Tuberculosis (TB) is a communicable disease and is a leading cause of death across the globe. The disease is spread by bacteria and it mainly affects the lungs. Though it can become fatal, proper and timely treatment can help in preventing and managing the disease. Improving the social determinants is also crucial in containing the disease. Various initiatives have helped reduce the global TB burden, but drug-resistant TB is increasing and calls for new treatment regimens. This epidemiology paper discusses TB in detail, explaining its causes, modes of transmission, symptoms, treatment, complications, and the most affected demography. The paper also discusses the determinants of health affecting TB, the epidemiologic triad related to the disease, and the role of public health nurses in containing it.

TB is an infectious bacterial disease caused by Mycobacterium tuberculosis (Mtb), which is transmitted from one person to another via respiratory route (Ref-A1B2C3). The bacteria is spread through the aerosol droplets from the throat and lungs of the infected people when they cough, sneeze or speak, which then settle in the lung alveoli and bacilli and hide in the macrophages (Ref-D4E5F6). It mainly affects the lungs but is capable of damaging any tissue. In about 10% of infected people, the bacteria progress into active TB disease (Ref-G7H8I9). The disease can be successfully contained with proper treatment.

There were about 10 million active TB cases in 2018 and around 1.5 million deaths (Ref-A1B2C3). In 2018, about 1.1 million children suffered from TB, and 205,000 died (Ref-D4E5F6). More than 95% of TB deaths happened in low and middle-income countries (Ref-G7H8I9). Studies show that certain racial and ethnic minorities are more susceptible to TB. In 2017, Asians, African Americans, Latinos, and American Indians constituted 87% of the total TB cases in the U.S (Ref-J0K1L2). People living in crowded areas and close contact with infected people have a higher chance of developing the disease. So are people with a weak immune system such as children less than five years of age or very old people and those suffering from diseases like diabetes or cancer (Ref-M3N4O5). People living in countries such as South Africa and Zambia where there is a high disease burden of TB and HIV infection, and miners who are regularly exposed to silica or suffering from silicosis are also at risk (Ref-P6Q7R8).

### Symptoms, Treatment and Complications

Latent TB shows no symptoms and can only be detected with a blood test or skin prick test. Symptoms of active TB include fever, loss of appetite, sweating at night, anemia, and persistent cough lasting for more than 14 days that produce purulent sputum, which sometimes can contain bloodstains (Ref-A1B2C3). If there is pleural inflammation, there can be localized thoracic pain, and in more severe cases the patient experiences breathlessness (Ref-D4E5F6). The WHO-recommended first-line treatment regimen for drug-susceptible TB involves the usage of Rifampicin and Isoniazid throughout the course (Ref-G7H8I9). Pyrazinamide helps reduce the treatment duration to 6 months and Ethambutol treatment for two months helps in preventing drug-resistant TB (Ref-J0K1L2).

## Conclusion

TB is a communicable disease spread when the bacteria from the infected person is spread through the air when they cough, sneeze or talk. The social determinants of life also can worsen the disease. People with low income and facing adverse living conditions such as homelessness, drug abuse, overcrowding, unemployment, malnutrition, and lack of education are more at risk for the disease. Hence enhancing the social determinants of life is also a key aspect in TB management. Public health nurses have a vital role to play in containing the disease in the community through education, surveillance and ensuring treatment and adherence. TB can be a fatal disease but timely detection and treatment can help manage it.