



Tuberculosis in the WHO African Region: 2023 progress update

Universal Health Coverage, Communicable and
Noncommunicable Diseases (UCN) Cluster

September 2023

Tuberculosis in the WHO African Region: 2023 progress update

Universal Health Coverage, Communicable and
Noncommunicable Diseases (UCN) Cluster

September 2023

UHC/UCN Cluster
World Health Organization
Regional Office for Africa
Brazzaville • 2023

Tuberculosis in the WHO African Region: 2023 progress update

ISBN:

© WHO African Region, 2023

Some rights reserved. This work is available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>).

Under the terms of this licence, you may copy, redistribute and adapt the work for non-commercial purposes, provided the work is appropriately cited, as indicated below. In any use of this work, there should be no suggestion that WHO endorses any specific organization, products or services. The use of the WHO logo is not permitted. If you adapt the work, then you must license your work under the same or equivalent Creative Commons licence. If you create a translation of this work, you should add the following disclaimer along with the suggested citation: “This translation was not created by the World Health Organization (WHO). WHO is not responsible for the content or accuracy of this translation. The original English edition shall be the binding and authentic edition”.

Any mediation relating to disputes arising under the licence shall be conducted in accordance with the mediation rules of the World Intellectual Property Organization.

Suggested citation. Tuberculosis in the WHO African Region: 2023 progress update. Brazzaville: WHO African Region, 2023. Licence: [CC BY-NC-SA 3.0 IGO](https://creativecommons.org/licenses/by-nc-sa/3.0/igo).

Cataloguing-in-Publication (CIP) data. CIP data are available at <http://apps.who.int/iris>.

Sales, rights and licensing. To purchase WHO publications, see <http://apps.who.int/bookorders>. To submit requests for commercial use and queries on rights and licensing, see <http://www.who.int/about/licensing>.

Third-party materials. If you wish to reuse material from this work that is attributed to a third party, such as tables, figures or images, it is your responsibility to determine whether permission is needed for that reuse and to obtain permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

General disclaimers. The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by WHO in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by WHO to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall WHO be liable for damages arising from its use.

Layout and design: WHO Regional Office for Africa, Brazzaville, Congo

Contents

iii	LIST OF ABBREVIATIONS	23	STRATEGIC FOCUS: THE STATE OF THE SCIENCE
iv	EXECUTIVE SUMMARY	25	CHALLENGES AND OPPORTUNITIES
01	INTRODUCTION	27	FUNDING REQUIREMENTS
05	PROGRESS IN COMBATTING TB IN THE AFRICAN REGION	28	LOOKING AHEAD
11	WHO SUPPORT TO COUNTRIES TO ACHIEVE TB TARGETS	30	REFERENCES
16	STRATEGIC FOCUS: STRENGTHENING LABORATORY NETWORKS		

List of abbreviations

ART	Anti-retroviral treatment
CARN-WARN	Central African Network for TB Control-West African Network for TB Control
DOTs	Directly Observed Treatment
DST	Drug Susceptibility Testing
ECSA-HC	East, Central and Southern Africa – Health Community
EQA	External Quality Assurance
HIV/AIDS	Human immunodeficiency virus/Acquired immunodeficiency syndrome
MDR-TB	Multi-drug resistant TB
NTPs	National TB Programmes
NTRLs	National TB Reference Laboratories
QMS	Quality Management System
rGLC	Regional Green Light Committee
RR-TB	Rifampicin-resistant TB
SEARN-TB	Southern and East African National TB Programmes
SRLs	Supranational Reference Laboratories
STIs	Sexually transmitted infections
TB	Tuberculosis
US-CDC	United States Centers for Disease Control
USAID	United States Agency for International Development
WGS	Whole Genome Sequencing



©WHO AFRO

Executive summary

This brief update on tuberculosis (TB) in the African region covers the state of TB in the WHO African region, strategic priorities and targets and the impact of COVID-19 on essential services. This is followed by key figures for the region, the role of WHO in country support and, recognizing the importance of diagnosis and drug susceptibility testing, a focus on strengthening laboratory networks and the regional laboratory and diagnostic objectives. A brief update of the state of the science and how this is funded across the African region is provided, before closing with challenges and opportunities, strategic directions and a brief discussion of funding concerns. Discussions around the drivers of the disease, and issues of the poverty, inequality and stigma that continue to plague those living with TB are fully recognized, but are outside the scope of this report.

