## Worldwide Effects of Coronavirus Disease Pandemic on Tuberculosis Services, January–April 2020

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#### DISPATCHES

Coronavirus disease has disrupted tuberculosis services globally. Data from 33 centers in 16 countries on 5 continents showed that attendance at tuberculosis centers was lower during the first 4 months of the pandemic in 2020 than for the same period in 2019. Resources are needed to ensure tuberculosis care continuity during the pandemic.

The coronavirus disease (COVID-19) pandemic has affected clinical management of tuberculosis (TB) and TB-related services (1,2). Reports of the first cohorts of patients with COVID-19 and TB have been recently published (3,4), although it may be difficult to distinguish which infection occurred first (5). The effects of COVID-19 on TB diagnostic and programmatic activities are similar (1). Almost every country has national TB programs in place, whereas national programs for COVID-19 are urgently needed (1,2).

The effect of COVID-19 on TB services is estimated to be dramatic, especially in countries where healthcare staff involved in TB management have been reassigned to the COVID-19 emergency. However, apart from local studies (6), a comprehensive, multinational description is needed.

The Global Tuberculosis Network, which conducted this study, collaborates with TB centers from 41 countries (3,4,6,7). We studied patient attendance at TB centers in 16 countries and compared the volume of TB-related healthcare activities in the first 4 months of the COVID-19 pandemic, January–April 2020, with that for the same period in 2019.

#### The Study

We invited 37 TB centers to participate in the study and collected data from 33 centers located in 16 countries on 5 continents (Appendix Tables 1, 2, https:// wwwnc.cdc.gov/EID/article/26/11/20-3163-App1. pdf). The participating centers received ethics clearance according to their respective center regulations (7,8). Active TB disease and latent TB infection (LTBI) were defined according to international guidelines (9,10). We recorded numbers of patients with active TB discharged from inpatient care, patients with newly diagnosed cases of active TB, patients with active TB visiting outpatient settings, and new and total outpatient visits for LTBI. We defined use of telehealth services as implementation of directly observed therapy during face-to-face virtual teleconsultations, which were considered to be equivalent to outpatient visits and were counted as such. We did not consider patient contact by telephone and emails to be telehealth. Home visits were considered outpatient visits. We also recorded national lockdown dates. If a country

reported results from >1 center, we used the sum of the attendances to generate the graphs. Quantitative variables were summarized with absolute (percentage) frequencies.

Of the 16 countries studied, data were contributed by 4 TB centers each in Italy, Russia, Spain, and Brazil; 3 each in Sierra Leone and Niger; 2 in Mexico; and 1 each in 9 other countries (Appendix Tables 1, 2). Lockdowns were imposed in all countries (Appendix Figures 1, 2). The earliest lockdown start date was February 1, 2020 (Australia); the latest was April 7, 2020 (Singapore). By the end of data collection (April 30), none of the 16 countries had reduced lockdown severity.

Data on new active TB cases were available from 32 of the 33 TB centers. Except for 5 centers (Sydney, New South Wales, Australia; San Fernando, the Philippines; Turin, Italy; Asturias, Spain; and London, UK), which each reported stable numbers or moderate increases, new active TB cases decreased in 27 (84%) of the 32 TB centers in the first 4 months of 2020 relative to the same period in 2019 (Appendix Figure 1).

Information about total outpatient TB visits was available for 29 centers but not from Groningen, the Netherlands; Mexico City, Mexico; Porto Alegre, Brazil, and Nairobi, Kenya. A total of 22 (75%) of 29 TB centers from 14 countries registered decreased outpatient visits during the lockdowns.

Active TB-associated hospital discharges differed in 2020 from 2019. Although data were not available for a few centers (Buenos Aires, Argentina; Nairobi; and the 3 centers in Niger), data for San Fernando, Singapore; Mexico City, Groningen, and London indicated minimal or no increase. Active TB-associated hospital discharges for the remaining 23 (82%) of 28 TB centers were lower during the first 4 months of 2020.

Data for LTBI outpatient visits were available from 16 of the 33 TB centers; 13 (81%) recorded decreased total outpatient visits (all except Hastings, Sierra Leone; Alvorada, Brazil; and Barcelona, Spain) (Appendix Figure 2). Data for newly diagnosed LT-BIs were available from 19 of the 33 TB centers. New LTBI outpatient visits at 18 (95%) of 19 TB centers (all except Alvorada) were fewer during the lockdown period (Appendix Figure 2).

During the first 4 months of 2020, telehealth services were used by 7 (21%) of the 33 TB centers. The number of patients using telehealth services was reported by 4 centers: Sydney; Mumbai, India; London; and Arkhangelsk, Russia. Increased use of telehealth services correlated with lockdown implementation; most uses were recorded in April 2020 (Appendix Tables 1, 2).

#### Conclusions

For most TB centers during their respective national lockdowns in the first 4 months of 2020, we found reductions in TB-related hospital discharges, newly diagnosed cases of active TB, total active TB outpatient visits, and new LTBI and LTBI outpatient visits. These results may be explained by a general decrease in the use of health services, including emergency services (11). Resources for TB service provision were reassigned to other medical services. Outpatient visit numbers may have decreased because of patients' fear of exposure to severe acute respiratory syndrome coronavirus 2 (12). Access to medical services may have decreased because of interruptions in or difficulty accessing public transportation, although health-related travel was permitted in most countries. In some TB centers (e.g., Mexico City), the hospital patient intake system was modified to support COVID-19 admissions, thus severely hindering TB services. In some centers, screening for LTBI was considered a lower priority than screening for active TB or COVID-19. Because of lockdowns, reactivation of active TB in persons with LTBI who did not receive preventive therapy may be expected, such as in contacts recently exposed to TB or in those who are immunocompromised (13,14). In England, compared with 2019, TB notifications decreased by 16.5% during April and by 37.3% during May 2020; the LTBI program was paused in response to COVID-19 on March 26 (15).

Lockdowns have favored the increased use of telemedicine. Telehealth is a new service offered by TB programs. In TB centers surveyed in Australia, Russia, India, and the United Kingdom, telehealth service use increased in the first 4 months of 2020.

Although our study cannot comprehensively describe all features of TB management, we found that the COVID-19 pandemic had a substantial impact on TB services worldwide. The main strength of our study is the global coverage from 33 TB centers from 16 countries on 5 continents. Limitations include lack of data from some countries. In 9 of the 16 countries, data were limited to reports from only 1 TB center, which may not have fully represented that nation's TB healthcare activities. In addition, some TB centers were located in countries with low TB incidence (e.g., Italy). The description of the changes in the TB burden over a few months did not allow for appropriate statistical inferences in these countries with low TB incidence. More information about the medium- and long-term effects of the COVID-19 pandemic on TB services after a specified time from the diagnosis of the first COVID-19 patient in each country is needed.

The COVID-19 pandemic seems to have affected TB services in all 16 countries that provided data.

At select TB centers, increased use of telehealth services during the pandemic was recorded. Resources urgently need to be channeled to ensure that TB care continues efficiently despite the ongoing COVID-19 pandemic.

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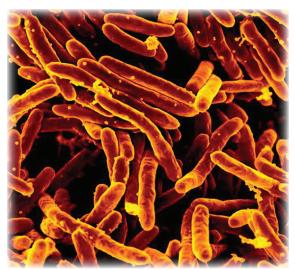
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## **EID SPOTLIGHT TOPIC: Tuberculosis**

World TB Day, falling on March 24th each year, is designed to build public awareness that tuberculosis today remains an epidemic in much of the world, causing the deaths of nearly one-and-a-half million people each year, mostly in developing countries. It commemorates the day in 1882 when Dr Robert Koch astounded the scientific community by announcing that he had discovered the cause of tuberculosis, the TB bacillus. At the time of Koch's announcement in Berlin, TB was raging through Europe and the Americas, causing the death of one out of every seven people. Koch's discovery opened the way towards diagnosing and curing TB.

