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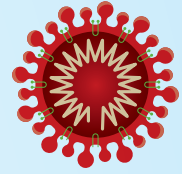


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**IMPAACT4TB**  
PREVENTING TB TO END TB

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**COVID-19**  
coronavirus



# TPT AND COVID-19 FOR CHILDREN



## TB preventive treatment during COVID-19 pandemic

### Background

The global COVID-19 outbreak, caused by the SARS-CoV-2 virus, has disrupted health systems worldwide. This has resulted in changes to health services related to other diseases such as tuberculosis (TB). For adults and children at high risk of TB and other diseases, access to the health services they need is likely to become more difficult. The World Health Organization (WHO) has stressed the importance of continuing essential services to protect the affected persons and those at risk, especially children. Therefore, it is crucial that national programmes continue to provide TB treatment and prevention services while at the same time maintaining their response to the COVID-19 outbreak.

The symptoms of COVID-19 disease (see Table 1) can be similar to those of TB disease in children, however there is an important difference in onset: being sudden with COVID-19 in comparison to the slower onset of symptoms for TB. Children with suspected COVID-19 disease often present with fever, cough, congestion, abdominal pain and diarrhoea, they may or may not report a history of contact with a person that is infected with SARS-CoV-2. Children with TB often present with fever, cough, poor growth or loss of weight and decreased energy or playfulness, with or without history of contact with a TB patient. Both diseases affect the lower respiratory system i.e. lungs. Extra-pulmonary forms of TB can affect other organs.

## There are several reasons why TB services might be affected by the COVID-19 outbreak:

### Stigma and discrimination:

The COVID-19 pandemic has provoked social stigma and discriminatory behaviours against people perceived to have been in contact with the virus or at the origin of the epidemic. Stigma contributes to groups being isolated, which can increase spread of TB. Likewise, stigma and fear around TB in communities can hamper the response to COVID-19.



### Reduced health care seeking:

Due to stigma and understandable fear of being infected with SARS-CoV-2 and forced into isolation, people are driven to hide illness, not seek healthcare and be discouraged from adopting healthy behaviours. This may mean that some people with TB wait longer to seek care, and therefore become sicker. As a result, the risk of TB transmission to children in the household is increased. Children are also missing preventive health visits, including vaccinations such as BCG, that increase the risk of severe, disseminated forms of TB in young children.



### **Poverty:**

Economic repercussions of the COVID-19 pandemic may result in reduced household income, leading to increased poverty, food insecurity, malnutrition and vulnerability to other diseases including TB.



### **Overlap of early symptoms during screening procedures:**

Because of the overlap of symptoms between the two diseases, it might be difficult to rule out TB in the setting of COVID-19. This could lead to confusion and missed diagnoses of both diseases during routine screening.



### **Increased risk of severe COVID-19 disease:**

Although experience with these concomitant illnesses is limited, there is increasing evidence that people with existing lung diseases suffer more from COVID-19. There is good reason to believe that this will be true also for people with pulmonary TB. Treating and preventing TB appropriately in this setting is crucial to reducing the risk of severe COVID-19 disease.



### **Pressure on existing diagnostic resources:**

Testing platforms used for TB can also be used for COVID-19 testing. This includes nucleic acid-based testing resources such as the GeneXpert platform, as well as other diagnostic modalities such as X-ray. This could lead to increased demand and reduced availability of these services for both diseases.



### **Suspension of TB prevention services including community-based contact investigation activities and/or pressure on contact investigation workforces:**

The COVID-19 outbreak has resulted in considerable pressure on health workforces around the world. Contact tracing is a human resource-intensive activity that is essential for both TB and COVID-19 control. Teams used to find household contacts of persons with TB might be diverted to provide COVID-19 services or contact investigation activities might have been suspended as part of the measures taken to control the COVID-19 epidemic, impacting the contact tracing of TB exposed persons. With even fewer children being identified and receiving TPT, pediatric TB incidence may be expected to rise.

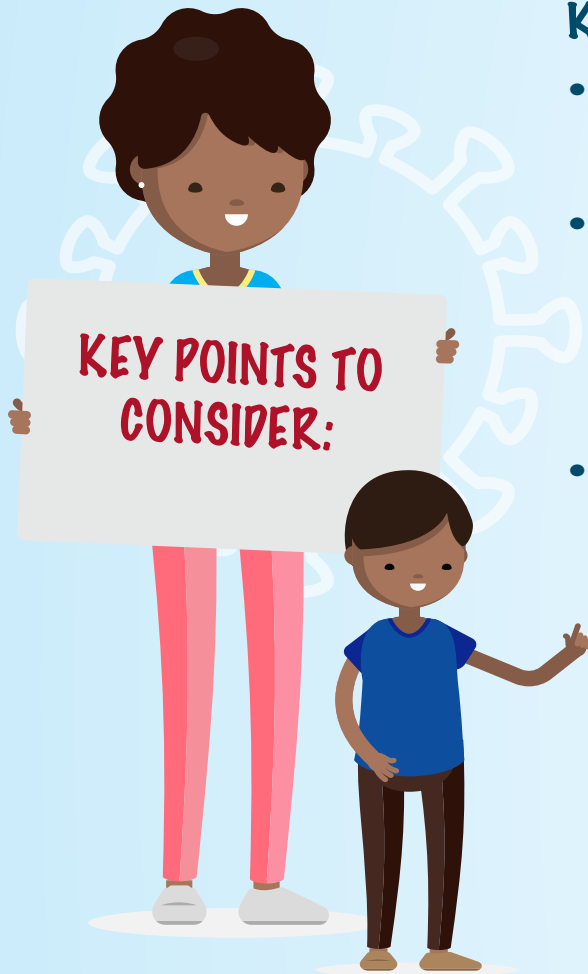
Many countries affected by COVID-19 will not have the resources to conduct widespread testing, contact tracing and follow-up in this context, and it is unclear how the triple epidemics of TB, HIV and COVID-19 will be handled in resource-limited settings.

