FOR A WORLD FREE OF TB
Advancing universal access to TB prevention, care and control
Guiding the global Response to the health threat of drug-resistant TB
Promoting research and innovation

IT’S TIME FOR ACTION
IT’S TIME TO #ENDTB

WHO GLOBAL TB PROGRAMME

END TB ACCELERATOR PACKAGE
Tuberculosis (TB) is contagious and airborne. TB was one of the top 10 causes of death worldwide in 2017. It is also the leading killer of people with HIV and a major cause of deaths related to antimicrobial resistance.

THE BURDEN
In 2017, there were an estimated 10 million new (incident) TB cases worldwide, of which 5.8 million were men, 3.2 million were women and 1 million were children. People living with HIV accounted for 9% of the total. Eight countries accounted for 66% of the new cases: India, China, Indonesia, the Philippines, Pakistan, Nigeria, Bangladesh, and South Africa. In 2017, 1.6 million people died from TB, including 0.3 million among people with HIV.

Globally, the TB mortality rate fell by 42% between 2000 and 2017. The severity of national epidemics varies widely among countries. In 2017, there were fewer than 10 new cases per 100 000 population in most high-income countries, 150-400 in most of the 30 high TB burden countries, and above 500 in a few countries including Mozambique, the Philippines and South Africa.

TB CARE AND PREVENTION

In 2017, 6.4 million new TB cases were notified to national authorities and reported to WHO. This reflects a 3.6 million gap between incident and notified cases. Ten countries accounted for 80% of this gap; the top three were India, Indonesia and Nigeria, accounting for almost half (46%).

Globally, the treatment success rate for people newly diagnosed with TB was 82% in 2016.

DRUG-RESISTANT TB
Globally in 2017, 558 000 people developed TB that was resistant to rifampicin (RR-TB), the most effective first-line drug, and of these, 82% had multidrug-resistant TB (MDR-TB).

160 000 cases of MDR/RR-TB were detected and notified in 2017. Of these, a total of 140 000 people were enrolled and started on treatment with a second-line regimen.

Treatment success rate at 55%, remains low globally.

Among cases of MDR-TB in 2017, 8.5% were estimated to have extensively drug-resistant TB (XDR-TB).

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ADDRESSING THE CO-EPIDEMICS OF TB AND HIV

In 2017, there were 465,000 reported cases of TB among people living with HIV, of whom 84% on antiretroviral therapy. Most of the gaps in detection and treatment were in the WHO African Region, where the burden of HIV-associated TB is highest.

TB PREVENTIVE TREATMENT

WHO recommends preventive treatment for people living with HIV and all contacts living in households with TB.

A total of 960,000 people who were newly enrolled in HIV care were started on TB preventive treatment in 2017 (only 36% of people newly enrolled in HIV care).

In addition, the number of children aged under 5 years reached 280,000 in 2017—a three-fold increase from 2015 but still only around one in five of the 1.3 million estimated to be eligible.

UPTAKE OF DIAGNOSTICS, NEW DRUGS AND REGIMENS

The WHO-recommended rapid diagnostic test (WRD) for detection of TB and rifampicin resistance currently available is the Xpert MTB/RIF® assay. Of the 48 countries in at least one of the lists of high burden countries, 32 had adopted national algorithms positioning the WRD as the initial diagnostic test for all people suspected of having pulmonary TB by the end of 2017.

By the end of 2017, 68 countries reported having imported or started using bedaquiline, and 42 countries had used delamanid.

RESEARCH AND DEVELOPMENT

A small number of technologies emerged in 2017–2018 and several have not demonstrated adequate performance in field evaluation studies. There is still no single rapid, accurate and robust TB diagnostic test suitable for use at the point of care.

Twelve vaccine candidates are in clinical trials: four in Phase I, six in Phase II and two in Phase III. They include candidates to prevent the development of TB infection and disease, and candidates to help improve the outcomes of treatment for TB disease.

There are 20 drugs, several treatment regimens and 12 vaccine candidates in clinical trials.

Funding for TB research and development has increased and reached a peak of US$ 724 million in 2016. However, this is only 36% of the estimated requirement of US$ 2 billion per year.

UNIVERSAL HEALTH COVERAGE AND SOCIAL PROTECTION

All of the 30 high TB burden countries need to increase service coverage and reduce levels of catastrophic expenditures to reach Universal Health Coverage, consistent with findings from surveys of costs faced by TB patients and their households.

The report features a TB-SDG monitoring framework that focuses attention on 14 indicators that are associated with TB incidence. Monitoring of these indicators can be used to identify key influences on the TB epidemic at national level and inform the multisectoral actions required to end it.

Many new cases of TB are attributable to undernourishment, HIV infection, smoking, diabetes and alcohol use.

TB FINANCING

The funding required for a full response to the global TB epidemic in low- and middle-income countries is estimated at US$ 10.4 billion in 2018, excluding research and development.

US$ 6.9 billion was available for TB prevention, diagnosis and treatment in 2018, leaving a funding gap of almost US$ 3.5 billion.

86% of the funding available in 2018 is from domestic sources. However, this global aggregate figure is strongly influenced by BRICS countries.

International donor funding accounts for 39% of funding in the 25 high TB burden countries outside BRICS and 57% of funding in low-income countries.

For research and development, at least an extra US$ 1.3 billion per year is needed to accelerate the development of new tools.