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### EMERGING INFECTIOUS DISEASES http://wwwnc.cdc.gov/eid/page/world-tb-day

# Worldwide Effects of Coronavirus Disease Pandemic on Tuberculosis Services, January–April 2020

### Appendix

Appendix Table 1. Patients with active tuberculosis (TB), active TB outpatient visits, use of telehealth for TB outpatient visits, and dates of lockdowns in participating countries, January-April, 2019, and January-April, 2020\*

CountryTB center, CityUse of telehealthDischarged proteinsNew TB outpatientsOutpatients outpatientsColdbalance provemberAsia Pacific AustraliaParramata Chest Clinic, SydneyYes.First 4 months 201929351,550Partial lockdown: adatesAustraliaParramata Chest Clinic, SydneyYes.First 4 months 201929351,550Partial lockdown: adatesAustraliaParramata Chest Clinic, SydneyYes.First 4 months 201923521,592Partial lockdown: adatesAustraliaParramata Chest AprilYes.First 4 months 202023521,592Partial lockdown: adatesIndiaHinduja Hospital & Research Center, MumbaiYes.First 4 months partial23521,592Lockdown start: March 20, 2020IndiaHinduja Hospital & Research Center, MumbaiYes.First 4 months partial242020(0)March 27, 20202020January January18NA14491449First 4 months 20192019January Amarch1314430PhilippinesJBL memorial hospital, Hotopital, Hot							TB cases	
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2020  2020  2020  2020    January  10  8  490  490    India  Hinduja Hospital  Yes.  First 4 months  46  NA  5,092  Lockdown    & Research  Started on  March  7  NA  1100  24,2020  24,2020    2020  February  12  NA  1343  (Ongoing)  March  7  NA  1100    April  18  NA  1449  First 4 months  17  NA  1449    Fibruary  6  NA  508  2020  January  6  NA  508    Philippines  JBL memorial  No*  First 4 months  131  4  430  Lockdown    January  34  2  120  2020  2020						-		
India  Hinduja Hospital & Research Center, Mumbai  Yes. Started on March 27, 2020  January First 4 months 2019  10 7 22  8 230 (74) 2230 (74)  Lockdown start: March 2019    Philippines  Hinduja Hospital & Research Center, Mumbai  Yes. March 27, 2020  Started on March 27, 2020  9 February  NA  1200  24, 2020    March 27, 2020  February  12  NA  1340  (Ongoing)    March 27, 2020  February  12  NA  1340  (Ongoing)    March 27, 2020  February  12  NA  1449  (Ongoing)    March 27, 2020  January  6  NA  508  (Ongoing)    March 37  1  110  April  2  NA  52 (113)    Philippines  JBL memorial hospital, San Fernando  No*  First 4 months  131  4  430  Lockdown    First 4 months  123  14  143  2019  start: March 9, 2020  2020    First 4 months  123  14  143  27    March  33					20	52	1,032	,
India  Hinduja Hospital & Research Center, Mumbai  Yes. Started on March 27, 2020  First 4 months First 4 months  46 46  NA  5,092 5,092  Lockdown start: March 24,2020    Philippines  Janeary  9  NA  1200  2,4,2020    March 27, 2020  February  12  NA  1343  (Ongoing)    March 27, 2020  February  18  NA  1449					10	0	400	2020
India  Hinduja Hospital & Research Center, Mumbai  Yes. Started on Center, Mumbai  Yes. Started on March 27, 2020  First 4 months First 4 months  46 46  NA  5.092 200  Lockdown start: March 24, 2020    Philippines  March 27, 2020  January  9  NA  1200  24, 2020    March 7  NA  1343  (Orgoing)  0    March 17  NA  1100  1449  1449    First 4 months  17  NA  1449    January  6  NA  508    January  6  NA  520    January  6  NA  254 (30)    April  2  NA  52 (113)    Philippines  JBL memorial hospital, San  No†  First 4 months  131  4  430  Lockdown    Fernando  January  34  2  120  2020  2020    First 4 months  131  0  120  10  10  10    April  31  0  120  11								
April  7  22  230 (74)    India  Hinduja Hospital & Research Center, Mumbai  Yes. Started on March 27, 2020  First 4 months January  46  NA  5,092  Lockdown start: March 2019    March 27, 2020  January  9  NA  1200  24,2020    March 7  NA  1343  (Ongoing)    March 7  NA  1449    First 4 months  17  NA  1449    Forbruary  6  NA  508    Philippines  JBL memorial hospital, San Fernando  No <sup>†</sup> First 4 months  131  4  430  Lockdown start: March 9, 2020    January  34  2  120  2020  2020  2020    January  34  2  120  2020  2020  2020    First 4 months  131  4  430  Lockdown start: March 9, 2020  2020  2020  2020    February  29  1  80  443  32  32    January  36						-	-	
India  Hinduja Hospital & Research Center, Mumbai  Yes. Started on March 27, 2020  First 4 months 2019  46  NA  5,092  Lockdown start: March    March 27, 2020  Started on March 27, 2020  Started on March 7  NA  1200  24,2020    March 27, 2020  February  12  NA  1343  (Ongoing)    March 27, 2020  February  12  NA  1449  1449    First 4 months  17  NA  1,445  2020  3anuary  6  NA  508    January  6  NA  508  February  4  NA  488    March 5  NA  254 (30)  April  2  NA  52 (113)    Philippines  JBL memorial hospital, San Fernando  No <sup>†</sup> First 4 months  131  4  430  Lockdown    March  37  1  110  April  31  0  120  2020    January  36  4  43  27  March  33  5  62 <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>( )</td> <td></td>						-	( )	
& Research Center, Mumbai  Started on March 27, 2020  2019  start: March Qanuary  9  NA  1200  24, 2020    2020  February  12  NA  1343  (Ongoing)    March  7  NA  1100  (Ongoing)    April  18  NA  1449    First 4 months  17  NA  1,445    2020  -  January  6  NA  488    March  5  NA  254 (30)  April  2  NA  52 (13)    Philippines  JBL memorial hospital, San  No*  First 4 months  121  4  430  Lockdown    February  34  2  120  2020	India	Llinduia Lloonital	Vaa				· · ·	Lookdowo
Center, Mumbai  March 27, 2020  January February  9  NA  1200  24, 2020 (Ongoing)    March 77  NA  1343 (Ongoing)  (Ongoing)    April  18  NA  1449    First 4 months  17  NA  1449    First 4 months  17  NA  1449    January  6  NA  508    January  6  NA  488    March 5  NA  488    March 5  NA  52 (113)    Philippines  JBL memorial hospital, San Fernando  No <sup>†</sup> First 4 months  131  4  430  Lockdown start: March 9, 2020    March 37  1  110  120  2020  2020  2020    March 37  1  10  120  2020  2020  2020    March 37  1  110  143  2020  2020  2020    January  36  4  43  27  34    January  36  42 <td>India</td> <td></td> <td></td> <td></td> <td>40</td> <td>INA</td> <td>5,092</td> <td></td>	India				40	INA	5,092	
2020  February March  12 7  NA  1343 1100  (Ongoing)    April  18  NA  1449  1449  1449    First 4 months 2020  17  NA  1,445  1449    January  6  NA  508  1445    Philippines  JBL memorial hospital, San Fernando  No <sup>†</sup> First 4 months 2019  131  4  430  Lockdown start: March 9, 2010    Fernando  January  34  2  120  2020  2020    February  29  1  80  141  143  2020  2020    February  29  1  80  120  2020  2020    February  29  1  80  141  143  2020  2020  2020  2020  2020  2020  2020  2020  14  143  2020  14  143  2020  14  143  2020  14  143  2020  14  144  144  144 <td< td=""><td></td><td></td><td></td><td></td><td>0</td><td>NIA</td><td>1000</td><td></td></td<>					0	NIA	1000	
March  7  NA  1100    April  18  NA  1449    First 4 months  17  NA  1,445    2020  January  6  NA  508    January  6  NA  488    March  5  NA  254 (30)    JBL memorial  No <sup>†</sup> First 4 months  131  4  430  Lockdown    hospital, San  2019  5  13  4  2020  2020    February  29  1  80  30  2020  2020  2020    February  29  1  80  30  2020  2		Center, Mumbai		,				,
April  18  NA  1449    First 4 months  17  NA  1,445    2020  January  6  NA  488    January  6  NA  488    March  5  NA  22(13)    Philippines  JBL memorial hospital, San  No*  First 4 months  131  4  430  Lockdown    Fernando  January  34  2  120  2020  2020    Fernando  January  34  2  120  2020  2020    Fernando  January  34  2  120  2020  2020    February  29  1  80  30  120  120  2020    First 4 months  123  14  143  2020  120  120  120  141  143  2020  14  143  2020  14  143  2020  14  143  2020  14  1443  2020  14  33			2020					(Ongoing)
Philippines  JBL memorial hospital, San Fernando  No <sup>†</sup> First 4 months 2020  17 2020  NA  1,445    Philippines  JBL memorial hospital, San Fernando  No <sup>†</sup> First 4 months 2019  2  NA  488    March  5  NA  254 (30)  100  100    Fernando  No <sup>†</sup> First 4 months  131  4  430  Lockdown    March  37  1  110  start: March 9, 2020  5  2020  2020    February  29  1  80  2020  2020  2020    February  29  1  80  110  110  120    April  31  0  120  141  143  2020  141    Singapore  National  Yes.  First 4 months  33  5  62  11    March  33  5  13  Lockdown  start: April 7, 2020  13  Partial    Singapore  National  Yes.  First 4 months 2019<								
Philippines  JBL memorial hospital, San Fernando  No <sup>†</sup> 2019  First 4 months 2019  131  4  430 430  Lockdown Lockdown start: March 9, 2020    First 4 months  131  4  430  Lockdown start: March 9, 2020  2020    Fernando  January  34  2  120  2020    Fernando  January  34  2  120  2020    February  29  1  80  2020  2020    First 4 months  123  14  110  120    First 4 months  123  14  143  2020  2020    January  36  4  43  56  2    April  40  2  11  10  17  2020    January  36  4  43  56  2  4    March  33  5  62  4  43  50    University  Started in Hospital, Noi versity  Started in May 2020  2019  5  13  Partial <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td>-</td> <td></td>					-		-	
