



Impact of COVID-19 on diagnosis of tuberculosis and tuberculosis infection in South America, Asia, and Africa

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TO THE EDITOR:

During the COVID-19 pandemic, most countries implemented public health measures intended to contain the spread of SARS-CoV-2, such as travel restrictions, stay-at-home measures, use of face masks, among others.⁽¹⁾ Because of the pandemic, several disruptions occurred in healthcare services. tuberculosis-related services were severely affected, with closing of health care units or limited patient access, reduction of the number of healthcare professionals due to relocation to COVID-19 care, and decreased healthcare demand by patients due to fear of exposure to SARS-CoV-2, with a consequent decrease in diagnosed cases due to diagnostic delay.⁽¹⁻⁴⁾

The WHO reported that tuberculosis notifications dropped 18% from 2019 to 2020 (from 7.1 to 5.8 million cases), with a partial recovery in 2021, but still without reaching pre-pandemic values.⁽⁵⁾ A global study,⁽²⁾ coordinated by the Global Tuberculosis Network and involving 43 centers from 19 countries, demonstrated that newly diagnosed tuberculosis disease, drug-resistant tuberculosis (DR-TB), tuberculosis deaths, outpatient clinic visits, and newly diagnosed tuberculosis infection were reduced.

Information on the effects of COVID-19 on tuberculosis, specifically in South America, Asia, and Africa, is very limited. Therefore, the aim of this study was to compare the prevalence of tuberculosis disease (new or retreatment cases), newly diagnosed tuberculosis

infection, and DR-TB between the years 2020 and 2019 in eight countries located in South America (Argentina, Brazil, Paraguay), Asia (India, Oman, the Philippines, Singapore), and Africa (Niger).

Data previously collected by the Global Tuberculosis Network were used.⁽²⁾ The following variables were collected monthly: total number of tuberculosis cases, including new diagnoses and recurrences; number of DR-TB; and number of tuberculosis deaths. The coordinating and the participating centers had ethics clearance in accordance with their institutional regulations. Data were collected from January 01, 2019, to December 31, 2020. Statistical analysis was performed using IBM SPSS Statistics, version 22.0 (IBM Corporation, Armonk, NY, USA). Data were presented as medians and interquartile ranges. Variables were compared using the Wilcoxon test. A two-sided $p < 0.05$ was considered significant.

The median number of tuberculosis disease cases decreased in 2020 (33.0 [19.3-105.8] vs. 41.0 [25.0-114.0], $p = 0.029$). Newly diagnosed tuberculosis infections did not significantly decrease from 2019 to 2020 (7.0 [3.3-28.0] vs. 6.0 [2.0-23.0]; $p = 0.470$). No differences were found in the number of DR-TB cases and tuberculosis deaths ($p = 0.293$ and $p = 0.433$, respectively). In India, the number of DR-TB cases was significantly lower in 2020 (86.0 [60.3-106.3] vs. 323.5 [308.3-354.5]; $p < 0.0001$). Tuberculosis deaths

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in Paraguay decreased in 2020 (16.5 [12.5-19.8] vs. 26.5 [22.3-27.0]; $p < 0.0001$; Figure 1).

Our findings are similar to those described in previous studies.^(6,7) demonstrating a reduced number of tuberculosis notifications during the first year of the COVID-19 pandemic. Morena et al.⁽⁷⁾ evaluated the impact of the COVID-19 pandemic on pulmonary tuberculosis using artificial intelligence in the region of Castilla-La Mancha in Spain: a significant decrease in the incidence of pulmonary tuberculosis at the start of the COVID-19 outbreak was found. In another study,⁽⁶⁾ changes of reported tuberculosis incidence and mortality before and during the pandemic were described in China from January of 2015 to January of 2023. In the present study, we found no differences in the number of tuberculosis deaths when comparing 2019 with 2020, except in Paraguay where the number of deaths decreased in 2020.

In summary, a decrease in the number of tuberculosis disease cases notified in South America, Asia, and Africa was proven in 2020 if compared with that notified in 2019. Tuberculosis infection decreased from 2019 to 2020 without any statistical significance. Further monitoring will be necessary, as an increase of several indicators of tuberculosis disease and infection may be expected in future years.

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AUTHOR CONTRIBUTIONS

DRS, GBM, LD, and RC: conceptualization, methodology, project administration, and drafting of the manuscript. FCQM, GRP, SA, SA-A, KA-T, FA-Y, MC, RCT, SI, DJP, AP, SS, MBS, AS, SMT, PMT, ZFU, MvdB, and GS: conceptualization, methodology and revision of the manuscript. All authors read and approved the final version of the manuscript.

CONFLICTS OF INTEREST

None declared

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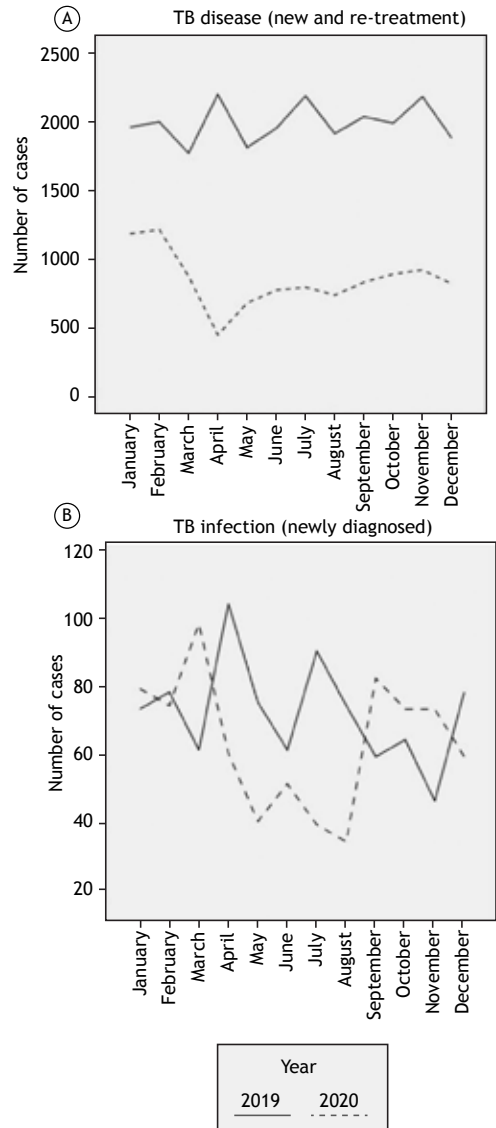


Figure 1. Number of tuberculosis (TB) disease cases (new and retreatment; in A) and of TB infection cases (in B) in 2019 and 2020, by month, in eight South American, Asian, and African countries.