[MUSIC PLAYING]

ANNA MIA EKSTROM: This session is about tuberculosis. As many as one third-- or more than 2 billion people-- of the world's population, may be infected by the tuberculosis Mycobacterium. But only a small proportion, less than 10 percent of these, actually develop the disease during their lifetime. In the other 90 percent infected, the bacteria will stay dormant. That means it sleeps in the body, and doesn't cause disease.

Every year, about nine million people fall sick with tuberculosis, or TB as we say, and 1.5 million people die. That's more than 4,000 people every day.

TB can spread, without physical contact, through airborne transmission. That means you breathe in the bacteria, into your lungs. People infected with the TB bacteria are at much greater risk of developing active TB disease if their immune defense is weakened-- for example, those who also have HIV, at the same time, or those receiving chemotherapy for cancer, or children under five years of age. The WHO has identified 22 high burden countries, of which most are in Southern Africa, Southeast Asia, and Eastern Europe. Strategies to combat TB need to be particularly intensive in these countries.

Those infected with both TB and HIV have a much higher risk of dying from one of these diseases. For example, TB is the cause of death in 25% of people living with HIV. So, the HIV epidemic-- in particular, in sub-Saharan Africa-- makes TB eradication much more difficult.

Over 95% of TB deaths occur in low- and middle-income countries. However, the good news is, that the mortality rate actually has declined by 45% over the last 2 and 1/2 decades. Since then-- 1990-- the number of newly infected patients has also begun to drop, although this decline is even slower.

Many global strategies have been launched over the recent decades to prevent and control the spread of TB, and to reduce mortality. TB vaccination became widely used in the late 1940s, but is today mainly recommended to children in countries where there's a lot of TB, because the current vaccine mainly protects against the most serious consequences of TB illness.

Another important strategy is TB case finding. Passive case-finding is when someone feels unwell and seeks health care, and then is diagnosed with TB by a health care worker. This

obviously requires awareness, but access to functioning health services in terms of diagnostics and appropriate treatment. Active case-finding, on the other hand, requires systematic screening and clinical evaluation of persons who are known to be at high risk of developing active TB disease, such as contact tracing of those exposed to active TB by someone in the family, or through screening among HIV positive people from areas where there is a lot of TB-- or, as we say in global health, where TB is an endemic disease.

Treatment for TB is long, and usually involves at least four different oral drugs in the beginning. Most need to be in daily treatment for six months. But for some patients with antibiotic-resistant TB, the treatment can be even longer-- up to two years. With this demanding treatment, many patients stop taking their drugs too early. This is, for example, because of unwanted side effects, or lack of motivation, and lack of easy access to drug refill. When TB treatment is stopped too early, the infection doesn't heal properly, and there's also a fairly big risk that their TB becomes resistant to the most commonly used antibiotics. You will hear more about antibiotics in another session.

In the mid 1990s, the WHO launched the Stop TB and DOTS strategy. DOTS stands for Directly Observed Treatment Short Course Strategy. And this is based on the idea that the best way to stop TB, and also the spread of resistant TB, is to ensure a good adherence to treatment and also an appropriate drug combination. DOTS builds on five health system components, including government commitment, ensuring drug supply, proper diagnostics, proper recording, and health worker-observed intake of the medicine, at least for first two months.

Since TB can be spread by coughing and sneezing, the infection is spread most easily in houses where many people share the same room, and breathe in the same air. So, socioeconomic determinants that reduce crowding, and poor ventilation, are very important interventions. This can be seen in the reduced mortality rates of TB in the US, for example, where mortality began to decline steadily already from the turn of the century, long before TB vaccination and antibiotics even were discovered.

The most recent WHO strategy is the post-2015 Global TB strategy. It has the ambitious goal to end the TB epidemic by reducing TB deaths by 95%, and new cases by 90% over the next 20 years. The WHO also wants to ensure that no family is pushed into poverty due to TB.