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## TB and COVID – Public and private health sectors adapt to a new reality

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### ABSTRACT

Health systems across the world have been baffled by the COVID19 pandemic. Tuberculosis (TB) care and prevention especially in high burden countries has faced disruption to their routine services. Though these setbacks were predicted by many modelling studies, reports and surveys from the field convey the hard reality faced by the TB services. However, health systems have not given up and have become resilient by adapting interesting strategies to overcome these obstacles. The private health sector has also stepped up to the occasion by supporting national TB programs through innovative approaches. The scientific community has laid down several evidence-based recommendations to help TB programs get back on track. Its time to unite these forces to not just overcome the challenge posed by the pandemic but also to build a more resilient health system.

### 1. Background

Tuberculosis care programs, especially in low resource, high-burden countries have historically struggled to integrate public and private sector. Although, the private sector is often the first point of care for TB patients in many high-burden countries, their oversight and regulation frequently fall outside the purview of National TB programs. Not surprising, countries with a very large private sector were responsible for the largest gaps in TB case notification in 2018 [1–3]. As countries continue to fight the COVID-19 pandemic, integrating public and private sector care for TB has become even more critical. It is noteworthy that public and private sector programs in several high-burden TB countries are beginning to adapt to the situation, as we highlight in our report. We also present several opportunities in the COVID-19 pandemic that can be harnessed for improving TB care.

As COVID-19 began to spread rapidly across countries, several models predicted its impact on healthcare services, especially in low- and middle-income countries, where underfunded health services were barely coping with pre-pandemic public health needs [4–7]. Some of these modeling studies also included the effect of COVID-19 on TB services. They predicted an increase in TB deaths of between 350,000 and 1.5 million deaths in 5 years; as well as disruptions in case finding and treatment services [4–7].

These predictions have since turned out to be self-fulfilling prophecies, as reports from several countries have now shown. Healthcare for many infectious diseases and routine services, particularly TB, HIV and malaria, as well as immunization and maternal and child healthcare, have been severely impacted, as patients battle increased costs of access to fewer services with fewer resources [8–11]. In the midst of these, public and private health sectors struggle to adapt, with varying degrees of success. We examine some lessons, obstacles and opportunities to COVID-19 healthcare adaptation, with particular focus on TB care.

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### 2. What challenges do TB services face?

In many reports, the COVID-19 pandemic has severely disrupted TB control and its related services. A survey conducted by the global fund in 106 countries in June 2020, identified 78% of TB programs reported disruption to service delivery (17% with high or very high disruptions) [12]. In a pulse survey by WHO among 105 countries, 42% reported disruptions in their tuberculosis services [13]. There is also now evidence to show that a coinfection with COVID-19 worsens TB disease and increases mortality by damaging lung tissue [14].

A recent survey by a global coalition of TB civic societies has contributed to increase awareness of the scale of the disruptions for patients, TB frontline healthcare workers, policy makers, civil and non-governmental organizations and researchers. The results present a dismal picture of diverted healthcare and research resources, as well as political will, from TB to the COVID-19 response, reduced access to services, increasing stigma and poverty, mental health decline, poor infection control measures, and stockouts of essential health products, among other effects [15].

The survey findings concur with the earlier modeling studies and with reports from the WHO, Global Coalition of TB Activists, Stop TB Partnership, the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), the Global TB Caucus, the Americas TB Coalition, and Stop TB Partnership Indonesia [16–18,7,19].

Individual reports from countries also agree with the above surveys. State TB programs within India have reported a drastic fall in the notification rate between January to July 2020 in comparison to the same period in 2019 [20–22]. Similar reports have emerged from TB programs in several other countries including high burden TB countries like China, South Korea, South Africa, and Nigeria [23–28].

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### 3. What is causing the disruption of services?

The disruptions, which include a dramatic fall in TB notification rate, are mainly attributed to the causes outlined in Box 1.

### 4. How is the public sector adapting to the situation?

Countries across the world have adapted to the situation through innovative strategies.

#### A. Combined screening and active case finding for COVID-19 and TB

A common strategy that countries rely on is the combined screening for COVID-19 and TB. In the early stages of the pandemic, STOP TB partnership's Global drug facility rolled out 100,000 Xpert® Xpress SARS-CoV-2 which provides an efficient platform to accelerate testing for the new coronavirus along with diagnosing TB. Most countries have approved the use of GeneXpert for COVID-19 screening.

