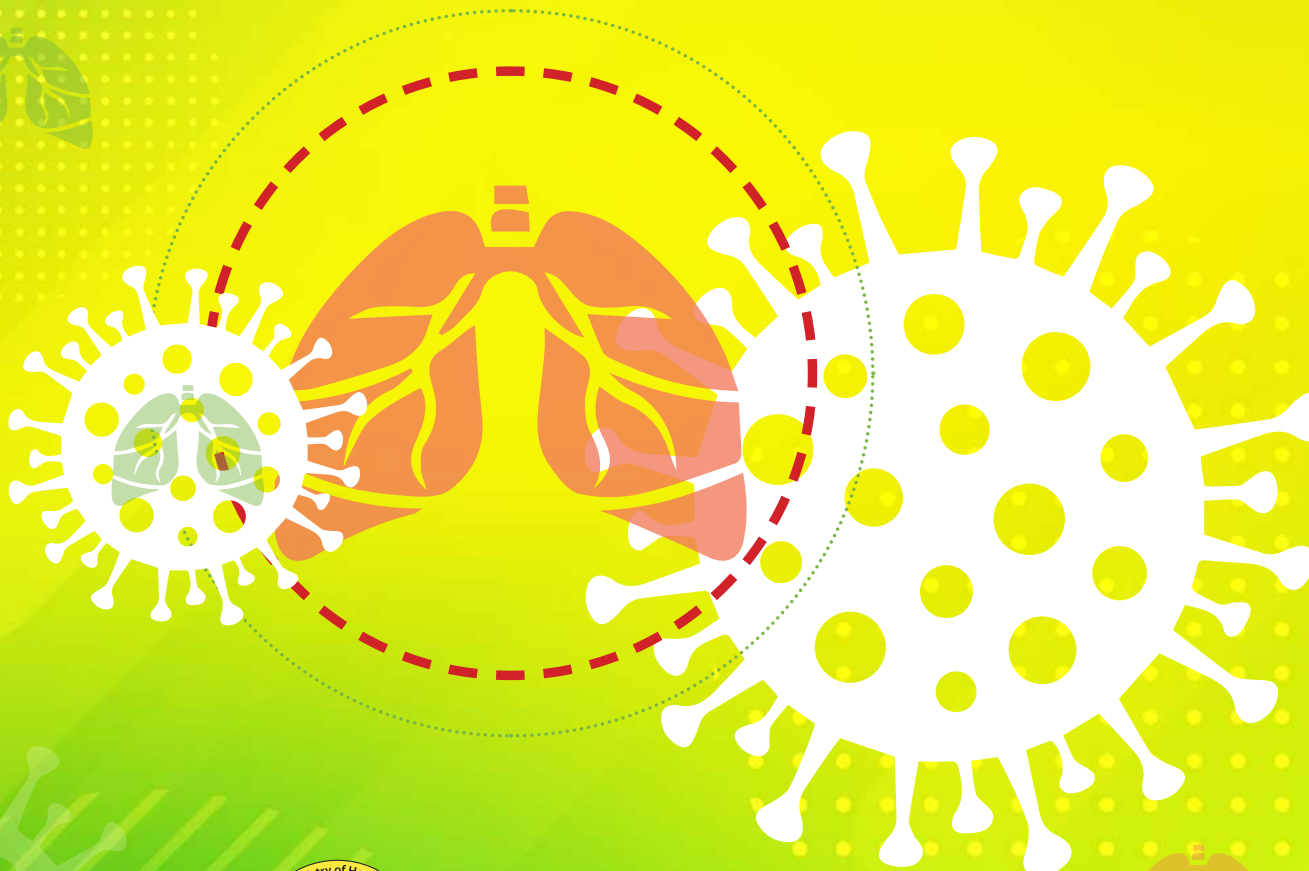
REPUBLIC OF KENYA

MINISTRY OF HEALTH

INTERIM MANAGEMENT GUIDE FOR TUBERCULOSIS AND COVID-19

For Health Care Workers



NATIONAL TUBERCULOSIS, LEPROSY AND LUNG DISEASE PROGRAM

INTERIM MANAGEMENT GUIDE FOR TUBERCULOSIS AND COVID-19

For Health Care Workers

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Foreword

This guideline was developed to ensure continuity of Tuberculosis services in the background of the Coronavirus disease-2019 pandemic (COVID-19). COVID-19 is a highly contagious viral disease caused by severe acute respiratory syndrome corona virus type 2 commonly referred to as SARS-COV-2. The pandemic which started in Wuhan China in December 2019 has since spread to over 200 countries worldwide. Kenya reported the first case of the disease on 13th March, 2020. There is limited data on exact effect of COVID-19 coinfection on the TB disease. Tuberculosis disease usually occurs due to poor immune response and in itself lowers immunity. COVID-19 is known to progress into severe disease in persons with low immunity and in those with pre-existing medical conditions. It is therefore likely that TB patients who develop COVID-19 are at risk of progression to severe disease of lower respiratory tract and more likely to die especially if TB treatment is interrupted. In view of this it is important that interventions are instituted to prevent TB patients from getting infected with COVID-19 and vice versa. This guideline is expected to help health care workers implement proper infection prevention and control measures as per current infection prevention and control guidelines to prevent transmission of both TB and COVID-19 as well as be able to identify COVID-19 suspect in TB patients using updated COVID-19 case definition and send them for diagnosis as early as possible.

Dr. Patrick Amoth, EBS

Ag. Director General for Health

Acknowledgement

The Division of National Tuberculosis, Leprosy and Lung Disease Program (DNTLD-P) is grateful to all stakeholders for their continued support and contribution towards TB control. COVID-19 pandemic posed many challenges in TB control and underscores the need for bidirectional screening to leverage on available opportunities.

Special thanks go to The Centers for Disease Control and Prevention (CDC) for providing the technical and financial support for the development of this interim guidance.

Appreciation to the writing team which was drawn from Ministry of Health staff (DNTLD-P, IDSR, HIS) and partners including CHS TB ARC II and CHS Tegemeza Plus.

The Program would like to specifically thank the external reviewers who took their time to enrich the document.

Finally, special appreciation to the communication team in the program for editing, designing and laying out the report.

Dr. Waqo Ejersa, OGW

Head, National TB Program

List of Contributors

1.	Dr Ejersa Waqo, OGW	Head DNTLD-P
2.	Dr Joseph Sitienei	Directorate of Health, Policy Research Development, M&E
3.	Dr Jackline Kisia	DNTLD-P
4.	Dr Boru Okotu	DNTLD-P
5.	Drusilla Nyaboke	DNTLD-P
6.	Dr Irungu Karuga	DDSR
7.	Eric Nderitu	MoH ICT
8.	Jeremiah Okari	DNTLD-P
9.	Nellie Mukiri	Head NTRL
10.	Wesley Tomno	DNTLD-P
11.	Aiban Ronoh	DNTLD-P
12.	Martin Githiomi	DNTLD-P
13.	Lilian kerubo	DNTLD-P
14.	Adano Godana	DNTLD-P
15.	Nkirote Mwirigi	DNTLD-P
16.	Felix Mbetera	DNTLD-P
17.	Peter Lokamar	DDSR
18.	Richard Kiplimo	DNTLD-P
19.	Victor Kimathi	DNTLD-P
20.	Dr Stephen Wanjala	CHS - USAID TB ARC II
21.	Dr Symon Wambugu	CHS TEGEMEZA PLUS
22.	Ronoh H. K. Dan	CHS TEGEMEZA PLUS
23.	Dr Simon Wachira	CHS - USAID TB ARC II
24.	Kevin Kamenwa	CHS TEGEMEZA PLUS
25.	Rachael Muinde	CHS TEGEMEZA PLUS
26.	Wandia Ikua	CHS - USAID TB ARC II
27.	Jay Mairura	CHS TEGEMEZA PLUS
28.	Anne Masese	CHS - USAID TB ARC II
29.	Benard Kimtai	CHS TEGEMEZA PLUS
30.	Anne Githige	CHS TEGEMEZA PLUS

External Reviewers

1.	Dr Herman Weyenga	CDC
2.	Dr Chakaya Muhwa	RESOK
3.	Dr. Eunice Omesa	WHO
4.	Prof. Elizabeth Obimbo	UON
5.	Dr. Diana Marangu	UON
6.	Dr. Elizabeth Onyango	NCD
7.	Dr Enos Masini	GF
8.	Dr Lorraine Mugambi	CHS - USAID TB ARC II
9.	Dr Brenda Mungai	CHS - USAID TB ARC II

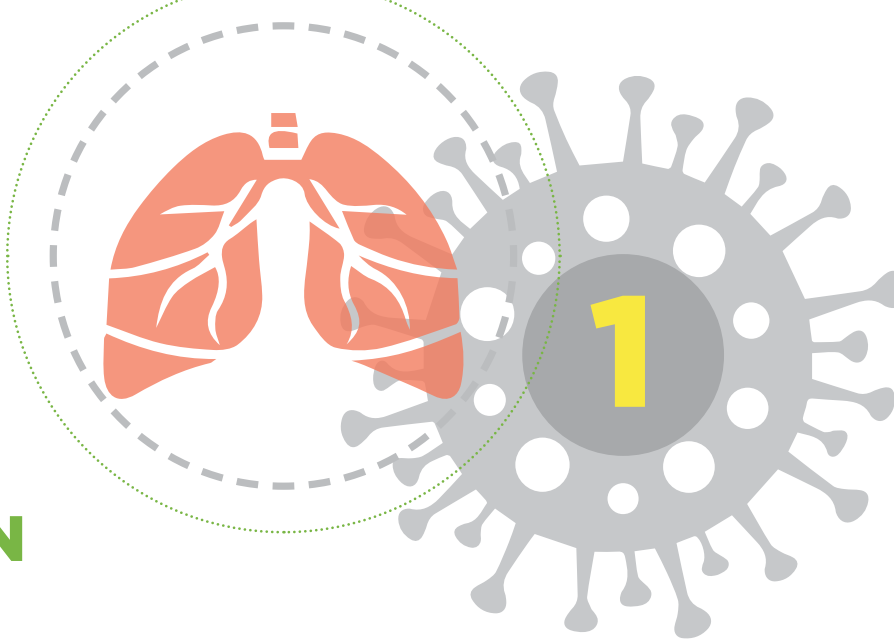
Definition of Terms

Social Distancing Is the practice of increasing the physical space between individuals and decreasing the frequency of contact to reduce the risk of spreading infectious respiratory diseases. Physical distancing is used to stress the importance of maintaining physical space when in public areas.

Universal masking. Is the covering of the face (mouth and nose) in public settings to prevent spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes coronavirus disease (COVID-19). Proper face coverings decrease the amount of infectious virus exhaled into the environment, reducing the risk of an exposed person being infected. It also helps to prevent such people from spreading virus-laden secretions, whether they recognize that they are infected or not.

Screening: It entails the application of measures to identify persons with a disease and may include symptom enquiry, physical examination to look for signs of disease, measurement of specific body indices such as temperature and / or the use of radiological and laboratory tests.

Testing: Refers to the performance of specific laboratory tests on identified presumptive TB and COVID-19. Testing identifies presence of pathogens responsible for disease through laboratory platforms. (e.g Microscopy for Acid Alcohol Fast Bacilli, GeneXpert (XpertMTB/RIF), Truenat, such as real-time reverse transcription polymerase chain reaction (RT-PCR) and GeneXpert (Xpert® Xpress SARS-CoV-2).



INTRODUCTION

1.1 Background Information

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection that causes the COVID-19 disease was first detected in the Hubei province of Wuhan, China in December 2019 and by March 2020 many countries throughout the world, including Kenya had reported cases of COVID-19. Cases continued to increase exponentially over time throughout the world with the WHO declaring the disease a pandemic on 3rd March 2020. The COVID-19 pandemic occasioned a wide range of disruptions in social and economic activities. In the health sector resources, including finances and human resources and activities were re-directed towards addressing the pandemic in both the public and private sectors. This led to set backs in the fight against endemic health problems such as non-communicable and other public health emergencies of international concern (PHEIC). The nationwide lockdowns had a negative impact in disease control as people could not access health care services as well as basic commodities. Performance in many health programs declined including TB, particularly due to the stigma associated with overlapping symptoms between TB and COVID-19 that may have caused people to hide such symptoms in the fear of being diagnosed with COVID-19. Persons with respiratory symptoms felt stigmatized because of the prevailing COVID-19 pandemic. With fewer people coming to the health facilities, detection and notification of people with TB declined by nearly 25% compared to the 2019 baseline. There was a potential of increased progression of TB disease, monitoring of patients on treatment by the HCWs reduced affecting adherence; these consequently led to poorer treatment outcomes and an increase in the TB burden and mortality.

Like all RNA viruses, SARS-CoV-2 is prone to mutation. Multiple viral variants have been detected, most of which appear to have little if any biological significance. However, some may affect viral transmission, the severity or clinical course of disease, or the potency of natural or vaccine-induced immune responses. Currently, mutations of variants of SARS-CoV-2 virus that have been identified to be of concern include; Alpha variant (***B.1.1.7***,

UK, Sept 2020) which has a higher transmissibility (1:4 infections compared to 1:2.5 of original virus) and is associated with higher rates of hospitalization and severe disease, Beta variant (***B.1.351***, SA, May 2020) which has a higher transmissibility, the Gamma variant (***P.1***, Brazil, Nov 2020) also with a higher transmissibility and severe disease, Delta variant (***B.1.617.2***, India, Oct 2020) which has a higher transmissibility (1:6 infections) and increased risk of hospitalizations; 80% more admission rates compared to the Alpha variant, and the Omicron Variant (**B.1.1.529**, GRA, 26 Nov 2021). which appears to be less severe than the Delta variant.