An estimated 2.5 million people fell ill with TB in the African region in 2021, and around 500 000 people died of the disease in the same year. TB continues to be a significant public health problem in the WHO African region, which accounts for 23% of new case and 31% of TB-related deaths, despite making up only 15% of the world's population. The heavy burden of HIV in the region is reflected in the 20% of new TB cases that are reported among people living with HIV and AIDS.

Drug resistant TB, both rifampicin resistant and multi-drug resistant, is a growing burden, affecting 450 000 and 77 000 people in the region respectively. Of these cases 53% were from Nigeria and South Africa.

Importantly, the gap between the estimated

number of TB cases and the number of notified cases remains large, with gaps in recording the actual number of drug-resistant TB cases even larger. An added challenge is the identification of TB cases among children. Increased measures are required to improve detection, bacterial confirmation, and treatment of paediatric TB, reflected in the 322 000 children and young adolescents (aged 0-15 years) making up one-third of cases among children under 15 worldwide.

Political commitment towards ending the TB epidemic is growing in the region, with many Member States endorsing the WHO [End TB Strategy](#) and the [Framework for an integrated multisectoral response to TB, HIV, STIs and Hepatitis in the WHO African Region](#). The global strategy and regional framework set ambitious but achievable targets for reducing the TB burden in the African Region by 2030, including a 90% reduction in the number of TB deaths compared to 2015 and an 80% reduction in the TB incidence rate compared to 2015, with the goal of ensuring that zero TB-affected families face catastrophic costs.

The impact of the COVID-19 pandemic can be summed up by the fact that global deaths from TB rose for the first time since 2015. Globally, the pandemic negatively influenced the notification of TB cases, except in the African region, where COVID-related disruptions have had little impact on the number of people notified with TB.

The decline in the estimated numbers of new TB cases and deaths that began in the African Region in 2005 has continued. Between 2000 and 2021, an estimated 16 million deaths were averted in the region due to TB and TB/HIV interventions. In 2021, the African Region passed the 2020 milestone of the [End TB Strategy](#), with a 22% reduction in new cases compared with 2015. Eight countries have also reached a 35% reduction from 2015.

In the past year, WHO worked with collaborating partners such as the African Union, Global Fund, Dutch TB Foundation (KNCV), USAID, US-CDC, The International Union Against TB and Lung Diseases, Stop TB Partnership, Elisabeth Glaser Pediatric

AIDS Foundation, Damian Foundation, and CARN-WARN to provide technical support to Member States to consolidate gains already made and to open new avenues for faster progress towards ending the TB epidemic.

At the political level, the call to action to address TB and undernutrition in children and put in place swift measures to accelerate and facilitate the scale-up of child-friendly tuberculosis diagnosis, treatment, and care was endorsed by African health ministers during the Seventy-second session of the WHO Regional Committee for Africa ([RC72](#)).

The fight against drug-resistant TB was scaled up. In 2022, support missions were deployed to 39 Member States to support updating of policy and treatment guidelines to the latest WHO recommendations for MDR-TB treatment, along with in-country missions for capacity building. All country programmes have acquired Xpert MTB/RIF technology for molecular diagnosis of TB.

A quality-assured laboratory network equipped with rapid diagnostics is a prerequisite for any national TB programme moving towards the [End TB Strategy](#) call for early diagnosis of tuberculosis, including universal Drug-Susceptibility Testing (DST). TB laboratory strengthening activities have been aligned following the evolution of WHO guidelines on TB – specifically on laboratory guidelines and policies issued by WHO on [testing and diagnosis](#). A [regional framework for strengthening TB diagnostic networks in Africa 2015–2020](#) was also developed and endorsed. There is now a need to develop a new framework for an integrated laboratory system to TB, HIV, STIs and Hepatitis covering the period of 2023–2028 and in line with the [Framework for an integrated multisectoral response to TB, HIV, STIs and Hepatitis in the WHO African Region 2021–2030](#), as approved by the Regional Committee (AFR/RC71/6).

