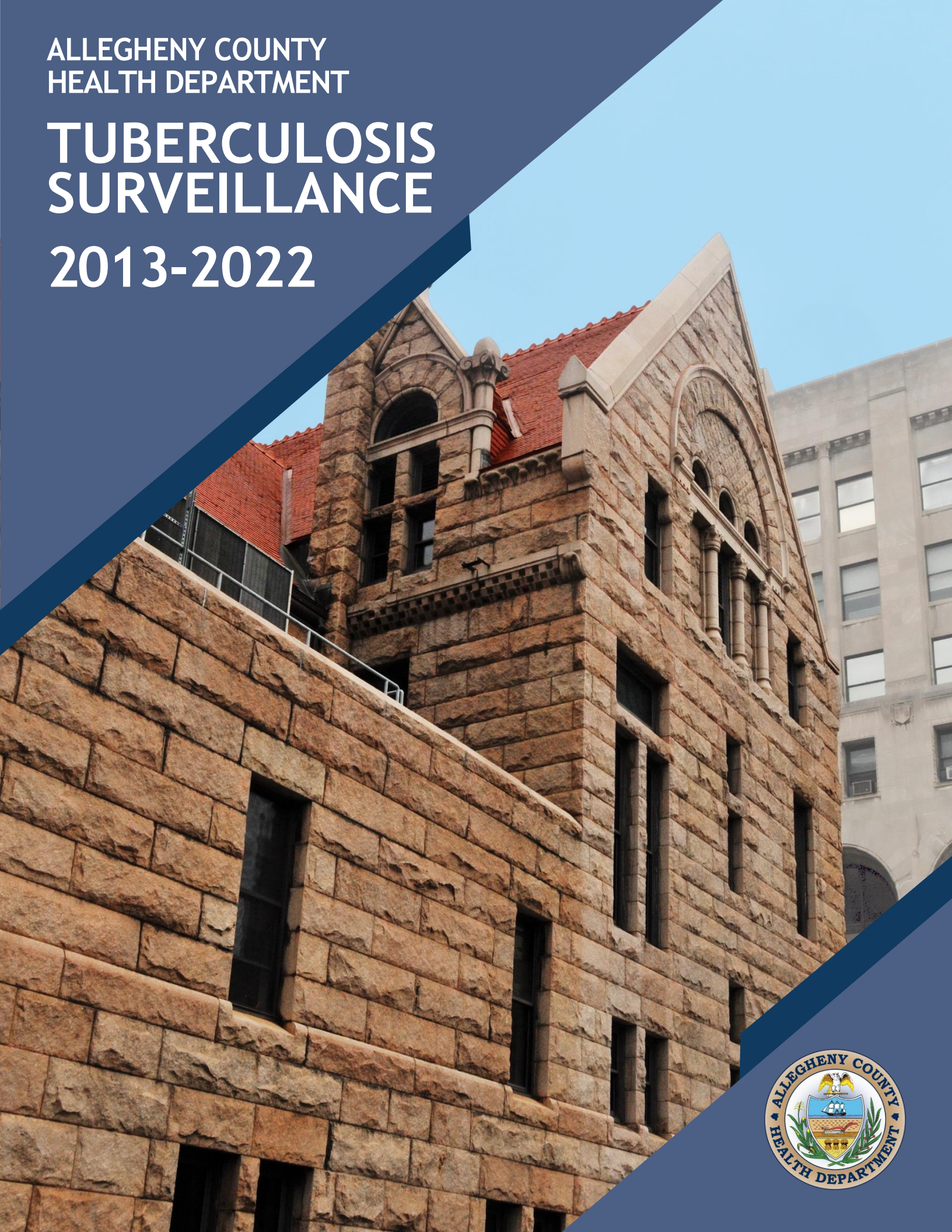
ALLEGHENY COUNTY
HEALTH DEPARTMENT

TUBERCULOSIS SURVEILLANCE 2013-2022



TUBERCULOSIS SURVEILLANCE IN ALLEGHENY COUNTY, 2013-2022

Tuberculosis (TB) is a highly contagious bacterial respiratory disease that affects the lungs. Early infection, known as latent TB infection (LTBI), is not contagious and is asymptomatic. Latent TB infection can develop into an active TB infection, which causes disease when the immune system cannot prevent TB bacteria from growing in the body.

Symptoms of active TB include a persistent cough lasting more than three weeks, cough with blood in sputum (mucus coughed up from the respiratory tract), or pain in the chest. Individuals suspected of having an active infection should undergo a medical evaluation that includes a medical history, physical examination, TB test, chest x-ray, and sputum sample.[1] Tuberculosis may be diagnosed with a skin or a blood test. Positive tests only indicate that the person has been infected with the bacteria and do not tell whether the individual has LTBI or an active infection. A chest x-ray may suggest an individual has an active TB infection, but a sputum smear or laboratory culture is needed to confirm diagnosis of an active infection.[1]

Frequently asked questions regarding TB, along with a summary of cases reported to the Allegheny County Health Department (ACHD), include:

How is TB transmitted?