The WHO GLOBAL TB PROGRAMME together with WHO regional and country offices: develops policies, strategies and standards; supports the efforts of WHO Member States; measures progress towards TB targets and assesses national programme performance, financing and impact; promotes research; and facilitates partnerships, advocacy and communication. More information: www.who.int/tb.
BACKGROUND AND RATIONALE

The first WHO global ministerial conference on tuberculosis (TB), titled “Ending TB in the Sustainable Development Era: a multisectoral response”, was held in November 2017. The outcome of the conference, the Moscow Declaration to End TB, addressed four key areas for action, one of which was multisectoral accountability. Member States committed to “supporting the development of a multisectoral accountability framework” in advance of the United Nations (UN) first high-level meeting on TB in September 2018, and called on WHO to develop such a framework, working in close cooperation with Member States and partners. This request was reiterated by WHO’s Executive Board in January 2018, who also requested the development of a draft for consideration by the World Health Assembly (WHA) in May 2018. Following the welcoming of the draft at the WHA, the political declaration at the UN high-level meeting on TB requested WHO’s Director General to continue to develop the framework and to ensure its timely implementation no later than 2019.

The rationale for a multisectoral accountability framework for TB (MAF-TB) is that strengthened accountability for the response to TB at national, regional and global levels should contribute to faster progress towards the targets and milestones of the Sustainable Development Goals (SDGs) and WHO’s End TB Strategy.

WHAT IS A MULTISECTORAL ACCOUNTABILITY FRAMEWORK?

Accountability means being responsible and answerable for commitments made or actions taken. A framework provides an overview and structure of essential components and subcomponents, and the relationships between them. A framework can be adapted, for example by modifying, adding or deleting items, and by adding detail to subcomponents to customize or give them greater specificity.

An accountability framework needs to define who is accountable (for example, individuals, organizations, national governments), what commitments and actions they are accountable for, and how they will be held to account. Mechanisms for monitoring and reporting, as well as review, are critical in holding entities to account. The essential components of an accountability framework (commitments, actions, monitoring and reporting, review), and how they are related, are shown in Figure 1. These components are underpinned and informed by laws, regulations and rules as well as political, social, professional, moral and ethical codes of conduct and conventions.

Conceptually, commitments should be followed by the actions needed to keep or achieve them. Monitoring and reporting are then used to track progress related to commitments and actions. Review is used to assess the results from monitoring that are documented in reports and associated products, and to make recommendations for future actions. The cycle of action, monitoring and reporting, and review can be repeated many times. The results from monitoring and reporting, and the recommendations from reviews based on these results, should drive new and/or improved actions. Periodically, new commitments or reinforcement of commitments may be required.

Accountability can be strengthened by reinforcing one or more of the four components of the framework. Examples include adding new actions or improving existing ones; increasing the quality and coverage of data available to monitor progress towards commitments made and actions taken; improving reports to better inform reviews of progress; initiating or strengthening high-level reviews; improving review processes, such as by making them more independent, more transparent and with wider participation; and ensuring that reviews have meaningful consequences for action.
**Multisectoral** refers to the different sectors of an economy, which can be defined in various ways (e.g. agriculture and fisheries, health, education, justice, social services, manufacturing, retail services, finance, the media, information technology, telecommunications, defence, public sector, private sector). In the context of health, multisectoral is usually used to refer to sectors of the economy (and related parts of government) that influence health, and which need to be engaged by the health sector to address health issues. A multisectoral accountability framework needs to include content related to multiple sectors.

### DEVELOPMENT PROCESS AND HIGH-LEVEL SUMMARY

WHO prepared a background document to inform development of the MAF-TB in January 2018. This was used as the basis for consultations with Member States and partners, including during a 2-day meeting in Geneva in March 2018. A draft framework was posted for public review in April 2018, and feedback used to produce an updated draft for consideration at the WHA in May 2018. Following the UN high-level meeting on TB in September, WHO developed a second draft that incorporated key content from the political declaration. This updated draft was circulated to all Member States in December 2018 with a deadline for feedback in January 2019.

The MAF-TB has been conceptualized as in Figure 1. It has two major parts: a) national (including local) level; and b) global and regional levels. Each part consists of the four components shown in Figure 1. Key elements (or subcomponents) have been listed under each of the four components of accountability i.e. commitments, actions, monitoring and reporting, review.

The elements (or subcomponents) that have been listed are built on the foundations of the End TB Strategy and associated WHA resolutions; the SDGs and associated General Assembly resolutions, including political declarations of high-level meetings; the established core functions of actors operating at global and/or regional level; established systems and best practices for monitoring and reporting; and existing review mechanisms. New elements and existing elements that require strengthening in many countries are highlighted. It is not possible to be exhaustive in listing all elements that are relevant under each of the four components of the framework and some elements require customization, especially at national level. For this reason, major examples are provided, using generic language. In all components of the framework, the fundamental role of civil society, TB-affected communities and patient groups is recognized.

### WHEN WILL THE MAF-TB BE FINALIZED?

The MAF-TB is expected to be finalized before the WHA in May 2019.

### ADAPTATION AND USE AT COUNTRY LEVEL

Countries will need to adapt the national part of the framework for use in their own context. As a starting point, it is suggested that countries can create their own version of the MAF-TB by mapping existing elements to each of the four components of the framework, using the generic version as a reference or “checklist”. In mapping what already exists, wording can be adapted so that it is appropriate to the national context. Having listed what already exists, an assessment of what is missing or needs to be strengthened can then be done, as a basis for future action to strengthen accountability.

