

Tuberculosis

Background

Tuberculosis (TB) is a disease caused by a bacterium called *Mycobacterium tuberculosis*. While the bacteria can infect any part of the body, it most commonly causes an infection in the lungs. There are two kinds of TB, **active** and **latent**

Active TB may cause a chronic, bad cough (longer than two weeks), pain in the chest, and coughing up of blood or sputum. An individual with **active TB** can also have fatigue, weight loss, chills and fever, loss of appetite, and night sweating. When a person with **active TB** coughs, the bacteria become airborne and can persist in the air for many hours. For that reason, people who have close and prolonged contact with a person with **active TB** (e.g. family, friends and co-workers) are at risk of becoming infected.



Latent TB is very different from **active TB**. The vast majority of people who breathe in the TB bacteria are able to summon their body's immune systems to prevent the bacteria from taking a firm hold and cause illness. The bacteria become inactive or **latent**. People with **latent TB** do not feel sick, experience any other symptoms and are not contagious. However, it is important to note, although patients show no signs of illness, the bacteria is still alive in the body and could possibly become **active** at a later time. This could happen if the immune system weakens or is over-whelmed and is unable to stop the bacteria from growing. Those at the highest risk of converting from **active** to **latent TB** are babies, young children, the elderly, as well as those people infected with HIV, the virus that causes AIDS. For this reason, it is important for those with **latent TB** to receive proper medical treatment. **TB is a treatable and curable disease when treatment is carried out under supervised medical care.**

Historical Perspective of TB

Tuberculosis has been around since antiquity. In fact, fragments of the spinal column from Egyptian mummies, dating from 2400 BC, show definite evidence of tubercular decay. In 1720, the English physician Benjamin Marten conjectured TB could be caused by "wonderfully minute living creatures," that once gained a foothold in the body, could generate lesions and symptoms of disease. By the late 1800's medical science realized the best way to control the spread of TB was to quarantine those with active cases. This "sanatorium cure" provided the first real step in the fight against TB. It wasn't until 1882; a scientist named Robert Koch discovered a staining technique that enabled him to see the *Mycobacterium tuberculosis* bacterium under the microscope and to make more accurate diagnoses.



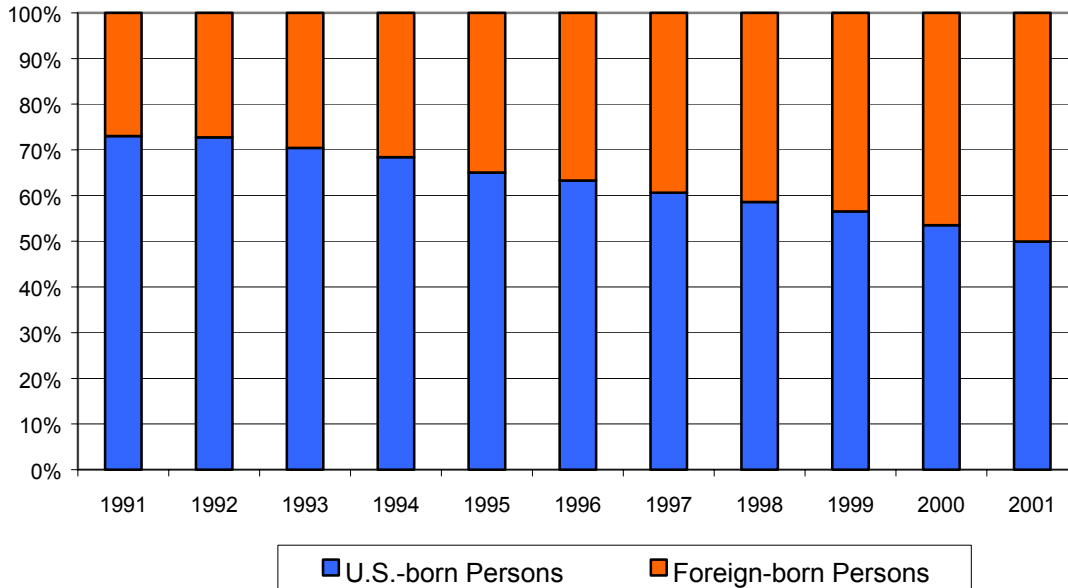
TB was once the leading cause of death in the United States. In the 1940s, scientists discovered the first of several drugs successful in the treatment of TB. From 1953 through 1984, the number of TB cases reported in the United States decreased by an average of 6% each year. However, in 1985, the number of new cases began increasing and peaked in 1992. That increase can be attributed to at least four factors; the HIV epidemic, immigration from countries where TB is common, the spread of TB in certain settings, and inadequate funding for TB control and other public health efforts. In response, public health officials increased funding and resources for TB prevention and surveillance. As a result, TB rates have been decreasing for the last 9 years and are now at historic lows. But the battle is not over as more than 16,000 new cases were reported in the US in 2000.



Current Trends in the U. S.

In 1991, 73% of reported cases were among U.S-born persons while 27% occurred in foreign-born persons. However by 2001, there was an equal distribution in the number of TB cases between these two groups at 49% each. (See Figure 1: Percentage of TB cases in U.S. by Place of Birth, 1991-2001).

