UCSC Industrial Hygiene Services
Providing a little slug of information on . . .

Mycobacterium tuberculosis
General Information and Respiratory Protection Requirements for Emergency First Responders

Tuberculosis: General Information

Tuberculosis (TB) is a disease that is spread from person to person through the air. TB usually affects the lungs, but it can also affect other parts of the body, such as the brain, the kidneys, or the spine. TB germs are put into the air when a person with TB disease of the lungs or throat coughs or sneezes. When a person inhales air that contains TB germs, he or she may become infected. People with TB infection do not feel sick and do not have any symptoms. However, they may develop TB disease at some time in the future.

The general symptoms of TB disease include feeling sick or weak, weight loss, fever, and night sweats. The symptoms of TB of the lungs include coughing, chest pain, and coughing up blood. Other symptoms depend on the part of the body that is affected.

The Difference Between Latent TB Infection and TB Disease

People with latent TB infection but not TB disease have the germ that causes TB in their bodies. They are not sick because the germs are inactive in their bodies. They cannot spread the germs to others. However, these people may develop TB disease in the future. They are often prescribed treatment to prevent them from developing the disease.

People with TB disease are sick from germs that are active in their body. They usually have symptoms of TB, such as feeling sick, coughing, weight loss, fever, or night sweats. Usually, people with TB disease of the lungs or throat are capable of spreading the disease to others. They are prescribed drugs that can cure TB.

How is TB Spread?

TB is spread from person to person through the air. When people with TB disease of the lungs or throat cough or sneeze, they can put TB germs into the air. Then other people who breathe in the air containing these germs can become infected.

People with TB disease are most likely to spread it to people they spend time with every day, such as family members or coworkers. If you think you have been around someone who has TB disease, you should go to your doctor or the local health department for tests. It is important to remember that people who have TB infection but not TB disease cannot spread the germs to others.

Certain population segments have a higher incidence of TB. These groups include: the elderly, prison inmates, intravenous drug users, Hispanics, Asian-Americans, African-Americans and Native Americans.

What is a Tuberculin Skin Test?

The tuberculin skin test is used for finding out whether a person is infected with the TB germs. It does not tell whether a person has TB disease. For the skin test, a small amount of fluid called tuberculin is injected under the skin in the lower part of the arm. Two or three days later, a health care worker looks for a reaction on the arm.

What Does a Positive Reaction Mean?

A positive reaction to the tuberculin skin test usually means that the person has been infected with the TB germ. It does not necessarily mean that the person has TB disease. Other tests, such as a chest x-ray and a sample of phlegm, are needed to see whether the person has TB disease. People who have a positive reaction to the skin test but who do not have TB disease cannot spread the germs to others. They may be given a drug to treat the infection and prevent them from developing TB disease. People who have TB disease must take several drugs to cure the disease.

Treatment of Latent TB Infection

If you have latent TB infection but not TB disease, your doctor may want you to take a drug to treat the infection and prevent you from developing the disease. The decision about taking treatment for latent infection will be based on your age and on the chances that you will develop the disease. Some people are more likely than others to develop TB disease once they have TB infection; this includes: people with HIV infection, people who were recently exposed to someone with TB disease, and people with certain medical conditions.

Treatment for TB Disease

TB disease can be cured by taking several drugs for 6 to 12 months. It is very important that people who have TB disease take the drugs exactly as prescribed. If they stop taking the drugs too soon or if they do not take the drugs correctly, the germs that are still alive may become resistant to those drugs. TB that is resistant to drugs is harder to treat.

In some situations, staff of the local health department meet regularly with patients who have TB to help them remember to take their medications. This is called directly observed therapy (DOT).

Respiratory Protection Requirements

UCSC emergency first responders are unlikely to encounter situations with a high risk of exposure to TB.

Because the aerosol size range of a TB droplet nuclei is in the 1-5 micron range, a NIOSH approved Class N, R, or P particulate filter must be used for protection.

Surgical masks are not respirators and are not certified as such; they do not protect the user adequately from exposure to TB. Disposable respirators (e.g., N-95s) are commonly used in TB isolation rooms, in transport of TB cases, or in other areas of the health care facility.