The WHO TB Supranational Reference Laboratory Network (SRLN) was created in 1994 and comprised of 14 laboratories, who volunteered their institutional capacity and resources to support the Global Project on Anti-TB Drug Resistance Surveillance.

Between 1994 and 2019, the SRLN was expanded to 32 laboratories (Supranational Reference Laboratories, or SRLs), largely driven by regional initiatives and institutional interest in joining the network. The East, Central and Southern Africa – Health Community (ECSA-HC) and TB Supranational Reference Laboratory Network in Western and Central Africa (W/CA), in collaboration with the Ministries of Health of Uganda and Benin through the Uganda and Benin SRLs, have been awarded Global Fund grants to support National TB Reference Laboratories and their networks to improve TB diagnosis in 45 countries in the WHO African Region.

WHO has supported mobilizing funding to support the SRLs in Benin and Uganda in strengthening the capacity of National TB Reference Laboratories in 45 out of 47 Member States. The project continues to demonstrate its relevance in the region by supporting the differentiated capacity needs of NTRLs in quality assurance, quality management system strengthening, use of WHO recommended-rapid diagnostics, DST, drug resistance survey, prevalence survey, TB specimen referral system, and laboratory information system.

There are three regional objectives; (1) to increase access to rapid and accurate detection of TB; (2) to reach universal access to drug susceptibility testing (DST); and (3) to strengthen the quality of laboratory services. Objective 1 requires greater input, since only 66% of the 1.5 million notified cases in 2021 were bacteriologically confirmed; 43% of these were confirmed using rapid diagnostics. Regarding objective 2, gains in technical capacity in both first- and second-line DST were pivotal in improving universal access to DST and MDR-TB management in many countries. For objective 3, the Regional TB Laboratory project has been supporting countries to achieve SRL candidacy, and these countries are, in turn, supporting other countries in the region. This all serves to strengthen laboratory and diagnostic capacity in the region. Moving forward, a framework for an integrated laboratory system to support TB, HIV, hepatitis and STIs is required, including an operational plan.

An increased funding base is also required as these initiatives are rolled out.

Looking at the state of science and research into TB, in 2020, global TB research investment was US\$ 915 million, less than half of the US\$ 2 billion per year target set in the political declaration of the United Nations General Assembly High-Level Meeting (UNHLM) on TB. There have been significant advancements in TB diagnostics. Rapid molecular tests have made it easier to detect TB and drug-resistant TB. There is a need to ensure that they are accessible. New drugs and regimens are being developed to address drug-resistant TB more effectively.

In Africa, the Regional Office is involved in drug resistance surveys and TB cost surveys to support countries in research protocol development, implementation, data analysis and dissemination. Bedaquiline and delamanid have been increasingly used in the treatment of drug-resistant TB particularly in MDR-TB. All countries in the region are using the new drugs to treat DR-TB.

However, developing a more effective TB vaccine remains a long and complex process, and developing effective treatments for multi-drug-resistant TB (MDR-TB) and extensively drug-resistant TB (XDR-TB) requires substantial resources and innovation.

Despite several ‘free TB care’ policies in the region, national TB patient cost surveys have shown that TB-affected households finance a significant proportion of TB care and bear unaffordable cost with devastating consequences for households. Such costs pose a barrier to TB care and may fuel disease transmission and resistance. Further, few countries have determined the level of catastrophic costs considering the need for social protection under the universal health coverage principle.

In 2020, the Global Plan to End TB estimated

that US\$ 3.9 billion would be required to achieve targets for the African Region, however only US\$ 0.9 billion were mobilized for TB prevention, diagnosis, and treatment. The funding gap included US\$ 2.3 billion in the 17 high TB burden countries in the region. The rest of the budget remains unfunded, seriously undermining elimination efforts. This requires all stakeholders inside and outside the health sector to increase awareness of TB and to allocate sufficient financial, technical, and human resources to accelerate progress towards ending this disease. Furthermore, increases in domestic funding (which have been decreasing since 2016, and is currently at 51%), alongside international funding for TB, are required to ensure sustainability of resources and quality of care.