Despite these challenges occasioned by the COVID-19 Pandemic, there have been significant developments in strengthening the health system in order to mitigate the effects of COVID-19. The TB program can leverage on these developments to improve TB programming by integrating identification of people with TB into the screening, testing and contact tracing systems that have been established for COVID-19. Further, this has brought to the fore, the need to strengthen differentiated service delivery to provide patient-centric care. The community system can also be used to educate and create awareness on TB alongside COVID-19 which has very similar strategies for prevention, management and control. The elaborate contact tracing mechanism deployed during the COVID-19 pandemic could provide an entry point for continuous TB screening. The TB program could further improve on testing, management and reporting by integrating with the robust monitoring and reporting systems established for COVID-19.

Tuberculosis control in Kenya is led by the NTP under the Ministry of Health and is well structured. The NTP has a clear mandate that includes bringing together partners in the fight against TB. With the advent of COVID-19, the MoH through a presidential directive established national and county multi sectoral coordination mechanisms. These were responsible for identification of essential services that included health amenities, strengthening health facility level capacity to respond to the COVID-19 pandemic through training, setting up of isolation centres, reassignment of tasks to staff, ensuring that essential commodities for COVID-19 and TB are available and development and deployment of a COVID-19 surveillance system including reporting platforms are established.

1.2 Etiology and Disease Burden of Tuberculosis and COVID-19

1.2.1 Etiology and Burden of Tuberculosis

Tuberculosis (TB) remains a major public health problem in Sub Saharan Africa and is the leading cause of death from a single infectious cause globally. Tuberculosis is caused by the bacteria *(Mycobacterium tuberculosis)* and is mostly transmitted from person to person through air droplets. Transmission occurs when an infected individual coughs, sneezes, spits, sings, or laughs. Common TB symptoms include cough with or without sputum production, bloody sputum, fever, chest pains, weight loss, night sweats, and body weakness.

In 2019 an estimated 10 million people fell ill with TB disease globally and the disease is estimated to have killed 1.2 million people who were HIV negative and an additional 208,000 people living with HIV. Approximately a third of the sub-Saharan population is

infected with Tuberculosis (latent TB infection), with those infected, having a 5-15% risk of developing active TB disease in their lifetime.[1]

Kenya is listed among the fourteen high burden countries for TB, Drug Resistant TB (DRTB), and TB/HIV[2] with an estimated 140,000 people falling ill with TB and 32,000 people dying in 2019[3]. Nationally, tuberculosis is a significant cause of morbidity and mortality and is ranked as the fourth cause of death from all causes.[4]

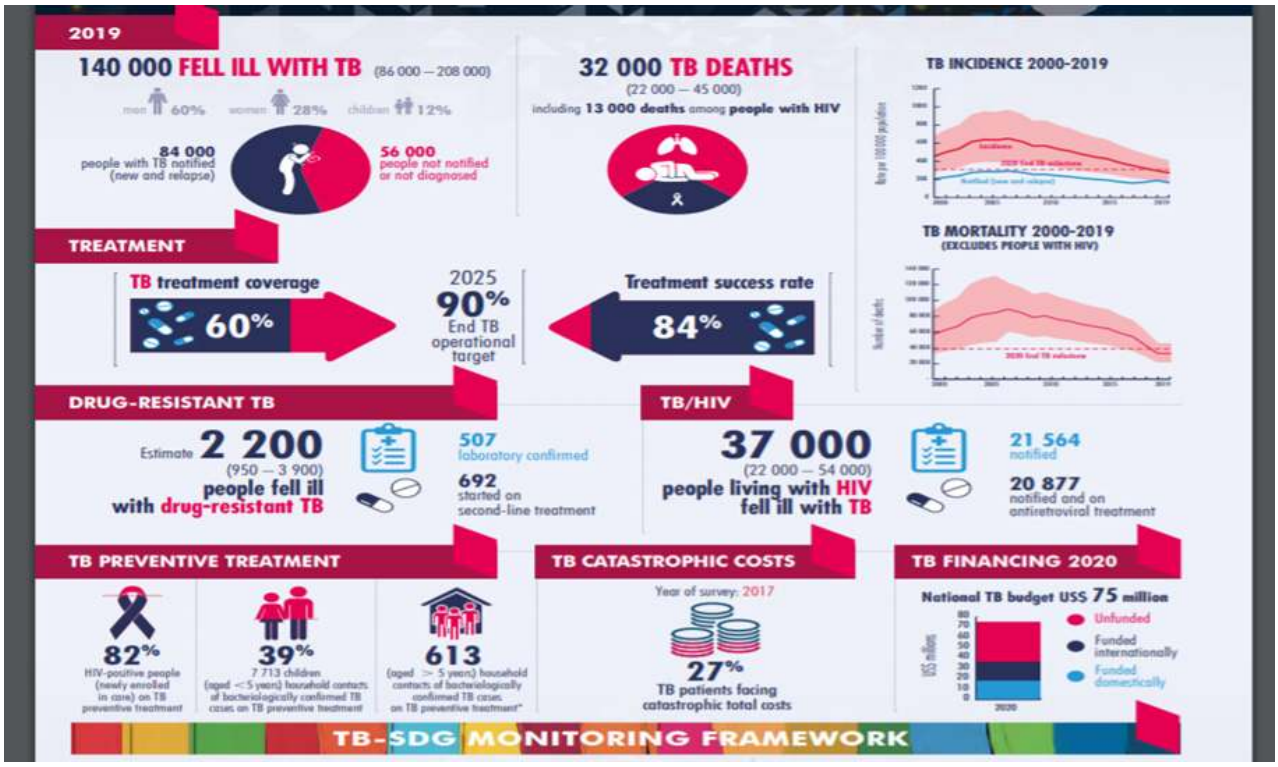


Figure 1: *Burden of Tuberculosis in Kenya in 2019. Source: Tuberculosis Global Report,2020*

1.2.2. Etiology and Burden of COVID-19

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). SARS-CoV-2 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs, talks sings or sneezes. Majority of people infected with SARS-CoV-2 experience either no symptoms or a mild to moderate respiratory illness and recover without requiring special treatment. People with certain characteristics such as older people, and those with underlying medical problems including cardiovascular disease, diabetes, chronic

[1] WHO. World Health Organization (WHO) Information Note Tuberculosis and COVID-19 COVID-19: Considerations for tuberculosis (TB) care. 2020.

[2] WHO. Use of high burden country lists for TB by WHO in the post-2015 era meeting of WHO's Strategic and Technical Advisory Group for TB (STAG-TB). 2015.

[3] WHO. WHO | Global tuberculosis report 2020. WHO [Internet]. 2021 [cited 2021 Jul 7]; Available from: *http://www.who.int/tb/publications/global_report/en/*

[4] KNBS. Kenya National Bureau of Statistics - Economic Survey 2018 [Internet]. 2018 [cited 2020 Aug 8]. Available from: *http://dc.sourceafrica.net/documents/118278-Kenya-National-Bureau-of-Statistics-Economic.html*

respiratory disease including tuberculosis, and cancer are at a higher risk for developing serious to critical illness[5].

A person who gets COVID-19 is considered to be infectious from 2 days before clinical signs & symptoms start - until after at least 10 days and with no fever for 24 hours. It is difficult to estimate the infectious period in asymptomatic positive patients. People with no symptoms are considered infectious 2 days before the day they test positive.

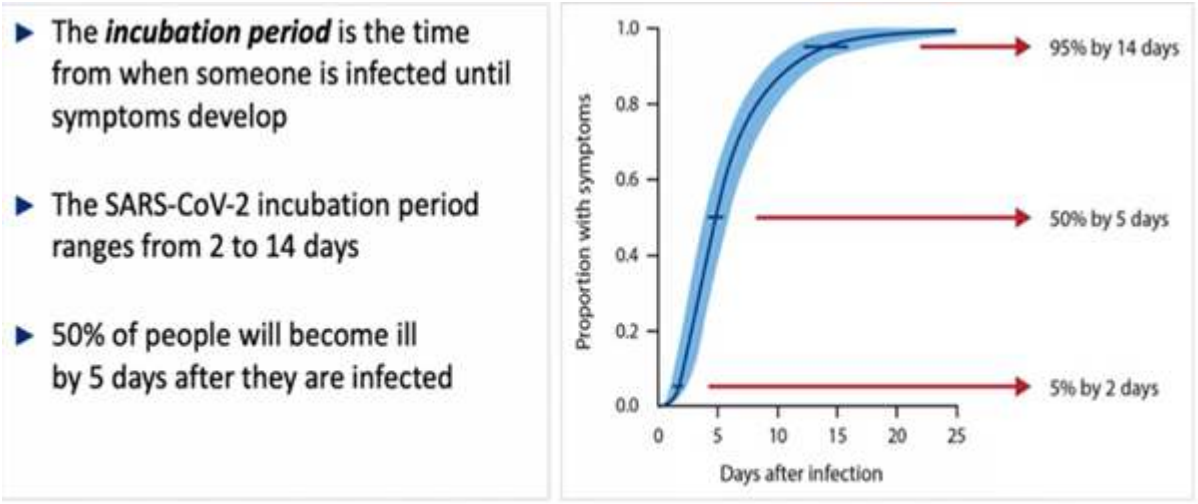


Image adapted by Center for Teaching and Learning, Johns Hopkins Bloomberg School of Public Health, from: Bi, Q., et al. (2020). Epidemiology and transmission of COVID-19 in Shenzhen China: analysis of 391 cases and 1,286 of their close contacts [medRxiv

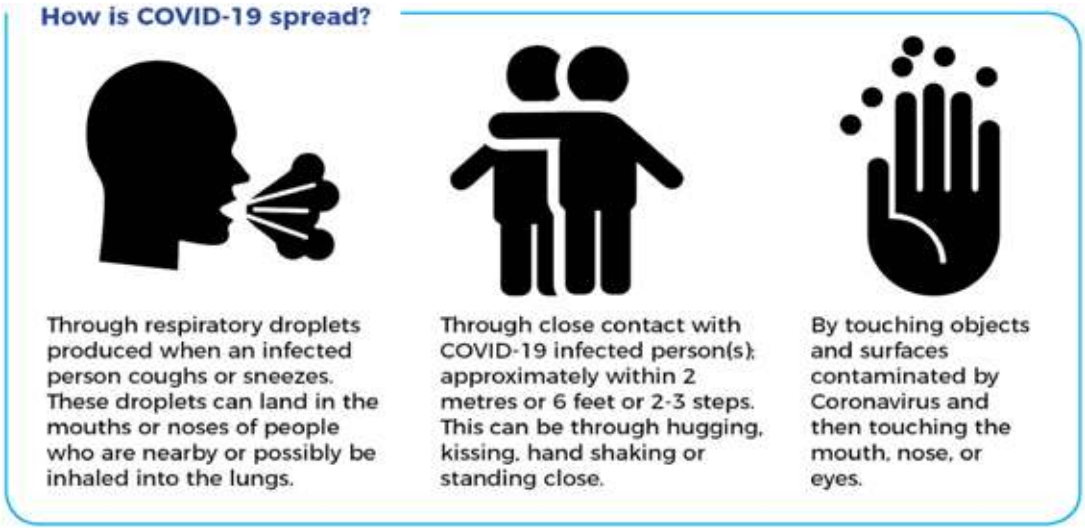


Figure 2: *COVD-19 Mode of transmission*
(Source: http://www.health.go.ke/ covid/#1585098124233-854c2e59-c29a)

[5] Partnership TST. THE POTENTIAL IMPACT OF THE COVID-19 RESPONSE ON TUBERCULOSIS IN HIGH-BURDEN COUNTRIES: A MODELLING ANALYSIS BACKGROUND AND AIM. 2020.

The disease outbreak was first reported in China on 31st December 2019. The WHO declared it a pandemic on 11th March 2020. By 21st September 2021, a total of 228,807,631 cases were reported globally with deaths numbering 4,697,099. The case fatality rate (CFR) is a median of 2.1%. Africa had reported a total of 5,926,202 cases with 142,757 (CFR 2.4%) deaths by 21st September 2021.[6]

Kenya reported its index case on 13th March, 2020 and as of 2nd June 2020 which marked 100 days from first case reported, the country had confirmed 4,731 cases and 123 deaths translating to a CFR of 2.6%[7]. By 21st September 2021, the country had reported 246,956 cases and 5,008 deaths putting the case fatality at 2.0%[7].