WHO will work with countries to help to document the development and use of national MAFs for TB and associated best practices, given special attention to newer elements such as high-level review processes.

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**Key references**

In recent years, there has been substantial progress in improving the availability of quality data to track the TB epidemic and progress in response efforts, at national and global levels. This follows major investments in national surveys, improvements in surveillance and programmatic data, and other studies. Analysis and use of these data is essential for national TB planning and prioritization.

To date, the greater availability of data has not always resulted in systematic analysis and use of data for national strategic and operational planning for TB, and associated prioritization for programmatic impact. In addition, evidence generation has sometimes been driven by top-down planning rather than by key programmatic priorities and questions.

The People-Centred Framework has been developed to facilitate a systematic approach to country-led, data-driven and people-centred planning, prioritization and decision-making.

The framework has three main elements.

1. **IT USES THE CARE CONTINUUM**
   Data are mapped along the care continuum to provide evidence for planning and prioritization. The care continuum is divided into three parts (figure 1):

   1. people not accessing the health care system;
   2. people with TB who seek health care but are either not diagnosed or not notified;
   3. people with TB who are notified, but not successfully treated.

![Mapping three types of evidence along the care continuum](image-url)
WHEN SHOULD THE PEOPLE-CENTRED FRAMEWORK BE USED?

The framework is most effectively applied during the development of a country’s National Strategic Plan (NSP). It can also be applied at other points in the country’s planning and policy cycle.

APPLYING THE FRAMEWORK IN PRACTICE – THE EXAMPLE OF KENYA

> Mapping of data and evidence to the three elements of the framework

The national TB programme in Kenya applied the framework to initiate the development process for a new NSP (2019-2023). Country-based data and evidence were consolidated along the care continuum prior to a workshop. An example of consolidated data and evidence for the second block of the framework is shown in figure 2.
A NEW DIGITAL PLATFORM for timely analysis and use of TB data

The WHO Global TB Programme has developed and is supporting country implementation of a new digital platform to store, analyse and visualize national and subnational TB surveillance data. The platform will facilitate planning and programmatic action in real-time.

- The data platform is based on the free and open-source District Health Information System 2 (DHIS2) and designed upon WHO standards for service delivery and programme implementation. It stores aggregated data of core TB surveillance indicators, based on the WHO case definitions and reporting framework for TB. Accompanying standard dashboards are designed according to best practice analyses and visualization of results (in the form of graphs, tables and GIS maps).
- From 2016-2018, the platform was promoted and used in a series of regional and national workshops for TB data analysis and use in Africa and Asia, as well as to facilitate the conduct of national TB epidemiological reviews during this period (see Map). By the end of 2018, time series of subnational (primarily provincial but for some countries also district level) historical data had been uploaded to the platform by about 50 countries.

The WHO Global TB Programme has been collaborating on this stream of work with key partners both within – the Department of Information, Evidence and Research as well as Global Programmes for HIV, malaria and immunization – and outside – US CDC, KNCV, Public Health England, University of Oslo, USAID and the Global Fund – WHO under the auspices of the Health Data Collaborative.¹

¹ https://www.healthdatacollaborative.org/
GLOBAL GUIDANCE FOR COUNTRY ACTION

Comprehensive country packages for routine analysis and use of data:
cross-cutting and programme-specific (including TB, HIV, malaria)
https://www.who.int/healthinfo/tools_data_analysis_routine_facility/en/

Each package includes a DHIS2 configuration package (data entry forms, indicators, meta-data, dashboards), as well as accompanying curriculum (facility analysis guide and exercise book)

For a full demo of the TB DHIS2 package for aggregate data see:
https://tbhistoric.org

SOME EXAMPLES FROM DASHBOARD

There are dashboards for indicators such as TB case notifications (numbers), TB case notification rates, treatment outcomes, internal consistency indicators, TB/HIV and DRTB, with a mixture of tables, graphs and maps.
Country subnational level comparisons are possible both within and across.

Map 2
TB notification rates per 100,000 population, by sub-national area

WHO is working towards expanding the number of indicators being used for the analysis and in supporting countries in installing and using the digital platform.
Drug-resistant tuberculosis (DR-TB) is more difficult to treat than forms of disease that are still responsive to the antimicrobials used to treat TB. DR-TB threatens global progress towards the targets set by the End TB Strategy of the World Health Organization (WHO). There is thus a critical need for evidence-based policy recommendations on the treatment and care of patients with DR-TB, based on the most recent and comprehensive evidence available. The WHO consolidated guidelines on drug-resistant tuberculosis treatment fulfill the mandate of WHO to inform health professionals in Member States on how to improve treatment and care for patients with DR-TB.

Between 2011 and 2018, WHO developed several evidence-based policy recommendations on the treatment and care of patients with DR-TB. These policy recommendations were released as part of eight WHO guidelines with their associated annexes (see Box 1), the latest being the updated WHO guidelines for the treatment of multidrug- and rifampicin-resistant TB (MDR/RR-TB) issued in December 2018. These guidelines have been developed by WHO-convened Guideline Development Groups (GDGs), using the GRADE (Grading of Recommendations, Assessment, Development and Evaluation) approach to summarize the evidence, and formulate policy recommendations and accompanying remarks. GDGs are composed of multidisciplinary groups of external experts with experience in different aspects of the programmatic and clinical management of DR-TB, as well as affected individuals. The methods used to develop the recommendations complied with the requirements of WHO’s Guideline Review Committee (GRC), and the GRC has overseen the development of each of these guidelines.