Tuberculosis bacteria are spread from person-to-person through airborne droplets when an individual with an active infection coughs, sneezes or speaks.[1] Nearby individuals may breathe in these bacteria and become infected. The bacteria can settle in the lungs and move through the blood to infect other parts of the body. Only infections in the throat or lungs are likely to be spread to other individuals.

How is active TB prevented?

Infection prevention and control measures are critical in settings where the risk of TB transmission is high, such as health care facilities, congregate settings, and households with an individual who has an active infection. In health care settings, health care workers interacting with someone known or suspected to have active TB infection should wear a filtering facepiece respirator, while TB-infected individuals should wear a surgical mask.[2] In households, persons with TB should cover their coughs and sneezes, avoid close contact, avoid sleeping in the same room with someone, and refrain from having visitors in the house while infectious.[3]

Individuals with LTBI may prevent progression to active TB disease by consulting their health care provider and getting treatment. Certain individuals with a latent TB infection, such as people with an HIV infection, seniors, young children, people who inject drugs, and people with a weakened immune system, are at higher risk of developing active TB disease and should take medicine to prevent the development of active TB disease. There are several treatments for LTBI including a four-month regimen of daily rifampin, a three-month regimen of once weekly isoniazid and rifapentine, and a six to

nine-month regimen of daily isoniazid. The various combinations of drug regimens are to combat challenges of antibiotic resistant TB.

How is TB monitored?

In Allegheny County, health care providers must report active TB within 24 hours of identifying a case. Case reports submitted to the ACHD are used to track cases and clusters of disease, as well as to identify and monitor the incidence of TB acquired in health care facilities and in the community. LTBI is not a reportable condition; therefore, the ACHD reports on TB are an undercount.

The Health Department conducts contact investigations for individuals who have been in known contact with someone infected with TB, to limit further spread of the disease. The ACHD's Pulmonary Center provides screening (Mantoux tuberculin skin testing), evaluation, treatment, and directly observed therapy for those with active TB disease.

How is active TB treated?

Active TB disease is treated with multiple drug combinations, usually for 6 to 9 months. The first-line drugs are isoniazid (INH), rifampin (RIF), ethambutol (EMB), and pyrazinamide (PZA). It is very important that people who have TB disease finish the course of medicine and take the drugs as prescribed, so drug resistance does not develop.

What is multidrug-resistant TB?

Drug-resistant TB occurs when the bacteria become resistant to the drugs that are used to treat the disease, such that the medications can no longer be used to kill the bacteria. This form of the bacteria is spread in the same mechanisms as normal, drug-susceptible TB. Multidrug-resistant TB is caused by TB bacteria that are resistant to at least isoniazid and rifampin, the two most potent TB drugs [4]. Multidrug-resistant TB is common among individuals who do not take their TB medicine regularly, those who do not take all their TB medicine as prescribed, and those who develop TB again after having taken TB medicine in the past. It can also be acquired from another person.

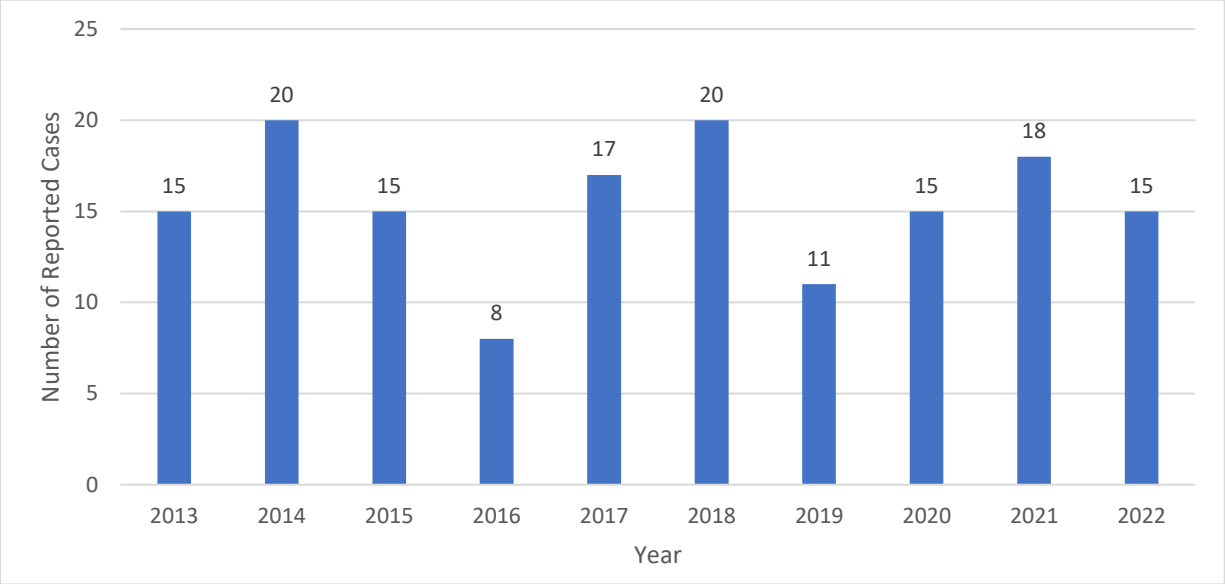
How often does TB occur?

