (MDR-TB)

Many poor individuals with active TB fall through the cracks of our healthcare system and never complete the prescribed drug regimen to eradicate the TB bacillus. As a result, several strains of drug-resistant tuberculosis (MDR-TB) have arisen in major urban areas. It is estimated that 50 percent of persons with active MDR-TB will die from their infection. MDR-TB infection is almost always fatal for people who have HIV.

During 1990, there were MDR-TB outbreaks in four Miami and three New York City hospitals. In those hospitals, eight cases of active TB were reported among health care workers. Two had tuberculosis strains that were resistant to the same drugs. One, an HIV-positive worker, died.

Tuberculosis and the Healthcare Worker

Healthcare workers confront potential work-related TB and MDR-TB exposure every day. There are few studies of the prevalence of infection among healthcare workers. One dramatic study at a major urban hospital found six cases of active TB in emergency room workers and 47 workers who tested positive for TB after exposure to just one infected patient.

The risk of exposure is higher for healthcare workers in clinic and out-patient waiting rooms, emergency rooms and treatment rooms where procedures that stimulate coughing--bronchoscopy, endotracheal intubation, pentamidine and other aerosolized drug treatment areas--are used.

Only comprehensive surveillance and control programs will spare healthcare workers from work-related exposure and infection.

For more information, contact the AFT Healthcare Occupational Safety and Health Program at 202/393-5674.