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CORRESPONDENCE

New diseases and old threats: lessons from tuberculosis for the COVID-19 response

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Since December 2019 when the first case of infection with a novel coronavirus (SARS-CoV-2) was notified in Wuhan (China),[1] more than 120,000 people (in more than 100 countries) have been reported to have the disease (COVID-19) with more than 4,000 deaths. The World Health Organization (WHO) announced COVID-19 as a pandemic on 11 March 2020. In countries with high rates of imported disease and local transmission, governments and communities have been mobilised to contain or delay the further spread of SARS-CoV-2, and to mitigate the impact of COVID-19 on populations, health systems, and national and global economies. Moreover, COVID-19 is also expected to affect the vulnerable population groups (e.g., elderly, prison inmates, and immunocompromised individuals, such as people living with HIV) and also those affected by other diseases such as tuberculosis (TB).

In contrast to COVID-19, TB is an ancient infection known to affect humanity for at least 70,000 years,[2] and was declared a global health emergency by the WHO in 1993. An estimated 10 million people suffer from TB, and there are more than 1.2 million deaths per year.[3] Both *Mycobacterium tuberculosis* and SARS-CoV-2 attack primarily the lungs and interfere with host immunity (Table). Although both biological agents transmit mainly via close contacts, the incubation period from exposure to disease in TB is longer, with often a slow onset. *M. tuberculosis* is primarily transmitted through droplet nuclei of aerosols generated by people with TB, who may be infectious for months to years before effective treatment is commenced.[4] SARS-CoV-2 has an incubation period of a few days and can be spread via droplets and fomites,[5,6] although a recent study shows aerosols may also play a role.[7] Both diseases can cause mild or severe forms of disease, including symptoms such as dry cough, fever and shortness of breath.

Complementary COVID-19 and TB responses can assist in curbing both epidemics to save lives. Both diseases can utilise the capacity building efforts, along with surveillance and monitoring systems and robust programmes and infrastructures that have been developed over many years of investment by national authorities and donors (e.g. Global Fund and USAID among others), as well as use of diagnostic tools such as GeneXpert and chest radiography. SARS-CoV-2 testing was initially focused on those with a history of travel to affected areas. However, in countries with local transmission, similar to TB, the case-finding strategies are being modified to an active approach, including the testing of patients with severe pneumonia that does not respond to antibiotics, and of symptomatic individuals and their close contacts.

Many practices in the TB response, such as triaging in the health centre setting, cough etiquette, contact tracing in the community, infection control in health centres and the community including isolation, would benefit the COVID-19 response. In many settings, the

TB response, which includes community volunteers, may be activated for awareness raising, prevention and early notification in COVID-19. Although quarantine, social distancing and isolation of patients are more important interventions in COVID-19, in both diseases these may be undermined by misinformation, and lead to stigma and discrimination, which are counterproductive and unethical in both diseases. In both diseases, the frontline health care workers need to be well trained, equipped, protected, supported and enabled to care for their patients.

People-centred models of care, including hospitalisation for those with severe diseases, community-based services, video-supported treatment or home-based care are among the interventions that can be expanded or adapted for COVID-19. In addition, both diseases would benefit from further investment and research on a vaccine and new medicines.

The COVID-19, like TB reminds us of the importance of prioritising health and allocating financial and human resources for universal health coverage and addressing the needs of vulnerable populations. The World TB Day (24 March) should be a unique opportunity to campaign for both diseases to address all health threats, whether new or old.

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Table Similarities and differences between TB and COVID-19

	TB	COVID-19
Exposure of humans	>70,000 years	A few months
Established case definition	Yes	Yes, but under further development
Stigma	Yes	Yes
Burden on health services	Yes, chronic	Yes, acute
Availability of established programmatic capacity	Yes	No
Rapid policy response	No	Yes
Resource mobilisation	Slow	Rapid
Can be prevented	Yes, prompt treatment of active TB, respiratory protection, treatment of latent infection	Yes, isolation of infected population, social distancing, hand hygiene, respiratory protection
Contact tracing	Yes, the cornerstone of response	Yes, among the key interventions
Rapid diagnosis available	Yes	Yes
Can be cured with antibiotics	Yes (limited efficacy in case of severe drug resistance)	No (research and clinical trials ongoing)
Vaccine available	Yes, BCG with limited effectiveness, research for new vaccine ongoing	No, research for new vaccine ongoing
Economic impact	Yes, 12 billion USD annually, mainly in developing countries	Yes, unknown, potentially huge at global scale

TB = tuberculosis; BCG = bacille Calmette-Guérin; USD = US dollar.