It is estimated that one-quarter of the world's population is infected with TB. Tuberculosis is endemic in many countries, with 86-90 percent of incident cases occurring in 30 high burden countries in 2021. Although the U.S. is not among these countries, cases continue to occur, making it essential to continue screening and treating cases.[5]

How often does TB occur in Allegheny County?

In Allegheny County, an average of 16 clinically active TB cases were reported per year between 2013-2022 (Figure 1). The highest number of cases reported to ACHD occurred in 2014 and 2018 with 20 cases, while the lowest number of cases reported to ACHD was in 2016 with 8 cases. The number of reported cases decreased from 2021 to 2022.

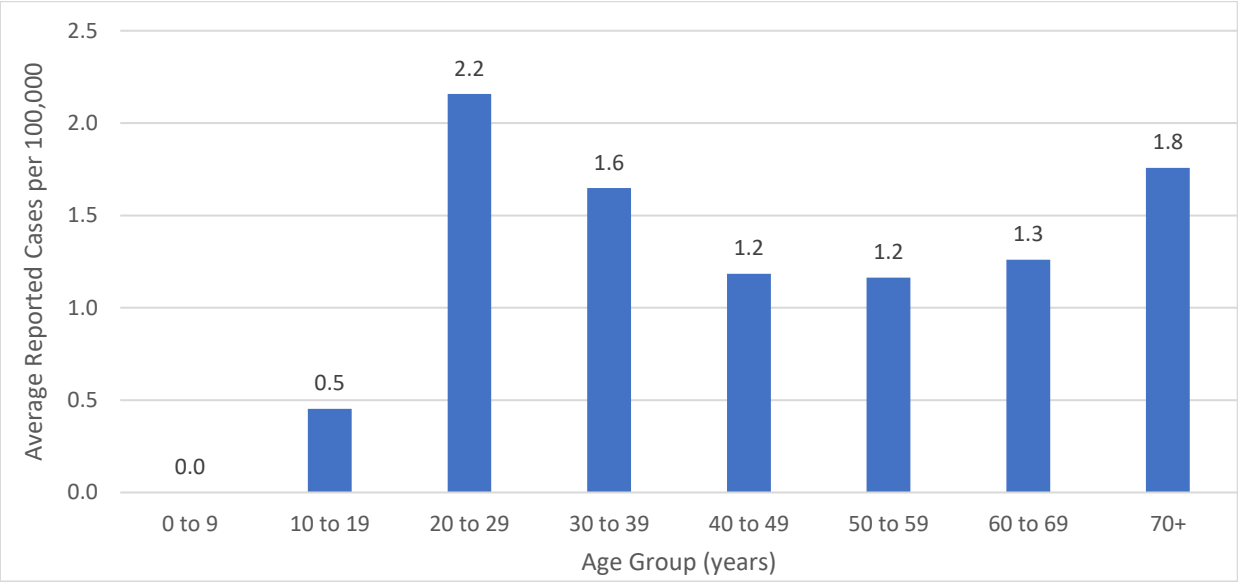
Figure 1. Active TB cases by year in Allegheny County, 2013-2022



In 2022, 15 active TB cases were reported, for a crude incidence rate of 1.2 cases per 100,000 persons, a decrease of 17 percent from 2021. The Allegheny County incidence rate was about half that of the U.S. rate of 2.5 per 100,000 in 2022. The U.S. incidence increased by 4.2 percent from 2021 to 2022.