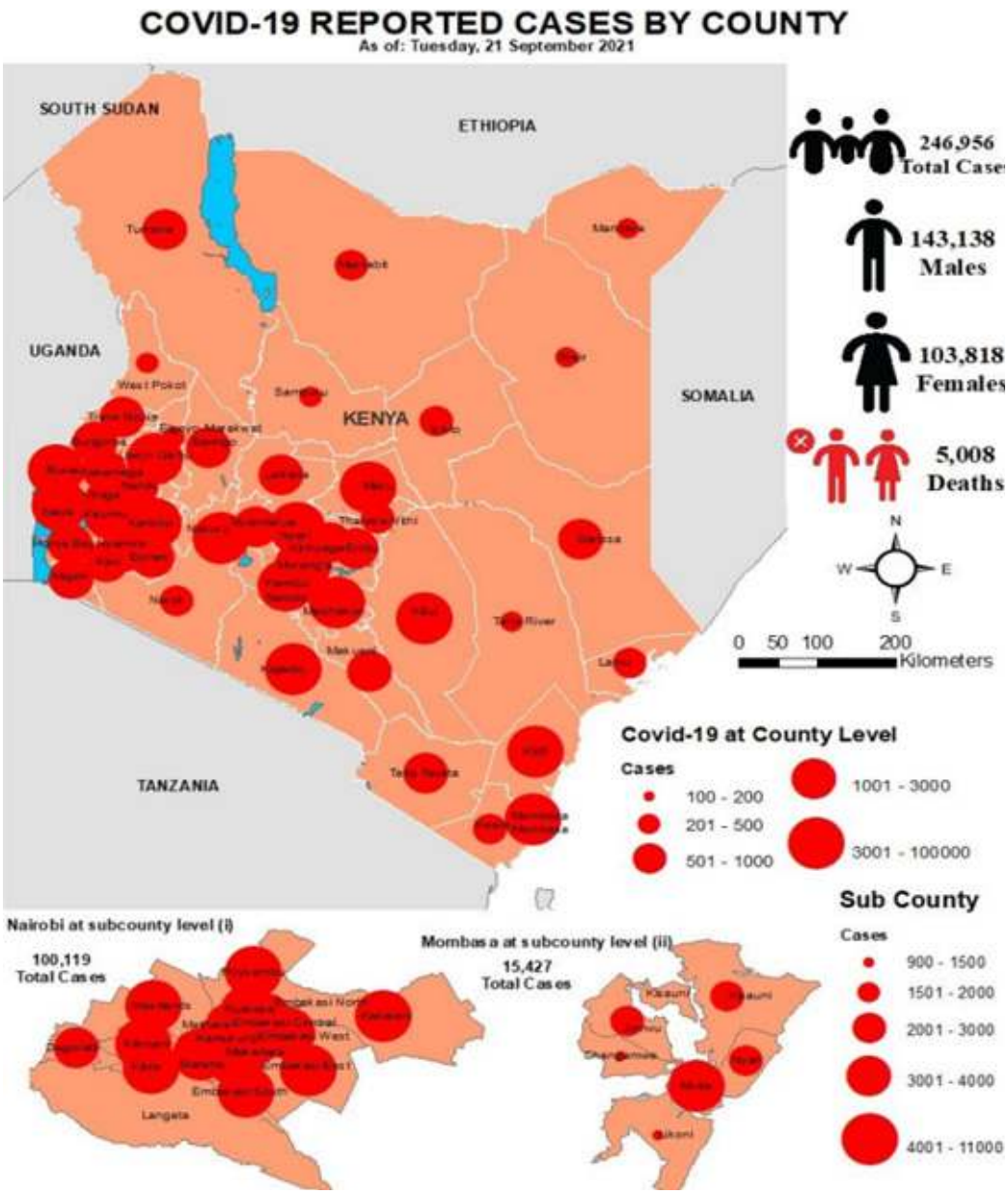


Figure 3: *Map of Kenya Showing Distribution of Confirmed COVID-19 Cases by County as of 21st September, 2021* *(Source: health.go.ke)*

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[6] WHO. WHO Coronavirus Disease (COVID-19) Dashboard | WHO Coronavirus Disease (COVID-19) Dashboard [Internet]. [cited 2020 Aug 8]. Available from: *https://covid19.who.int*

[7] Health M of. COVID-19 OUTBREAK IN KENYA. 2021.

1.3 Rationale for the Interaction between COVID-19 and Tuberculosis

Both Mycobacterium Tuberculosis and SARS-CoV-2 are spread by close contact between people, but the exact mode of transmission differs: TB bacilli remain suspended in the air in droplet nuclei for several hours after a TB patient coughs, sneezes, shouts, or sings, and people who inhale them can get infected. The size of these droplet nuclei is a key factor determining their infectiousness. Their concentration decreases with ventilation and exposure to direct sunlight. SARS-CoV-2 transmission has primarily been attributed to the direct breathing of droplets expelled by someone with COVID-19. Droplets produced by coughing, sneezing, exhaling and speaking may land on objects and surfaces, and contacts can get infected with COVID-19 by touching them and then touching their mouth, eyes or nose.

In the realm of patient-centred care as enshrined in the END TB Strategy and Kenya's TB NSP 2019-2023, integrated approaches are essential for screening, diagnosis and management of TB and COVID-19, for several reasons which include the fact that both diseases primarily affect the lungs and similarities in clinical presentation which provide a strong basis for bi-directional screening.

There is currently limited data on the exact effects of COVID-19 in people with TB. Limited data suggests that people who have active TB currently and those who suffered TB in the past are at increased risk of severe COVID-19 disease. A study published in the Lancet by Waasila *et al* describing in-hospital mortality among 219,265 individuals with COVID-19 in South Africa, current and previous tuberculosis was associated with 45% increase in mortality compared with those without current or previous TB[11].

TB disease usually occurs in patients with lowered immunity because of immunosuppressive diseases and states such as HIV, cancer, immunosuppressive therapy, and malnutrition. TB disease can itself lower immunity.

COVID-19 is likely to cause severe disease in people who have lower immunity due to comorbidities. In a study by Waasila *et al*, the risk of death increased with advancing age, HIV coinfection and increasing number of comorbidities[11]. Mortality was 45% higher in people with HIV not on ART compared with those on ART. Davies *et al* in their Western Cape South Africa study found that, people with previous or current TB had a 2-3 times risk of death compared to those who had never had TB[8]. A modeling study indicates that TB mortality may be impacted by COVID-19 through delay in diagnosis and treatment interruption[9]. It is, therefore, crucial to ensure continuity of TB services, prevent people with TB from contracting COVID-19 while promptly identifying TB in COVID-19 patients, to initiate them on treatment. It is also important that the progress made in TB prevention and care is not reversed by the COVID-19 pandemic. Finding and treating people with

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[8] Davies M-A. HIV and risk of COVID-19 death: a population cohort study from the Western Cape Province, South Africa. medRxiv Prepr Serv Heal Sci [Internet]. 2020 Jul 3 [cited 2020 Aug 26]; Available from: *http://www.ncbi.nlm.nih.gov/pubmed/32637972*

[9] The potential impact of the COVID-19 pandemic on HIV, tuberculosis, and malaria in low-income and middle-income countries: A modeling study | MDLinx [Internet]. [cited 2020 Aug 26]. Available from: *https://www.mdlinx.com/journal-summary/potential- impact-of-the-COVID-19-pandemic-on-hiv-tuberculosis-and-malaria-in-low-income-and-middle/3l810T9URJc58uO4PlYDX*

TB, remains a fundamental pillar of TB prevention and care and this would require maintained attention.[10]

The COVID-19 pandemic has intensified social stigma and discrimination against people who are perceived as having contracted the virus. This can result in the isolation of certain groups leading to situations that encourage the spread of both the COVID-19 virus and TB. This situation can lead people to hide their symptoms to avoid discrimination, delay care-seeking once symptoms manifest, and discourage people from adopting healthy behavior.[11]

Always think TB while handling presumptive COVID-19 and vice versa. Patients must be screened for both diseases within the same visit

Table 1: *Similarities and differences between TB and COVID-19*

	Similarities between TB and COVID-19	**Differences**
Epidemiology	Significant burden	TB is an old disease whose burden remains very high: 10 million cases/year (484,000/ year for DR-TB), and declining at ~2% per year globally while in Kenya the decline is up to 8%. COVID-19 is a new disease that has affected a large proportion of the global population within a short time and whose burden is rapidly increasing. There is rapid deterioration among those affected by COVID-19 as compared to TB. With the availability of an effective vaccine, it is anticipated that the burden of COVID-19 will decline.
Transmission	Droplet transmission	There is probably more airborne transmission for TB and more transmission through fomites for SARS-CoV-2 Onset of COVID-19 is rapid with an incubation of about one to two weeks while the incubation period for TB is undefined and typically disease develops over a much longer period

[10] Partnership ST. Operational guidance on service delivery to TB patients (drug-susceptible and drug-resistant) during the COVID-19 pandemic [Internet]. 2020 [cited 2020 Aug 8]. Available from: *https://www.ncbi.nlm.nih.gov/pubmed/30428290*

[11] Waasila J *et al.* Risk factors for COVID-19-related in-hospital mortality in a high HIV and tuberculosis prevalence setting in South Africa: a cohort study. **Lancet HIV 2021** Published **Online** August 4, 2021 *https://doi.org/10.1016/ S2352-3018(21)00151-X*

See Online/Comment *https://doi.org/10.1016/ S2352-3018(21)00183-*

	Similarities between TB and COVID-19	Differences
Containment measures	Contact investigation and outbreak investigation; identify hotspots	The COVID-19 response has featured more aggressive containment measures, including rapid patient isolation, and quarantine of contacts. This has been shown to reduce the time from symptom onset to isolation in hospital or quarantine. But to be effective, it must start early and fast due to the rapid transmission cycle for SARS-CoV-2 *(Source: https://www.cdc.gov/mmwr/ volumes/69/ wr/mm6911e1.htm)* More extensive PPE use in COVID-19 response, based on increased concern around transmission via surfaces. Universal wearing of masks in public spaces is a major containment measure for SARS-CoV-2 while the wearing of masks is recommended for people identified to have TB and for the health care workers in situations where the risk of exposure to infectious particles is high.
Mitigation		While not used for TB, mitigation has been necessary for COVID-19 in many countries (curfews, closing businesses, etc.) due to the failure of containment measures and rapid shift to community transmission. See *https://jamanetwork. com/journals/jama/ fullarticle/2763187* Risk communication and efforts to counter misinformation are a large part of the COVID-19 mitigations efforts
Infection control	Administrative measures, including patient triage based on respiratory symptoms and placing patients on masks immediately. Environmental measures (outdoor spaces for triage and sample collection; adequate ventilation and airflow in waiting, consultation, and inpatient areas, etc.) Use of personal protective equipment (PPE), particularly masks. Socio- behavioral change communication (SBCC) on cough etiquette Contact investigation	For COVID-19, additional critical measures include frequent disinfection of surfaces and WASH (frequent and thorough hand washing by all) and more complete PPE As noted above, contact investigation for COVID-19 is only effective if initiated very rapidly, at the very start of the epidemic, before community transmission is entrenched (Source: *https://www.cdc.gov/ mmwr/ volumes/69/wr/mm6911e1.htm)*

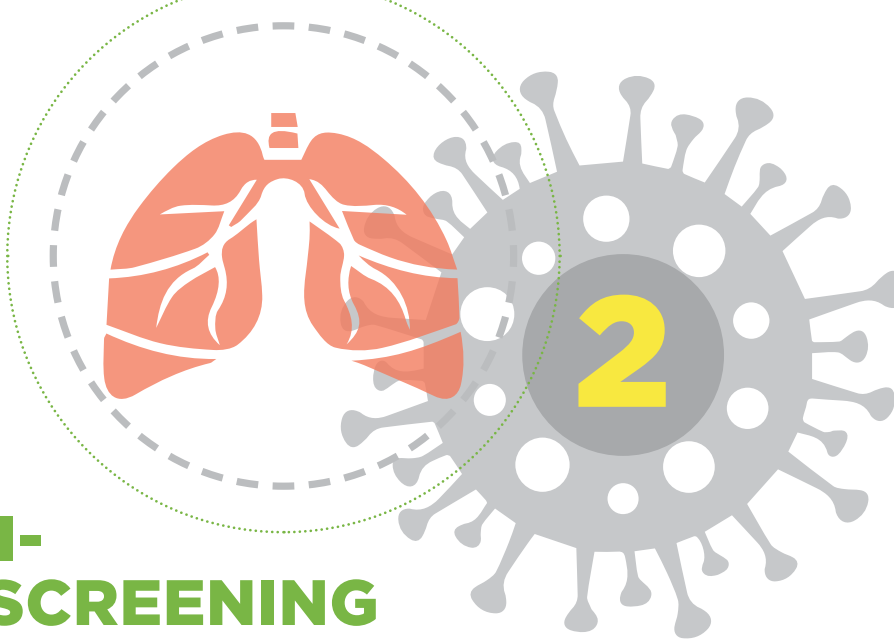
	Similarities between TB and COVID-19	Differences
Surveillance	Critical for both TB and COVID-19 responses.	TB is a slow-moving epidemic; quarterly data is the norm at the national level. COVID-19 requires daily data updates COVID-19 must be reported to WHO International Health Regulation (IHR) within 24 hours

Modeling studies suggest that there will be a likelihood of reduction of 25% in case detection as a result of COVID-19 and a 13% increase in TB related deaths. The Global Stop TB Partnership further postulates that a 3-month lockdown with a 10-month recovery period is likely to result in a 5% increase in cases and a 6.99% increase in deaths between 2020 and 2025. This is due to the missed opportunities for diagnosis, early treatment resulting in a higher pool of undetected and unreported TB cases[5].

There is, therefore, a need to intensify bi-directional screening for TB and COVID-19 through a range of interventions including intensive community engagement and contact tracing and management. Securing access to an uninterrupted supply of quality-assured commodities for all people with TB will be essential, while enhancing the robustness of the recording and reporting system will be useful.

1.4 Objectives of the Health Care Worker Guide

1. To provide guidance to health care workers on implementation of integrated TB and COVID-19 screening, diagnosis and management
2. To strengthen and streamline recording and reporting systems of both TB and COVID-19.



INTEGRATED BI-DIRECTIONAL SCREENING TESTING AND DIAGNOSTIC APPROACH TO DETECT TB AND COVID-19

2.1 Introduction

Bi-directional screening and diagnosis of TB and COVID-19 is critical for rapid detection of both diseases. This is an integrated approach, to reduce continuous transmission in the community, hence lowering morbidity and mortality. Testing identifies pathogens responsible for the two diseases, ensures early diagnosis and initiation on appropriate treatment, informs contact tracing. Appropriate screening and diagnosis strategy in each facility may be customized depending on the facility set up and patient flow.

Rationale of screening for TB and COVID-19

Simultaneous testing of the same patient for both TB and COVID-19 is indicated for four main reasons:

a) Clinical features in both diseases are similar

b) Simultaneous exposure to both diseases is possible

c) Presence of risk factors for poor outcomes to either disease

d) Poor outcomes to either disease occurs when there is delayed diagnosis.

Early and accurate diagnosis of both TB and COVID-19 is important to mitigate unfavorable outcomes, including death. Risk factors for severe disease for both these illnesses overlap and include older age, comorbidities like diabetes mellitus, and chronic obstructive pulmonary disease. Persons with these risk factors tend to have higher rates of severe COVID-19 and are more likely to be admitted to intensive care units and be mechanically ventilated. These same risk factors are also poor prognostic factors in TB. Tuberculosis patients who have lung damage from past tuberculosis or chronic

obstructive pulmonary disease may suffer from more severe illness if they are infected with COVID-19. There is thus a stronger case for concurrent testing for both conditions in these individuals even if the clinical picture is atypical for either disease.