Ending TB by 2030 requires a collaborative effort involving governments, international organizations, NGOs, and communities. This coordinated effort must be supported by sustained political will and financial

investment to ensure a long-term commitment to tuberculosis control. The issue of drug resistance is one of the most important problems that must be solved. To achieve the MDR-related UNHLM goals, diagnostics, treatment, and care must become more readily available. In addition, there is an urgent need to address other determinants of tuberculosis and the growing social disparities. Moreover, to achieve the End TB objectives, it is essential to invest in research and encourage innovation in the field.

Key recommendations include enhancing national leadership and accountability to implement global, regional and national commitments at scale, including increased investment. It will also be important to accelerate the uptake of WHO recommended rapid laboratory diagnostic technologies and treatment guidelines. All stakeholders, including those living with TB, and civil society need to be engaged in these processes.



©WHO AFRO



1

Introduction

1.1 Tuberculosis in the African Region

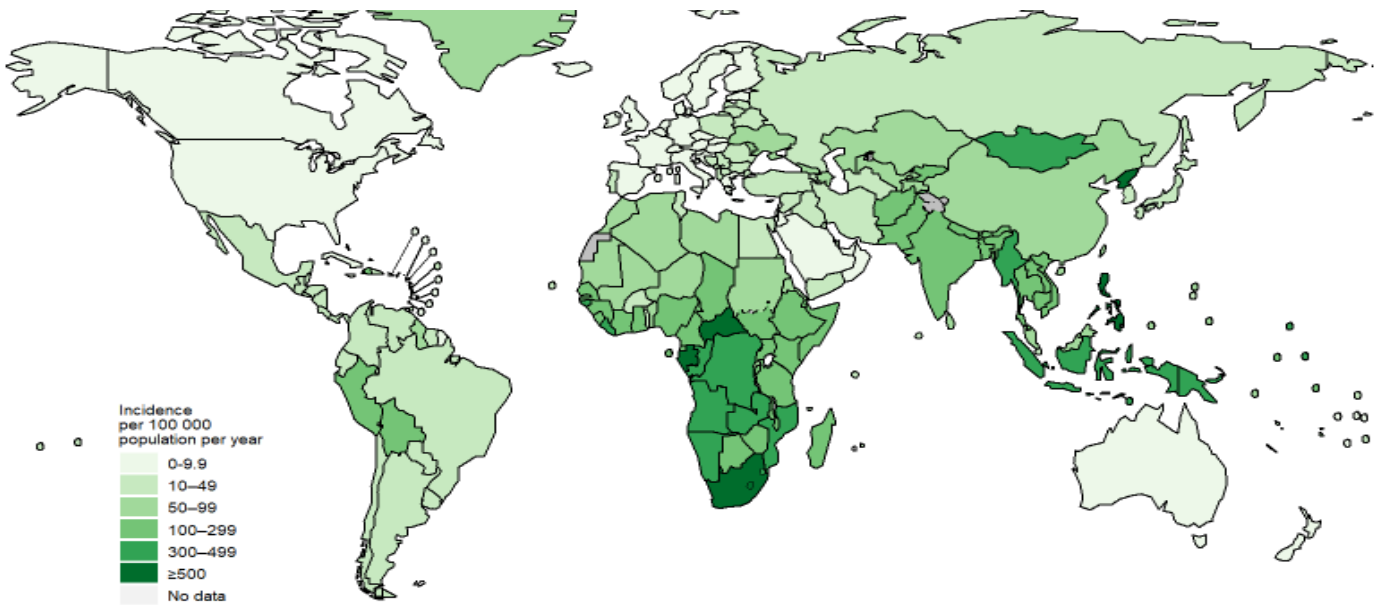
An estimated 2.5 million people fell ill with tuberculosis in the African Region in 2021, and as many as half-a-million people died due to the disease in the same year.