Philippines  JBL memorial hospital, San Fernando  No <sup>†</sup> First 4 months 2019  131  4  438 430  Lockdown 52 (13)    Philippines  JBL memorial hospital, San Fernando  No <sup>†</sup> First 4 months 2019  131  4  430  Lockdown start: March 9, 2020    February  29  1  80    March  37  1  110    April  31  0  120    February  29  1  80    March  37  1  110    April  31  0  120  120    February  123  14  143  143    2020  January  36  4  433    January  36  4  43  143    2020  January  36  62  11    March  33  5  62  11  10    March  33  31  63  Lockdown  11    Hospital,  May 2020  January <td></td> <td></td> <td></td> <td></td> <td>17</td> <td>NA</td> <td>1,445</td> <td></td>					17	NA	1,445	
Philippines  JBL memorial hospital, San Fernando  No <sup>†</sup> First 4 months First 4 months  131  4  NA 52 (113)    Philippines  JBL memorial hospital, San Fernando  No <sup>†</sup> First 4 months 2019  131  4  430  Lockdown start: March 9, 2020    February  29  1  80  302  2020  2020    February  29  1  80  302  2020  2020    February  29  1  80  302  2020  2020    First 4 months  123  14  143  2020  36  4  43    Singapore  National University  Yes.  First 4 months 2019  36  4  43    March  33  5  62  471  40  2  11    Singapore  National University  Yes.  First 4 months 2019  31  63  Lockdown start: April 7, 2020    Singapore  Nater in the spital, Hospital, Singapore  May 2020  January  11  10  17  2020 </td <td></td> <td></td> <td></td> <td></td> <td>0</td> <td>N1.A</td> <td>500</td> <td></td>					0	N1.A	500	
March5NA254 (30) NAPhilippinesJBL memorial hospital, San FernandoNo*First 4 months 20191314430Lockdown start: March 9, 2020FernandoJanuary3421202020February29180March371110April310120First 4 months123141432020202013200February29180March371110April310120First 4 months123141432020202013200First 4 months1231414320202020610January36443February14327March33562April40211SingaporeNationalYes.First 4 monthsUniversityStarted in May 20202019start: April 7, JanuaryJanuary1110172020SingaporeMay 2020February95SingaporeMarch5719First 4 months37167420202020740SingaporeFirst 4 months3716First 4 months371674202071674				,				
PhilippinesJBL memorial hospital, SanNo†First 4 months First 4 months1314430Lockdown start: March 9, 2019FernandoJanuary3421202020February29180March371110April310120First 4 months1231414320202020180March33562January36443February14327January36443February14327January36624April40211SingaporeNational UniversityYes.First 4 months 20193331Hospital, SingaporeYes.First 4 months 2019333163Lockdown start: April 7, 2020SingaporeNational Hospital, SingaporeYes.First 4 months 2019333163Lockdown start: April 7, 2020February9513Partial March April8914June 2, 2020First 4 months April3716742020				,				
PhilippinesJBL memorial hospital, SanNo†First 4 months 20191314430Lockdown start: March 9, 2020FernandoJanuary3421202020February29180March371110April310120First 4 months123141432020January364431April310120January3644332020January364433SingaporeNational UniversityYes.First 4 months335SingaporeNational UniversityYes.First 4 months333163Lockdown start: April 7, 2020SingaporeNational UniversityYes.First 4 months333163Lockdown start: April 7, 2020SingaporeNational Hospital, AprilYes.First 4 months333163Lockdown start: April 7, 2020SingaporeFebruary9513Partial MarchMarch5719reopening: AprilApril8914June 2, 2020First 4 months37167420202020202020202020					5		· · ·	
hospital, San  2019  start: March 9,    Fernando  January  34  2  120  2020    February  29  1  80  2020  2020    March  37  1  110  2020  2020    April  31  0  120  2020    First 4 months  123  14  143    2020  January  36  4  43    2020  January  14  3  27    March  33  31  63  Lockdown    Singapore  National  Yes.  First 4 months  33  31  63  Lockdown    University  Started in  2019  Singapore  Hospital,  May 2020			N1 +					
Fernando  January  34  2  120  2020    February  29  1  80    March  37  1  110    April  31  0  120    First 4 months  123  14  143    2020  January  36  4  43    2020  January  36  4  43    January  36  4  43    2020  January  36  62    January  36  4  43    Pebruary  14  3  27    March  33  5  62    April  40  2  11    Singapore  National  Yes.  First 4 months  33  31  63  Lockdown    University  Started in  2019  11  10  17  2020    Singapore  February  9  5  13  Partial    March  5	Philippines		NO		131	4	430	
February  29  1  80    March  37  1  110    April  31  0  120    First 4 months  123  14  143    2020  January  36  4  43    Singapore  National  Yes.  First 4 months  33  5  62    April  40  2  11  10  17  2020    January  36  4  43  14  143  2020  11  10  17  2020  11  10  17  2020  11  10  17  2020  11  10  17  2020  11  10  17  2020  11  10  17  2020  11  10  17  2020  2020  13  Partial  10  17  2020  2020  13  Partial  10  17  2020  11  10  17  2020  11  10  17  2020 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>100</td> <td></td>							100	
March  37  1  110    April  31  0  120    First 4 months  123  14  143    2020  January  36  4  43    2020  January  36  4  43    Singapore  National  Yes.  First 4 months  33  5  62    April  40  2  11  10  17  2020    Singapore  National  Yes.  First 4 months  33  31  63  Lockdown    University  Started in  2019  start: April 7,  2020  start: April 7,    Hospital,  May 2020  January  11  10  17  2020    Singapore  February  9  5  13  Partial    March  5  7  19  reopening:    April  8  9  14  June 2, 2020    First 4 months  37  16  74		Fernando						2020
April  31  0  120    First 4 months  123  14  143    2020  January  36  4  43    2020  January  36  4  43    February  14  3  27    March  33  5  62    April  40  2  11    Singapore  National  Yes.  First 4 months  33  31  63  Lockdown    University  Started in  2019  start: April 7,  2020  2020  300  31  63  Lockdown    Singapore  February  11  10  17  2020  2020    Singapore  February  9  5  13  Partial    March  5  7  19  reopening:    April  8  9  14  June 2, 2020    First 4 months  37  16  74				,				
First 4 months 2020123141432020January36443January36443February14327March33562April40211SingaporeNational UniversityYes.First 4 months 2019333163Hospital, SingaporeMay 2020January1110172020February9513PartialMarch5719reopening: April8914June 2, 2020First 4 months 37371674					-	-	-	
2020January36443January14327March33562April40211SingaporeNational UniversityYes.First 4 months333163Lockdown start: April 7, 10Hospital, SingaporeMay 2020January1110172020SingaporeFebruary9513Partial MarchMarch5719reopening: AprilApril8914June 2, 2020First 4 months 202037167420203637363736								
January36443January36443February14327March33562April40211SingaporeNational UniversityYes.First 4 months333163Lockdown start: April 7, 2020Hospital, SingaporeYes.First 4 months333110172020SingaporeMay 2020 FebruaryJanuary1110172020SingaporeFebruary9513PartialMarch5719reopening: April8914June 2, 2020First 4 months37167420201674					123	14	143	
February14327March33562April40211SingaporeNational UniversityYes.First 4 months333163Lockdown start: April 7, 2020Hospital, SingaporeStarted in May 202020191110172020SingaporeFebruary9513PartialMarch5719reopening: April8914June 2, 2020First 4 months37167420201674								
March33562April40211SingaporeNational UniversityYes.First 4 months 2019333163Lockdown start: April 7, 2020Hospital, SingaporeMay 2020January1110172020SingaporeFebruary9513PartialMarch5719reopening: April8914June 2, 2020First 4 months37167420201674				,			-	
SingaporeNational UniversityYes. Started in May 2020First 4 months 2019333163 63Lockdown start: April 7, 2020Hospital, SingaporeMay 2020 FebruaryJanuary111017 20202020 PartialMarch April5719 19reopening: AprilFirst 4 months 2020371674				,				
SingaporeNational UniversityYes. Started in May 2020First 4 months 2019333163Lockdown start: April 7, 2020Hospital, SingaporeMay 2020January1110172020February9513PartialMarch5719reopening: AprilApril8914June 2, 2020First 4 months 202037167420201674							-	
University Started in 2019 Hospital, May 2020 January 11 10 17 2020 Singapore February 9 5 13 Partial March 5 7 19 reopening: April 8 9 14 June 2, 2020 First 4 months 37 16 74					-			
Hospital, Singapore  May 2020  January  11  10  17  2020    March  5  7  13  Partial    March  5  7  19  reopening:    April  8  9  14  June 2, 2020    First 4 months  37  16  74	Singapore				33	31	63	
Singapore  February  9  5  13  Partial    March  5  7  19  reopening:    April  8  9  14  June 2, 2020    First 4 months  37  16  74		University	Started in	2019				
March  5  7  19  reopening:    April  8  9  14  June 2, 2020    First 4 months  37  16  74    2020  2020  2020  2020			May 2020	,				
April 8 9 14 June 2, 2020 First 4 months 37 16 74 2020		Singapore		,			-	Partial
First 4 months 37 16 74 2020								
2020						-		June 2, 2020
					37	16	74	
January 4 12 33				2020				
				January	4	12	33	