State governments within India are mandating the District TB officers to test COVID-negative people for TB [30]. In some places, accredited social health activists were sent door-to-door to identify people with TB. To support other states who wanted to engage in similar activities, the Ministry of Health and Family welfare of India (MOHFW) released a guidance note for bi-directional screening to screen for TB and COVID in influenza like illness (ILI) and severe acute respiratory infections (SARI) patients [31]. This was followed by a rapid response plan to mitigate impact of COVID-19 pandemic on TB epidemic, released in early September 2020 [32]. Bi-directional TB-COVID screening, TB testing for all presumptive ILI/SARI/COVID case, active case-finding and contact tracing were some of the key strategies outlined in the plan for revival of the National TB Elimination Program (NTEP) services COVID-19 / Post COVID-19 scenario [32].

Indonesia, provinces in South Africa and few other African countries are also experimenting with combined screening [33,34]. The Government of Indonesia ordered aggressive tracing for both TB and COVID-19 patients together [33]. In Kaduna state in Nigeria, the World Health Organization (WHO) in partnership with the State Government and KNCV Tuberculosis Foundation, implemented a mobile diagnostic facility called "Wellness On Wheels" Truck (WOW Truck) to test for both TB and COVID (WHO [35]). Similarly, in Bangladesh, The National Tuberculosis Control Programme along with BRAC has implemented a mobile X-ray van initiative to diagnose TB [45]

#### B. Strategies for continuing TB care

It is no doubt that COVID-19 has disrupted daily routine in everyone's lives, more so in the life of TB patients. Transport restriction and lockdown measures to limit the spread of COVID-19 have inadvertently affected those seeking care. The challenge with TB being the long duration of treatment and the need for Directly Observed Therapy (DOTS). In an effort to support patients overcome this hurdle many of the government strategies are now adapting strategies.

The government of Zimbabwe established mobile refill centres in Harare where people could refill their anti-tuberculous treatment (ATT) as well as antiretroviral treatment (ART) [36]. The Metropolitan Health

#### Box 1

: Causes for disruption of services.

- Fear of contracting COVID-19 infection.
- Inaccessibility to care.
- Diversion of staff and healthcare facilities to COVID-19 care.
- Difficulty of healthcare staff to track TB patients.

Source: TBPPM – COVID tracker [29]

Services of South Africa established a system of home delivery of TB medication using a city-wide network of community health workers (CHWs) and innovative ways like Uber, bicycles and electric scooters. [37]

In India, due to the lockdown measures TB patients were not able to commute to civic authorities to collect their monthly incentives for treatment completion. The Thane Municipal Corporation (TMC) initiated steps to ensure TB patients receive their incentives of Rs. 500 as this would financially support them during these dire times [38].

#### C. Digital Tools

Telemedicine practices have multiplied during the COVID-19 pandemic. Governments have utilized such digital platforms too, to support TB services during the pandemic. TB patients in India are now able to avail the free OPD services to consult with doctors [39]. India's notification portal now includes messaging and Whatsapp options on their patient page to facilitate easy tracing of patients during COVID-19.

### 5. How is the private sector supporting TB services during pandemic?

The private sector, though traditionally viewed as an independent entity working in silos, have also stepped up to support the government efforts during the pandemic. In addition to opening their doors to support the public health officials in treating COVID-19, the private sector in several countries have come up with innovative strategies to support TB services during the pandemic. A few of these examples are outlined in Box 2.

### 6. What does the scientific community recommend?

Despite the devastating impact of COVID-19 on TB services, many TB programs and facilities are adapting to the pandemic, presenting a silver lining for the future of TB care and prevention. Several stakeholders, including funders, researchers and implementers have shared ways to overcome the unique challenges while maximizing the opportunities. These recommendations are summarized in Table 1 [40–44].

These recommendations are focused on the TB care cascade and do not provide a larger health systems perspective, which will be required to make a proper analysis on the role of the private sector and public sector. It is clear that human rights aspects, finance and health systems

#### Box 2

: Steps taken by the private sector to support TB services.