The present Consolidated guidelines include a comprehensive set of WHO recommendations for the treatment and care of DR-TB, derived from these WHO guidelines documents. The consolidated guidelines include policy recommendations on treatment regimens for isoniazid-resistant TB (Hi-TB) and MDR/RR-TB, including longer and shorter regimens, culture monitoring of patients on treatment, the timing of antiretroviral therapy (ART) in MDR/RR-TB patients infected with the human immunodeficiency virus (HIV), use of surgery for patients receiving MDR-TB treatment, and optimal models of patient support and care.

The full list of policy recommendations that are currently valid for the programmatic management of DR-TB, grouped into eight sections, is provided below. For full details of the guidelines and associated evidence base please see www.who.int/tb/areas-of-work/drug-resistant-tb/. The new guidance will be complemented with further advice on their implementation in a revised edition of WHO’s “how-to” handbook for TB programmes.

**Box 1**

**WHO treatment guidelines that have been incorporated in the WHO consolidated guidelines on drug-resistant tuberculosis treatment**

RESEARCH AND DEVELOPMENT

REGIMENS FOR ISONIAZID-RESISTANT TUBERCULOSIS (HR-TB)

- In patients with confirmed rifampicin-susceptible and isoniazid-resistant tuberculosis, treatment with rifampicin, ethambutol, pyrazinamide and levofloxacin is recommended for a duration of 6 months.
- In patients with confirmed rifampicin-susceptible and isoniazid-resistant tuberculosis, it is not recommended to add streptomycin or other injectable agents to the treatment regimen.

THE COMPOSITION OF LONGER MDR-TB REGIMENS

- In MDR/RR-TB patients on longer regimens, all three Group A agents and at least one Group B agent should be included to ensure that treatment starts with at least four TB agents likely to be effective, and that at least three agents are included for the rest of the treatment after bedaquiline is stopped.1 If only one or two Group A agents are used, both Group B agents are to be included. If the regimen cannot be composed with agents from Groups A and B alone, Group C agents are added to complete it.
- Kanamycin and capreomycin are not to be included in the treatment of MDR/RR-TB patients on longer regimens.
- Levofloxacin or moxifloxacin should be included in the treatment of MDR/RR-TB patients on longer regimens.
- Bedaquiline should be included in longer MDR-TB regimens for patients aged 18 years or more. Bedaquiline may also be included in longer MDR-TB regimens for patients aged 6–17 years.
- Linezolid should be included in the treatment of MDR/RR-TB patients on longer regimens.
- Clofazimine and cycloserine or terizidone may be included in the treatment of MDR/RR-TB patients on longer regimens.
- Ethambutol may be included in the treatment of MDR/RR-TB patients on longer regimens.
- Delamanid may be included in the treatment of MDR/RR-TB patients aged 3 years or more on longer regimens.
- Pyrazinamide should be included in the treatment of MDR/RR-TB patients on longer regimens.
- Imipenem–cilastatin or meropenem may be included in the treatment of MDR/RR-TB patients on longer regimens.2
- Amikacin may be included in the treatment of MDR/RR-TB patients aged 18 years or more on longer regimens when susceptibility has been demonstrated and adequate measures to monitor for adverse reactions can be ensured. If amikacin is not available, streptomycin may replace amikacin under the same conditions.
- Ethionamide or prothionamide may be included in the treatment of MDR/RR-TB patients on longer regimens only if bedaquiline, linezolid, clofazimine or delamanid are not used or if better options to compose a regimen are not possible.
- p-Aminosalicylic acid may be included in the treatment of MDR/RR-TB patients on longer regimens only if bedaquiline, linezolid, clofazimine or delamanid are not used or if better options to compose a regimen are not possible.
- Clavulanic acid should not be included in the treatment of MDR/RR-TB patients on longer regimens.

THE DURATION OF LONGER MDR-TB REGIMENS

- In MDR/RR-TB patients on longer regimens, a total treatment duration of 18–20 months is suggested for most patients; the duration may be modified according to the patient’s response to therapy.
- In MDR/RR-TB patients on longer regimens, a treatment duration of 15–17 months after culture conversion is suggested for most patients; the duration may be modified according to the patient’s response to therapy.
- In MDR/RR-TB patients on longer regimens that contain amikacin or streptomycin, an intensive phase of 6–7 months is suggested for most patients; the duration may be modified according to the patient’s response to therapy.

USE OF THE STANDARDIZED, SHORTER MDR-TB REGIMEN

- In MDR/RR-TB patients who have not been previously treated for more than 1 month with second-line medicines used in the shorter MDR-TB regimen or in whom resistance to fluoroquinolones and second-line injectable agents has been excluded, a shorter MDR-TB regimen of 9–12 months may be used instead of the longer regimens.

MONITORING PATIENT RESPONSE TO MDR-TB TREATMENT USING CULTURE

- In MDR/RR-TB patients on longer regimens, the performance of sputum culture in addition to sputum smear microscopy is recommended to monitor treatment response. It is desirable for sputum culture to be repeated at monthly intervals.

