World Health Organization
REGIONAL OFFICE FOR Africa

WHO REGIONAL OFFICE FOR AFRICA COVID-19 RAPID POLICY BRIEF SERIES

SERIES 10: COVID-19 AND TUBERCULOSIS

NUMBER 010- 01: Effects of COVID-19 on people with current or previous tuberculosis

Based on information as of 9 December 2020

Rapid Policy Brief Number: 010- 01 — Effects of COVID-19 on people with current or previous tuberculosis

WHO/AF/ARD/DAK/03/2021

Suggested citation. **Rapid Policy Brief Number: 010- 01 — Effects of COVID-19 on people with current or previous tuberculosis**. Brazzaville: WHO Regional Office for Africa; 2020. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

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Designed and printed in the WHO Regional Office for Africa, Brazzaville, Congo

1	**RAPID POLICY BRIEF NUMBER: 010- 01**
2	**RESEARCH DOMAIN: COVID-19 AND TUBERCULOSIS**
3	**TITLE:** Effects of COVID-19 on people with current or previous tuberculosis
4	**DATE OF PUBLICATION: 23/01/2021**
5	**BACKGROUND** Coronavirus disease 2019 (COVID-19) was first identified in Wuhan, China, in December 2019. By 9 December 2020, over 67 million people had been infected with SARS-Cov2, the virus that causes COVID-19, and over 1.5 million people had died [1]. In 2019, over 10 million people worldwide fell ill with tuberculosis (TB) and more than 1.4 million people died of TB [2]. With the high number of people affected by either COVID-19 or TB, there is likely a very high number who are living with both diseases. This policy brief therefore presents evidence on the outcome of COVID-19 infections in people living with TB. The evidence presented originates from a systematic review of literature on COVID-19/TB co-infection.
6	**SEARCH STRATEGY / RESEARCH METHODS** PubMed and WHO COVID-19 databases were systematically searched between 26 November and 9 December 2020 using a combination of the following search terms: COVID, COVID-19, SARS-CoV-2 and tuberculosis. In addition, we searched reference lists of potentially eligible studies and related reviews obtained from the two databases. We included studies of any design published in English between 01 December 2019 to 26 November 2020, which reported data on COVID-19 in people with either current/active TB, previous/treated TB or latent TB infection (LTBI). The search yielded 269 studies in PubMed, 245 in the WHO COVID-19 database, and 10 from reference lists. After screening and removal of duplicates, 36 studies met the inclusion criteria. Of the 36 included studies, 3 were conducted in Africa (all in South Africa) and 1 was published as pre-prints with no peer-review yet. Due to the heterogeneity of the results, mostly the descriptive analysis of the findings is presented.
7	**SUMMARY OF GLOBALLY PUBLISHED LITERATURE RELATED TO THE SUBJECT** Seventeen studies identified as case reports, seven as case series, and 10 as either observational or cohort studies. Of the 36 studies, 33 reported data on COVID-19 in people with current/active pulmonary or extrapulmonary TB, 9 studies in people with previous/treated TB, and 5 studies in people with latent TB infection. **1. COVID-19 in people with current/Active TB**

A total of 33 studies described outcome of COVID-19 in people with current or active TB disease[3-35]. TB disease was either diagnosed before contracting COVID-19 or was diagnosed at the time of COVID-19 diagnosis, due to some overlapping symptoms in people with COVID-19 and or TB. Most of these studies reported that current TB was associated with severe COVID-19 that required hospitalisation and oxygen supplementation or ventilation, but most of the patients recovered from COVID-19 and were discharged from hospital. Fewer studies reported mild to moderate COVID-19 in people with active TB. Four studies (1 case study[32], and 3 cohort studies[4, 14, 26]) reported increased mortality in people with COVID-19 and active TB, and concluded that TB was associated with prolonged recovery from COVID-19 and or mortality. There was no direct data on whether being on TB treatment before COVID-19 diagnosis affected COVID-19 outcome.

2. **COVID-19 in people with previous/treated TB**

   A total of 9 studies reported data on people with previous TB and COVID-19 [4, 6, 14, 15, 18, 21, 24, 26, 27]. All studies with data on COVID-19 in people with previous TB reported that previous TB was associated with severe COVID-19, though most of the patients recovered after prolonged stay in hospital. Three cohort studies reported that previous TB was associated with an increase in mortality from COVID-19 especially among hospitalised patients[4, 14, 26].

3. **COVID-19 in people with latent TB infection**

   Five studies, mostly case reports or case series, reported data on COVID-19 in people with latent TB infection[7, 17, 36-38]. Of these, 1 case report described severe COVID-19, 3 described mild to moderate COVID-19, all with favourable outcomes. One study did not describe COVID-19 disease outcome on the patient with latent TB but however reported that COVID-19 complicated diagnosis of LTBI possibly due to an altered immune system[38].

Overall, the studies suggest that current or previous TB is a risk factor for developing severe forms of COVID-19, and may be associated with an increase in mortality.

8 SUMMARY OF AFRICA-SPECIFIC LITERATURE ON THE SUBJECT

Of the 36 studies identified, 3 were from Africa, and all were done in South Africa [4, 11, 28]. Two of the studies with a combined total of 3 children diagnosed with both COVID-19 and TB reported mild to moderate COVID-19 with favourable outcomes. One cohort study reported that current or previous TB was associated with severity of COVID-19 and an increase in risk of mortality [4].

9 POLICY FINDINGS

- The studies show that current/active TB may increase the risk of severe disease and mortality from COVID-19.

	➢ Previous/treated TB may increase the risk of severe disease and mortality from COVID-19. ➢ Latent TB infection was generally not associated with severity of COVID-19 ➢ Generally, children with TB and COVID-19 have mild COVID-19 disease. ➢ COVID-19 may complicate diagnosis of latent TB infection In conclusion, people with current or previous TB may be at higher risk of severe or fatal COVID-19. People with TB or history of TB should be treated as high risk for COVID-19 severity and death and should be well managed to improve clinical outcomes.
10	**ONGOING RESEARCH IN THE AFRICAN REGION** None identified.
11	**AFRO RECOMMENDATIONS FOR FURTHER RESEARCH** There is need for well-designed research studies on the outcome of COVID-19 in people with TB to further investigate if current TB treatment may be associated with differential outcome, as well as whether drug-resistant TB may be associated with severe or fatal COVID-19.

12

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BRIEF PRODUCED BY: Information Management Cell, of the WHO Regional Office IMST and the Cochrane Africa Network