Tuberculosis (TB) is an infectious disease that primarily affects adults in their most productive years. While commonly affecting the lungs, TB also affects the kidneys, brain, spine, and skin. As shown in **Figure 1**, geographically, most TB cases in 2021 were in the WHO regions of South-East Asia, Africa, and the Western Pacific, with smaller shares in the Eastern Mediterranean, the Americas, and Europe. Despite being preventable and curable, tuberculosis was the second leading infectious disease killer (after COVID-19) and the 13th leading cause of death worldwide during 2020–2021.¹ It remains a leading cause of death for people living with HIV/AIDS.



©WHO AFRO

Figure 1 Estimated TB incidence rates, 2021



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Source: Section 2.1 TB incidence. In: Global Tuberculosis Report 2022 [online report]. Geneva: World Health Organization; 2023 (ISBN: 978-92-4-006172-9, <https://www.who.int/publications/i/item/9789240061729>, accessed 10 September 2023).

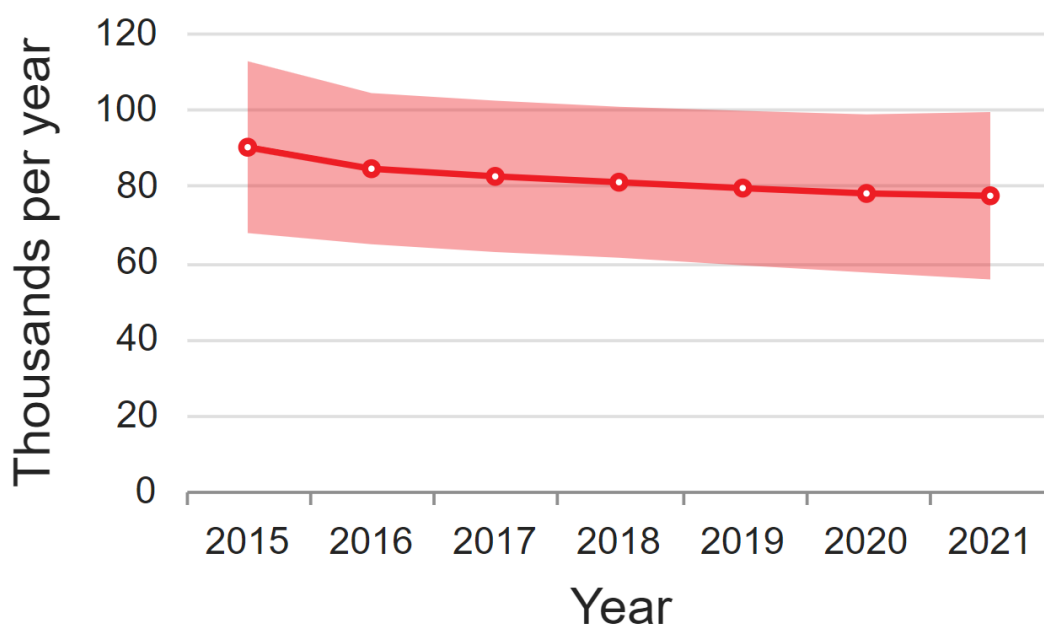
TB continues to be a significant public health problem in the WHO African Region, with a high number of cases and deaths. Despite making up only 15% of the world's population, the region accounted for 23% of new TB cases and 31% of TB-related deaths in 2021.² This is the equivalent of 2.5 million people falling ill with tuberculosis and an estimated 500 000 deaths. Approximately 20% of the new TB cases were reported among people living with HIV/AIDS.

TB mortality in the region remains high, with a small number of countries carrying large disease burdens. The estimated number of deaths in 2021 in the Democratic Republic

of Congo, Nigeria, and South Africa, for instance, accounted for 48% of all TB deaths in the African Region.

The global burden of drug-resistant TB is increasing, including an increasing number of deaths. In 2021, there were an estimated 450 000 new cases of rifampicin-resistant TB (RR-TB) at the global level and an estimated 77 000 multidrug-resistant TB (MDR-TB) cases in the African Region (**Figure 2**).³ Of these cases, 53% were from Nigeria and South Africa.