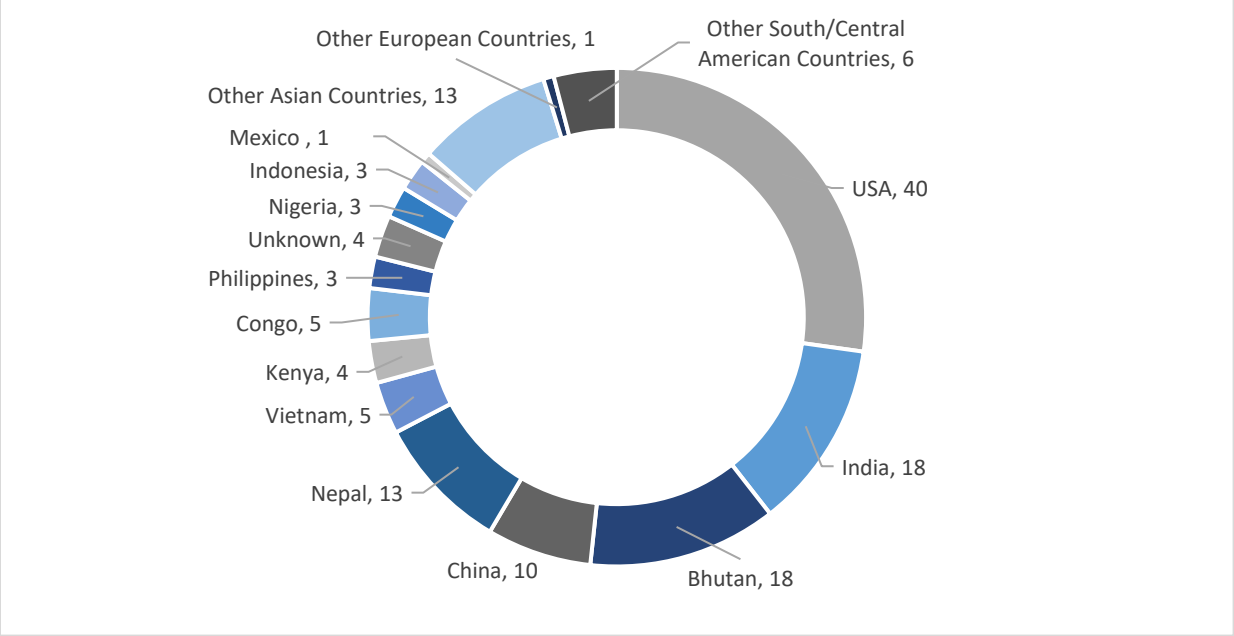
From 2013 to 2022, 171 cases of active TB were reported in Allegheny County. Cases were more frequent in males (55.5%) and Asian individuals (45.5%). The highest average annual rate of TB during the 10-year period occurred in individuals 20 to 29 years (2.1 per 100,000), followed by those 70+ years (1.8 per 100,0000) (Figure 2).

Figure 2. Average annual age-specific rates of active TB in Allegheny County, 2013-2022



Country of birth was known for 150 (97%) of the newly reported active TB cases in Allegheny County from 2013-2022. Of these, 73 percent were foreign born – most frequently born in India (12%), Bhutan (12%), Nepal (8%) and China (7%) (Figure 3). In the US, the same percentage of cases (73%) occurred among foreign born persons in 2022.

Figure 3. Active TB cases by country of birth in Allegheny County, 2013-2022



Of the 15 active TB cases in 2022, 11 (73%) had pulmonary disease (infection inside the lungs), three (20%) had extra-pulmonary disease (infection in places outside of the lungs), and one (7%) had both pulmonary and extra-pulmonary disease. In the US, 21 percent of TB cases in 2022 had extra-pulmonary disease only. Thirteen cases in Allegheny County were tested for HIV and all received a negative result. Fourteen of the fifteen cases in 2022 were tested for resistance to ethambutol, isoniazid, and rifampin, while thirteen cases were also tested for resistance to the drug pyrazinamide; one case was not tested for resistance to any medications. Among the tested specimens, all were found to be susceptible to the corresponding drugs.

Resources:

- Allegheny County Health Department Pulmonary Center/Tuberculosis Clinic
- Breathe Pennsylvania
- Immigrant and Refugee Health
- Basic TB Facts – Centers for Disease Control and Prevention

References:

[1] Centers for Disease Control and Prevention. Basic TB Facts. Available at: Signs & Symptoms | Basic TB Facts | TB | CDC

[2] Centers for Disease Control and Prevention. TB 101 for Health Care Workers. Available at: https://www.cdc.gov/tb/webcourses/tb101/page1796.html

[3] Centers for Disease Control and Prevention. Questions and Answers About Tuberculosis. Available at: https://www.cdc.gov/tb/publications/faqs/tb-qa.htm#how-keep-spread

[4] Centers for Disease Control and Prevention. Multidrug-Resistant Tuberculosis. Available at: https://www.cdc.gov/tb/publications/factsheets/drtb/mdrtb.htm

[5] World Health Organization. 10 facts on tuberculosis. Available at: 10 facts on tuberculosis (who.int)