

Tuberculosis (TB): A global health challenge.

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Introduction

Tuberculosis (TB) is one of the oldest and most persistent infectious diseases, caused by the bacterium *Mycobacterium tuberculosis* [1]. TB primarily affects the lungs but can also involve other parts of the body, including the kidneys, bones, and brain. Despite advances in medicine, TB remains a major global health concern, causing millions of deaths each year [2]. According to the World Health Organization (WHO), TB is one of the top 10 causes of death worldwide, with approximately 10 million people developing TB annually and 1.5 million dying from the disease. The resurgence of TB in the 21st century has been compounded by factors such as the emergence of drug-resistant strains, HIV/AIDS co-infection, and challenges in diagnosing and treating TB in low- and middle-income countries. This article aims to provide an overview of tuberculosis, including its causes, symptoms, transmission, diagnosis, treatment, and prevention strategies [3].

Tuberculosis is caused by *Mycobacterium tuberculosis*, a slow-growing bacterium that primarily attacks the lungs, although it can affect almost any organ in the body [4]. The bacteria are spread from person to person through the air when an infected person coughs, sneezes, or talks, releasing tiny droplets containing *M. tuberculosis* into the air. People who inhale these droplets may become infected with TB. However, not everyone who is exposed to the bacteria will develop the disease. In many cases, the body's immune system is able to control the infection, leading to what is known as *latent TB* [5].

The symptoms of TB depend on the organ affected, but the most common form is pulmonary TB, which affects the lungs [6]. Cough lasting for more than three weeks, often with blood or sputum. Fever and chills. Night sweats. Weight loss and fatigue [7]. Chest pain or discomfort when breathing or coughing. When TB affects other parts of the body (known as extra pulmonary TB), symptoms will vary depending on the site of infection. For instance, TB of the kidneys may cause blood in the urine, while TB of the spine can result in back pain. Extra pulmonary TB is more common in individuals with weakened immune systems, such as those with HIV/AIDS, and in young children [8].

TB is transmitted through the air when an infected person coughs, sneezes, or even talks. The *Mycobacterium tuberculosis* bacteria are contained in tiny droplets that can

remain airborne for several hours. Individuals who breathe in these droplets are at risk of becoming infected with TB [9]. TB is not transmitted through casual contact, such as shaking hands, sharing food, or touching objects. The primary mode of transmission is prolonged close contact with someone who has active, untreated pulmonary TB. However, not everyone who is exposed to TB will become infected. The likelihood of infection depends on several factors, including: Individuals who have untreated active TB are more likely to spread the bacteria. Crowded or poorly ventilated spaces increase the risk of transmission [10].

Conclusion

Tuberculosis continues to be a global public health challenge, with millions of cases and deaths reported each year. However, TB is preventable and treatable with appropriate interventions, including vaccination, early diagnosis, and adherence to treatment regimens. The rise of drug-resistant TB presents a major obstacle, but advances in diagnostics, treatment strategies, and infection control can help mitigate its impact. By improving access to healthcare, promoting TB awareness, and addressing the underlying social determinants of health, we can work toward eliminating TB as a global health threat. Continued research, investment in healthcare infrastructure, and international collaboration are essential to tackling this age-old disease in the modern world.

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