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Tuberculosis TB

A bacterial infection called tuberculosis (TB) is contracted by breathing in microscopic droplets from an infected person's cough or sneeze. Although the lungs are the primary organs that gets affected, but it can also harm any organ, including the stomach (abdomen), glands, bones, and nervous system, may also be affected. According to the World Health Organization (WHO), approximately one-quarter of the world's population is latently infected with *Mycobacterium tuberculosis* (WHO, 2019).

The most contagious form of tuberculosis (TB) is pulmonary TB, which affects the lungs, but it typically spreads only after prolonged contact with a person who has the condition. While tuberculosis (TB) has the potential to be seriously harmful, it is curable when treated with the appropriate medications.

DR Robert Koch discovered the *Mycobacterium tuberculosis*, the bacteria that causes tuberculosis (TB) in 1882 on March 24th. During this time, TB killed one out of every seven people living in the United States and Europe.

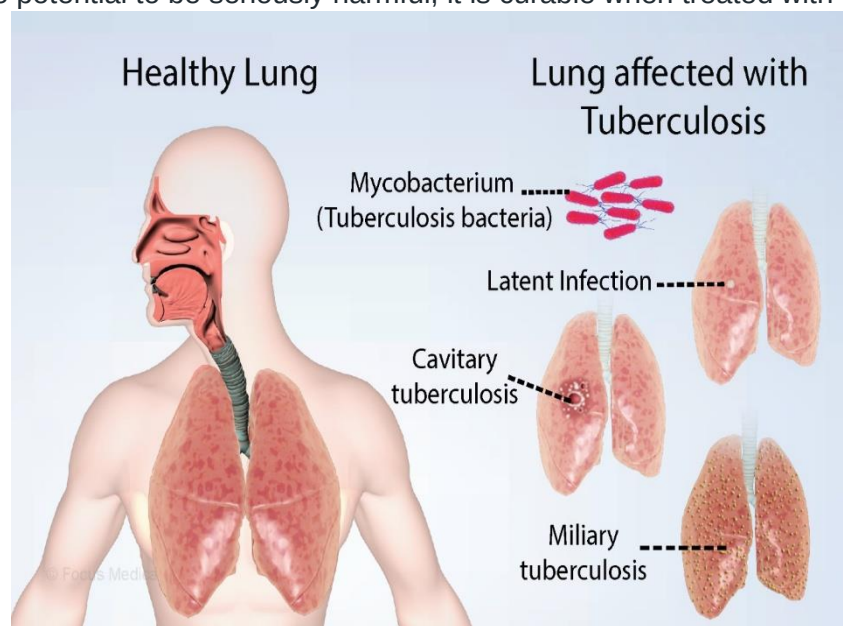


Figure 1: Focus Medica

In 2018, there were 4,655 cases of TB in England, or 8.3 cases per 100,000 people. The rate of TB is six times higher among the poorest 10% of the population than among the least poor. People born outside of the UK are 14 times more likely to get TB (10%) than people born inside the UK (BBC, 2012).

Measure-

It is vitally critical to fully understand the situation, measure the epidemic, and track its spread through the population.

The TB outbreak can be measured using a variety of indicators, each with advantages and disadvantages. Daily cases, hospitalisation, and mortality were frequently employed as tracking metrics for any disease outbreak. These are the most crucial metrics and looking at them independently can help us understand how widely the sickness has spread throughout the neighbourhood or whether the staff or hospitals are understaffed.

Daily Cases- Using the "R," or reproduction number, epidemiologists calculate the prevalence of infection in a population daily. For DS TB and MDR TB, the estimated basic reproduction numbers were 1.14 and 0.54, respectively. This is a statistic that represents the typical number of infectious illness cases that spread from one afflicted person. When the R0 is less than 1, it indicates that the epidemic is under control; when it is greater than 1, it is still expanding.

Hospital capacity - It's critical that every patient receives specialised care in a hospital. Since TB cases require specialised care, the size of the TB outbreak can be estimated by analysing hospital capacity. Hospitals can better prepare for surges by knowing how many beds are available.