Figure 2 Estimated number of incident cases of MDR/RR-TB, WHO African Region, 2015–2021



The shaded area represents the 95% uncertainty interval.

Source: Global Tuberculosis Report 2022. Geneva: World Health Organization; 2023 (ISBN: 978-92-4-006172-9, <https://www.who.int/publications/i/item/9789240061729>, accessed 28 June 2023).

Globally, the gap between the estimated number of TB cases and the number of notified cases remains large, despite an overall narrowing trend. There is substantial variation by region, with the African Region recording the largest gaps. Gaps in recording the actual number of drug-resistant TB cases are even larger. While case detection has improved for RR-TB and MDR-TB thanks to improved diagnostics, an estimated 1 million cases of isoniazid-resistant TB were missed in the region in 2021. Additionally, TB prevention and control programmes also face challenges in the identification of cases among children. With an estimated 322 000 children and young adolescents aged 0–15 years (one third of cases among children under 15 years worldwide), increased measures are required to improve detection, bacterial confirmation, and treatment of paediatric TB.



1.2 Strategies and targets

Political commitment towards ending the TB epidemic is growing in the region, with many Member States endorsing the [WHO End TB Strategy](#) and the [Framework for an integrated multisectoral response to TB, HIV, STIs and Hepatitis in the WHO African Region](#). The framework aligns with global health sector strategies and prioritizes integrated interventions using a primary health care approach to achieve universal health coverage and other health-related SDG targets. The global strategy and regional framework set ambitious but achievable targets for reducing the TB burden in the African Region by 2030, including a 90% reduction in the number of TB deaths compared to 2015 and an 80% reduction in the TB incidence rate compared to 2015, with the goal of ensuring that zero TB-affected families face catastrophic costs. The African Region is committed to achieving these targets through sustained and strengthened efforts, with the goal of ending the TB epidemic by 2030.

1.3 Impact of COVID-19 on TB essential services

The COVID-19 pandemic had a catastrophic impact on health systems throughout the globe. In 2020, the pandemic disrupted essential health services in 92% of countries globally, 22.7 million children missed basic immunization services, there was an increase in malaria cases, and global deaths from TB rose for the first time since 2015.⁴

Many gains were halted during the COVID-19 pandemic, which disrupted the delivery of essential health services. The pandemic exposed numerous vulnerabilities in health systems of the region, including disparities in service coverage between the rich and the poor, and gaps in social protection. It illustrated the close intersections between health emergencies, communicable and noncommunicable diseases, peace, and resilient health systems. The pandemic showed that health security and attainment of universal health coverage are inseparable aspirations and consequently, efforts to achieve these must go hand in hand.

Globally, the pandemic negatively influenced the notification of tuberculosis cases. The exception was the African Region, where COVID-related disruptions have had little impact on the number of people diagnosed and officially notified with TB. The pandemic further reduced the limited access of key populations to HIV and TB services. Community HIV organizations noted that key populations have had less access to social protection, including programmes to mitigate the impact of COVID-19. The pandemic has exposed the health and human security implications of delayed access to vital medicines, vaccines, and health technologies, and the lack of adequate investments in primary health care and universal health coverage.⁵

A key negative impact of the COVID-19 pandemic was the diversion of health system resources, which disrupted the delivery of essential health services and exposed the ongoing weaknesses and vulnerability of national health systems to stay on track towards achieving the SDGs. A study in South Africa on the impact of COVID-19 on routine primary healthcare services, for example, showed a reduction in access to, use, and quality of routine health services. The long-term effects are still being assessed.⁶

Across the region, the COVID-19 pandemic continues to disrupt the delivery of essential health services. On average, countries in the African Region reported greater disruptions across tracer service areas compared to other regions. It was also observed that high- and upper-middle-income countries reported fewer service disruptions than countries in other income groups. Findings from the third round of the [global pulse survey](#) conducted in 2021 demonstrated that substantial disruptions persisted after the first year of the pandemic. More than 90% of the 36 participating countries, territories, and areas reported one or more disruptions to essential health services, representing only a marginal improvement on 2020 survey findings.