Country Europe France	TB center, City Nantes University Hospital, Nantes National Institute for Infectious Diseases (INMI)	Yes. Started in April 2020 <sup>‡</sup>	February March April First 4 months 2019 January February March April First 4 months 2020 January February March	N. 5 16 12 31 12 3 4 12 27 6 9	N. 1 2 1 35 8 3 13 11 24 7	brackets) N. 17 16 8 187 52 51 32 52 262	Lockdown start: March 17, 2020 Lockdown end: May 11, 2020
France	Hospital, Nantes National Institute for Infectious	Started in April 2020 <sup>‡</sup>	April First 4 months 2019 January February March April First 4 months 2020 January February March	12 31 12 3 4 12 27 6	1 35 8 3 13 11 24	8 187 52 51 32 52	start: March 17, 2020 Lockdown end:
France	Hospital, Nantes National Institute for Infectious	Started in April 2020 <sup>‡</sup>	First 4 months 2019 January February March April First 4 months 2020 January February March	31 12 3 4 12 27 6	35 8 3 13 11 24	187 52 51 32 52	start: March 17, 2020 Lockdown end:
Italy	National Institute for Infectious	April 2020 <sup>‡</sup>	January February March April First 4 months 2020 January February March	3 4 12 27 6	3 13 11 24	51 32 52	17, 2020 Lockdown end:
Italy	for Infectious		March April First 4 months 2020 January February March	3 4 12 27 6	3 13 11 24	51 32 52	Lockdown end:
Italy	for Infectious		April First 4 months 2020 January February March	12 27 6	11 24	52	May 11 2020
Italy	for Infectious		First 4 months 2020 January February March	27 6	24		101ay 11, 2020
Italy	for Infectious		2020 January February March	6		262	
Italy	for Infectious		January February March		7		
Italy	for Infectious		February March		7	76	
Italy	for Infectious				6	68	
Italy	for Infectious			8	5	55	
Italy	for Infectious		April	4	6	63	
	Diseases (INMI)	No.†	First 4 months 2019	82	113	725	Lockdown start: March
			January	21	30	200	10, 2020
	'L. Spallanzani'		February	22	18	152	Partial
	IRCCS, Rome		March	17	27	191	reopening:
			April First 4 months	22	38 81	182	May 4, 2020
		First 4 months 2020	69		468		
		January	19	24	183		
			February March	27 20	27 24	191 62	
			April	3	6	32	
	Villa Marelli, Milano	No.†	First 4 months 2019	NA	80	757§	
	Milario		January	NA	24	188	
			February	NA	19	183	
			March	NA	21	196	
			April	NA	16	190	
			First 4 months 2020	NA	65	673§	
			January	NA	17	202	
			February	NA	13	165	
			March April	NA NA	15 20	147 159	
	Sant'Orsola- Malpighi	No.†	First 4 months 2019	38	34	607§	
	Polyclinic,		January	6	9	152	
	Bologna		February	9	5	157	
	-		March	9	9	164	
			April	14	11	134	
			First 4 months 2020	35	28	411§	
			January	9	10	156	
			February	10	7	148	
			March April	12 4	6 5	47 60	
	Amedeo di	No.	April First 4 months 2019	4 NA	5 39	438§	
Savoia Hospital,	Savoia Hospital, Turin		January	NA	12	120	
	i di ili		February	NA	6	102	
			March	NA	11	100	
			April	NA	10	116	
			First 4 months 2020	NA	41	542§	
			January	NA	11	125	
			February	NA	10	118	
			March April	NA NA	6 14	134 165	