Death - The goal of any outbreak response is to save lives, so monitoring death counts due to TB is important. There are tests that may be performed to measure TB, and these procedures include: a CT scan, MRI scan, or ultrasound scan of the affected section of the body; urine and blood tests; x-rays; and a biopsy, in which a small sample of tissue or fluid is extracted from the affected area and examined for TB.

Monitor-

"Maps" is one of the most effective methods to track any outbreak. We can generate a map that shows exactly where the infection is and how it is spreading by combining data from all hospitals and the community. GIS is one of the most effective techniques used by epidemiologists. For epidemiologists who study epidemics, (Geographic Information System) is a useful tool. As a result, they can map disease outbreaks and track them through time and geography. These techniques can pinpoint the exact origin of the disease and reveal the most vulnerable demographic types.

According to World Health Organisation (WHO) Over 10 million people are still affected by tuberculosis each year, a disease that has been around for 70,000 years. 2020 saw 1.5 million deaths from tuberculosis, a disease that is both detectable and treatable.

Through TB detection and treatment, an estimated 66 million lives have been saved since 2000.

Control-

Despite being around for a long time, TB is still one of the deadliest infectious diseases, second only to COVID-19, and killed more people in 2020 than HIV and malaria combined (WHO, 2021).

To control TB, infected person doesn't need to separate but still need to take a few easy precautions to stop TB from spreading to others. One must abstain from attending job, school, or college until TB treatment team advises it is okay for you to do so. Always cover your mouth, ideally with a disposable tissue, when sneezing, coughing, or laughing. Use a sealed plastic bag to dispose of any used tissues with care.

Administrative control- The adoption of administrative procedures to lower the risk of exposure to people who could have TB disease is the most crucial aspect of TB infection control. It is vital to Quickly identifying those who have TB symptoms (triage), separating infectious patients, preventing the transmission of germs (cough etiquette and respiratory

cleanliness), and reducing the amount of time spent in medical facilities are all examples of administrative actions that should be taken.

Environmental Control-Another crucial component of TB infection management is environmental measures. Environmental controls work to prevent and lower the number of infectious droplets in the air. There are two sorts of environmental controls.

The primary environmental controls involve reducing the infection source by using local exhaust ventilation.

Secondary environmental controls include regulating airflow to stop polluted air from settling in locations near the airborne source.

Policy

The Department of Health's Stopping tuberculosis in England: An Action Plan from the Chief Medical Officer, published in 2004, contains the primary policy framework for combating the disease. It outlines the program's objectives, including the long-term reduction and eventual eradication of tuberculosis from England, with the immediate goals of lowering the risk of people contracting the disease for the first time, providing high-quality treatment, and promoting healthy lifestyles (DoH, 2004). This framework has prescribed how medical practitioners should handle instances of tuberculosis, but it hasn't stemmed the disease's sharp increase in England. To prevent TB, a vaccination called BCG (bacilli Calmette-Guerin) is administered. It works better on kids, and it works inconsistently on adults

Recommendation

If a family member is known to be infected at home, wear a mask; if feasible, keep separate utensils and rooms; keep the most vulnerable children or elderly people away from the infected individual.

- When leaving the house, frequently wash your hands or sanitise.
- Make sure the home is properly ventilated.
- Frequently clean the air ducts in your automobile and house.
- Obey and teach proper sneeze and cough techniques.
- Reduced turnaround times for sputum testing and culture,
- The use of quick diagnostic tests, and the prompt start of treatment are also further recommendations.

Conclusion

To prevent TB, a vaccination called BCG (bacilli Calmette-Guerin) is administered. It works better on kids, and it works inconsistently on adults.

Accountability is crucial in the effort to eradicate TB because it helps to guarantee that regional, international, and national commitments to do so are kept.

Within 100 days of a declared health emergency, the government has promised to provide vaccines for newly identified infectious diseases. If we are to fulfil our global duties and end

needless deaths, we must also battle existing neglected diseases like TB and ensure that we never have to wait 100 years for another vaccine.

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