©WHO AFRO

2

Progress in combatting TB in the African Region

The decline in the estimated numbers of new TB cases and deaths that began in the African Region in 2005 has continued. Between 2000 and 2021, an estimated 16 million deaths were averted in the region due to TB and TB/HIV interventions. In 2021, the African Region passed the 2020 milestone of the [End TB Strategy](#), with a 22% reduction in new cases compared with 2015.⁷ Eight countries have also reached a 35% reduction from 2015.

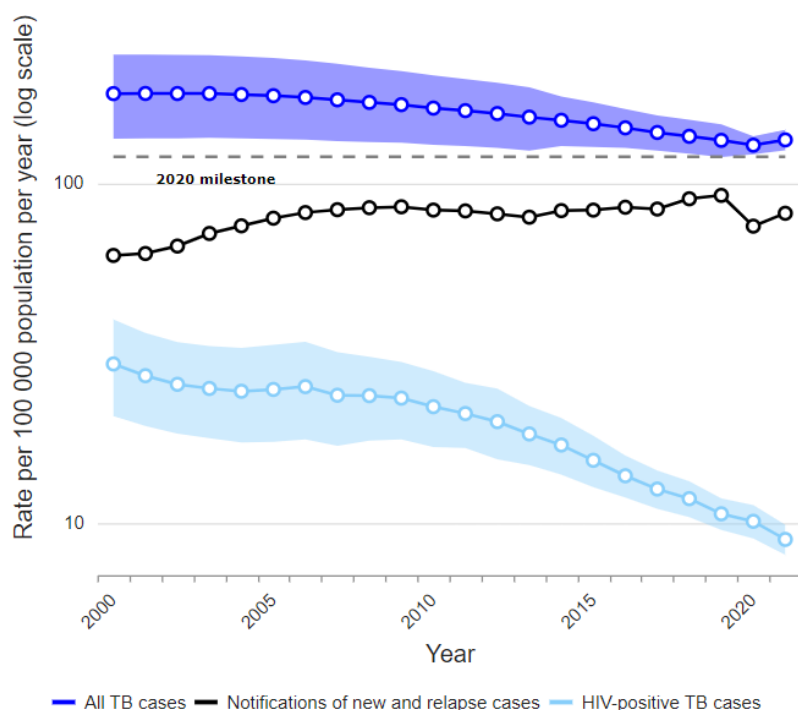
2.1 Reducing the number of new cases

An estimated 10.6 million people fell ill with TB in 2021, equivalent to 134 cases per 100 000 population. Among all TB cases, 6.7% were among people living with HIV. Geographically, most TB cases in 2021 were in the WHO regions of South-East Asia (45%), Africa (23%) and the Western Pacific (18%), with smaller shares in the Eastern Mediterranean (8.1%), the Americas (2.9%) and Europe (2.2%). The TB incidence rate (new cases per 100 000 population per year) is estimated to have increased by 3.6% between 2020 and 2021, following declines of about 2% per year for most of the past two decades (**Figure 3**).