For the reasons above, it is essential that TB preventive treatment (TPT) services be maintained wherever possible to decrease the risk to children and adolescents living with HIV (CALHIV) and household contacts developing active TB disease in the setting of this pandemic.

The objective of this document is to discuss some programmatic approaches to patient triage that could help ensuring good management of both COVID-19 and TPT services in the context of the current pandemic.

### Comparison of Covid-19 and TB

	Tuberculosis	COVID-19
<b>How it is spread</b>	Airborne	Droplets and contaminated surfaces
<b>How it is diagnosed</b>	Testing of sputum and other respiratory samples for people presenting with respiratory symptoms. Samples types tested can include gastric aspirates, nasopharyngeal aspirates, induced sputum and stool for children. Other samples depending on symptoms	Nasal swabs and/or sputum tests
<b>Pathogen</b>	Bacteria- Mycobacterium tuberculosis complex	Virus- Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)
<b>Infectiousness</b>	Range from less than 1 to up to 4 people infected per one person with TB	Currently average of 2.2 people infected per one person with COVID-19
<b>Prevention</b>	TB preventive treatment for those with known exposure; good respiratory hygiene measures	Social distancing; good respiratory hygiene measures; handwashing with soap for at least 20 seconds, administrative and environmental controls
<b>Treatment</b>	TB Treatment (usually a maximum of 4 drugs for 6 months for DSTB, although longer may be needed for some forms of extra-pulmonary TB and more drugs for longer duration for drug resistant TB).	Several drugs are used off label, trials ongoing for the use of several antivirals, supportive care and medications to prevent complications
<b>Vaccine</b>	BCG has some protective effects, particularly to prevent severe disseminated forms of TB in children	No; BCG has not been shown to have any protective effect against COVID-19



## Key points to consider:

- CALHIV and children who are household or close contacts of people with active TB disease need TPT to be provided to decrease mortality and morbidity from tuberculosis.
- Symptoms of COVID-19 are similar to those used to screen for active TB disease. If no TB symptoms are identified, TB is ruled out and CALHIV and child contacts are considered eligible for TPT. The overlapping of symptoms between COVID-19 and TB can make ruling-out of TB particularly challenging in children due to poor performance of available TB diagnostic tests.
- For CALHIV or child contacts presenting with symptoms (fever/cough) in settings where testing for COVID-19 is available, both TB and COVID-19 testing should be performed to assess for both diseases again.

For CALHIV or child contacts presenting with symptoms (fever/cough) in settings where testing for COVID-19 is NOT available, children should receive a detailed clinical assessment paying particular attention to symptoms that can distinguish between COVID-19 and TB (see table 1 below) and TB investigations should be initiated (i.e. sample collection and Xpert testing). History of COVID-19 exposure from other household contacts or family members can assist in decision making. See algorithm in Figure 1 for more details

- For children and adolescents presenting with confirmed or suspected COVID-19, and who are eligible for TPT because they are household contacts of TB patients or CALHIV, TPT can be offered once the COVID-19 symptoms have resolved and TB disease has been excluded - caregivers should be actively engaged and followed up so as not to miss the opportunity to provide TPT.
- COVID-19 requires quarantine or isolation for the patients and also for those who are contacts. All efforts should be made to rule out TB rapidly in persons who are going to be in quarantine or isolation.
- Persons who are already on TPT should not interrupt their treatment due to COVID-19 illness, except in cases where TB disease may be highly suspected or they are asked to do so by their health care provider.

**Table 1. Comparison of Symptoms for COVID-19 and Tuberculosis**

Tuberculosis	COVID-19
Typically, slow onset over several weeks/months	Sudden onset of symptoms, with slow resolution of symptoms
Fever	Fever
Cough	Cough
Growth faltering and possible weight loss	No immediate weight loss or growth faltering
Taste and smell preserved	Loss of taste and smell
No GI symptoms except with gastrointestinal TB	GI symptoms including abdominal pain, nausea, vomiting and/or diarrhoea
No sore throat	Sore throat
Slower onset of fatigue	Extreme fatigue or rapid onset
Often one or more family members with current respiratory illness. Family member with TB may have been diagnosed weeks or months prior to the child's illness.	Often many family members or household contacts with similar acute illness at the same time or just prior to child's illness