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1 Group A = levofloxacin/moxifloxacin, bedaquiline, linezolid; Group B = clofazimine, cycloserine/terizidone; Group C = ethambutol, delamanid, pyrazinamide, imipenem–cilastatin, meropenem, amikacin (streptomycin), ethionamide/prothionamide, p-aminosalicylic acid.
2 Imipenem–cilastatin and meropenem are administered with clavulanic acid, which is available only in formulations combined with amoxicillin (amoxicillin–clavulanic acid). When included, clavulanic acid is not counted as an additional effective TB agent and should not be used without imipenem–cilastatin or meropenem.
START OF ANTIRETROVIRALS IN PATIENTS ON SECOND-LINE ANTITUBERCULOSIS REGIMENS
✓ Antiretroviral therapy is recommended for all patients with HIV and DR-TB requiring second-line antituberculosis drugs, irrespective of CD4 cell count, as early as possible (within the first 8 weeks) following initiation of antituberculosis treatment.

SURGERY FOR PATIENTS ON MDR-TB TREATMENT
✓ In patients with RR-TB or MDR-TB, elective partial lung resection (lobectomy or wedge resection) may be used alongside a recommended MDR-TB regimen.

CARE AND SUPPORT FOR PATIENTS WITH MDR/RR-TB
✓ Health education and counselling on the disease and treatment adherence should be provided to patients on TB treatment.
✓ A package of treatment adherence interventions3 may be offered to patients on TB treatment in conjunction with the selection of a suitable treatment administration option.4
✓ One or more of the following treatment adherence interventions (complementary and not mutually exclusive) may be offered to patients on TB treatment or to health-care providers:
  a) tracers5 and/or digital medication monitor;6
  b) material support7 to the patient;
  c) psychological support8 to the patient;
  d) staff education.9
✓ The following treatment administration options may be offered to patients on TB treatment:
  a) Community- or home-based directly-observed treatment (DOT) is recommended over health facility-based DOT or unsupervised treatment.
  b) DOT administered by trained lay providers or health-care workers is recommended over DOT administered by family members or unsupervised treatment.
  c) Video-observed treatment (VOT) may replace DOT when video communication technology is available, and it can be appropriately organized and operated by health-care providers and patients.
✓ Patients with MDR-TB should be treated using mainly ambulatory care rather than models of care based principally on hospitalization.
✓ A decentralized model of care is recommended over a centralized model for patients on MDR-TB treatment.

ABOUT DRUG-RESISTANT TB

Most anti-TB medicines have been used for decades, and resistance to them is widespread. TB strains that are resistant to at least one anti-TB medicine have been documented in every country surveyed.

Isoniazid-resistant TB (Hr-TB), is caused by bacteria that do not respond to isoniazid but in which rifampicin remains effective. Isoniazid and rifampicin are some of the most important anti-TB medicine and patients with Hr-TB need different regimens from those with drug-susceptible disease.

Rifampicin-resistant tuberculosis (RR-TB) is caused by bacteria that do not respond to rifampicin, one of the most powerful anti-TB medicines. These patients require MDR-TB treatment.

Multidrug-resistant tuberculosis (MDR-TB) is caused by bacteria that do not respond to, at least, isoniazid and rifampicin, the two most powerful anti-TB medicines. Patients with multidrug-resistant or rifampicin-resistant tuberculosis (MDR/RR-TB) require treatment with second-line treatment regimens, which are more complex than those used to treat patients without drug-resistant TB.

Extensively drug-resistant TB (XDR-TB) is a form of MDR-TB which is also resistant to two groups of second-line anti-TB medicines, making it more difficult to treat.

3 Treatment adherence interventions include social support such as material support (e.g. food, financial incentives, transport fees), psychological support, tracers such as home visits or digital health communications (e.g. SMS, telephone calls), medication monitor and staff education. The interventions should be selected based on an assessment of the individual patient's needs, provider's resources and conditions for implementation.
4 Treatment administration options include directly observed treatment (DOT), non-daily DOT, video-observed treatment (VOT), or unsupervised treatment.
5 Tracers refer to communication with the patient, including home visits or via short message service (SMS), telephone (voice) call.
6 A digital medication monitor is a device that can measure the time between openings of the pill box. The medication monitor can have audio reminders or send an SMS to remind the patient to take medications, along with recording when the pill box is opened.
7 Material support can be food or financial support meals, food baskets, food supplements, food vouchers, transport subsidies, living allowance, housing incentives or financial bonus. This support addresses the indirect costs incurred by patients or their attendants in order to access health services and, possibly, tries to mitigate the consequences of income loss related to the disease.
8 Psychological support can be counselling sessions or peer-group support.
9 Staff education can be adherence education, chart or visual reminders, educational tools and desktop aids for decision-making and reminders.

More information: http://www.who.int/tb/areas-of-work/drug-resistant-tb/
Latent tuberculosis infection (LTBI) is a state of persistent immune response to stimulation by Mycobacterium tuberculosis antigens without evidence of clinically manifested active TB.

Someone has latent TB if they are infected with the TB mycobacteria but do not have signs of active TB disease. Although individuals with LTBI do not have active TB disease, they may develop disease in the future, making the person ill and putting them at risk of passing the infection to other people.

A quarter of the world’s population is estimated to have LTBI. Systematically providing TB preventive treatment to those at highest risk of developing active TB will prevent the development of disease and also reduce the risk of transmission in the population; this is critical to End TB locally and worldwide.

In 2017, around 1 million people living with HIV (PLHIV) and around 300,000 child household contacts < 5 were provided with preventive treatment.