Figure 1: Percentage of TB Cases in US By Place of Birth, 1991-2001

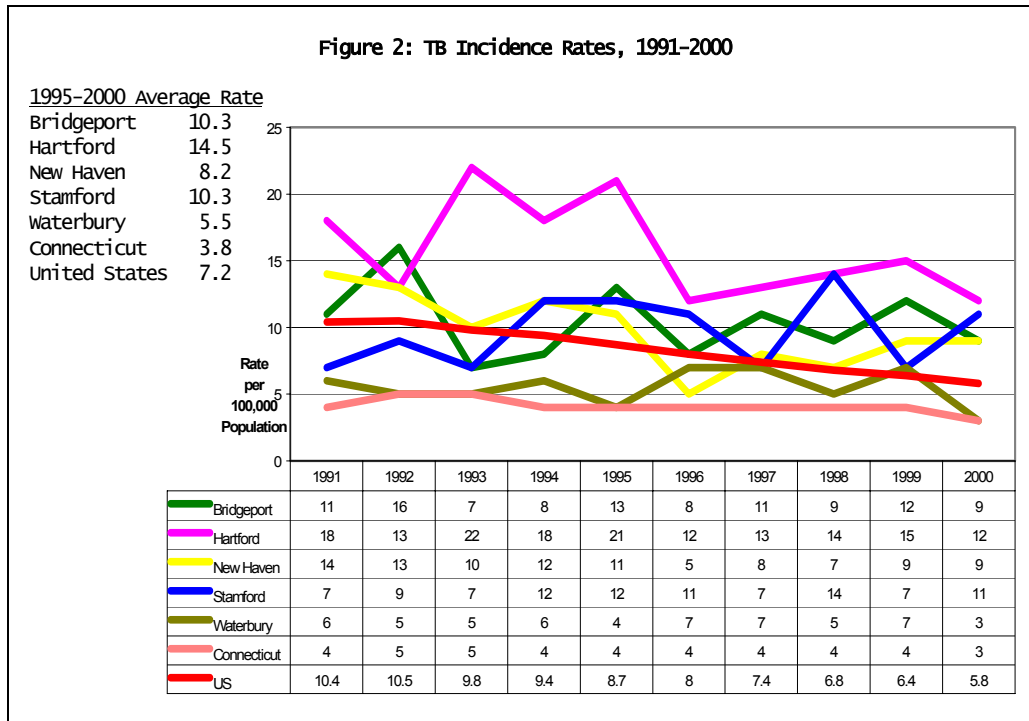


Some groups of people are at a higher risk for contracting TB due to their current health, social or environmental status. They include residents in correctional facilities, residents of long-term care facilities, the homeless, injection drug users, those with a history of excess alcohol use, those with a resistance to TB-medication, and those with HIV status as well as individuals who work in these settings. In response, the CDC targeted these high-risk groups with increased surveillance and education. Additionally, the CDC has increased screening and treatment of new immigrants and refugees and works with local public health agencies to expand prevention efforts focused on unmet needs in other population groups, including persons living with HIV, persons with limited access to medical care, and persons living in poverty without adequate housing and nutrition.

The TB Problem in Stamford

An average of 10 cases of TB are reported, each year, in Stamford since 1991. While three-quarters of Stamford's cases occur in foreign-born immigrants, some of these foreign-born cases only converted into **active TB** after living in the United States for several decades. From a disease prevention perspective, it is likely that the majority of these cases were acquired **latent TB** in their home countries before migrating to the US. In response, Stamford developed a local program to quickly recognize and control TB in order to reduce the numbers of new cases.

Connecticut has a relatively low rate of TB. However, pockets of higher incidence occur in virtually all of Connecticut's major cities. Compared with Connecticut cities of similar size over this same period, Stamford's average TB rate (10.3) is higher than New Haven's (8.2) and Waterbury's (5.5), equal to Bridgeport's (10.3), and less than Hartford's (14.5). (See Figure 2: TB Incidence Rates, 1991-2000)



Stamford's Response to Control TB

The Stamford Health Department TB Control Program is funded by a \$64,000 grant from the Connecticut



Department of Public Health. This grant funds a full-time TB Control Nurse who is charged with tracking and controlling the spread of TB in Stamford. The Stamford **TB** Control Nurse follows patients with active TB to make sure that they take their prescribed medications and keep medical appointments. When needed, the nurse provides direct observation therapy or DOT. DOT is necessary for patients with a history of skipping doses or not completing their full anti-TB medication course. These patients are at risk of developing TB that is resistant to multiple antibiotics. This highly

dangerous form of TB is much more likely to be fatal to contracts it. The TB Control Nurse also conducts case contacts of the infected case and ensures that they receive if indicated. The field component of the position 300 home visits per year, organizing 60 TB clinics per who have been exposed to TB or have the active disease, and conducting TB screening for high risk groups, including the homeless, new immigrants, and the medically uninsured.



its victims and anyone who investigations, traces all testing, x-rays, and treatment involves performing over year for adults and children

Stamford's program is modeled on the U.S. Department of Health and Human Services strategic plan for eliminating TB in the United States. This program seeks to:

1. Reduce TB to **1 new case per million** by 2010;
2. Ensure that **90%** of persons with the disease complete a full regimen of curative therapy that will prevent transmission of the disease as well as prevent outbreaks and the development and spread of drug-resistant TB;
3. Develop a measurement of therapy completion for patients with **drug-susceptible TB** who should complete a full regimen within 12 months;
4. Treat for **latent TB infection** aggressively in specific identifiable population groups at high risk for TB.

For more information about **Tuberculosis, (TB)** contact the Stamford Health and Social Services Department at 203 977-5126. Or visit us on the web at www.cityofstamford.org or the Centers for Disease Control and Prevention at www.cdc.gov