Country	TB center, City	Use of telehealth	Period	TB cases, Discharged Inpatients N.	New TB cases, outpatients N.	TB cases Outpatient visits (Telehealth numbers in brackets) N.	Lockdown and reopening dates
	Total number for a		ne first 4 months of	120	266	2,527	
	Total number for a	2019 Ill centers in th 2020	ne first 4 months of	104	215	2,094	
Netherlands	TB center Beatrixoord,	Yes.¶	First 4 months 2019	26	37	NA	Lockdown start: March
	UMCG, Haren/		January	4	10	NA	15, 2020
	Groningen		February March	11 9	6 14	NA NA	Partial
			April	2	7	NA	reopening: June 1, 2020
			First 4 months 2020	30	20	NA	00.10 1, 2020
			January	5	6	NA	
			February March	9 13	6 5	NA NA	
			April	3	3	NA	
Russia	Moscow City Research and	No.	First 4 months 2019	3,251	976	298,387	Lockdown start: March
	Clinical Center		January	706	233	69,158	30, 2020
	for TB control, and 2 hospitals		February March	878 882	264 245	75,278 75,330	Partial reopening
	for TB patients,		April	785	243	78,621	(Moscow):
	Moscow		First 4 months 2020	2,208	877	267,882#	June 9,2020 Partial
			January	566	180	69,346	reopening
			February March	667 604	274 170	84,213 71,225	(Arkhangelsk): June 15, 2020
			April	371	253	43,098	Julie 13, 2020
	Arkhangelsk Clinical	Yes.	First 4 months 2019	183	83	2,557	
	Antituberculosis		January	47	22	565 (1)	
	Dispensary, Arkhangelsk		February March	44 51	21 16	670 (3) 688 (4)	
	Arkinangeisk		April	41	24	620 (6)	
			First 4 months 2020	153	64	2,053	
			January	31	10	531 (4)	
			February March	38 44	20 19	596 (5) 576 (5)	
			April	40	15	325 (11)	
	Total number for a	Ill centers in th 2019	ne first 4 months of	3,434	1,059	300,944	
		2020	ne first 4 months of	2,361	941	269,935	
Spain	Hospital Transversal	No.	First 4 months 2019	12	21	67	Lockdown start: March
	Moises Broggi-		January	4	7	15	14, 2020
	HGH, Barcelona		February	1	2 5	15 18	Partial
			March April	2 5	5 7	18	reopening: May 2, 2020
			First 4 months 2020	7	12	74	May 2, 2020
			January	0	1	21	
			February	4	5	21	
			March April	2 1	3 3	20 12	
	SESPA Hospital	No.	First 4 months 2019	10	15	55	
	Universitario		January	3	3	9	
	Central De		February	3	5	11	
	Asturias (HUCA), Oviedo		March April	2 2	3 4	16 19	
			First 4 months 2020	8	15	49	
			January	3	5	10	

Country	TB center, City	Use of telehealth	Period	TB cases, Discharged Inpatients N.	New TB cases, outpatients N.	TB cases Outpatient visits (Telehealth numbers in brackets) N.	Lockdown and reopening dates
			February	4	7	11	
			March	0	2	14	
			April	1	1	14	
	SESPA	No.	First 4 months	3	6	9	
	Universitary		2019				
	Hospital San		January	1	2	1	
	Agustín, Avilés		February	1	2	3	
			March	0	0	1	
			April	1	2	4	
			First 4 months	2	4	12	
			2020				
			January	1	1	2	
			February	1	2	7	
			March	0	1	1	
			April	õ	0 0	2	
	Hospital de	No.	First 4 months	23	38	73	
	Cruces, Vizcaya	110.	2019	20	00	70	
	oracto, vizcaya		January	3	6	9	
		February	3 7	14	20		
		March	9	14	20 15		
			9	5	29		
		April First 4 months	4 11	5 24	29 71		
			2020		24	/ 1	
			January	1	4	27	
Total number for a		February	4	4 9	29		
		March	4	9 6	29 9		
			3	5	6		
	Il contoro in th	April a first 4 months of	48	5 80	204		
	Total number for a	2019	e first 4 months of	40	80	204	
	Total number for a		e first 4 months of	28	55	206	
United Kingdom	Barts Health NHS trust,	Yes.	First 4 months 2019	28	80	179	Lockdown start: March
guom	London**		January	7	23	36	23, 2020
	London		February	11	20	67	20, 2020
			March	5	21	40	
			April	5	16	36	
			First 4 months	16	85	177	
			2020		20		
			January	2	19	53	
			February	4	22	53	
			March	5	27	28 (17)	
			April	5	17	2 (24)	
North				-		\·/	-
America							
Mexico	Instituto Nacional De	Yes.‡	First 4 months 2019	NA	82	NA	Partial Lockdown:
	Enfermedades		January	NA	23	NA	March 23,
	Respiratorias		February	NA	17	NA	2020
	Ismael Cosio		March	NA	22	NA	Full
	Villegas, Mexico		April	NA	20	NA	Lockdown
	city		First 4 months	NA	45	NA	start: March
	,		2020 January	NA	14	NA	30, 2020 Reopening:
			February	NA	15	NA	Jun 1, 2020
			March	NA	16	NA	00111,2020
				NA	0	NA	
	Hospital	No.	April First 4 months	NA 25	0 76		Lockdown
	Hospital	INO.	First 4 months	20	0	583	
	Universitario de		2019	10		170	start: March
	Monterrey,		January	10	11	170	17, 2020
	Monterrey		February	5	13	155	
			March	5	24	144	
			April First 4 months	5	28	114	
			First 4 months	272	38	331	

