TB Prevention for the Healthcare Worker

Overview

Although a cough most often suggests a diagnosis of cold, flu, or bronchitis, one diagnosis may be overlooked because it is perceived as being rare: the lung disease tuberculosis. Over the past decade, tuberculosis has again become a disease of great concern, creating an urgent need for health care providers to review safe work practices to prevent the spread of this serious disease. This material is designed to help healthcare workers learn about tuberculosis and its impact today. It includes a history of the disease, its causes and symptoms, and guidance on how to safely treat patients. You will also find work practices recommended by the Centers for Disease Control and Prevention (CDC) that are designed to help prevent transmission of the disease.

Purpose

This course is designed to educate healthcare personnel about the risks, treatment, and prevention of tuberculosis in order to increase safety in hospitals and other medical facilities.

Introduction

For the health care professional, a patient's cough suggests many possible diagnoses. Cold, flu, bronchitis, and various diseases of the lungs are common assumptions. However, there is a diagnosis that may be overlooked by many clinicians in the U.S. because it is perceived as being rare. It is an old disease, but lately it has been getting a lot of news coverage. It is the lung disease tuberculosis.

The Tuberculosis Epidemic

It is estimated that 10 to 15 million people in the U.S. live with LTBI. Of these, about 1 in 10 persons will eventually develop active TB-and be able to transmit the infection to others, including family, friends, and coworkers.

Tuberculosis Causes and Symptoms

Tuberculosis is an infectious disease caused by bacteria known as mycobacterium tuberculosis-often called tubercle bacilli, or TB. The disease tuberculosis, also referred to as TB, most commonly affects the respiratory system-destroying parts of the lung tissue. The tissue is replaced by fibrous connective tissue. Symptoms of tuberculosis in the lungs may include a persistent cough, chest pain, or coughing up blood. TB may also affect the gastrointestinal and genitourinary systems, the central nervous system, and other parts of the body. Often the symptoms are subtle, almost unnoticeable. General symptoms may include fatigue, weight loss, fever, chills, and night sweats. TB of the spine may cause back pain, and TB of the kidneys may cause blood in the urine.

Diagnosing Tuberculosis

Although 5 to 10 percent of those persons living in the U.S. with active TB will die from the disease, TB is both preventable and curable. Early detection is an important factor. A person can know if they are infected with the bacteria that may cause TB by receiving the tuberculin skin test. A dose of purified protein derivative from tubercle bacilli is injected into the upper layer of skin, usually on the inside of the forearm. The tubercle bacilli have been altered to be non-infectious, but to still create a reaction.

Between 48 and 72 hours later, the site is examined by trained medical personnel. A positive reading does not mean that the patient has the disease tuberculosis, but it is evidence of infection with the bacteria that can cause the disease.

Latent Tuberculosis Infection (LTBI)

An estimated 4 to 6 percent of all Americans have latent tuberculosis infection, or "LTBI", which occurs when the bacteria are present without the disease. There are no symptoms and those infected are NOT able to spread the infection to others. However, the bacteria may at any time later in life become active and cause the disease tuberculosis. For this reason, some persons with a known LTBI are given the drug, isoniazid in combination with Rifapentine over 12 weeks. It is 90 percent effective in preventing LTBI from becoming active tuberculosis. Even if active tuberculosis does develop before prevention can be accomplished, it can most often be treated and cured with medications. But remember that those infected are at considerable risk-and they CAN spread the infection to others.

Transmission of Tuberculosis

Tubercle bacilli, the bacteria that cause tuberculosis, are spread by airborne transmission-by inhaling air contaminated with the bacteria. In 85 percent of all cases of TB, the bacteria are found in the lungs. Infectious droplets called droplet nuclei are produced when persons with active TB of the lungs or throat sneeze, cough, sing, shout, talk, or just plain breathe. If these droplets become suspended in the air, they can be inhaled by another person, and can infect that person with the bacteria. The infection may cause tuberculosis, though it may take weeks, or even years before the disease becomes active.

Multi-Drug Resistant Tuberculosis

Multi-drug resistant tuberculosis generally occurs when TB patients prematurely discontinue their medication or when inappropriate doses are prescribed. These occurrences allow resistant bacteria to multiply. Drug resistant strains have developed with isoniazid only treatment, because the patient may begin to feel better and have difficulty continuing treatment for the long time required--from six to nine months to as long as two years. The problem is even more severe in transient patients and in patients who cannot afford health care. Patients with multi-drug resistant TB can transmit multi-drug resistant TB to others. Because there is often a delay in recognizing the resistance, the patient may remain infectious to others for a longer period of time.

Preventing Transmission

The CDC has published recommendations that can help in developing a plan. Transmission can be prevented by implementing specific actions. The CDC recommends: patient screening, rapid diagnosis appropriate and curative therapy, reducing air contamination, providing isolation rooms, screening of health care personnel, thorough investigation and control of outbreaks, screening and rapid diagnosis are essential to preventing the spread of tuberculosis. Finally, routine screening of personnel should be carried out at least once per year in environments where TB patients are seen or treated. Staff should be tested every 6 months or even more frequently when working in a high-risk setting. Check with your supervisor to find out how often you should be tested. Administration should launch a thorough ‘

investigation anytime a staff person or patient becomes infected with TB in a health care setting. The infected person should consult a physician experienced in the management of TB.

Conclusion

Tuberculosis is on the rise. While most of the methods discussed in this program are fairly routine, they must be strictly adhered to. Procedural details for responding to the epidemic may be somewhat different from facility to facility. Some institutions may need to revise their policies and facilities to guard against infection. By learning and using the information presented in this course, you can better prevent the transmission of TB infection and protect your patients, co-workers, friends, and family from tuberculosis.