

The potential impact of the COVID-19 epidemic on HIV, TB and malaria in low- and middle-income countries

Objective: This study aimed to quantify the potential additional loss of life from TB, HIV and malaria that may occur as a result of health service disruptions caused by the COVID-19 epidemic. For TB, the study focused on impacts to high-burden countries of low- and middle-income.

Study design: The potential impacts of COVID-19 on TB were modeled based upon their anticipated disruption to standard practices of TB control. The disruptions modeled included direct demands on the healthcare system by COVID-19 (e.g., capacity reduction) and indirect disruption caused by COVID-19 mitigation policies (e.g., reduction in care-seeking). Modeled impacts for TB included reduction in care-seeking, displacement of the GeneXpert® diagnostic resource, reduction in available care, medicine and diagnostics at healthcare facilities, suspension of prevention services, and disruption of drug supply. Final TB-related deaths were determined by applying these impacts across several scenarios of COVID-19 lockdown and lockdown recovery (e.g., "Mitigation", "Suppression-Lift" and "Unmanaged Suppression").

Study population: For TB, the disease models of the study were applied to two settings, "high impact" (South Africa, TB incidence 520/100,000), and "moderate impact" (Brazil, TB incidence 45/100,000).

Results: In high-burden settings, this study found that TB-related deaths may increase by up to 20% from 2020–2024 as a result of the COVID-19 epidemic. Impacts were exacerbated in the "high impact" model by a higher baseline TB burden and a high prevalence of HIV (Figure 1). The greatest impact on TB mortality was caused by reductions to timely diagnosis and treatment of new TB cases, as associated with COVID-19 suppression interventions.

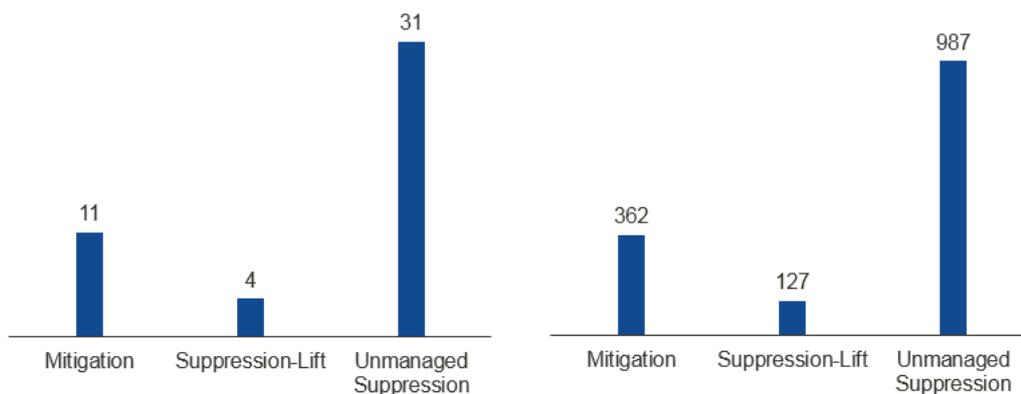


Figure 1. Excess TB deaths per million. Cumulative number of additional TB deaths per million people from 2020–2024 in a moderate impact (left) or high impact (right) setting.

The study found that TB mortality increased as services were reduced, and could remain elevated for several years as a result of increased TB transmission during lockdown and subsequent disease progression. HIV coinfection among persons losing access to TB treatment caused a dramatic increase in TB mortality in the "high impact" setting relative to the "moderate impact" setting which had less baseline burden of HIV and TB.

Author's conclusions:

- COVID-19 disruptions could lead to a loss of life-years on the same order of magnitude as the direct impact from COVID-19, especially in places with a high burden of malaria and large HIV/TB epidemics.
- For TB, the impacts of COVID-19 may be avoided by creating new avenues to obtain TB diagnosis and care despite social distancing interventions.
- "Maintaining the most critical prevention activities and healthcare services for HIV, TB and malaria could significantly reduce the overall impact of the COVID-19 epidemic."