Country	TB center, City	Use of telehealth	Period	TB cases, Discharged Inpatients N.	New TB cases, outpatients N.	TB cases Outpatient visits (Telehealth numbers in brackets) N.	Lockdown and reopening dates
	· = ••••••, ••• <b>j</b>		January	7	17	135	
			February	9	13	126	
			March	130	8	70	
			April	126	0	0	
	Total number for a	ll centers in th 2019		25	158	583	
	Total number for a	Il centers in th 2020	e first 4 months of	272	83	331	_
South							
America							
Argentina	Instituto Vaccarezza,	No.†	First 4 months 2019	NA	78	1,182	Lockdown start: March
	Buenos Aires <sup>††</sup>		January	NA	21	321	20, 2020
			February	NA	21	267	Reopen: May
			March	NA	18	281	8, 2020
			April	NA	18	313	
		First 4 months 2020	NA	76	1,136		
		January	NA	22	287		
		February	NA	24	273		
			March	NA	23	315	
			April	NA	7	261	
Brazil	Hospital de Clínicas de Porto	No.	First 4 months 2019	99	68	NA	Lockdown start: March
	Alegre, Porto		January	33	27	NA	17, 2020
Alegre, Rio		February	28	10	NA	(ongoing)	
	Grande do Sul		March	13	8	NA	
			April	25	23	NA	
		First 4 months 2020	76	52	NA		
			January	24	14	NA	
			February	25	9	NA	
			March	15	19	NA	
			April	12	10	NA	
	Alvorada Tuberculosis	No.	First 4 months 2019	NA	65	550	
	Outpatient Clinic,		January	NA	24	135	
	Alvorada, Rio		February	NA	16	121	
	Grande do Sul <sup>††</sup>		March	NA	13	143	
			April	NA	12	151	
			First 4 months 2020	NA	63	574	
			January	NA	25	144	
			February	NA	9	127	
			March	NA	16	148	
			April	NA	13	155	
Thoracic Diseases	No.	First 4 months 2019	18	43	592		
	Institute, Rio de		January	6	13	158	
	Janeiro		February	2	10	160	
			March	9	11	137	
			April	1	9	137	
			First 4 months 2020	15	35	642	
			January	1	11	149	
			February	5	7	208	
			March	7	10	218	
			April	2	7	67	
	Hospital Especializado	No.	First 4 months 2019	62	161	808	
	Octávio		January	12	45	229	
	Mangabeira,		February	15	38	175	
	Salvador, Bahia		March	23	41	187	
			April	12	37	217	

Country	TB center, City	Use of telehealth	Period	TB cases, Discharged Inpatients N.	New TB cases, outpatients N.	TB cases Outpatient visits (Telehealth numbers in brackets) N.	Lockdown and reopening dates
	,,		First 4 months	45	118	724	
			2020	-			
			January	9	36	214	
			February March	11 13	32 44	185 214	
			April	12	6	111	
	Total number for a	Il centers in th		179	337	1950	
		2019					
	Total number for a	Il centers in th 2020	e first 4 months of	136	268	1940	
Africa Kenya	Nairobi	No.	First 4 months 2019	NA	4270	NA	Partial lockdown start:
			January	NA	1087	NA	March 20,
			February	NA	1010	NA	2020
			March	NA	1122	NA	
			April	NA	1051	NA	
			First 4 months 2020	NA	3733	NA	
			January	NA	1104	NA	
			February March	NA NA	1005 1063	NA NA	
			April	NA	561	NA	
Niger	National	No.	First 4 months	NA	704	3,569	Lockdown
5-	Reference		2019			- )	start: March
	Centre against		January	NA	185	990	19, 2020
	Tuberculosis and		February	NA	135	867	Lockdown end:
	respiratory		March	NA	170	763	May 31, 2020
	disease, Niamey		April First 4 months	NA	214	949	
	Regional Hospital of Maradi, Maradi		First 4 months 2020	NA	594	3,011	
	National Hospital		January	NA	139	865	
	of Zinder, Zinder		February	NA	200	905	
			March	NA	174	815	
			April	NA	81	426	
Sierra Leone	Tuberculosis	No.	First 4 months	NA	58	224	Lockdown
	Outpatient Unit, Tombo		2019	NA	16	68	start: April 1,
	Community		January February	NA	16 16	50	2020 (ongoing)
	Health Centre,		March	NA	10	74	(ongoing)
	Western Rural		April	NA	15	32	
	Area, Sierra Leone		First 4 months 2020	NA	40	132	
			January	NA	17	46	
			February	NA	10	50	
			March April	NA NA	8 5	27 9	
	Hastings Community	No.	First 4 months 2019	50	59	44	
	Health Center,		January	18	21	15	
	Sierra Leone		February	13	18	14	
			March	15	16	13	
			April First 4 months	4	4	2	
			First 4 months 2020	0	55	42	
			January February	0 0	12 14	10 10	
			March	0	14	12	
			April	0	12	10	
	Saint John of God Catholic	No.	First 4 months 2019	ŇĂ	38	158	
	Hospital,		January	NA	10	43	
	Mabesseneh		February	NA	10	44	
	Lunsar, Sierra		March	NA	11	43	
	Leone		April	NA	7	28	

				TB cases, Discharged	New TB	TB cases Outpatient visits (Telehealth	Lockdown and
		Use of		Inpatients	cases, outpatients	numbers in	reopening
Country	TB center, City	telehealth	Period	N.	N.	brackets) N.	dates
Country	TE contor, ony	teleficatin	First 4 months	NA	19	124	Galeo
			2020				
			January	NA	9	37	
			February	NA	3	33	
			March	NA	3	35	
			April	NA	4	19	
	Total number for a	all centers in th	ne first 4 months of	50	155	426	
		2019					
	Total number for a	all centers in th 2020	ne first 4 months of	0	114	298	

\*NA, not available.

\*Some patients were followed-up by phone or video calls, but details are unavailable. \*Use of telehealth, breakdown unavailable §Data on outpatient visits includes also those for Nontuberculous Mycobacterial Pulmonary Disease (NTM-PD) cases. Center is unable to differentiate NTM-PD and active TB visits in its informatics system

¶Use of video observed treatment (VOT) for some specific cases, breakdown unavailable.

#Data includes numbers of home visits by doctors or nurses. The numbers of home visits from January to April 2020, in chronological order, are 3282, 3660, 3146 and 9559. \*\*Only patients under the Infectious Diseases and not Respiratory Clinics were included <sup>††</sup>Center is an outpatient clinic.

Appendix Table 2. Patients with latent tuberculosis infection (LTBI) and LTBI outpatient visits in different centers in participating countries, January-April, 2019, and January-April, 2020\*

Country	TB center, City	Period	LTBI cases Outpatients (New cases) N.	LTBI screening/ preventive therapy Outpatient visits (Telehealth numbers in brackets) N.
Asia Pacific				
Australia	Parramatta Chest Clinic,	First 4 months 2019	127	619
	Sydney	January	18	122
		February	30	146
		March	53	185
		April	26	166
		First 4 months 2020	110	418
		January	21	114
		February	30	127
		March	36	96 (2)
		April	23	47 (32)
India	Hinduja Hospital &	First 4 months 2019	NA	NA
	Research Center, Mumbai	January	NA	NA
		February	NA	NA
		March	NA	NA
		April	NA	NA
		First 4 months 2020	NA	NA
		January	NA	NA
		February	NA	NA
		March	NA	NA
		April	NA	NA
Philippines	JBL memorial hospital,	First 4 months 2019	NA	NA
	San Fernando	January	NA	NA
		February	NA	NA
		March	NA	NA
		April	NA	NA
		First 4 months 2020	NA	NA
		January	NA	NA
		February	NA	NA
		,		