2.2 Screening approaches and patient flow

1. Clinical presentation and case definition

All patient who present with flu-like symptoms and/or cough of any duration should be investigated for both TB and COVID-19.

TB and COVID-19 similarities include:

- Transmission through close contact
- Both diseases affect the lungs
- Clinical features such as fever, cough, and difficulty in breathing.

Table 2.1: *Case definition of TB and COVID-19*

Case definitions for TB and COVID-19	
Case definition for TB	
A presumptive TB case	One who presents with symptoms or signs suggestive of TB (previously known as a TB suspect)
A bacteriologically confirmed TB case:	One from whom a biological specimen is positive by smear microscopy, culture or WRD (WHO-approved rapid diagnostics such as Xpert MTB/RIF). All such cases should be notified regardless of whether TB treatment was started or not
A clinically diagnosed TB case;	A clinically diagnosed TB case is one who does not fulfill the criteria for bacteriological confirmation but has been diagnosed with active TB by a clinician or other medical practitioner who has decided to give the patient a full course of TB treatment. This definition includes cases diagnosed on the basis of X-ray abnormalities or suggestive histology and extra-pulmonary cases without laboratory confirmation. Clinically diagnosed cases subsequently found to be bacteriologically positive (before or after starting treatment) should be reclassified as bacteriologically confirmed.
Case definitions for COVID-19	
Suspected case of SARS-CoV-2 infection:	A person who meets the clinical AND epidemiological criteria: Clinical criteria: • Acute onset cough AND fever; OR • Acute onset of ANY TWO OR MORE of the following signs or symptoms: Cough, fever, loss of taste or smell, difficulty breathing, sore throat, running nose, chest pain, fatigue/general weakness, headache, diarrhoea, altered mental status (Children may present with atypical symptoms) AND Epidemiologic criteria: • Residing, working or travel (within the last 14 days) to an area with high risk of transmission of virus (In Kenya, this will be as reported by the Ministry of Health • Where there is widespread community transmission in several regions of the country, then all patients will be considered to have met epidemiologic criteria • Working in a healthcare facility • International travel in the last 14 days

Case definitions for TB and COVID-19	
A patient with severe acute respiratory illness (SARI)	(SARI): Acute respiratory infection with or without fever; and cough; with onset within the last 10 days; and requires hospitalization)
Probable case of SARS-CoV-2 infection	A patient who meets clinical criteria above AND is a contact of a probable or confirmed case, or linked to a COVID-19 cluster • A suspected case with chest imaging showing findings suggestive of COVID-19 disease • Recent onset loss of taste or loss of smell with no other identified cause (Common imaging findings include bilateral peripheral opacities with lower lung distribution. Opacities usually ground glass opacities that may progress to consolidations) • Unexplained death in an adult with SARI prior to death AND had contact with a probable or confirmed case or linked to a COVID-19 cluster
Confirmed case of SARS-CoV-2 infection	A person with a positive SARS-CoV-2 PCR test • A person with a positive SARS-CoV-2 Antigen RDT AND meeting criteria for either suspected or probable case; OR has contact with a probable or confirmed case.
Multisystem Inflammatory Syndrome in Children (MIS-C	Preliminary case definition: Children and adolescents 0–19 years of age with fever > 3 days; AND • Two of the following: rash or bilateral non-purulent conjunctivitis or muco-cutaneous inflammation signs (oral, hands or feet); hypotension or shock; features of myocardial dysfunction, pericarditis, valvulitis, or coronary abnormalities; evidence of Coagulopathy, acute gastrointestinal problems; AND • No other obvious microbial cause of inflammation; AND • Evidence of COVID-19 (RT-PCR, antigen test or serology positive), or likely contact with patients with COVID-19.

Table 2.2: *Incubation Period and symptoms presentation of TB and COVID-19*

	Tuberculosis	COVID-19
Incubation period	Weeks to years	Symptoms appear 5-7 days after infection but can extend up to 14 days
	1/3 of the population have latent TB infection	Asymptomatic over (60%) COVID-19 affects different people in different ways. Most infected people will develop mild to moderate illness and recover without hospitalization.
	Common symptoms of active lung TB are: • Cough with sputum and blood at times, • chest pains, • weakness, • weight loss,	• COVID-19 typically presents more acutely Rapid onset fever, cough, and difficulty in breathing **Most common symptoms:** • fever. • dry cough. • tiredness.

Symptoms	• fever • night sweats *https://www.who.int/news-room/fact-sheets/detail/tuberculosis*	**Less common symptoms:** 1. aches and pains. 2. sore throat. 3. diarrhea. 4. conjunctivitis. 5. headache. 6. loss of taste or smell. 7. a rash on the skin, or discoloration of fingers or toes. **Serious symptoms:** • difficulty breathing or shortness of breath. • chest pain or pressure. • loss of speech or movement. *https://www.who.int/health-topics/coronavirus#tab=tab_3*

Outbreaks of COVID-19 in the same household or a congregate setting usually become apparent within a week or two while in TB, the progression is rarely abrupt and may only become apparent after several months.

Important Note:

As the COVID-19 pandemic advances, more people including TB patients of all ages will have been exposed to COVID-19 when they first present for diagnosis. A positive result for **COVID-19 infection does not exclude the possibility of concomitant TB**, particularly in high TB burden settings. Healthcare workers need to consider the possibility of TB in a patient with COVID-19 if the course of the illness after the first weeks suggests so, e.g. progression to hemoptysis, persistent fever, night sweats, or weight loss. A careful history of exposure to TB or even a past episode of TB in the same patient or the family may support TB diagnosis. Chest radiography or imaging may help differentiate TB from other pathologies.

2. Patient Infection Prevention and Control (IPC) Flow

Implementation of proper infection transmission prevention and control measures for both TB and COVID-19.

Administrative control measures and personal protective measures are largely the same for both diseases. As patients visit the facilities, mechanisms should be put in place to ensure adequate infection prevention and control measures in line with national IPC guidelines.

Figure **2.1** below highlights activities and requirements at every service delivery point for effective infection prevention and control.

Figure 2.1: *Patient Infection Prevention and Control (IPC) Flow*

3. Contact Tracing and community bi-directional screening for TB and COVID-19

These are approaches of investigating contacts of persons suspected/ confirmed to have TB and COVID-19 cases promptly. All contacts should be line listed and screened for TB and COVID-19 as per MoH guidelines. Field-based collection and integrated sample referral for diagnosis of TB and COVID-19 can be obtained in the household of index cases by trained staff and deliver specimens to a laboratory for testing.

Both TB and COVID-19 screening approaches must be implemented with proper infection prevention and control measures to ensure provider and patient safety. It includes adhering to stringent context specific infection control protocols and guidelines.

Line listing of contacts should be done by the HCW at first contact before patients are initiated on treatment. TB Patients should inform their contacts about the importance of informing health care workers of their contact status should they present to a health facility with symptoms as this will support appropriate triage. Where possible, the TB clinician can provide the TB patient with a contact invitation/referral note that should be brought by the TB contact should he/she present unwell to a health facility during this

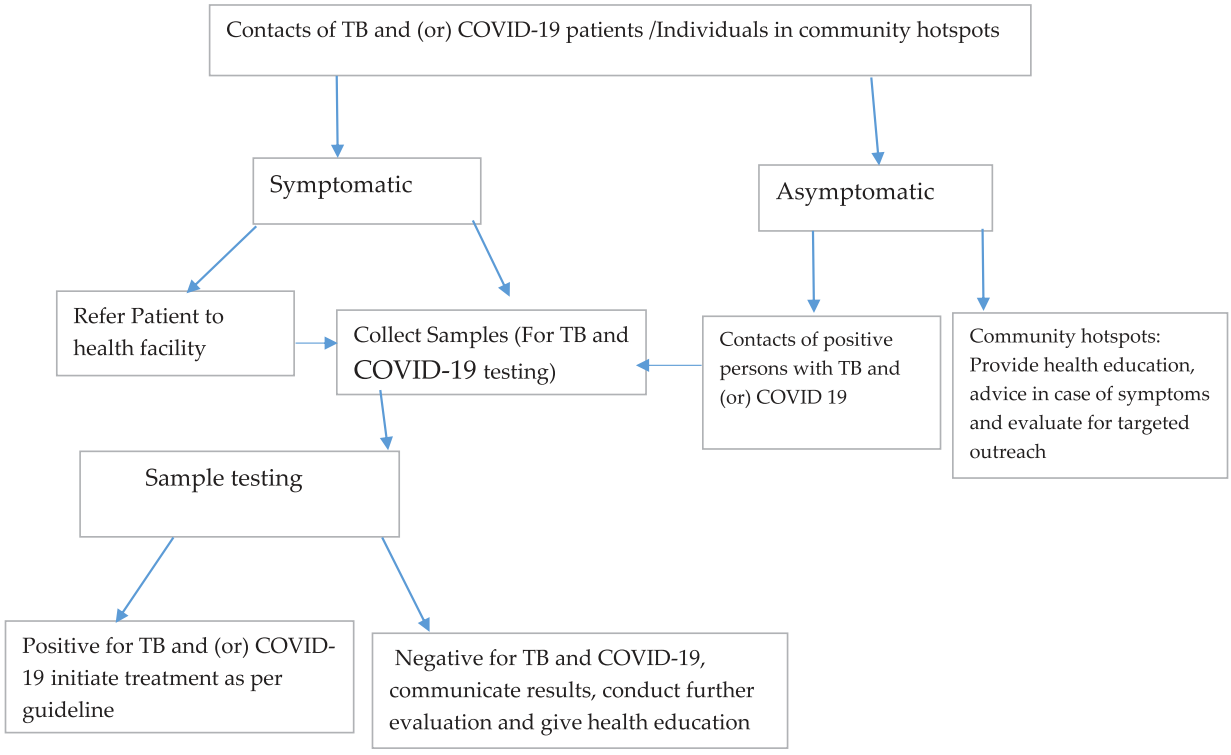
time. At every clinical visit, the clinician should review whether the patient informed his/her contacts about the TB or COVID-19 status, to allow for the initiation of appropriate contact management procedures as shown in figure 2.2 below.

Where possible arrangements should be made for specimen referral from the community to the facility for testing of contacts. It is also important that proper recording and reporting tools for all screening and community surveillance mechanisms are in place to capture TB and COVID-19 using electronic or paper-based records, registers, and forms that are integrated into the national health information systems.

Active TB case finding strategies should follow national guidance on movement restriction and social distance measures to ensure the safety of healthcare workers and should be consistent with the TB Program's continuity of operations in the setting of COVID-19.

Household contacts and community hotspots should be targeted for TB and COVID-19 screening.

Figure 2.2: *Contacts/Community hotspots bi-directional screening for TB and COVID-19*



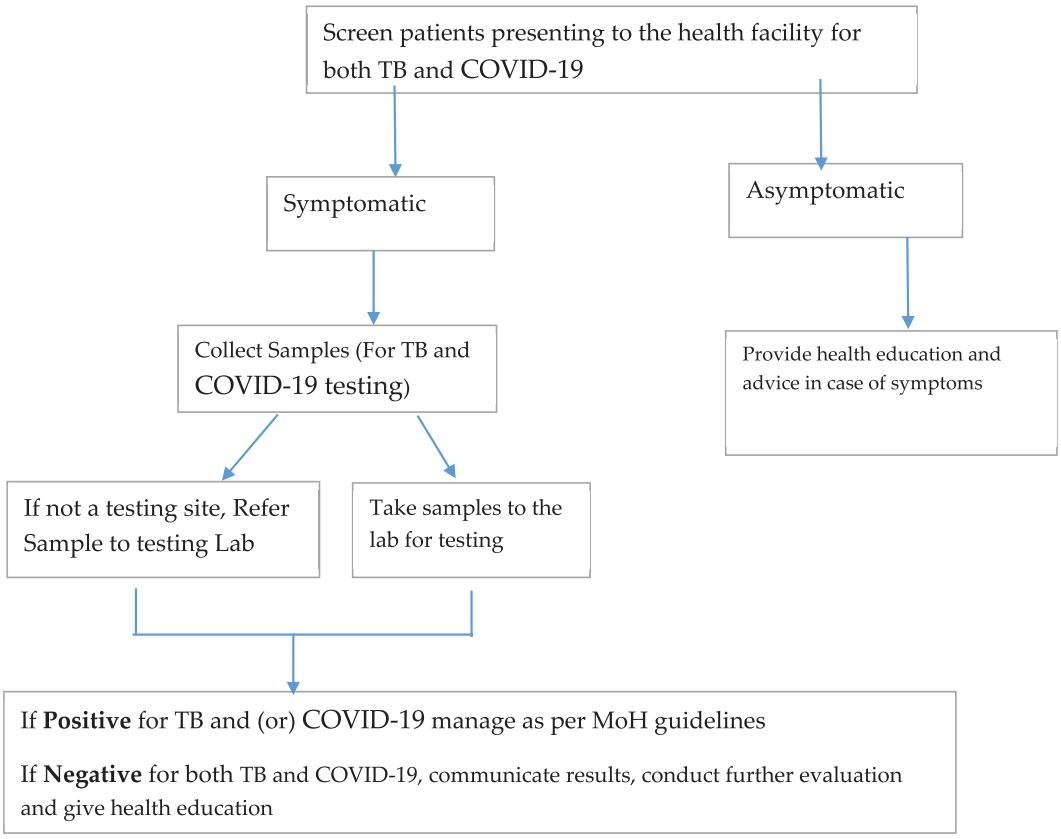
4. Health facility approaches for bi-directional screening

Persons presenting to a healthcare facility/ provider with flu like symptoms i.e cough, difficulty breathing, myalgia, headache, fevers, chills, sore throat etc require simultaneous diagnostic tests for both TB and COVID-19 on a multiplex testing platform (integrated testing). If multiplex testing is not available, specimens should be referred for testing for both diseases according to national diagnostic algorithms and guidelines.