TB preventive treatment is a key component of the End TB strategy, and TB preventive treatment coverage among those eligible is one of the top 10 indicators to monitor progress. Implementation is currently suboptimal but opportunities for scale-up abound. WHO estimates that approximately 30 million people*, including people living with HIV and all household contacts of TB patients, regardless of age, would need to be provided TB preventive treatment between 2018-2022.

WHO RECOMMENDATIONS FOR THE MANAGEMENT OF LTBI

AT-RISK POPULATIONS

**LTBI testing and treatment should be considered for the following groups:**

- People living with HIV (PLHIV)
  - All adults and adolescents living with HIV
  - All infants and children living HIV
- Contacts
  - Children < 5, regardless of HIV
  - Adults and child contacts** in low burden settings (LBC)
- HIV-negative clinical risk groups: patients on anti-TNF, receiving dialysis, preparing for transplantation, and those with silicosis

**LTBI testing and treatment may be considered for the following groups:**

- HIV-negative children ≥ 5, adolescents, and adults who are contacts** in high-burden settings (HBC)
- Contacts of patients with multidrug-resistant TB
- HIV-negative prisoners, health workers, immigrants from HBCs, homeless persons, people who use illicit drugs, living in LBCs
- Children living with HIV who have successfully completed treatment for TB

RULING OUT TB

**Exclude active TB using clinical algorithms and TB investigations (according to national or WHO guidelines)**

*WHO estimates that approximately 30 million people need to be provided TB preventive treatment between 2018-2022.*
**Testing for LTBI**

- Either TST or IGRA can be used to diagnose LTBI
  - An LTBI test is not required prior to LTBI treatment in PLHIV and children < 5

**Treating LTBI**

- Daily 6 or 9 months isoniazid***
- Daily rifampicin plus isoniazid for 3 to 4 months
- Weekly rifapentine plus isoniazid for 3 months
- Daily rifampicin for 3 to 4 months

**Considerations for Scaling Up**

**Adverse Events Monitoring**

- Mechanisms for monitoring of adverse events are encouraged, including for monitoring drug-drug interactions.

**Adherence and Treatment Completion**

- Interventions to improve adherence and treatment for LTBI are encouraged.
- These should be tailored to the specific needs of the risk groups and to the local context.

**Monitoring and Evaluation**

- IM & E systems should align with national patient monitoring and surveillance systems.
  - Use of standardised indicators is encouraged (see below).
  - Appropriate tools to support scale-up and M & E are to be considered. For example, the WHO M & E module for mobile-phones applications is available for adaptation.
  - National surveillance systems for resistance to drugs used to treat LTBI should be developed.

**WHO-Recommended Indicators for Programmatic Management of LTBI**

**Core Global and National**

- (1) Proportion of children < 5 who are household TB contacts (according to national guidelines) who have completed TB investigations.
- (2) Proportion of children < 5 who are household TB contacts (according to national guidelines) who are eligible for starting on TB preventive therapy that have started treatment.
- (3) Proportion of eligible PLHIV newly enrolled in HIV care, started on TB preventive therapy.

**Core National Indicators**

- (4) Proportion of eligible individuals from at risk populations (according to national guidelines) tested for latent TB infection.
- (5) Proportion of individuals from at risk populations (according to national guidelines) with a positive latent TB test who are eligible for starting TB preventive therapy that have started treatment.
- (6) Proportion of individuals from at risk populations (according to national guidelines) with a positive latent TB test who have started on TB preventive therapy that have completed the course.
- (7) Proportion of eligible PLHIV who completed a course of TB preventive therapy.
- (8) Proportion of children < 5 who are household contacts (according to national guidelines) who have completed a course of TB preventive therapy.

**Optional**

- TB incidence rate among risk populations (as defined by national guidelines).

**LTBI Represent the TB Reservoir**

Latent TB Infection

- 5% Active Disease
- 95% Latent Infection
- 5-15% Reactivation

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Tuberculosis (TB) is the world’s leading killer amongst infectious diseases. Every year, 10 million people develop active TB and approximately 1.6 million people die to it.

Interrupting the cycle of Mycobacterium tuberculosis transmission is crucial to achieving global targets to end the TB epidemic. Thus, there is a need to implement interventions to rapidly identify source cases, and impede person-to-person transmission by reducing the concentration of infectious particles in the air and the exposure time of susceptible individuals. These principles form the basis for effective infection prevention and control (IPC).

IPC consists of evidence-based measures intended to prevent exposure and reduce the risk of transmission of infectious agents such as TB.

The updated WHO guidelines on TB infection prevention and control bring up a new evidence-based framework that promotes the interdependence of administrative, engineering, and respiratory protection controls, stressing on the need to implement this three-level hierarchy of IPC controls as an integrated package of IPC interventions.

The updated guidelines are intended to inform and contextualize TB-specific IPC interventions and activities within national-level and local-level IPC policies and protocols.

The target audience for these guidelines includes national and subnational policymakers; frontline health workers; health system managers for TB, HIV and highly prevalent noncommunicable disease programmes; managers of IPC services in inpatient and outpatient facilities; managers of congregate settings and penitentiary facilities; occupational health officials; and other key TB stakeholders.

The updated recommendations listed in the 2019 guidelines focus on the spectrum of measures as a “package” of interventions, drawing further attention to the core components of IPC as a set of essential elements (i.e. core components) or minimum IPC standards that should be implemented across settings and across the various levels of care, for the effective and efficient functioning of IPC activities and practices.