Country	TB center, City	Period	LTBI cases Outpatients (New cases) N.	LTBI screening/ preventive therapy Outpatient visits (Telehealth numbers in brackets) N.
		March	NA	NA
		April	NA	NA
Singapore	National University	First 4 months 2019	14	49
• •	Hospital, Singapore	January	3	13
		February	4	15
		March	0	10
		April	7	11
		First 4 months 2020	7	21
		January	3	9
		February	1	1
		March	1	5
		April	2	6
Europe				
rance	Nantes University	First 4 months 2019	53	99
	Hospital, Nantes	January	15	27
		February	14	25
		March	12	28
		April	12	19
		First 4 months 2020	38	100
		January	15	28
		February	15	28
		March	7	29
4 - h -	Netley all beatitudes for	April	1	15
taly	National Institute for	First 4 months 2019	114	543
	Infectious Diseases	January	29	150
	(INMI) 'L. Spallanzani'	February	30	114
	IRCCS, Rome	March	29	143
		April	26	136
		First 4 months 2020	90	350
		January	30 38	137 143
		February March	38 14	46
		April	8	40 24
	Villa Marelli, Milano	First 4 months 2019	8 366 <sup>†</sup>	2,661
		January	78	754
		February	136	644
		March	73	668
		April	79	595
		First 4 months 2020	231 <sup>†</sup>	2,089
		January	66	754
		February	71	644
		March	62	381
		April	32	310
	Sant'Orsola-Malpighi	First 4 months 2019	NA	308
	Polyclinic, Bologna	January	NA	97
	,,g	February	NA	78
		March	NA	83
		April	NA	50
		First 4 months 2020	NA	162
		January	NA	69
		February	NA	54
		March	NA	32
		April	NA	7
	Amedeo di Savoia	First 4 months 2019	88†	550
	Hospital, Turin	January	26	151
	• •	February	18	134
		March	19	119
		April	25	146
		First 4 months 2020	90†	388
		January	33	159
		February	18	138
		March	26	73
		April	13	18

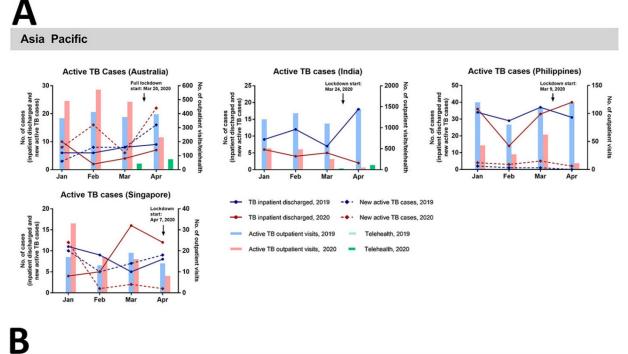
Country	TB center, City	Period	LTBI cases Outpatients (New cases) N.	LTBI screening/ preventive therapy Outpatient visits (Telehealth numbers in brackets) N.
Country	Total number for all centers		568	4,062
	2019 Total number for all centers 2020	s in the first 4 months of	411	2,989
Netherlands	TB center Beatrixoord,	First 4 months 2019	NA	NA
	UMCG, Haren/ Groningen	January	NA	NA
		February	NA	NA
		March	NA	NA
		April	NA	NA
		First 4 months 2020 January	NA NA	NA NA
		February	NA	NA
		March	NA	NA
		April	NA	NA
Russia	Moscow City Research	First 4 months 2019	NA	NA
	and Clinical Center for TB	January	NA	NA
	control, and 2 hospitals	February	NA	NA
	for TB patients, Moscow	March	NA	NA
		April	NA	NA
		First 4 months 2020	NA	NA
		January	NA	NA
		February March	NA NA	NA NA
		April	NA	NA
	Arkhangelsk Clinical	First 4 months 2019	994	2,321
	Antituberculosis	January	178	445
	Dispensary, Arkhangelsk	February	277	621
		March	295	670
		April	244	585
		First 4 months 2020	649	1,639
		January	143	523
		February	165	467
		March	210	546
	Total number for all centers 2019		131 994	103 2,321
	Total number for all centers	s in the first 4 months of	649	1,639
Spain	Hospital Transversal	First 4 months 2019	28	54
	Moises Broggi-HGH,	January	3	8
	Barcelona	February	9	16
		March	11	19
		April First 4 months 2020	5 31	11 74
		January	11	21
		February	9	24
		March	7	18
		April	4	11
	SESPA	First 4 months 2019	76	NA
	Hospital Universitario	January	14	NA
	Central De Asturias	February	15	NA
	(HUCA), Oviedo	March April	22 25	NA NA
		First 4 months 2020	61	NA
		January	23	NA
		February	16	NA
		March	11	NA
		April	11	NA
	SESPA Universitary	First 4 months 2019	7	10
	Hospital San Agustín,	January	4	4
	Avilés	February	1	4
		March	0	0
		April First 4 months 2020	2 5	2 5
		First 4 months 2020	Э	C

Country	TB center, City	Period	LTBI cases Outpatients (New cases) N.	LTBI screening/ preventive therapy Outpatient visits (Telehealth numbers in brackets) N.
	· 2	January	1	1
		February	2	2
		March	2	2
		April	0	0
	Hospital de Cruces,	First 4 months 2019	39	155
	Vizcaya <sup>‡</sup>	January	6	44
		February	12	32
		March	14	39
		April	7	40
		First 4 months 2020	26	90
		January	12	37
		February	9	30
		March	3	15 8
	Total number for all centers		2 150	8 219
	2019 Total number for all centers	s in the first 4 months of	123	169
Inited Kinadam	2020 Rorte Health NHS Truet		70	70
Jnited Kingdom	Barts Health NHS Trust,	First 4 months 2019	73	73
	London§	January	14 28	14
		February	28 15	28 15
		March April	16	16
		First 4 months 2020	40	40
		January	40	16
		February	12	12
		March	9	6 (3)
		April	3	0 (3)
North America		·		
Mexico	Instituto Nacional De	First 4 months 2019	3	NA
	Enfermedades	January	2	NA
	Respiratorias Ismael	February	0	NA
	Cosio Villegas, Mexico	March	0	NA
	city	April	1	NA
		First 4 months 2020	5	NA
		January	2	NA
		February	2	NA
		March	1	NA
		April	0	NA
	Hospital Universitario de	First 4 months 2019	77	NA
	Monterrey, Monterrey	January	27	NA
		February	12	NA
		March	21	NA
		April	17	NA
		First 4 months 2020	37	NA
		January	18	NA
		February	15	NA
		March	4	NA
	Total number for all centers		0 80	NA NA
	2019 Total number for all centers 2020	s in the first 4 months of	42	NA
South America		First 4 months 0010	100	015
Argentina	Instituto Vaccarezza, Buenos Aires	First 4 months 2019	166	915
	Duenus Aires	January	46	242
		February	28	174
		March	33	199
		April	59	300
		First 4 months 2020	158	756
		January	42	199
		Echnicasi	15	
		February March	45 59	189 248