**Table 2. TPT Regimens for Children**

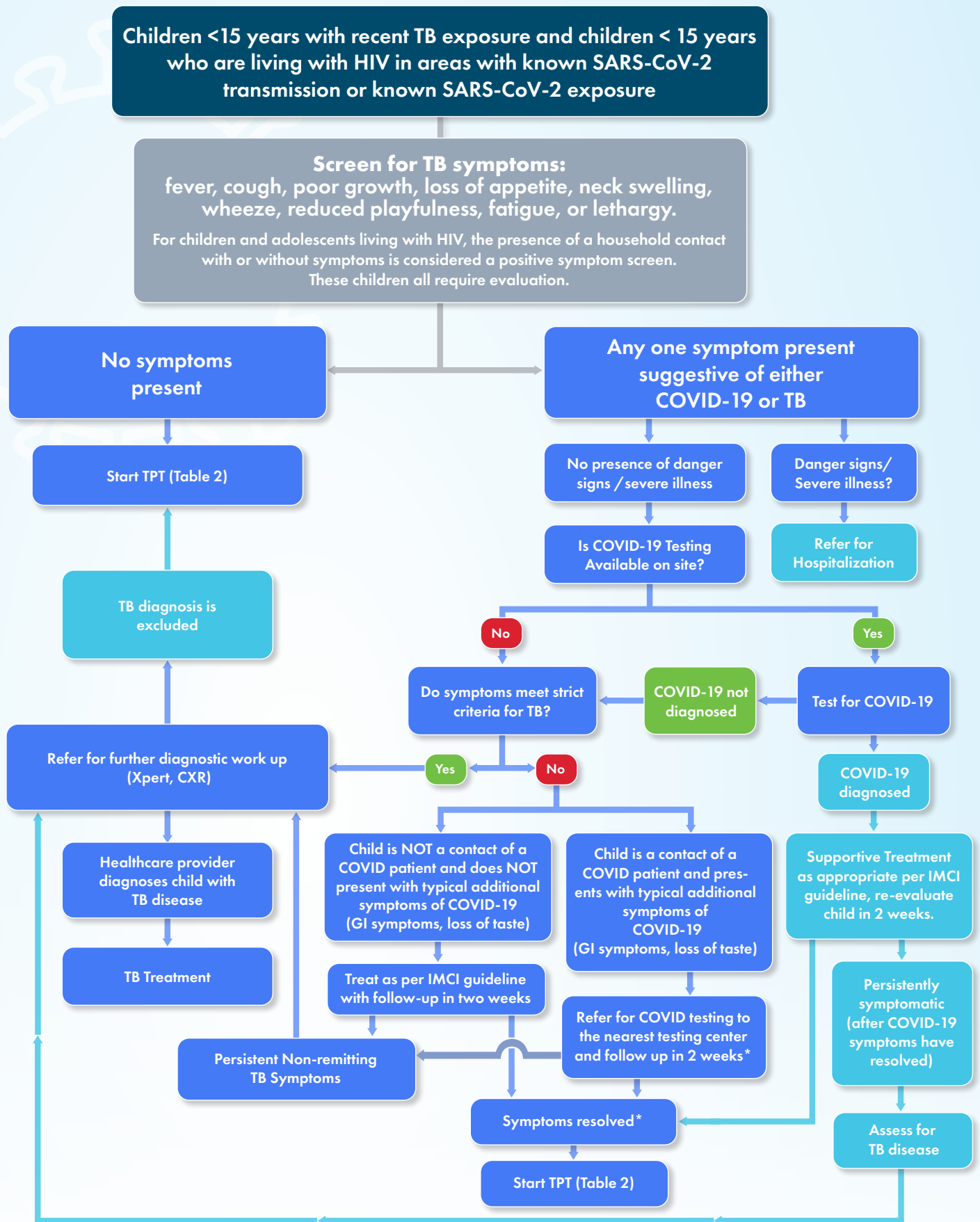
Regimen	Dose	Frequency	Duration	FDC	Dispersible formulation	Target Population
<b>3RH</b>	Weight-banded dosing for children <25kg	Daily	3 months	Yes	Yes (for children <25kg)	- Preferred for children < 25kg given child-friendly FDC - Interactions with some ARV (LPV/r, NVP, DTG)
<b>3HP</b>	Weight-banded dosing for children (2-15 years)	Weekly	12 weeks	No	Under study	- Children 2 years and older - Interactions with some ARV (LPV/r, NVP, DTG)
<b>6H</b>	10-15 mg/kg	Daily	6 months	n/a	Yes	- All children - Preferred for CALHIV (no interactions with ARV including LPV/r, NVP, EFV, DTG)

For further practical considerations on the selection of TPT regimens for children, please refer to the briefer "Short-course Treatment Regimens to Prevent TB: 3HP and 3RH" <https://tinyurl.com/y333ogjc>

The following algorithm is proposed to assist programs in decision making to start TPT in the setting of COVID-19:



Figure 1: Algorithm for TPT initiation in children with TB and possible COVID exposure



\*Unlike many other respiratory illnesses, it may take longer than 2 weeks for COVID-19 symptoms to fully resolve.