Simultaneous, integrated testing is especially important for people who are at elevated risk of having one or both diseases or are at risk of unfavorable outcomes, including older populations and people with comorbidities like diabetes mellitus and chronic obstructive pulmonary disease.

Where available, chest X-ray may be used for screening for TB; persons with lesions suggestive of TB should provide a specimen for confirmatory TB testing.

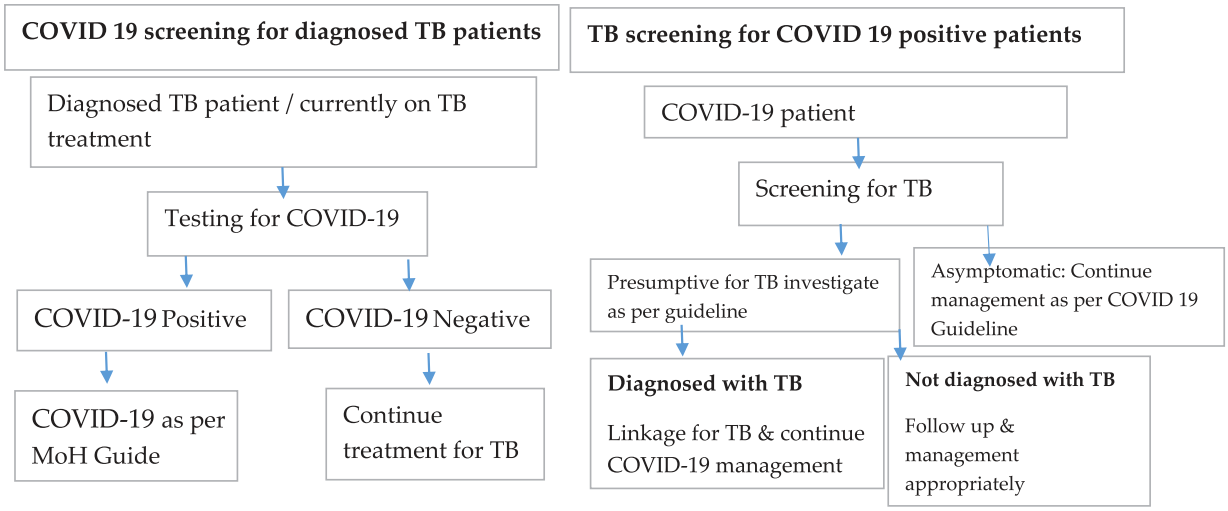
***Figure 2.3**: Health facility level bi-directional screening for TB and COVID-19 flow*



COVID screening for diagnosed TB patients: All newly diagnosed TB patients or those currently on treatment should be tested for COVID-19. Based on the result of COVID-19 test, further management would be undertaken. Even upon diagnosis of COVID, treatment of TB should continue uninterrupted. Screening for COVID-19 symptoms should be done for TB patients at every clinical visits

TB screening for COVID positive patients: All COVID-19 cases should be screened for TB symptoms using the symptom screening questions. History of contact with TB case, history of TB and those symptomatic should be offered Chest X ray and upfront Gene Xpert test for diagnosis of Tuberculosis.

Figure 2.4: *COVID-19 screening for diagnosed TB patients and TB screening for COVID positive patients flow*



- Patients currently on TB treatment, should be screened for COVID-19 symptoms every physical or clinical encounter/follow up
- For patient previously tested positive for COVID-19, they should be screened for TB during any subsequent hospital visits

Laboratory Diagnosis for TB and COVID-19

Multiple diagnostic tests are available for confirmation or detection of the presence of M. Tuberculosis and SARS-COV-2. Different samples and diagnostic tests are required for diagnosis of the two diseases.

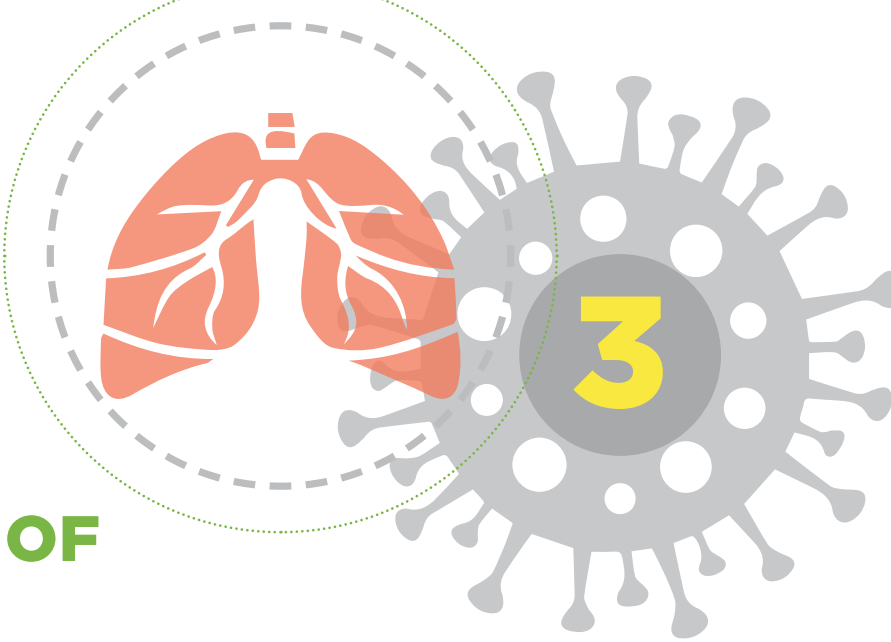
Among other biological specimens, sputum is commonly used to diagnose TB using smear microscopy for identification of Acid Alcohol Fast Bacilli, molecular tests or culture. Nasopharyngeal or oral-pharyngeal sample swabs or wash in ambulatory patients are the most commonly collected samples for COVID-19 for laboratory diagnosis, However,

sputum or endotracheal aspirate or broncho-alveolar lavage may be used in patients with severe respiratory disease. Molecular testing is the mainstay recommended method for the rapid identification of infectious COVID-19.

Molecular testing platforms for TB diagnosis may also be used for COVID-19 testing through equipment multiplexing. Molecular TB diagnosis tests include; XpertMTB/RIF® assay, Truenat, Nucleic acid amplification tests (NAAT), such as real-time reverse transcription polymerase chain reaction (RT-PCR). SARS- COV-2 may be diagnosed using RT-PCR, GeneXpert (Xpert® Xpress SARSCoV-2) or a rapid antigen test as per the national guidelines

Sample collection should be done with caution and necessary tools filled. Fill both TB lab request form and COVID-19 case investigation form as you collect samples. Take the sputum and or NP/OP swab samples as required observing IPC measures. Triple package the specimen and put in a cooler box. Transport the packaged specimen using the fastest means available to the nearest/designated testing laboratory.

Tests for the two conditions are different and both should be made available for individuals with respiratory symptoms. The Lab networks need to be strengthened for ease of specimen transportation of samples in diagnosis and surveillance to reduce delays in diagnosis. Appropriate screening testing strategy in each facility will depend on many factors including presence and availability of diagnostic equipment, testing supplies and qualified trained staff.



MANAGEMENT OF TB/COVID-19

3.1 Introduction

There is limited data on the effects of COVID-19 and TB co-infection. However, it has been postulated that treatment outcomes may be poor in the event of treatment interruption and this may differ from country to country and from region to region

Tuberculosis patients should be protected from COVID-19 infection and those with COVID-19 through appropriate IPC management should be protected from TB infection and vice versa.

To reduce the burden of TB in COVID-19 patients (refer to chapter 2)

1. Ensure the health facility is safe to avoid potential exposures to TB from COVID-19 patients
2. Suspected and confirmed COVID-19 cases should be screened for TB
3. Suspected and confirmed COVID-19 patients presumed to have TB should be evaluated appropriately and referred to TB screening and diagnostic algorithm administered as per TB guidelines.

To reduce the burden of COVID-19 on TB patients:

1. Reduce the number of clinic visits for TB patients to avoid unnecessary exposure to COVID-19
2. Ensure the health facility is safe to avoid potential exposures to COVID-19 for TB patients (IPC)
3. TB patients should be evaluated for COVID-19
4. TB patients should continue their treatment uninterrupted.

This chapter provides an overview of the management of persons with TB (children, older children, and adults, and those with DR TB) in the COVID-19 pandemic.

1. Individuals suspected of COVID-19
2. Management of persons with TB and COVID-19.

3.2 Patient evaluation and profiling

Patient profiling should be done and the patient classified as stable or unstable after the first month of treatment.

Table 3.1: *TB patient profiling for differentiated care*

Parameter	Stable Patient	Unstable Patient
Clinical Presentation	• Clinically stable patient • Improving clinical symptoms during treatment • BMI >18.5 in adult and older children (≥10years) • In children ≥10yrs, a Z score > -2 • Smear negative at month 2 (for confirmed pulmonary TB patients)	• Unstable patient in respiratory distress. • New/worsening respiratory symptoms during treatment • BMI<18.5 • In children ≥10yrs Z and score ≤ -2 • Positive smear at month 2 (for confirmed pulmonary TB patients)
Presence of comorbid conditions	No comorbidities present	Presence of comorbidities such as severe COVID-19 disease, HIV, DM, NCDs, mental illness
Pregnancy status	Not pregnant	Pregnant
Adherence status and treatment outcome evaluation	No risk for poor adherence or poor treatment outcomes 100% compliance with clinic appointments and adherence counseling sessions	The risk for poor adherence The identified risk for poor treatment outcomes Missed appointments or adherence counseling sessions
Drug Resistance pattern	Susceptibility to all anti-TB medicines	Resistance to any anti-TB medicines
Age	Age >10years	Age <10yrs

3.3 Follow up of patients with drug susceptible TB

All efforts should be made to ensure repeat visits serve several purposes such as review of sputum microscopy, weight, nutrition, sputum, clinical monitoring, and management of any comorbidities. Clinic visits must coincide with clinical and bacteriological monitoring plans that include sputum microscopy in months 2, 5, and 6.

The use of digital health technologies (phone calls or sending SMS etc.), should be adopted to support patients through improved communication, counseling, care, and information management, among other benefits.

3.4 Recommended frequency of scheduled patients visits during COVID-19 Pandemic

	Frequency of visits during the intensive phase	Frequency of visits during the continuation phase
Stable patients	Every 2 weeks	Monthly
Unstable patients*	Weekly	Every two weeks

* *Unstable patients may have more frequent visits and reviews as the need arises. This decision should be individualized*

At each clinical visit, the following should be done and or evaluated;

1. Patient education and counseling (including adherence counseling as necessary)
2. Review and management of common adverse drug reactions (ADRs)
3. Nutritional assessment and management
4. Clinical evaluation to ensure improvement for all TB patients
5. Laboratory follow-up tests for bacteriological improvement for confirmed pulmonary TB.
6. Linkage to community-based support systems e.g. community-based drug delivery
7. Provide sputum mugs for sample collection for the next sputum microscopy test
8. A telephone number through which patients can call should they have questions, concerns, or complications during treatment.

Individuals providing DOT should follow national guidelines on COVID-19 infection prevention measures on social distancing and restrictions of movement. The benefits of DOT must be balanced against the potential unintended exposure of healthcare workers. Telephone and/or video-assisted visits can help ensure adherence while abiding by social distance measures.

3.5 Management of TB in special populations

Where the TB patient is co-infected with HIV and not on ART;

- Start ART within 2 weeks unless there is a good reason why there should be a delay, and align ART refills with TB treatment

Counseling remains a crucial aspect of patient management. The first session of counseling for Persons co-infected with COVID-19 should ideally be provided via telephone to reduce the time spent at the health facility on the day of TB treatment initiation. If this is not possible, it should be provided at the community level, with health facilities as a last resort while applying appropriate IPC measures. Thereafter, follow the approach for TB patients already on treatment above.

For TB patients not co-infected with COVID-19, the initial counseling session is done at the facility during treatment initiation.

3.6 Management of TB in the COVID-19 pandemic

The same TB treatment regimens as per the TB guidelines for drug-susceptible, drug-resistant TB, or TB preventive treatment should be instituted or continued if the patient has TB COVID-19 co-infection. Support for uninterrupted TB preventive treatment and treatment of TB disease should be ensured alongside the COVID-19 response. Continuity of services for TB treatment and TB Preventive Treatment (TPT) is key in the context of the COVID-19 pandemic

Patient-centered outpatient and community-based care should be strongly preferred over hospital treatment for TB patients (unless serious conditions require hospitalization) to reduce opportunities for transmission and improve adherence and chances of good/ successful treatment outcomes. Adequate stocks of TB medicines should be provided to all patients to take home without having to visit treatment centers unnecessarily to collect medicines.

First Line Anti-tuberculosis regimen for Older children and Adult Patients

The following table shows weight-based dosage for first-line FDC anti-TB treatment regimens.