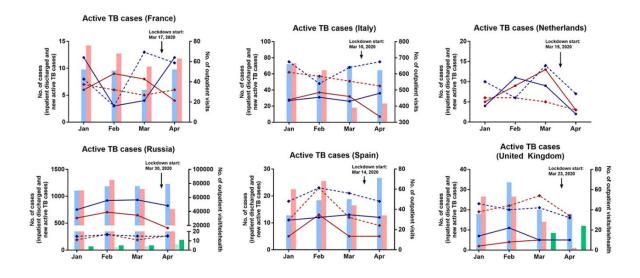
Country	TB center, City	Period	LTBI cases Outpatients (New cases) N.	LTBI screening/ preventive therapy Outpatient visits (Telehealth numbers in brackets) N.
Brazil	Hospital de Clínicas de	First 4 months 2019	NA	NA
	Porto Alegre, Porto	January	NA	NA
	Alegre, Rio Grande do Sul	February	NA	NA
		March	NA	NA
		April	NA	NA
		First 4 months 2020	NA	NA
		January	NA	NA
		February	NA	NA
		March	NA	NA
		April	NA	NA
	Alvorada Tuberculosis	First 4 months 2019	25	50
	Outpatient Clinic,	January	5	10
	Alvorada, Rio Grande do	February	13	26
	Sul	March	4	8
		April	3	6
		First 4 months 2020	26	52
		January	6	12
		February	0	0
		March	4	8
		April	16	32
	Thoracic Diseases	First 4 months 2019	24	173
	Institute, Rio de Janeiro	January	6	33
		February	7	38
		March	5	47
		April	6	55
		First 4 months 2020	12	143
		January	6	49
		February	3	37
		March	2	36
		April	1	21
	Hospital Especializado	First 4 months 2019	NA	NA
	Octávio Mangabeira,	January	NA	NA
	Salvador, Bahia	February	NA	NA
		March	NA	NA
		April	NA	NA
		First 4 months 2020	NA	NA
		January	NA	NA
		February	NA	NA
		March	NA	NA
		April	NA	NA
	Total number for all centers		49	223
	2019	9		
	Total number for all centers 2020		38	195
Africa	Nairobi	First 1 months 2010	NA	NA
Kenya	inaliopi	First 4 months 2019	NA	NA
		January		NA
		February March	NA NA	NA
		April	NA	NA
		April First 4 months 2020	NA	NA
			NA	NA
		January		
		February March	NA	NA NA
			NA	
ligor	National Reference	April First 4 months 2010	NA	NA
Niger		First 4 months 2019	NA	NA
	Centre against	January	NA	NA
	Tuberculosis and	February	NA	NA
	respiratory disease,	March	NA	NA
	Niamey	April First 4 months 2020	NA	NA
	Regional Hospital of	First 4 months 2020	NA	NA
		le	N I A	N I A
	Maradi, Maradi	January	NA	NA
		January February March	NA NA NA	NA NA NA

Country	TB center, City	Period	LTBI cases Outpatients (New cases) N.	LTBI screening/ preventive therapy Outpatient visits (Telehealth numbers in brackets) N.
		April	NA	NA
Sierra Leone	Tuberculosis Outpatient	First 4 months 2019	NA	NA
	Unit, Tombo Community	January	NA	NA
	Health Centre, Western	February	NA	NA
	Rural Area, Sierra Leone	March	NA	NA
		April	NA	NA
		First 4 months 2020	NA	NA
		January	NA	NA
		February	NA	NA
		March	NA	NA
		April	NA	NA
	Hastings Community	First 4 months 2019	20	19
	Health Center, Sierra	January	5	5
	Leone	February	4	6
		March	8	6
		April	3	2
		First 4 months 2020	6	6
		January	1	1
		February	2	2
		March	1	1
		April	2	2
	Saint John of God	First 4 months 2019	2	NA
	Catholic Hospital,	January	1	NA
	Mabesseneh Lunsar,	February	0	NA
	Sierra Leone	March	0	NA
		April	1	NA
		First 4 months 2020	1	NA
		January	1	NA
		February	0	NA
		March	Õ	NA
		April	õ	NA
	Total number for all centers in the first 4 months of 2019		22	19
	Total number for all centers in the first 4 months of 2020		7	6

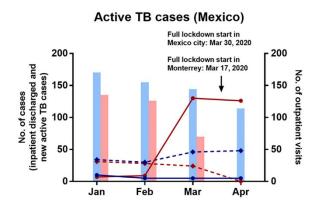
\*NA, not available. <sup>†</sup>Number of new LTBI cases in Milano and Torino are determined based on the number of patients who just started preventive treatment <sup>‡</sup>Some patients were followed-up by phone calls. §Only patients under the Infectious Diseases and not Respiratory Clinics were included





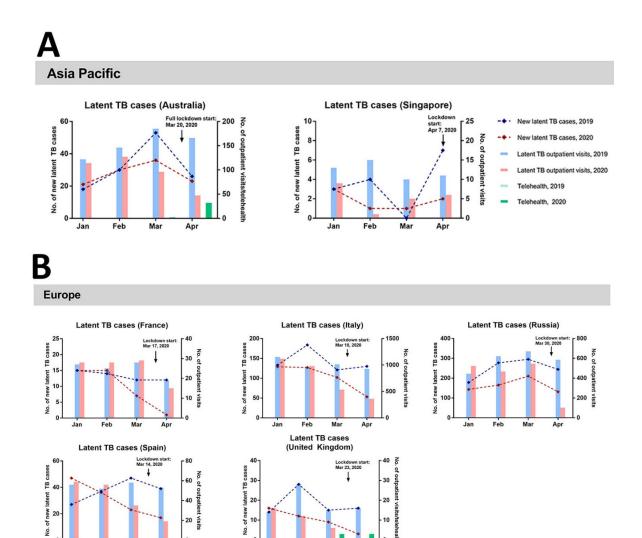


### C North America



D South America Active TB cases (Argentina) Active TB cases (Brazil) 340 150-30 Lockd Mar 20 700 No. of cases (inpatient discharged and new active TB cases) 1 No. of cases (inpatient discharged and new active TB cases) wn start Lockd 320 No 20 600 9 0 300 500 280 400 visits visits 260 240 0 0 300 Mar Jan Feb Apr Jan Feb Mar Apr Ε Africa Active TB cases (Niger) Active TB cases (Kenya) Active TB cases (Sierra Leone) Lockdown st Mar 19, 2020 1500 1500 250 150 N 200 Number of cases 200 No. of cases tient discharged a v active TB cases 1000 of outp . of cases discharge of outpatient visits 100 150 B 100 en No. 500 20 50 tvisits Mer 5 linpat Mar Jan Feb Apr Jan Feb Mar Apr Jan Feb Mar Ap

**Appendix Figure 1.** Impact of COVID-19 on active-TB cases in different TB centers across 16 countries and 5 continents. A) Asia Pacific. B) Europe. C) North America. D) South America. E) Africa.



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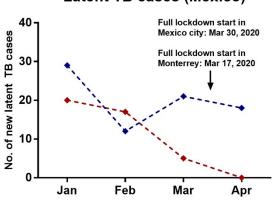


Mar

Apr

0 Jan

Feb



Latent TB cases (Mexico)

40

20 VISIT 20

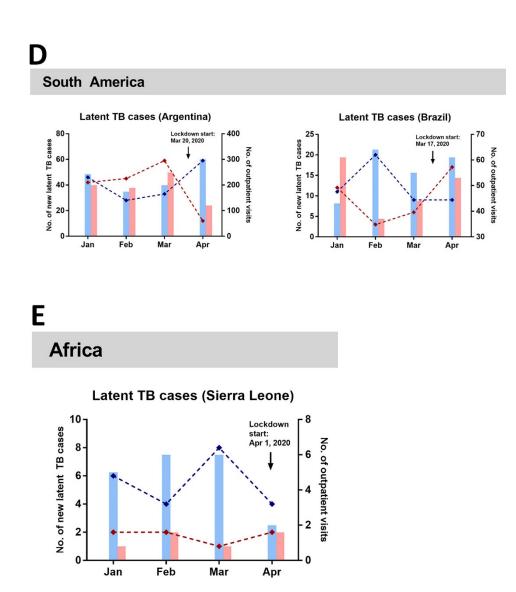
Jan

Feb

Mar

Ap

No. of new 10



**Appendix Figure 2.** Impact of COVID-19 on latent TB cases in different TB centers across 11 countries and 5 continents. A) Asia Pacific. B) Europe. C) North America. D) South America. E) Africa.