TUBERCULOSIS

Since the dawn of time, tuberculosis [TB] has been a major cause of suffering and death. TB is said to be one of the oldest human diseases, with a history dating back to the dawn of time. The medical, as well as the social and economic, consequences of tuberculosis have been significant over time. The World Health Organization (WHO) estimates that 10.4 million new cases of tuberculosis are diagnosed each year, with 1.8 million fatalities.

One-third of these new cases (about 3 million) are unknown to the health system, and many are not being treated properly. Tuberculosis is the world's leading infectious disease killer, claiming about 4000 lives per day.

Tuberculosis (TB) is a bacterial infection caused by Mycobacterium tuberculosis that most commonly affects the lungs and is known as pulmonary tuberculosis. Extrapulmonary refers to the fact that it might impact other areas of the body. Tuberculosis can be treated and avoided. Tuberculosis (TB) is transmitted from person to person through the air. People with lung TB spread the TB germs into the air when they cough, sneeze, or spit. In order to become infected, a person only needs to breath a few of these germs. About a quarter of the world's population has latent tuberculosis, which means they've been infected with the germs but aren't sick yet and can't spread it. People who are infected with tuberculosis bacteria have a 5–10 percent lifetime risk of contracting the disease. People with weakened immune systems, such as those with HIV, malnutrition, or diabetes, or those who smoke, are at a considerably higher risk of being ill.

When a person has active tuberculosis (TB), the symptoms (cough, fever, night sweats, or weight loss) can be minor for months. This can cause delays in obtaining treatment, as well as the spread of the bacterium to others. Over the course of a year, someone with active tuberculosis can infect 10–15 other people through intimate contact. Without treatment, nearly all HIV-negative patients with TB and 45 percent of HIV-positive people with TB would die. Tuberculosis primarily affects people in their prime years of work. All age groups, however, are at risk. Developing countries account for almost 95% of cases and deaths. HIV-positive people are 20 to 30 times more likely to acquire active tuberculosis.

In 2019, 1.4 million people died from tuberculosis (including 208 000 people with HIV). TB is one of the top ten causes of death worldwide, and the main cause of death from a single infectious agent (behind HIV/AIDS). In 2019, an estimated 10 million people globally contracted tuberculosis (TB). There are 5.6 million men, 3.2 million women, and 1.2 million children in the country. Tuberculosis is seen in all countries and in all age groups. Tuberculosis is both curable and preventive.

Globally, 1.2 million children were diagnosed with tuberculosis in 2019. Health workers sometimes ignore child and adolescent tuberculosis, which can be difficult to identify and treat. In 2019, the 30 nations with the highest TB burden accounted for 87 percent of all new TB cases. India, Indonesia, China, the Philippines, Pakistan, Nigeria, Bangladesh, and South Africa account for two-thirds of the total, with India

leading the pack, followed by Indonesia, China, the Philippines, Pakistan, Nigeria, Bangladesh, and South Africa.

MDR-TB, or multidrug-resistant tuberculosis, is still a public health concern and a security threat. In 2019, 2,06 030 persons with multidrug- or rifampicin-resistant tuberculosis (MDR/RR-TB) were identified and notified globally, up 10% from 1,86 883 in 2018. Globally, TB incidence is decreasing at a rate of roughly 2% per year, with a 9 percent decline between 2015 and 2019. This was less than half of the way to the End TB Strategy's goal of a 20% reduction in TB cases between 2015 and 2020.

WHO recommends the Xpert MTB/RIF, Xpert Ultra, and Truenat assays as rapid diagnostics. Multidrug-resistant and other resistant forms of tuberculosis, as well as HIV-associated tuberculosis, can be difficult and costly to diagnose. Children's tuberculosis is extremely difficult to diagnose. A conventional 6-month course of four antimicrobial medications is given to patients with active, drug-susceptible TB illness, along with information and assistance from a health worker or trained volunteer. Treatment adherence is more difficult without such assistance. Since 2000, TB detection and treatment have saved an estimated 63 million lives.

HIV-positive people are 18 (15-21) times more likely than HIV-negative people to acquire active tuberculosis illness. HIV and tuberculosis (TB) constitute a fatal combo, with each speeding up the progression of the other. Approximately 208 000 persons died of HIV-related tuberculosis in 2019. In 2019, 69 percent of notified tuberculosis patients had a recorded HIV test result, up from 64 percent in 2018. 86 percent of TB patients in the WHO African Region, where the burden of HIV-associated TB is highest, had a documented HIV test result. In 2019, 88 percent of TB patients who were known to be HIV positive were on antiretroviral therapy (ART).

Drug resistance TB: Anti-TB medicines have been used for decades and strains that are resistant to one or more of the medicines have been documented in every country surveyed. Drug resistance emerges when anti-TB medicines are used inappropriately, through incorrect prescription by health care providers, poor quality drugs, and patients stopping treatment prematurely.

Multidrug-resistant tuberculosis (MDR-TB) is a form of TB caused by bacteria that do not respond to isoniazid and rifampicin, the 2 most effective first-line anti-TB drugs. MDR-TB is treatable and curable by using second-line drugs. However, second-line treatment options are limited and require extensive chemotherapy (up to 2 years of treatment) with medicines that are expensive and toxic. In some cases, more severe drug resistance can develop. TB caused by bacteria that do not respond to the most effective second-line anti-TB drugs can leave patients without any further treatment options.

In 2019, MDR-TB remains a public health crisis and a health security threat. A global total of 206 030 people with multidrug- or rifampicin-resistant TB (MDR/RR-TB) were detected and notified in 2019, a 10% increase from 186 883 in 2018. About half of the global burden of MDR-TB is in 3 countries – India, China and the Russian Federation. Worldwide, only 57% of MDR-TB patients are currently successfully treated. In 2020, WHO recommended a new shorter (9-11 months) and fully-oral regimen for patients with MDR-TB. This research has shown that patients find it easier to complete the regimen, compared with the longer

regimens that last up to 20 months. Resistance to fluoroquinolones should be excluded prior to the initiation of treatment with this regimen.

MDR/RR-TB identification, according to WHO recommendations, needs bacteriological confirmation of TB and drug resistance testing using fast molecular tests, culture procedures, or sequencing technologies. A regimen of second-line medications for at least 9 months and up to 20 months is required, along with counselling and adverse event monitoring. The WHO recommends that all-oral regimens be made more widely available. In an effort to increase the effectiveness of MDR-TB treatment, 89 nations began using shorter MDR-TB regimens by the end of 2019, while 109 countries have imported or begun using bedaquiline.

A look at the history of TB reveals that it took several thousands of years for humans to identify the causative organism, another 60 years to arrive at effective treatment. Towards the end of the twentieth century, the twin disaster of HIV and TB and multidrug-resistant tuberculosis [MDR-TB] seem to be on the verge of threatening to ruin the mankind. Tuberculosis has always been with us, only revealing itself every now and then and making us wiser.