Table 3.1: *FDC treatment dosage for older children and adults*

FDC Dosages	Formulation	30-39kg	40-54 kg	55 - 69 kg	≥ 70 Kg
Rifampicin 150 mg + Isoniazid 75 mg + Pyrazinamide 400mg + Ethambutol 275 mg	4-FDC tablet RHZE	2	3	4	5
Rifampicin 150 mg + Isoniazid 75mg	2-FDC tablet RH	2	3	4	5

DS TB treatment in children

Recommended Treatment Regimens

- Intensive phase - pediatric FDC of RHZ dispersible tablets plus E tablets
- Continuation phase - pediatric FDC of RH dispersible tablets

The table below shows the currently recommended TB treatment regimen in children

Table 3.2: *Dosages for pediatric TB treatment (child-friendly formulations)*

	Intensive phase	Continuation Phase
All forms of TB **EXCEPT** TB meningitis, bone and joint TB (Osteoarticular TB)	2 RHZE*	4 RH
TB meningitis and *Osteoarticular TB*	2 RHZE	10 RH
Drug-resistant TB	Refer to the PMDT guidelines	

**H=Isoniazid, R = Rifampicin, Z = Pyrazinamide, E = Ethambutol*

Table 3.3: *Dosage of first-line anti-TB drugs according to body weight for children*

Drug	Recommendations	Average	Range in mg/kg	Maximum Dose
	Dose in mg/kg			
Isoniazid	10		7–15	300mg
Rifampicin	15		10–20	600mg
Pyrazinamide	35		30–40	2.0g
Ethambutol	20		15–25	1.0g

The first 3 drugs (Isoniazid, Rifampicin, and Pyrazinamide) have been combined into paediatric child-friendly fixed-dose combinations (FDCs) which are dispersible in liquid, have a pleasant taste, and are therefore easier for children to take. The improved pediatric TB FDCs provide the correct dosing ratio of Rifampicin: Isoniazid: Pyrazinamide as follows:

- Rifampicin 75mg: isoniazid 50mg: pyrazinamide 150mg (RHZ 75:50:150) tablet
- Rifampicin 75mg: isoniazid 50mg (RH 75:50) tablet

Ethambutol is available as a single drug pediatric tablet of 100mg **(E 100).** Young age influences drug metabolism: a particular dose of a drug in mg/kg when given to a young child (under 5 years) may not reach the same level in the blood as when given to an older child or adult. Higher mg/kg dosages are therefore required in young children to achieve bactericidal levels.

Ethambutol can be used used in all children at the recommended dosage of 20mg/kg

Use of Ethambutol in children

The risk of toxicity is negligible when Ethambutol is used at recommended dosages of **20(15-25) mg/kg/day.**

The risk of toxicity is related to the dose and duration of therapy. The main potential side effect is optic neuritis that can lead to blindness. However, data on the risk of toxicity in children has been extensively reviewed and there is now a lot of clinical experience of its use in young children.

Ethambutol is not dispersible. Crush it completely before adding it to the prepared solution of RHZ during the intensive phase.

Table 3.4: *Dosages for a child weighing up to 3.9kg (pick from integrated guidelines)*

Weight band (Kg)	Number of tablets				
	Intensive Phase			Continuation Phase	
	RHZ (75/50/150mg)	E (100mg)	How to reconstitute the medicines	RH (75/50mg)	How to reconstitute the medicines
Less than 2 Kg	¼	¼	Dissolve **one (1)** tablet of RHZ in **20 ml** of safe drinking water. Once fully dissolved, **5ml (1/4)** of this add the completely solution measured crushed **one (1)** tablet of Ethambutol and of Ethambutol and give **5ml (1/4)** of this solution measured with a syringe.	¼	Dissolve **one (1)** tablet of RH in **20 ml** of safe drinking water. Once fully dissolved, give **5ml (1/4)** of this solution measured with a syringe.

Weight band (Kg)	Number of tablets				
	Intensive Phase			Continuation Phase	
	RHZ (75/50/150mg)	E (100mg)	How to reconstitute the medicines	RH (75/50mg)	How to reconstitute the medicines
2–2.9	½	½	Dissolve **one (1)** tablet of RHZ in **20ml** of safe drinking water. Once fully dissolved, **10ml (1/2)** of this add the completely crushed **one (1)** tablet of Ethambutol and give **10ml (1/2)** of this solution measured with a Syringe.	½	Dissolve **one (1)** tablet of RH in **20 ml** of safe drinking water. Once fully dissolved, give **10ml (1/2)** of this solution measured with a Syringe.
3–3.9	¾	¾	Dissolve **one (1)** tablet of RHZ in **20 ml** of safe drinking water. Once fully dissolved, add the completely crushed **one (1)** tablet of Ethambutol and give **15ml (3/4)** of this solution measured with a syringe.	¾	Dissolve **one (1)** tablet of RH in **20 ml** of safe drinking water. Once fully dissolved, give **15ml (3/4)** of this solution measured with a syringe.

After giving the child their dose for that day, discard the rest of the solution.

Prepare a fresh solution every day.

Table 3.5: *Dosages for a child weighing 4-25 kg*

Weight band (Kg)	Number of tablets				
	Intensive Phase			Continuation Phase	
	RHZ (75/50/150mg)	E (100mg)	How to reconstitute the medicines	RH (75/50mg)	How to reconstitute the medicines
4-7.9	1	1	Dissolve the tablet(s) of RHZ in **20 ml** of safe drinking water. Once fully dissolved, add the completel-ycrushed tablet(s) of Ethambutol and give **ALL** this solution to the child.	1	Dissolve the tablet(s) of RH in **20 ml** of safe drinking water. Once fully dissolved give **ALL** this the solution to the child.
8 - 11.9	2	2		2	
12 - 15.9	3	3		3	
16 - 24.9	4	4		4	
25 kg and above	Use adult dosages and preparations				

Table 3.6: Dosages for a child weighing 25kgs and above (adult formulation dosage table)

Weight band (Kg)	Number of tablets	
	Intensive Phase	Continuation Phase
	RHZE (150/75/400/275mg)	RH(150/75mg)
25 – 39.9	2	2
40 – 54.9	3	3
55kg and above	4	4

3.7 Management of clinical deterioration during TB treatment

- Advise all TB patients who worsen or develop new symptoms while on TB treatment at home, to visit the nearest health facility for evaluation while adhering to COVID-19 preventive measures.
- Ensure appropriate triage and screening for COVID-19
- Where TB patients screen negative for COVID-19 on arrival, refer to the TB/Chest clinic for further evaluation.
- Where a TB patient screen positive for COVID-19, they should be tested for COVID-19 as per MoH protocols and managed appropriately. The TB/clinic should be informed and the same notified to the NTP via the existing reporting system.
- The frequency of clinical visits and treatment refill duration should be determined at the discretion of the clinician while minimizing unnecessary clinical visits. Refer to **Table 3.1:** TB patient profiling for differentiated care.

Children, Pregnant and Breastfeeding women

Management of TB should be the same as detailed above. All attempts should be made to communicate and consolidate the number of clinical visits to different healthcare facilities for various indications (e.g. antenatal and TB and HIV follow-up appointments).

Patient Support during COVID-19

All TB patients who have not identified a TB supporter at home should be encouraged to do so for the period of treatment. Home support will be critical during a time of less frequent interactions with healthcare workers and periods of lockdown.

Where resources allow, telephone clinical follow-up and counseling can be provided at the same frequency as health facility visits mandated in existing national guidelines.

For example, if TB patients were required to return for a clinical check-up and/or to receive further counseling sessions at weeks 2 and 4, these could be conducted via telephone at the same time points.

3.8 Management of Drug-Resistant TB patients

Table 3.7: *Regimens for treatment of DR TB by resistance pattern*

Pattern of Drug Resistance	Regimen	Duration
MDR/ RR TB	Intensive phase: 6 Bdq/Cfz/Lfx/Cs/Lzd	18 months
	Continuation phase: 12 Cfz/Lfx/Cs	
Pediatric MDR / RR TB (<6yrs and <25kg)	Intensive phase: 6 Mfx/Cfz/Cs/Lzd	18 months
	Continuation phase: 12 Mfx/Cfz/Cs	
Pre-XDR - Injectable resistant	Intensive phase: 6 Bdq/Cfz/Lfx/Cs/Lzd	18 months
	Continuation phase: 12 Cfz/Lfx/Cs/	
Pre-XDR - Fluoroquinolones Resistant	Intensive phase: 6Bdq/Dlm/Lzd/Cfz/Cs/	20 months
	Continuation phase: 14 Dlm/Cfz/Cs	
Pre - XDR Pediatrics'* - Fluoroquinolone Resistance	Intensive Phase: 6 Bdq**/*Dlm/Lzd/Cfz/Cs	20 months
	Continuation phase: 14 Dlm/Cfz/Cs/Z	
ISONIAZID mono resistance	6 RZE/Lfx	6 months
	(with pyridoxine)	
Bedaquiline Intolerance	Intensive Phase: 6 Dlm/Lzd/Lfx/Cfz/Cs	18 months
(In cases of Severe Adverse Events or hypersensitivity)	Continuation phase: 12 Lfx/Cfz/Cs	
Poly-drug resistance (PDR TB)	9 RZE/Lfx	9 Months
(HE/HEZ +-S)	(with pyridoxine)	
Pyrazinamide mono-resistance (Z)	2 RHZE	6 months
Or	4 RH	
Pyrazinamide and Ethambutol (EZ) without INH resistance	(with pyridoxine)	
Or		
Ethambutol Mono-resistance (E)		
Extensively Drug-resistance (XDR)	Individualized regimen	18-24 months
Any case excluded from any of the regimens above	Individualized regimen	18-24 months

3.9 Operational Guidance for Drug-Resistant TB patients

Patients diagnosed with **DR-TB are classified as unstable patients but are prioritized when they visit the health facility**. DR TB patients are managed and followed up as per the PMDT guidelines. DR TB medicines are provided through health care worker-supported DOT as per the PMDT guidelines.

3.10 Management of COVID-19

COVID-19 disease severity categorization of COVID-19

The majority of persons with COVID-19 in the country are asymptomatic or have mild disease. Less than 20% of the symptomatic cases have severe disease and require patient care in isolation centers. Management of COVID-19 is based on disease severity.COVID-19 diagnosis is made by positive RT-PCR or antigen rapid diagnostic testing (Ag RDT). Classification of disease severity is based on the age of the patient.

Table 3.8: *COVID-19 severity categorization in adults and adolescents*

Category	Features
Mild illness	Fever, cough, sore throat, malaise, headache, muscle pain BUT No dyspnoea (shortness of breath) and No abnormalities on chest imaging
Moderate illness	Clinical features of pneumonia (fever, cough, dyspnoea AND/OR radiological features of pneumonia BUT Oxygen saturations (SPO2) greater than or equal to 94% on room air
Severe illness	Clinical and radiological features of pneumonia, tachypnea with RR>30 AND oxygen saturation (SPO2) less than 94% on room air
Critical illness	Features of severe illness AND Any of the following: • respiratory failure • sepsis/septic shock • multiorgan dysfunction • acute thrombosis

Table 3.9: *COVID-19 severity categorization in children*

Category	Features
Mild illness	Fever, cough, sore throat, malaise, headache, muscle pain BUT No dyspnoea (shortness of breath and No abnormalities on chest imaging
Moderate illness	Clinical signs of non severe pneumonia (cough or difficulty breathing) AND Fast breathing* AND/OR chest indrawing *Fast breathing (in breaths/min): <2months: 3 60; 2 11months: 3 50; 1 5years: 3 40
Severe illness	Child with clinical signs of pneumonia (cough or difficulty in breathing) + at least one of the following: • Central cyanosis or SPO2 <90%; • Severe respiratory distress (e.g., fast breathing*, grunting, very severe chest indrawing); • General danger sign: inability to breastfeed or drink, lethargy or unconsciousness, or convulsions *Fast breathing (breaths/min): <2months: ^{3}60; 2-11months: ^{3}50; 1-5years: ^{3}40
Critical illness	Features of severe illness AND Any of the following: • Acute respiratory distress syndrome • Respiratory failure requiring mechanical ventilation • Sepsis/Septic shock • Other organ failure requiring ICU care
MIS-C	Preliminary case definition: Children and adolescents 0-19 years of age with fever > 3 days AND Two/more of the following: • Rash or bilateral non-purulent conjunctivitis or muco-cutaneous inflammation signs (oral, hands or feet); • Hypotension or shock; • Features of myocardial dysfunction, pericarditis, valvulitis, or coronary abnormalities; • Evidence of coagulopathy, • Acute gastrointestinal problems; AND No other obvious microbial cause of inflammation AND Evidence of COVID-19 (RT PCR, antigen test or serology positive), or likely contact with patients with COVID-19.

Supportive management

Supportive care should be offered to all patients diagnosed with COVID-19. This includes the following:

1. Counselling and psychosocial support

2. Symptomatic treatment

3. Adequate nutrition and hydration

Management of asymptomatic or mild illness

Assess for eligibility for home-based care

Patient qualifies if they have no risk factors for disease progression or poor outcomes (see below) and a suitable space is available at home (separate room with separate bathroom), has resources to access basic PPE for family members e.g., face masks and gloves, no house members who are increased risk of severe illness if exposed e.g., see below

Risk factors for poor outcome:

Age >60, coronary artery disease, stroke, diabetes, hypertension, cancer, chronic lung disease, frailty, pregnancy, immunosuppression, chronic kidney disease

Management

- Baseline tests - blood count, renal and liver function, HIV test, random blood sugar.
- Symptomatic treatment:
    - Fever - Paracetamol
    - Sore throat - gargles
    - cough, nasal congestion - antihistamine
- VTE prophylaxis with Enoxaparin 40mg once a day if admitted to a health facility
- Where enoxaparin is not available, use low dose unfractionated heparin at 5000units subcutaneous BD)
- Where patient unable to use standard anticoagulation therapy, consider use of direct-acting anticoagulants
- Consider prophylaxis for children older than 5 years with comorbidities and not ambulant. Refer to BNF for dosage guidelines for pediatrics

Where there is pressure for space for isolation of patients, the following patients with moderate illness can be managed at home:

- Young <60 years
- Oxygen saturations >94% on room air

- No comorbidities
- Have easy access to a health facility in case of worsening of symptoms
- Physically active

Management of severe and critical illness

- Baseline Tests (Total blood count, renal and liver function, HIV test, random blood sugar)
- Symptomatic treatment
- Oxygen supplementation to maintain SPO2s above 90% and above 92% in pregnant women (oxygen supplementation can be via nasal prongs, masks, non-rebreather masks or high flow nasal cannula - see below)
- Dexamethasone 6mg per day for up to 10 days (where dexamethasone is not available, consider using prednisone 40 mg OD or methyl prednisone 32mg OD. This short duration of dosing does not require tapering)
- For children - Dexamethasone 0.15mg/kg iv/PO OD to a maximum of 6mg or prednisolone 1mg/kg OD maximum 40mg OD, methylprednisolone 0.8 mg/kg IV OD maximum 32mg OD
- VTE prophylaxis Enoxaparin 40mg OD once a day for the duration of hospitalization (Where enoxaparin is not available, use low dose unfractionated heparin at 5000units subcutaneous BD)
- Self proning for 12 to 16 hours a day (see self-proning guide below) as tolerated.

