

## **MAJOR PROGRAM POINTS**

# **"GUARDING AGAINST TUBERCULOSIS AS A FIRST RESPONDER"**

**Training For  
THE CDC "TUBERCULOSIS PREVENTION GUIDELINES"**

**"Quality Safety and Health Products, for Today...and Tomorrow"**

# **Outline of Major Points Covered in the "Guarding Against Tuberculosis as a First Responder" Course**

The following outline summarizes the major points of information presented in the Course on Guarding Against Tuberculosis as a First Responder. The outline can be used to survey the Course before taking it on a computer, as well as to review the Course when a computer is not available.

- **Over the last 60 years, modern medical practices have reduced the spread of many diseases.**
  - Until recently Tuberculosis was one of them.
  - It was even hoped that TB would be eliminated from the United States by the early 21st Century.
- **Unfortunately, Tuberculosis has once again become a major health problem... one that we have to pay attention to.**
- **We need to understand why cases of Tuberculosis are on the rise.**
  - People with HIV (AIDS) have difficulty fighting TB bacteria.
  - IV drug abusers also have a higher risk of developing TB (because they often have diseases such as AIDS, that weaken the immune system).
  - People immigrating from countries with high levels of active TB have also contributed to its increase.
- **Another problem is that people with active TB often end up in crowded living environments, where bacteria can easily spread.**
  - Prisons.
  - Homeless Shelters.
  - Care Facilities for the Elderly.
  - Other Institutional Environments.
- **These factors have been made worse because many facilities don't have adequate Tuberculosis Control Programs.**

- **Over the last 10 years these factors have resulted in a major resurgence of Tuberculosis.**
  - Across the country, 10-15 million people now carry "Latent TB".
  - In the past several years, over 20,000 cases of "Latent TB" have become "Active" annually.
  
- **On a worldwide scale the problem is even worse.**
  - TB is the leading cause of death by infectious disease (killing over three million people a year).
  - Approximately one-third of the world's population carries the TB bacteria.
  - Approximately eight million new cases of TB occur each year.
  
- **In recent years several government agencies have moved to address the TB problem.**
  - In 1990 the Centers for Disease Control and Prevention (CDC) set up Guidelines for "Preventing the Transmission of Tuberculosis" (which were revised in 1994 and again in 1996).
  - The Occupational Safety and Health Administration (OSHA) is also working on its own regulation.
  - Until their regulation is completed, OSHA is enforcing the CDC Guidelines.
  
- **Both the CDC Guidelines and drafts of OSHA's TB regulations focus on the same major areas.**
  - Employee Training.
  - A Written TB Control Plan.
  - Administrative Controls.
  - Engineering Controls.
  - Personal Protective Equipment.
  
- **Training, such as this program, plays a major role in understanding these guidelines by:**
  - Helping to show you how to protect yourself from possible infection.
  - Covering the nature, extent and specific TB transmission hazards.
  - Discussing the incidence of TB in your work environment.
  - Reviewing what steps you can take to keep TB transmission down.

- **TB is a contagious disease, which is caused by the Mycobacterium Tuberculosis.**
  - The bacterium is spread through the air in microscopic droplets.
  - Droplets are generated whenever an infected person coughs, sneezes or otherwise exhales.
  
- **Droplets can also be produced during invasive "high hazard medical procedures" like:**
  - Suctioning.
  - Intubation.
  - Administering aerosolized medications.
  
- **The probability of TB infection depends on the concentration of droplets in the air.**
  - Concentrations can be especially dangerous in enclosed or poorly ventilated spaces (such as the back of an Ambulance or other Emergency Vehicle).
  
- **Tuberculosis infection occurs in two stages. In the first stage:**
  - The TB bacteria are inhaled and begin to spread throughout the body.
  - A healthy immune system will surround the bacteria and render it "inactive".
  - This will usually occur within two to ten weeks.
  
- **When the body keeps the TB bacteria in check, the infection is known as "Latent TB".**
  - People with Latent TB do not suffer any adverse effects.
  - Latent TB carriers are not contagious.
  - Approximately 10% of people with "Latent TB" will develop "Active TB".
  
- **"Active TB" strikes when a person's immune system is too weak to control the TB organism.**
  - Groups whose defenses are normally low are more at risk.
  - Higher risk groups include the elderly, chemotherapy patients and people infected with the HIV virus.

- **People with Active TB are contagious.**
  - Once a diagnosis is made, they should be isolated from the general population.
  - They should be given special medical attention.
  - Patients will remain in the hospital until the "active" disease is under control.
  
- **Active TB can usually be cured with a six month treatment of antibiotics.**
  - Once treatment is started, most patients are no longer contagious after two to four weeks.
  - Once patients are non-contagious, they can complete their therapy as an outpatient.
  
- **Unfortunately, 50% of TB patients interrupt or fail to complete their treatment.**
  - This is very dangerous.
  - It contributes to the further spread of TB infection.
  - It also often leads to the development of "Drug Resistant TB".
  
- **When strains of TB bacteria are only partially destroyed by a drug, they develop a resistance to it.**
  - The drug is then no longer effective.
  - "MDR TB" (Multi-Drug Resistant) can easily spread to others.
  - Cases of MDR TB have been reported in 40 states.
  
- **Drug resistant strains of TB are much harder to kill off.**
  - **Treatment time increases to 18–24 months.**
  - The cure rate falls from 100% to 60% (or less).
  - This adds to the upsurge in TB infections.
  - When active TB is not cured, it often leads to death.
  
- **Once you know how Tuberculosis is transmitted you can better understand your group's Exposure Control Plan.**

- **One of the first steps in the plan is to be able to identify people who may have Active TB. Symptoms include:**
  - A productive cough (for over three weeks).
  - Coughing up blood.
  - Weight loss.
  - Loss of appetite.
  - Lethargy or weakness.
  - Night sweats.
  - Fever.
  
