

World TB Day 2021: The clock is ticking

STAR HEALTH DESK

More than a century has passed since the March 24, 1882, announcement by Robert Koch that *Mycobacterium tuberculosis* (Mtb) bacteria cause tuberculosis (TB), but the disease still ranks as one of the world's great killers, claiming some 1.4 million lives in 2019 alone. Concerted efforts are needed to combat TB, even as we stand in the shadow of the COVID-19 pandemic, which threatens to slow or reverse progress in global TB control.

The World TB Day is observed every year on March 24 to raise public awareness about the devastating health, social and economic consequences of TB, and to step up efforts to end the global TB epidemic. The 2021 World TB Day theme, 'The Clock is Ticking', reminds us that time is of the essence. The research needed to identify, develop, test, and deliver new or improved TB diagnostics, treatments, and vaccines.

TB-causing bacteria spread through the air and the disease usually affects the lungs, although other organs and parts of the body can be involved. Most people infected with Mtb can co-exist with the bacterium for months, years or a lifetime without ever developing symptoms (termed latent TB infection.) By some



estimates, up to a quarter of the world's population has latent Mtb infection. People with latent TB infection cannot transmit the bacteria to others. However, they have a 5-to-10% lifetime risk of developing active TB. Symptoms of active pulmonary TB disease include cough, fever, and weight loss. Malnourished individuals, smokers, people receiving immunosuppressive therapies, and those with compromised immune systems, including those with untreated HIV infections, are at increased risk of developing active TB.

Drugs are available to treat TB, but treatment regimens are complex, lengthy, and often accompanied by toxic side effects. Incomplete therapy can drive the rise of multidrug-resistant (MDR) and extensively drug-resistant (XDR) TB. Treatment for MDR-TB can last two years and is not always successful. Cases of XDR-TB may not respond to drug treatment at all. In 2019, there were an estimated 206,000 cases of confirmed MDR-TB worldwide, of which 12,000 were XDR-TB. Shortening the length of effective TB treatment regimens

would have important benefits for individuals with TB and could also slow the emergence of MDR and XDR-TB.

In 2020, a landmark clinical trial demonstrated that a four-month daily treatment regimen containing high-dose rifampine and moxifloxacin is as safe and effective as the existing standard six-month daily regimen at curing drug-susceptible pulmonary TB disease. This regimen is the first successful short-course treatment regimen for drug-susceptible TB disease in more than 40 years.

Vaccine research advances provide a shot of hope: A broadly effective vaccine capable of preventing Mtb infection or active TB disease would have a profound impact on TB cases worldwide. The Bacillus Calmette-Guerin (BCG) TB vaccine is 100 years old in 2021 and remains the only commercially available TB vaccine. BCG vaccine protects infants and children from disseminated TB disease and death, but this protection does not extend to adults with pulmonary TB, the most common form of the disease. Thus, improving BCG and developing new vaccines remains a priority goal. A clinical development program has begun with a recombinant strain of BCG for use in a proposed Phase I trial of BCG vaccination by intravenous route.

Eye on the future: The clock is indeed ticking, and on World TB Day 2021, it is important to reflect on the dedication of scientists, clinicians, trial volunteers, and others who work tirelessly to make TB a disease of the past. Countries should come forward to apply cutting-edge research, investment, and collaboration to make that day come soon.

Source: National Institute of Allergy and Infectious Diseases (NIAID), USA.

COVID & DEPRESSION



Mental health aftermath of COVID-19: long-hauler depression?

Recent surveys during the COVID-19 pandemic have documented substantial rates of depression, anxiety, and overall distress in as many as one-third of healthcare workers, the general population, and patients with COVID-19. In this survey of 82,000 respondents, administered between June 2020 and January 2021, researchers examined depressive symptoms in a subset of 3,900 participants who reported SARS-CoV-2 infection (by physician diagnosis or positive test; mean, 4 months before the survey).

More than half of the participants (52%) met the criteria for symptoms of major depression. Having headaches during infection and perceived worse severity of infection were associated with greater severity of depressive symptoms. The likelihood of depressive symptoms decreased with increasing age.

Although it is unknown whether some participants had pre-existing depression, this high rate of moderate depressive symptoms (more common with greater perceived severity of infection) could relate to residual central nervous system effects of COVID-19, social disruption from the infection experience, or psychological reaction to being infected.

HEALTH bulletin



COVID-19 reinfection uncommon, but older adults seem at higher risk

The risk for reinfection with SARS-CoV-2 is generally low, but it is higher among adults aged 65 and older, according to a population-based study from Denmark published in *The Lancet*.

