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Health and Safety Program

## MULTIPLE-DRUG-RESISTANT TUBERCULOSIS

Multiple-drug-resistant tuberculosis (MDR-TB) is defined as any TB strain that is resistant to two or more primary drugs used in the United States for the treatment of tuberculosis. MDR-TB is not new. Outbreaks of MDR-TB were reported as early as 1970. Diagnosed cases have not been confined to any one geographic area. In 1985, an outbreak of MDR-TB occurred among 26 persons in Boston homeless shelters. To date, outbreaks involving children and adults have been reported in California, Mississippi, Montana, North Carolina, Pennsylvania, Texas and Utah.

MDR-TB is especially troublesome for persons infected with HIV. Tuberculosis spreads very rapidly among HIV-infected individuals housed in the same facility. In 1990, in a Florida hospital, transmission of an MDR-TB strain was documented in 29 patients, of whom 27 had an HIV infection. Similar outbreaks occurred in three New York hospitals. In all three, at least 92 percent of the patients were co-infected with HIV.

Well over 200 cases of MDR-TB have been linked to the Florida and New York outbreaks alone.

### How Have Healthcare Workers Been Affected?

Eight cases of tuberculosis among healthcare workers at the three New York hospitals were reported. Two had known exposure to outbreak cases; isolates obtained from the workers were resistant to the same drugs as the outbreak patient cases. One of these two was also an HIV-infected individual and later died after a fulminant course of tuberculosis. In one of the hospitals, 33 percent of workers tested had skin conversions (went from PPD negative to PPD positive); another 50 percent skin-converted.

In an upstate New York hospital, 50 healthcare workers suddenly had skin conversions in 1991. The conversions were linked to three TB cases--two inmates and one guard--from a nearby state prison who all were recently treated at the hospital. These cases were later identified as MDR-TB.

Important characteristics that seem to be in play in hospital MDR-TB outbreaks include:

- delays in the diagnosis of tuberculosis;
- a significant lag time in identifying drug-resistant strains (traditional techniques require 3 to 4 weeks to test the bacillus for drug susceptibility);
- inadequate AFB-isolation procedures;
- nosocomial transmission to patients and healthcare workers; and
- improper room ventilation in clinics where high-risk patients are treated.

**WORK**  
shouldn't  
**HURT**

### **What Should Workers Do After a Suspected MDR-TB Exposure?**

Healthcare workers who are PPD negative and know that they have been recently exposed should immediately have a tuberculin skin test, followed by a second test 12 weeks from the initial exposure.

Workers who skin-convert but show no evidence of active disease should receive some counseling on preventive therapy. Currently, there is no proven preventive therapy for those infected with INH- and RIF-resistant TB. However, some physicians may recommend a similar treatment to that of patients with the MDR-TB strain.

Any worker who has a positive PPD (recent or old) and has had an exposure to a known MDR-TB case should note the fact in his or her personal medical records with as much information as possible about the resistant strain (e.g., drug susceptibility of the strain). Recent studies indicate that there is a possibility of superimposing an MDR-TB infection on an old TB infection (a worker might be infected with more than one TB strain). Data on resistance may prove useful in devising treatment strategies should the worker ever develop an active case of TB.

### **How is MDR-TB Treated?**

Patients with healthy immune systems who have MDR-TB generally require at least 18 months of treatment with four or more drugs. The failure rate of treatment is much higher than ordinary TB. For instance, at the National Jewish Center for Respiratory Medicine in Denver, a top TB treatment center, 45 percent of immunocompetent patients died despite aggressive treatment.

The outlook is far more dismal for HIV-infected individuals or those with an immunocompromised condition (diabetes, cancer, etc.) who become infected with MDR-TB. The mortality rate for those individuals is 72 percent to 89 percent.

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