- **On the job, workers who encounter people with Active TB have a higher risk of infection.**
  
- **First Responders out "on call" should exercise extra caution in high risk environments:**
  - Healthcare Facilities.
  - Correctional Institutions.
  - Long-term Care Facilities for the Elderly.
  - Homeless Shelters.
  - Drug Treatment Centers.
  
- **Caution should also be used in other special situations:**
  - Patient transport.
  - Performing "high hazard" medical procedures like suctioning or intubation.
  
- **The Exposure Control Plan for your environment has been designed to ensure that you have as little exposure to TB as possible.**
  
- **Most Exposure Control plans begin with "Administrative Controls".**
  - These are designed to limit and keep track of TB exposures.
  
- **The first of these controls is a "Medical Surveillance Program".**
  - This program is required by law.
  - Provided free of charge for employees who are at risk of TB infection.

- **One of the first steps in the Surveillance Program is a "Pre-placement Evaluation". It:**
  - Determines whether you are susceptible to Tuberculosis infection.
  - Includes a skin test that establishes a "baseline" for future tests.
  
- **Depending on the risk you face, retesting will occur every 6 or 12 months.**
  - It will also be done after any unprotected exposure to TB.
  - Your employer will interpret your test results for you.
  - All incidents of positive skin tests should be reported to the local Health Department.
  - Instances of employee infection should also be recorded in your facility's Injury Report Log.
  
- **If a test shows that you have been infected, you will be evaluated for preventative therapy.**
  - Effective treatment can prevent a Latent TB infection from becoming an active one.
  
- **Another category of controls addressed in the Exposure Control are Engineering Controls.**
  - These are designed to prevent the concentration spread of TB bacteria in the air.
  
- **During the transport of a suspected or confirmed TB patient, you need to use the Engineering Controls in your ambulance.**
  - These bring fresh air into the vehicle whenever possible.
  - Keep air vents and back windows open to help exhaust air with TB bacteria.
  - Make sure not to recycle contaminated air.
  
- **In hospital and other healthcare facilities, you may encounter other Engineering Controls:**
  - Isolation Rooms.
  - HEPA Filters.
  - Ultraviolet Lights.

- **Patients can also take several measures to limit the spread of TB bacteria.**
  - Cover their nose and mouth with a tissue when coughing or sneezing.
  - Wear a surgical mask or other protection when outside the Isolation Room.
  
- **In addition to Administrative and Engineering Controls, Personal Protective Equipment also plays an important role in guarding against exposure.**
  - Since Tuberculosis is an airborne pathogen, a respirator is what you will need.
  - **Respirators must have filters with a NIOSH designation of N95 or higher.**
  - **Research shows that dust/mist or dust/mist/fume filters are usually not effective in removing TB bacteria.**
  
- **Your group will put a general Respiratory Protection Program in place as part of its Exposure Control Plan.**
  - A program is required in any environment where respirators are used.
  - You need to be familiar with this program.
  
- **To begin with, everyone who may be exposed to TB in their jobs will undergo medical tests.**
  - One thing the test determines is whether or not they can safely wear a respirator.
  - Tests are provided free of charge.
  
- **As part of the test, a thorough physical examination will be performed.**
  - May include questions about your medical history.
  - Will also discuss results of your initial skin testing.
  - It is important to be completely candid and honest.
  
- **X-rays may be taken to determine if you have any lung obstructions.**
  - These could make it difficult to breath wearing a respirator.

- **You may also be given a Pulmonary Function Test.**
  - This measures the capacity of your lungs.
- **If the doctor feels that you can safely wear a respirator, you will get the "okay" to work.**
- **At that point, you will need to determine what type of HEPA respirator you should use.**
  - Disposable.
  - Reusable.
  - What type/model.
- **No matter what type of respirator you select, you will need to undergo a "fit test".**
  - **It ensures that your respirator is the right size and shape for you.**
  - Gaps between the respirator and your face can allow you to inhale TB bacilli.
- **"Fit-testing" can be performed in two different ways.**
  - Qualitative.
  - Quantitative.
- **"Qualitative" Testing:**
  - Is conducted by spraying "irritant" smoke in the air.
  - If the smoke's odor can't be detected, you have a good fit.
  - This is a "subjective" test, since it relies on your sense of smell.
- **"Quantitative" Testing:**
  - **Provides a more accurate assessment.**
  - **Uses a special machine to measure the exact amount of material that leaks into a respirator.**
- **In addition to going through fit-testing, you will be shown how to properly use your respirator.**
  - Look for wear and tear.
  - Both "disposable" and "reusable" respirators can be reused, as long as there is no structural damage.

- **Always inspect your respirator before each use.**
  - Dispose of damaged respirators or cartridges.
  - Talk to your supervisor if you have any questions.
  
- **There are three types of situations where workers are required to wear respirators:**
  - Entering a room containing a patient suspected or confirmed to have Active TB.
  - When performing "high hazard medical procedures" on patients with suspected or confirmed Active TB.
  - When First Responders transport someone with a suspected or confirmed case of Active TB.
  
- **Tuberculosis is a dangerous disease.**
  - It is so easy to transmit that in a hospital, TB patients are placed in specially designed Isolation Rooms.
  
- **As a First Responder, stopping the spread of TB means:**
  - Quickly identifying anyone carrying the disease.
  - Taking appropriate steps to protect yourself in exposure situations.
  
- **To do this effectively:**
  - Learn how to spot TB symptoms.
  - Know what Engineering Controls you have available, and how to use them.
  - Wear a respirator when needed.
  
- **Following these guidelines and completing this training session will help limit the spread of Tuberculosis... and keep you safe.**