The adoption of these guidelines goes beyond national TB programmes. It requires an interdisciplinary, multisectoral and multilevel approach to ensure the proper implementation of the recommendations in settings where transmission of M. tuberculosis is likely to occur.
Triage of people with TB signs and symptoms, or with TB disease

- Respiratory separation

- Prompt initiation of effective TB treatment of people with TB disease

- Respiratory hygiene

- Upper-room germicidal ultraviolet (GUV) systems

- Ventilation systems

- Particulate respirators, within the framework of a respiratory protection programme

**GUIDING PRINCIPLES OF INFECTION PREVENTION AND CONTROL**

- Effective IPC measures are a critical part of the quality of health service delivery to achieve people-centred, integrated universal health coverage.

- These guidelines are based on a public health approach to strengthening the adoption and implementation of evidence-based interventions for IPC, including transmission-based precautions, and the recommendations given here should be considered as the minimum IPC standard.

- Implementing these guidelines requires an understanding of the interdependence of the three-level hierarchy of IPC, giving prominence to the implementation of administrative controls as the basis for reducing the risk of transmission of M. tuberculosis.

- The implementation of these recommendations needs to be accompanied by efforts to promote and protect the human rights of all patients, their communities and care providers.

For additional information and resources on this topic, programmatic management of latent TB and other IPC resources be sure to consult the following:


Over 1 million children (aged 0-14 years) fall ill with tuberculosis (TB) each year. In 2017, at least 530,000 boys and 470,000 girls. Children represent about 10% of all TB cases.

In 2017, 233,000 children died of TB, including 39,000 TB deaths among children who were HIV positive. 80% of these children had not reached their fifth birthday.

Researchers estimate that 67 million children are infected with TB (latent TB) and are therefore at risk of developing disease in the future.

Researchers estimate that 25,000 children develop multidrug-resistant TB (MDR-TB) every year.

* Global TB Report 2018; ** Dodd et al., 2016

Any child living in a setting where there are people with infectious TB can become ill with TB, even if they are vaccinated. Children with vulnerable immune systems, such as the very young, HIV-infected or severely malnourished, are most at risk of falling ill or dying from TB. Risks are very high for HIV-infected mothers and children.

Infants and young children are at increased risk of developing severe disseminated disease associated with high mortality, such as TB meningitis or miliary TB.

Adolescents are at particular risk of developing adult type disease, i.e. often sputum smear-positive and highly infectious.

Children with TB are often poor and live in vulnerable communities where there may be a lack of access to health care.

Children develop TB disease usually within 1 year following infection. TB in children is an indicator of recent and ongoing transmission of Mycobacterium tuberculosis in the community.

Children with a known contact with drug-resistant TB are at high risk of developing drug-resistant TB.

More than half of children with TB are missed (not diagnosed and/or not reported). TB illness in children is often missed or overlooked due to non-specific symptoms and lack of a sensitive and child-friendly diagnostic test (not based on sputum).

Only 23% of eligible children received TB preventive treatment in 2017.

Less than 10% of children with MDR-TB were diagnosed and had access to treatment.

Health workers in TB programmes and other health services often lack sufficient knowledge and capacity for prevention, diagnosis and management of childhood TB.

Children who die from TB are often young and/or never accessed treatment despite availability of child-friendly fixed-dose combinations (FDCs).

There is not enough advocacy, political leadership and engagement of key stakeholders.

There are policy-practice gaps in evidence-based programmatic approaches to prevent TB disease and find the missing children with TB.

Implementation of integrated, family and community-centred strategies is weak.

The current TB vaccine (BCG) protects young children against the most severe forms of TB, but does not prevent the transmission of TB from an infectious contact.
The updated roadmap sets the agenda to scale up the response to childhood TB and end child and adolescent TB was launched by WHO, UNICEF, the Stop TB Partnership and partners just prior to the UN High Level Meeting on TB in September 2018. Achieving the goal of ending TB in children and adolescents requires sustained advocacy, greater leadership and accountability, functional partnerships and increased funding. It also requires bridging of the policy-practice gap, implementation and expansion of interventions for prevention, scale up of TB case finding and treatment, implementation of integrated family- and community-centred strategies, improvements in data collection, reporting and use and more child and adolescent TB research.

Selected milestones in the implementation of the key actions of the revised Roadmap, in line with UN High Level Meeting targets:

Between 2018 and 2022:
- Successfully treat 3.5 million children with TB and 115,000 children with drug-resistant TB
- Provide preventive therapy to at least 30 million people, including 4 million children under 5 years of age, 20 million other household contacts and 6 million people (including children and adolescents) living with HIV
WHAT IS PUBLIC-PRIVATE MIX FOR TB CARE AND PREVENTION?

Public-Private Mix (PPM) for TB care and prevention represents a comprehensive approach for systematic involvement of all relevant health care providers in TB care to promote the delivery of quality care in line with the International Standards for TB Care.

PPM encompasses diverse collaborative strategies such as public-private (between the national TB Programme (NTP) and the private sector), public-public (between NTP and other public sector care providers), and private-private (e.g. between an NGO or a private hospital and the neighborhood private providers) collaboration.

PPM for TB care and control is a feasible and cost-effective approach to increase case detection and cure rates, to reach the poor and to reduce the financial burden on patients. This benefits all - the sick patient, the community, the health care provider, the TB programme, and ultimately, the health of the whole nation.

Engaging all relevant health care providers in TB care through PPM approaches is an essential component of the WHO’s End TB Strategy.