- Money transfers to support patient (Innovators in Health, India)
- Active case finding (ECEWS, Nigeria)
- Mobile X-ray van to detect TB (BRAC, Bangladesh; KNCV, Nigeria)
- Engaging private practitioners as satellite centres to distribute TB medications (Community Health Solutions, Pakistan),
- Home delivery of medications and nutritional support (Innovators in Health, India; MSF, India)
- Guidance document (Mercy Corps, Pakistan)
- Transport support (Innovators in Health, India; ).
- Telephone follow ups and telemonitoring of treatment adherence (Innovators in Health, India)
- Digital Adherence Technology (IRD, South Africa; UnitAid ASCENT & KNCV, Philippines)
- E-Pharmacy to deliver diagnostics and treatment (SHOPS Plus, India)
- Advocacy for increased investment (PhilCAT, Philippines)
- Artificial Intelligence surveillance (Qure AI, India)

Source: TBPPM – COVID tracker [29]

**Table 1**  
Suggested adaptations for TB programs/facilities.

Diagnosis	Treatment	Cross-cutting
Public Sector	Public Sector	Global Health
<ul style="list-style-type: none"> <li>Use technology to increase active case-finding, contact tracing.</li> <li>Use trained community health workers for active case finding, contact assessments, postexposure management and linkage to care for new cases</li> <li>Ensure adequate access to rapid diagnostic services for all forms of TB, and not only for COVID-19</li> </ul> <p><b>Private Sector</b></p> <ul style="list-style-type: none"> <li>Involve community-based organizations (CBOs) or non-profits in active case finding, e.g. door-to-door sample collection</li> </ul>	<ul style="list-style-type: none"> <li>Ensure early and careful supply chain management of TB health products including procurement, distribution and transportation</li> <li>Shift to injection-free all-oral drug resistant TB regimens</li> <li>Ensure adequate and expanded access to all-oral, shorter regimens</li> <li>Prioritise alternatives to traditional directly observed therapy, like self-administered therapy, improved treatment literacy and use of digital adherence tools</li> <li>Use appropriate digital tools for counseling, adherence, adverse reactions and patient support</li> <li>Use of family members as treatment supporter</li> <li>Prioritize community-based treatment initiation for new cases</li> </ul> <p><b>Private Sector</b></p> <ul style="list-style-type: none"> <li>Involve CBOs in home-delivery of medication supplies</li> </ul>	<ul style="list-style-type: none"> <li>Discourage excessive country stockpiling and export bans to ensure essential medicines and supplies, including personal protective equipment, for all countries</li> <li>Increase funding for TB research and implementation</li> <li>Ensure and manage proper virtual communication</li> <li>Incorporate tuberculosis into COVID-19 stigma reduction messages</li> <li>Research using more of data routinely collected from a variety of sources</li> </ul> <p><b>Public Sector</b></p> <ul style="list-style-type: none"> <li>Spread awareness about the TB symptoms, precautions and available services on television, print and social media</li> <li>Engage, regulate and govern private health sector</li> <li>Use community health workers and private sector to track lost to follow-up patients, and provide home-based care</li> <li>Ensure adequate access to proper protective measures for staff</li> <li>Ensure necessary psycho-social, nutritional and economic support for patients</li> <li>Ensure training for health workers in stigma and discrimination, infection prevention and control</li> <li>Avoid vertical systems thinking and encourage integration of TB, HIV, COVID-19 and other infectious disease programs e.g. TB and COVID-19 screening</li> <li>Run, in collaboration with private sector, a helpline to triage and provide important information to TB patients</li> </ul> <p><b>Private Sector</b></p> <ul style="list-style-type: none"> <li>Engage in proper public-information campaigns</li> <li>Support public sector TB control measures</li> </ul>

and social determinants play a large role in how efforts to End TB will need to be taken to scale.

## 7. Conclusion

While COVID-19 has negatively impacted global health systems and disrupted services for older epidemics such as TB, it has also highlighted the resilience of systems in some countries and created a demand for innovative strategies and partnerships between the public and private health sector. Several recommendations have been made on how countries can minimize the disruptions caused by the pandemic. The TB community needs to urgently embrace adaptations to COVID-19, using the momentum to re-energize efforts to End TB. Research is also now needed, in addition to reports from the frontlines, to inform what strategies and innovations are working, and why. Immediate investment in operational research and documenting effectiveness of innovations is required to outline specifics of the adaptations in TB care and prevention in both the public and private sector.

## Ethical statement

This report was a review of documents, publications and media literature. The report did not involve any participation from human or animal subjects.

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