Management of critical illness

Baseline tests - total blood count, renal and liver function tests, HIV test, random bold sugar

- Symptomatic treatment
- Admit to a Critical Care Unit.
- Mechanical Ventilation if no improvement in oxygenation with maximal oxygen flows with other modalities - see guide to noninvasive ventilation, tracheal intubation and ventilation below:
    - Prone for 12 to 16 hours per day
    - Conservative fluid management i.e., give IV fluid only if hypovolemic
    - Closed suctioning of secretions where available
    - Give Dexamethasone 6 mg per day for up to 10 days (where dexamethasone is not available, consider using prednisone 40 mg OD or methylprednisolone 32 mg OD. This short duration of dosing does not require tapering)
    - For children - Dexamethasone 0.15mg/kg iv/ PO OD to a maximum of 6mg or prednisolone 1mg/kg OD maximum 40mg OD, methylprednisolone 0.8 mg/kg IV OD maximum 32 mg OD

- VTE prophylaxis 40mg Enoxaparin OD SC (Where enoxaparin is not available, use low dose unfractionated heparin at 5000 units subcutaneous BD).

Where possible, document advance directives for all patients e.g., do not resuscitate for patients who are unlikely to do well or have another terminal condition

Home-based care (HBC)

Eligibility for home based care

- Lab confirmed COVID-19
- Asymptomatic or mild disease
- No known comorbidities
- Access to a suitable space for HBC.

Patients should be followed up and appropriately referred if the symptoms worsen by the designated HCWs who shall review and refer the patients as appropriate

Monitoring for home based care should be done using the Jitenge application (mobile app or through the USSD).

For further guidance refer to the HBC guidelines *(https://www.health.go.ke/wp-content/uploads/2020/06/Home-Based-Isolation.pdf)* and the guide for HBC in children (Final-Adendum-of-Pediatrics-guide-on-HBIC-1.pdf *(www.health.go.ke)*.

Specific COVID-19 Treatment

The following drugs may have a role in the management of COVID-19. Specialist input would be required in defining the appropriate patient population, weighing benefit against risk, and cost considerations. These agents are still investigational and under emergency use authorization (EUA). This means that a patient must be educated on the evidence around their use and must consent to their use prior to prescription. Their use should be reported to the Pharmacy and Poisons Board.

1. Tocilizumab - monoclonal antibody against IL-6
2. Baricitinib (with remdesivir) - Janus Kinase (JAK) 1 and 2 selective inhibitor
3. Remdesivir - an antiviral agent that inhibits SARS-CoV-2 replication

Current evidence does not support the following interventions for treatment or prevention of COVID-19.

- Hydroxychloroquine or Chloroquine

- Azithromycin and empiric antibiotic therapy

- Ivermectin

- Convalescent plasma therapy

- Empiric therapeutic or intermediate dose anticoagulation

- Aspirin

- High dose steroids or steroid pulse or prolonged duration of steroid use beyond 10 days

- Vitamin C and D

- Zinc

- Ulinastatin

- Favipiravir

Management of TB COVID-19 co-infection

- TB treatment should not be interrupted unless there is a clinical indication
- Treatment regimens for TB/DR TB do not change with COVID-19
- Isolation of patients is key to minimize transmission of COVID-19
- The modality of isolation is based on disease severity
- Home-based care may be indicated after careful clinical evaluation of the patient and HBC guidelines.

3.11 Infection Prevention and Control

Infection control precautions for healthcare workers caring for TB patients in the setting of COVID-19

This is a combination of measures aimed at minimizing the risk of TB transmission within populations. IPC requires and complements the implementation of core interventions in TB control, COVID-19 control, and strengthening of health systems

Measures to be put in place to limit transmission of TB and COVID-19 in congregate settings and health care facilities include:

a) Administrative (Managerial and Policy) Control Measures

b) Environmental control measures

c) Personal Protective Equipment

a) Administrative (Managerial and Policy) Control Measures

Administrative measures are defined as the managerial or work practices (e.g., triaging, early diagnosis, prompt isolation or separation of presumptive TB and other respiratory diseases, prompt initiation of treatment, and minimize aerosol-generating procedures) to significantly reduce the risk of transmission by preventing the generation of droplet nuclei or reducing exposure.

They include:

1. Hand Hygiene

Importance of handwashing will be reinforced to reduce the spread of communicable and infectious diseases (within the context of TB and other infectious respiratory diseases) through policies, regulations, innovations and behavior change strategies. Hand hygiene by either handwashing with running water and soap or hand rub by use of alcohol-based rub (ABHR) shall be available at all service delivery points (SDPs). Hand washing stations should be made available for patients and health care workers at all SDP. Hand washing messages will be strategically placed to ensure correct hand washing procedures are followed. Hand hygiene audits shall be routinely done by use of the WHO hand hygiene checklist.

2. Triage

Upon entry into the health facility, a member of the medical staff should identify patients, community health workers, healthcare workers, persons attending healthcare facilities, or other persons in settings with a high risk of transmission with a cough as soon as possible and direct them to a separate waiting area, educate on cough hygiene, and screen for TB and other respiratory diseases.

3. Controlled flow of movement within the facility

Inside the TB and isolation departments, circulation of patients and attendants should be controlled.

- Encourage patients/attendants to spend as much time as possible outdoors if weather the permits or in areas that are open.
- Have visible signage on entry doors to chest clinic and isolation wards/facilities that forbid visitors to enter.
- Limit visitation duration to isolation facilities
- Encourage visits outside the building, especially for contagious patients
- Have visiting areas well identified with appropriate signage
- Have SOPs on client flow in different departments
- Before any visit, the service provider should provide information on transmission risk, including the usage of respirators if caregivers need to go in high-risk areas, such as smear-positive, drug-resistant TB (DR-TB), re-treatment smear-positive inpatient, isolation, quarantine units, and areas or clinics where diagnosis of TB and other infectious respiratory diseases is being undertaken.
- Restrict entry for persons most at risk of infection including young children, the elderly, the immunocompromised, and other comorbidities
- Avoid contact with known index cases or restrict movement of potentially infectious TB and respiratory disease patients to areas where they may infect other patients within the hospital set up, and vice versa
- Ensure the decongestion of waiting rooms and service delivery points. Patients should sit 2m away from one another

- Reduce the number of times a client comes to the hospital/clinic by offering longer clinic and medication pick up appointments (see guidance for HIV and TB patients on longer appointments).

4. Triaging of hospitalized patients

Care for TB and other infectious respiratory diseases is primarily an ambulatory care, and patients should preferably be treated as outpatients. Hospitalization should be limited to critically unwell patients. TB and isolation wards must be separated from the other wards in the health facility. Ideally, within the TB and isolation wards, patients should be placed in single rooms. If this is not possible, cohort isolation must be implemented, and different sections should be labelled according to the degree of contagiousness (smear/culture/ nasopharyngeal or oropharyngeal swab status) and risk of resistance.

The following is one scheme of separation. It does involve the use of some single isolation rooms (all facilities with TB and other infectious respiratory disease inpatient facilities should have isolation rooms. If none exists, a very high priority is to establish one). Refer to the TB isolation policy.

Smear-positive patients with proven or presumed to have DR-TB, including re- treatment patients that are likely to have DR-TB, should have single isolation rooms. It is particularly important not to mix DR-TB patients with other patients. Where possible, persons with presumptive TB should not be hospitalized for diagnosis. If hospitalization is necessary, these patients need isolation rooms. Never put a known DR-TB patient who is not receiving DR-TB medications in a general ward.

There are four key components to good work practice (and administrative) controls. These include:

a) TB and other infectious respiratory diseases infection, prevention, control and risk assessment

b) Development of a facility infection prevention control plan

c) Patient and healthcare worker management

d) Infrastructure management i.e., clinics, laboratory and pharmacy

Table 3.10: IPC

Preparing for COVID-19 at your health facility	Facility Staff Precautions
• Designate a triage and hand cleaning area at the facility entrance • Screen everyone for symptoms and temperature check • Anyone with symptoms to be offered a surgical mask and isolated at a designated area • Take history and examination in a well-ventilated area and don a surgical mask • If you suspect COVID-19- contact the provided county/sub-county point persons for advice on further management. And contact a designated 24/7 national response service (719, or *719# for texts in Kenya).	• Wash your hands with soap and water before and after patient examination • Surfaces may be decontaminated with 0.05% sodium hypochlorite (dilution 1:100 if household bleach at an initial concentration of 5% is used) or 70% ethanol after cleaning with a neutral detergent. • Disinfect facility surfaces including shared devices such as BP machines, registers, thermometers • If you are unwell, inform your supervisor and get an appropriate medical assessment

Quarantine

Quarantine is separation and restricted movement of well persons who have been exposed to persons with COVID-19. It can be applied at the individual, family or community level. All persons who have had contact with a confirmed case of COVID-19 should quarantine for 14 days and get a COVID-19 test if they develop any symptoms. Quarantine can either be self-quarantine or carried out at a designated facility.

Instructions for self-quarantine include:

- Limit the number of visitors
- Continue to observe respiratory hygiene and cough etiquette
- Observe hand hygiene by either use of soap and water or an alcohol-based hand rub
- Ensure proper ventilation of the facility or home
- Observe for fever or other symptoms daily.
- Watch for danger signs or signs of deterioration like dyspnoea and report to a health facility
- Use of either separate utensils or disposable utensils

Isolation

Isolation is the separation of sick people with a contagious disease from people who are not sick. All confirmed COVID-19 cases identified should be isolated. The location of isolation can be in a health facility for those with severe illness, at home for those who meet the self-isolation criteria or at a community isolation facility. Isolation precautions may be dropped 10 days after onset of symptoms, provided that one has had no fever without antipyretics for at least 24 hours.

Requirements for an isolation center:

- The isolation facility should be set up relatively away from the main hospital facility or can be a designated isolation space set up with an exclusive passage at the entrance and exit to assist in proper flow of patients and staff.
- Should have provision for hand hygiene and waste management
- The designated area should have the three zones which can be colour coded green, red and the decontamination area. Zoning helps with cohorting of patients. The Green zone is the clean area where staff and persons who are presumed to not be infected can access. The red zone is the contaminated area such as the isolation ward for COVID-19 positive cases.
- Any COVID-19 service area, either outpatient, inpatient or clinic should have the 3 zones

GREEN ZONE areas (clean area)

1. Nurses and doctors' rooms and stations.
2. Medication preparation room
3. Tea room
4. Patients' pantry room
5. Non health workers offices.

The area should accommodate minimal staff at any specific time to prevent infections

RED ZONE areas (Patient's area) -contaminated

1. Triage, Examination rooms and filter clinics where patients will be cohorted in groups according to signs and symptoms
2. Patients wards and isolation room, if possible, with negative pressure or well-ventilated rooms with beds spaced 1-2 meters apart
3. Laboratory or laboratory specimen holding area, if possible, with a refrigerator
4. Theatre, Critical care Unit, and delivery room.

DECONTAMINATION ZONE areas (contaminated area)

1. Body holding area with a gate leading to the farewell home where bodies will be packed ready for collection to the farewell home
2. Equipment cleaning area where equipment will be cleaned and decontaminated before being taken for sterilization
3. Linen decontamination area
4. Boots and staff cleaning room
5. Waste management area

b) Environmental Control Measures

AIM: To reduce the concentration of droplet nuclei in the air

- Maximizing natural ventilation and controlling the direction of airflow in consultation rooms
- Opening windows to increase natural ventilation.

Environmental Cleaning and Waste Management

The following are the measures for staff working in the area of environmental cleaning and waste management:

a) Staff engaged in environmental cleaning and waste management should wear a surgical mask, gloves, eye protection (visor or goggles), and a gown.

b) Regular cleaning followed by disinfection, using hospital disinfectants active against viruses; cleaning inpatient rooms is particularly important for frequently touched surfaces, or surfaces may be decontaminated with 0.05% sodium hypochlorite (dilution 1:100 if household bleach at an initial concentration of 5% is used) after cleaning with a neutral detergent. Surfaces that do not tolerate sodium hypochlorite may be cleaned with a neutral detergent, followed by 70% ethanol.

c) Personal Protective Equipment for Assessment and Collection of Diagnostic Respiratory Samples

The recommended PPE for the clinical assessment of persons presumed to have COVID-19 are as follows:

- Healthcare workers performing the first assessment without direct contact: the patient should wear a surgical mask, *(if unable to have one the facility should provide one)* and keep a distance of at least one meter
- A physical barrier such as glass or a plastic teller window can be used to avoid direct contact.
- Collecting diagnostic respiratory samples (nasopharyngeal swab) can provoke coughing and/or sneezing and therefore lead to the production of aerosols.
- Healthcare workers collecting diagnostic respiratory samples should wear gloves, eye protection, a gown, and FFP/N95 mask
- Sample collection should always be conducted in open space with free circulation of air.

3.12 Addressing the Triple Risk of Stigma & Discrimination for Patients with TB, HIV, and COVID-19

Introduction

HIV and TB have historically been stigmatized like most contagious infections. This is due to their infectious nature that makes other people fear getting infected with the diseases. COVID-19 just like TB and HIV being an infectious disease has been ridden with stigma and discrimination and there is a need to combine and strengthen efforts to address stigma and discrimination for the three infectious diseases. These efforts should also address the potential impacts of social triple stigma and discrimination associated with the three infections.