There is no “one size fits all” PPM approach. The health care providers and their roles and interactions with NTPs depend on what works best in the local context. Countries are encouraged to adopt the approach that best suits their setting.

DEMONSTRATED BENEFITS OF PPM

QUALITY CARE FOR ALL PATIENTS
PPM reduces malpractice by fostering evidence-based TB diagnosis and treatment in line with the International Standards for TB Care. This limits misdiagnosis, improves cure rates (over 85%) and reduces risks of drug resistance.

EARLY AND INCREASED CASE DETECTION
PPM helps increase TB case detection (by 10-60%) and reduces diagnostic delays by involving all health care providers in timely referral and diagnosis of TB.

IMPROVED AND EQUITABLE ACCESS
PPM improves access to treatment by involving health care providers from whom the poor, marginalized and most vulnerable seek care.

REDUCED FINANCIAL BURDEN
PPM reduces costs to patients by ensuring that TB medicines are free of charge and all other costs are kept to a minimum. PPM can also reduce indirect costs for patients by providing services closer to their homes or workplace.

BETTER SURVEILLANCE
PPM contributes to better TB surveillance when all health care providers who provide TB care follow TB recording and reporting routines linked to national information systems.

IMPROVED MANAGEMENT CAPACITY
PPM improves the management capacity of both the public and the private sectors and can contribute to health systems strengthening in general.
The World Health Organization (WHO), the Public-Private Mix Working Group of the Stop TB Partnership, USAID, the Global Fund, and global partners launched a Roadmap in 2018 to scale up the engagement of public and private health care providers in efforts to end TB. The Roadmap is a critical tool to help countries close gaps in care and reach the UN High Level Meeting on TB political declaration target of reaching 40 million people with TB with quality care by 2022.

The Roadmap recommends ten actions at national and global levels to scale up the engagement of all care providers towards universal access to care:

1. **Build** understanding about patient preferences, private sector dynamics and the rationale for engaging all providers
2. **Establish** a supportive policy and regulatory framework
3. **Set** appropriately ambitious PPM targets
4. **Adapt** flexible models of engagement applicable to local contexts
5. **Advocate** for political commitment, action and investment in PPM
6. **Harness** the power of digital technologies
7. **Allocate** adequate funding for engaging all providers, including by capitalizing on financing reforms for universal health coverage
8. **Deliver** a range of financial and nonfinancial incentives and enablers
9. **Partner** with and build the capacity of intermediaries and key stakeholders
10. **Monitor** progress and build accountability

The roadmap also contains a timeline with targets for 2020, 2022, 2025 and 2030, to showcase contribution to global End TB targets.

To end the TB epidemic and meet the targets in the new UN High Level Meeting political declaration, we must scale up the engagement of private and unlinked public health care providers. WHO, the Stop TB PPM Working Group, USAID, Global Fund, and partners are working together with countries to adopt and implement the PPM roadmap to scale up the engagement of all care providers in efforts to end TB. This is a critical step towards the vision of “Leave No one Behind” of the UN Sustainable Development Goals.
WHO CIVIL SOCIETY TASKFORCE: Our close partners in the fight to end TB

As countries are beginning to ramp up efforts to end TB following commitments made by Heads of State at the first-ever UN High Level Meeting on TB (UNHLM) in September 2018, the role of civil society in driving action and accountability is more important than ever. The UNHLM political declaration and WHO End TB Strategy both call for prioritizing strong and meaningful engagement of civil society and affected communities in all aspects of the TB response.

WHO has revamped its Civil Society Task Force on TB to strengthen collaboration for accelerating progress towards ending TB. Joint action between civil society and WHO is key to reach WHO triple billion goals set in our 13th General Programme of Work. These include 1 billion more people benefitting from universal health coverage (UHC), 1 billion people more people better protected from health emergencies, and 1 billion more people enjoying better health and well-being.

ABOUT THE CIVIL SOCIETY TASKFORCE

The revamped Task Force was launched on 12 December 2018. It is a platform for discussion and exchange with WHO with emphasis on:

✓ Translating WHO TB policies including End TB Strategy into practice through mainstreaming of voices of communities affected by TB and their networks at global, regional and country levels;
✓ Catalyzing greater collaboration between civil society organizations, national TB programmes and WHO at all levels in all activities and projects for improved TB outcomes including meaningful engagement of civil society and affected communities in policy development;
✓ Contributing to the implementation of WHO TB policies with particular focus on multisectoral action for social protection and universal health coverage and advocating their inclusion in national TB strategies and plans, national social programmes and political platforms (e.g. parliaments) and regional and global platforms of policy dialogue.

IMPORTANCE OF CIVIL SOCIETY ENGAGEMENT TO END TB

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The 15 members of the Task Force bring a wealth of expertise, experience and geographic diversity, representing different areas of interest of civil society. The members represent all regions of the World, including four members from the African Region, two from the Americas, one from the Eastern Mediterranean, two from European Region, four from South East Asia and two from the Western Pacific. Out of 15 members, 14 are from a TB High Burden Country. It includes persons who have had TB, advocates, leaders of national implementing organizations and networks, research experts, and experts in TB among vulnerable populations such as migrants.

Selection process
Members selected with inputs from an independent Selection Panel, consisting of representatives from USAID, RESULTS, and Community Delegation to the Unitaid Board. Selection was based on assessments of individual competencies and experiences and the process aimed to balance geography, gender, and the diversity of communities and civil society representatives.

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