Researchers examined polymerase chain reaction (PCR) test results among roughly 525,000 people who were tested for SARS-CoV-2 from February through December 2020. Of some 11,000 who tested positive during the first surge of the pandemic in March-May, just 0.7% tested positive again during the second surge in September-December. Of those who tested negative during the first surge, 3.3% tested positive during the second surge.

In a separate analysis, the reinfection rate was 8 per 100,000 person-days of follow-up among people aged 65 and older, versus 4-6 per 100,000 person-days among younger age groups.

Researchers say, "The quality, quantity, and durability of protective immunity elicited by natural infection with SARS-CoV-2 are poor relative to the much higher levels of virus-neutralising antibodies and T cells induced by the vaccines." They add, "The hope of protective immunity through natural infections might not be within our reach, and a global vaccination programme with high efficacy vaccines is the enduring solution."

Lead poisoning and stunting in Bangladesh: a missing link

DR MAHFUZAR RAHMAN

Long-term malnutrition might at first seem like a medical condition and its remedial measures easy, using balanced diet, appropriate for age, along with needed micronutrients. In Bangladesh, around 36% of the children are suffering from chronic malnutrition (stunting or low height-for-age). Not only they are more vulnerable to infections, but more importantly, they may not develop their full potential physically and mentally in their adulthood. Malnutrition in childhood and pregnancy has many adverse consequences for child survival and long-term well-being. It also has far-reaching consequences for human capital, economic productivity and national development overall.

This is a matter of great public health significance because there is no single intervention that has worked out. The one way to cure malnutrition is to prevent that from occurring in the first place and efficiently manage when that has already occurred. The problem of stunting is greater in the lower-middle-income countries, while less than half of all under-five children live in these countries.

Bangladesh is particularly vulnerable to high levels of lead exposure, due to poorly enforced environmental regulations and high prevalence of malnutrition. Exposure to a lead-contaminated environment is the most common cause, along with exposure to lead present in gasoline, certain paints, contaminated spices, aluminium cookware, recycling of batteries and battery-operated auto rickshaws.

Lead is a neurotoxin, which is associated with developmental and

behavioural problems in children. Lead poisoning can be especially detrimental in pregnant women and young children living in low socio-economic conditions, who are often more likely to be ingested lead-contaminated dirt and dust.

For many years, environmental lead has been known to be a health and developmental hazard in young children. A recent study in Bangladesh reported a strong likelihood linking lead exposure and stunting. The study observed a significant relationship between the blood level of lead (BLL) and stunting. Hence there is a great need to find ways to reduce children's exposure to lead as well other environmental pollutants. Prevention of exposure to lead may reverse childhood stunting.

While the ideal blood concentration of lead is zero, a recent study observed the national mean of BLL among Bangladeshi children below 19 years of age at 7mg/dl. This level is associated with a loss of major intelligence among children and may also lead to stunted children.

Appropriate measures are a must to minimise lead in the environmental dust or fumes by applying proper technical control measures at its source. The rapidity of the response is crucial; the longer the exposure, the greater will be the negative impact on the population with health and economic consequences.

Dr Mahfuzar Rahman is the Country Director of Pure Earth, Bangladesh. E-mail: mahfuzar@pureearth.org



Very low risk of getting COVID-19 from food and packaging

The risk of getting COVID-19 from food you cook yourself or from handling and consuming food from restaurants and takeout or drive-thru meals is thought to be very low. Currently, there is no evidence that food is associated with spreading the virus that causes COVID-19.

The risk of infection by the virus from food products, food packaging, or bags is thought to be very low. Currently, no cases of COVID-19 have been identified where infection was thought to have occurred by touching food, food packaging, or shopping bags. It is always important to follow good food safety practices to reduce the risk of illness from common foodborne pathogens.

Although some people who work in food production and processing facilities have gotten COVID-19, there is no evidence of the virus spreading to consumers through the food or packaging that workers in these facilities may have handled.

When unpacking groceries, refrigerate or freeze meat, poultry, eggs, seafood, and other perishables within 2 hours of purchasing. Do not wash fresh fruits and vegetables with soap, bleach, sanitiser, alcohol, disinfectant or any other chemical. Gently rinse them under cold, running tap water.

Source: Centres for Disease Control and Prevention (CDC)

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Plot 15 Road 71
Gulshan Dhaka 1212

Appointment
02 22 22 62 466 | 10666

 www.uhlbd.com
 facebook/uhlbd
 info@uhlbd.com