Health education should be offered to the general public to understand the modes of transmission, prevention, treatment, and persons at risk of the 3 diseases. This will reduce stigma, discrimination, and remove other barriers which prevent those affected from accessing health care services. This helps communities to understand the disease and encourage people to seek health care immediately and adopt healthy behaviors.

Addressing Social Stigma and Discrimination:

- Stigma can be defined as a mark of shame, disgrace, or disapproval which results in an individual being rejected, discriminated against, and excluded from participating in several different areas of society.
- Discrimination is defined as treating a person or a particular group of people differently, especially in a worse way from how you treat other people, because of their skin color, sex, sexuality, health condition, etc.

To address stigma and discrimination, the following should be observed:

- Maintain the privacy and confidentiality of those seeking healthcare and those who may be part of any contact investigation.
- Educate people on the risk, or lack of risk, arising from contact with products, people, and places that may have been in contact with infected persons.
- Speak out against negative behaviors and statements, including those on social media.
- Those affected with the diseases should not be stigmatized or labeled, discriminated against, treated separately, stereotyped, and/or made to experience loss of status because of a perceived link with any of the disease.
- Encourage communities to build trust, empathize with those affected, understand the disease, and adopt effective, practical measures to keep themselves and their loved ones safe.
- Stigmatizing language, for instance, name-calling, labeling, etc should be avoided by all stakeholders including media and those discussing people with or showing TB/ COVID-19 symptoms.

- A person-centered language that respects and puts the person before the disease should be encouraged. For example:
  - Persons with COVID-19
  - A person showing symptoms of COVID-19
- Negative phrases like "COVID-19 victims" or "suspected cases" that increases stigma should be avoided
- All media platforms should be used to reach out to a large number of people to create awareness, speak out against stereotypes, and reduce stigma.
- Social influencers including religious leaders and celebrities should be engaged to reach out to those stigmatized and to amplify messages that reduce stigma and discrimination.
- Voices, stories, and images of those who have experienced and or recovered from the diseases should be amplified.
- If a person volunteers to share their experiences of the disease, they should consent in writing with the understanding that such engagement is purely voluntary expecting no compensation.
- Community health volunteers should be engaged to educate local communities to reduce stigma in communities.
- All IEC materials should capture the diversity of our society and different cultural backgrounds, be simple, factual, and easy to understand without stereotypes and connotations that might mislead the target audience.
- Health journalists and media houses should practice ethical journalism by eliminating stigma in their reporting. They should correct misconceptions and promote content on infection and prevention, symptoms as well as care and treatment.
- Suggest virtual resources for mental health or other social support services for people who have experienced stigma or discrimination.

3.13 Provision of TB and TB Preventive Therapy (TPT) Services in the COVID-19 setting

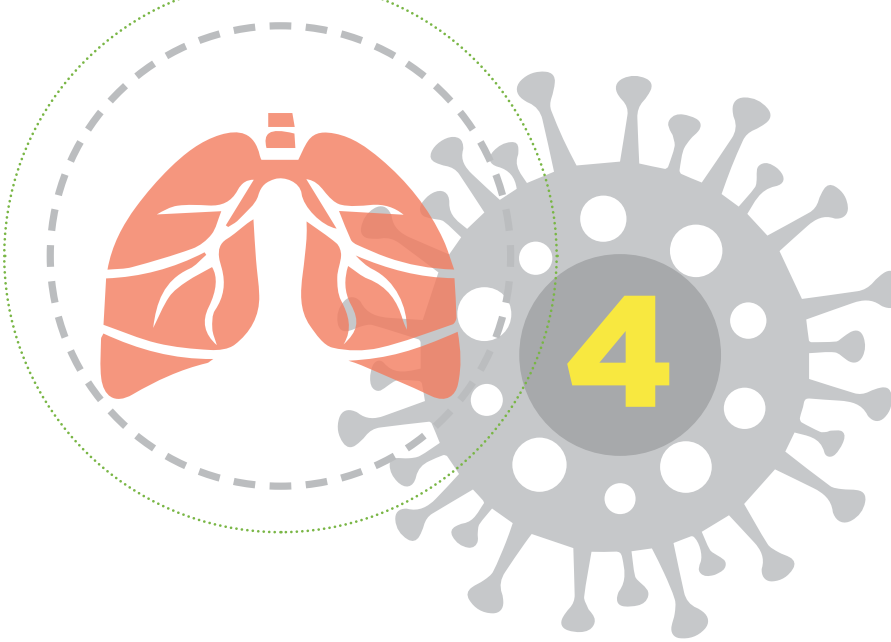
Tuberculosis preventive therapy remains a core TB program service and should continue to be implemented during the pandemic. Before initiation of TPT, all eligible persons should be subjected to symptom-based screening to rule out active TB and to prevent emergence of antimicrobial resistance (AMR). Persons screening negative for TB and are eligible, should be initiated on appropriate TPT regimen to reduce the risk of progression from LTBI to active TB disease. They should also be screened for COVID-19. Patients on TPT should be followed up on a monthly basis and the clinic harmonized with any other routine clinic schedule. The clinic return appointment may be extended beyond one month to reduce the number of hospital visits. However, continued monitoring for adverse events should be done (telephone, SMS, or electronically). Differentiated service delivery models may be helpful in this setting ensuring strict adherence to infection prevention and control procedures.

Table 3.11: *TB preventive therapy regimens*

TPT Regimen	Indications	Further considerations
Rifapentine and isoniazid (3HP)	Adult PLHIVs excluding patients on PI-based ARV regimens	• There is currently insufficient data to support the use of RPT and INH in pregnancy
Once Weekly for three months	All household contacts of Bacteriologically confirmed pulmonary TB patients, who are aged ≥15 years	• Rifapentine can decrease levels of hormonal contraception
(12 doses)	Health care workers	• INH should not be given to persons with known pre-existing liver damage to avoid an additive effect on liver dysfunction
	Prisoners and staff in prison settings	• INH can cause peripheral neuropathy. Vitamin B6 helps prevent peripheral neuropathy
	Other adult population at risk (e.g., patients undergoing chemotherapy, patients on dialysis, patients undergoing transplant, patients with silicosis)	
Rifampicin plus Isoniazid (3RH)	HIV negative children aged <15 years who are contacts of Bacteriologically confirmed pulmonary TB patients	
Daily for 3 Months		
(84 doses)		
Isoniazid (6H)	Adult PLHIV on PI-based ARV regimens	
Daily for 6 months	All CLHIV aged below 15 years	
(168 doses)	Any patient with intolerance or contraindication to 3HP or 3RH	
	Pregnant women	

References used for this chapter

	Area	Guideline	Link
1	COVID-19	Case Management for COVID-19, 2021	*https://www.health.go.ke/wp-content/uploads/2021/10/Final-guidelines-on-the-Management-of-COVID-19-in-Kenya-2021-Edition.pdf*
		Home-Based Care guidelines	*https://www.health.go.ke/wp-content/uploads/2020/06/Home-Based-Isolation.pdf*
		Addendum to the Home-based isolation and care-Pediatrics	Final-Adendum-of-Pediatrics-guide-on-HBIC-1.pdf *(health.go.ke)*
2	Tuberculosis	Integrated guideline for tuberculosis, leprosy and lung disease, 2021	*https://www.nltp.co.ke/download/tb-guidelines-2021/*



MONITORING & EVALUATION

Monitoring implementation of collaborative TB/ COVID-19 activities and evaluation of their impact is critical. Strengthening the TB data management systems to include data on COVID-19 and subsequent analysis is key for understanding the interaction of the two diseases and guide in policy decisions. Currently, the National TB Program implements a robust TB surveillance system (TIBU), for TB programming, with the source documents being the patient card which feeds into the TB 4 registers.

The Disease surveillance Unit also implements Jitenge+ System, an integrated COVID-19 Investigation Management System that has four modules namely: Case Investigation Form, Case ID verification and History and Case Management. This allows the capturing of client data when they take a COVID-19 test and when hospitalized because of COVID-19. In addition, the stem captures personal details for the client for ease of tracing in case the client turns positive and their medical condition in the event of hospitalization. Jitenge+ is available on Android Mobile Application as well as IOS for iPhone users.

The alignment of these tools offers a unique opportunity for joint TB and COVID-19 programming to maximize the impact of investments for better health outcomes. This section focuses on TB/COVID-19 indicators, baseline status and target. The TB Program will ride on COVID-19 outbreak response and integrated disease surveillance system to consolidate the gains made while focusing on the quality of the data and its utility for the programmatic response.

The NLTP will carry out monthly performance indicator monitoring to review progress against targets and commitment to performance monitoring and the findings used to set priorities for subsequent years.

Table 4.1: *Data sources*

Levels	TB	COVID-19
Screening at facility level	Presumptive register Contact register TPT card t-bu lite App	Case investigation form for COVID-19 *Jitenge + App*
Screening at community level	TB screening/contact tracing form at community level t-bu lite App	Case investigation form for COVID-19
COVID-19 Vaccination point		Include TB screening questions at Vaccination point in *ChanjoKe*
Special population		Total number of COVID-19 cases referred for TB Diagnosis Total number of specimens collected and tested for TB Number of COVID-19 cases testing positive for TB Cumulative number of COVID-19 cases referred for TB Diagnosis Cumulative number of COVID-19 Cases testing positive for TB

Data collection tools

Core Indicators

1. The proportion of eligible persons screened for TB and COVID-19 at facility level
2. The proportion of notified TB cases screened for COVID-19
3. The proportion of COVID-19 cases screened for Tuberculosis
4. Proportion of TB patients with COVID-19 comorbidities notified
5. Death rate among TB patients with COVID-19
6. Proportion of special population tested for TB
7. Proportion of special population tested for TB and have results
8. Total number of COVID-19 cases referred for TB Diagnosis
9. Total number of specimens collected and tested for TB
10. Number of COVID-19 cases testing positive for TB
11. Cumulative number of COVID-19 cases referred for TB Diagnosis
12. Cumulative number of COVID-19 Cases testing positive for TB

Table 4.2: *Indicators meaurements*

Indicator	Indicator definition	Frequency	Source of data	Responsible person
Community TB and COVID-19 screening				
Number of people screened for i) TB ii) COVID at the community level	Number of people screened at the community level by CHVs	Monthly		
Proportion of people screened with symptoms for i) TB ii) COVID-19	Number of people screened with symptoms for i) TB ii) COVID-19	Monthly		
Number of people with TB screened for COVID-19 at the community level	Number of people at the community with TB screened for COVID-19	Monthly	Community screening booklet Contact management register	CHVs
Number of people with COVID19 screened for TB at the community level	Number of people at the community with COVID-19 screened for TB			
Death rate among TB patients with COVID-19	**Numerator:** Number of patients diagnosed with both TB and COVID-19 who died **Denominator:** Cumulative number of patients with both TB and COVID-19 notified	Monthly	Jitenge+	SCTLC/ CTLC
Proportion of truck drivers/Special populations tested for TB	**Numerator:** Number of truck drivers diagnosed with TB **Denominator:** Cumulative number of truck drivers registered	Monthly	Jitenge+	SCTLC/ CTLC
Total number of COVID-19 cases referred for TB Diagnosis	**Numerator:** Number of people with lab investigations **Denominator:** Number of people screened for TB and COVID-19	Monthly	Jitenge+	SCTLC/ CTLC

Indicator	Indicator definition	Frequency	Source of data	Responsible person
Total number of specimens collected and tested for TB				
Number of COVID-19 cases testing positive for TB	**Numerator:** Number of people testing positive for TB **Denominator:** Number of people screened for TB and COVID-19	Monthly	Jitenge+	SCTLC/ CTLC
Cumulative number of COVID-19 cases referred for TB Diagnosis	**Numerator:** Cumulative number of people with lab investigations **Denominator:** Cumulative number of people screened for TB and COVID-19	Monthly	Jitenge+	SCTLC/ CTLC
TB and COVID-19 Contact Management				
Number of contacts of i)TB Bacteriologically confirmed ii) COVID-19 positive patients	Number of listed contacts of: i) TB Bacteriologically confirmed ii) COVID-19 positive patients		TB4 register Contact management/ TPT register Contact tracing form, isolation facility form,Laboratory manifest form.	CHVs/CHAs/ TB focal persons
Proportion of contacts traced and tested for i) TB ii) COVID-19	**Numerator:** Number of contacts for TB and COVID-19 who were traced **Denominator:** Number of contacts for TB and COVID-19 who were tested	Monthly	Laboratory manifest/ Register,Contact tracing form.	TB/Covid testing Laboratory
Proportion of contacts testing positive for TB and COVID-19	**Numerator:** Number of contacts for TB and COVID-19 who tested positive **Denominator: Total** number of contacts for TB and COVID-19 who were tested	Monthly	Laboratory manifest Register	TB/Covid testing Laboratory

Indicator	Indicator definition	Frequency	Source of data	Responsible person
Facility Based ACF for TB and COVID-19				
Number of people screened for i)TB ii) COVID-19 at the facility level	Number of people screened for: i) TB ii) COVID-19 at the facility level	Monthly	Modified Presumptive Register	Health Facility
Number of: i) Presumptive TB cases ii) with COVID-19 symptoms	Number of people with TB and covid symptoms	Monthly	Laboratory Register Presumptive register, ACF summary sheets	TB/Covid testing Laboratory
Proportion of people diagnosed with: i) TB ii) COVID-19	**Numerator:** Number of people diagnosed with i)TB ii) those diagnosed with COVID-19 **Denominator:** Total number of people with: i) TB Presumptive cases ii) those with COVID-19-flu like symptoms		Laboratory Register/ Manifest	TB/covid testing laboratory

NATIONAL TUBERCULOSIS, LEPROSY
AND LUNG DISEASE PROGRAM

National Tuberculosis, Leprosy and Lung Disease Program,

Afya House Annex 1st Floor | Kenyatta National Hospital Grounds
P.O. Box 20781-00202 Nairobi, Kenya | **Cell:** 0773 977 440
Website: www.nltp.co.ke | **Facebook:** NTLDKenya | **Twitter:** @NTLDKenya