©WHO AFRO

Figure 3 Global trends in the TB incidence rate, 2000–2021

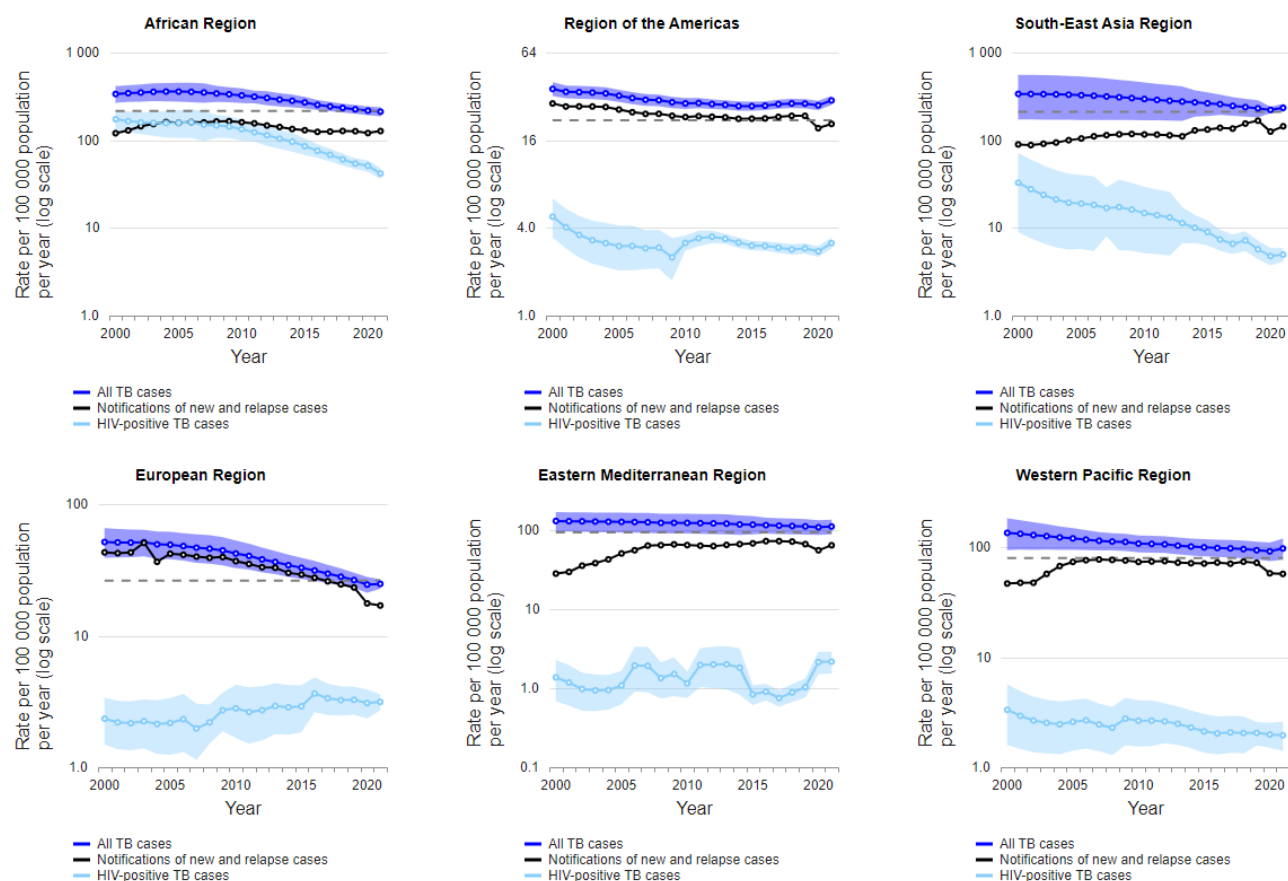


The shaded area represents the 95% uncertainty interval.

Source: Section 2.1 TB incidence. In: Global Tuberculosis Report 2022 [online report]. Geneva: World Health Organization; 2023 (ISBN: 978-92-4-006172-9, <https://www.who.int/publications/i/item/9789240061729>, accessed 10 September 2023).

The African Region showed that it is possible to reach – and even surpass – TB goals and make significant inroads on reducing the disease burden from this pathogen. In 2021, the region passed the 2020 milestone of the [End TB Strategy](#), with a 22% reduction in new cases compared with 2015 (**Figure 4**).⁸ Eight countries have also reached the 35% reduction from 2015: Eswatini, Kenya, Mozambique, South Sudan, Togo, Uganda, and Zambia.

Figure 4 Trends in estimated TB incidence rates by WHO Region, 2000–2021



The shaded area represents the 95% uncertainty interval.

Source: Section 2.1 TB incidence. In: Global Tuberculosis Report 2022 [online report]. Geneva: World Health Organization; 2023 (ISBN: 978-92-4-006172-9, <https://www.who.int/publications/i/item/9789240061729>, accessed 10 September 2023).

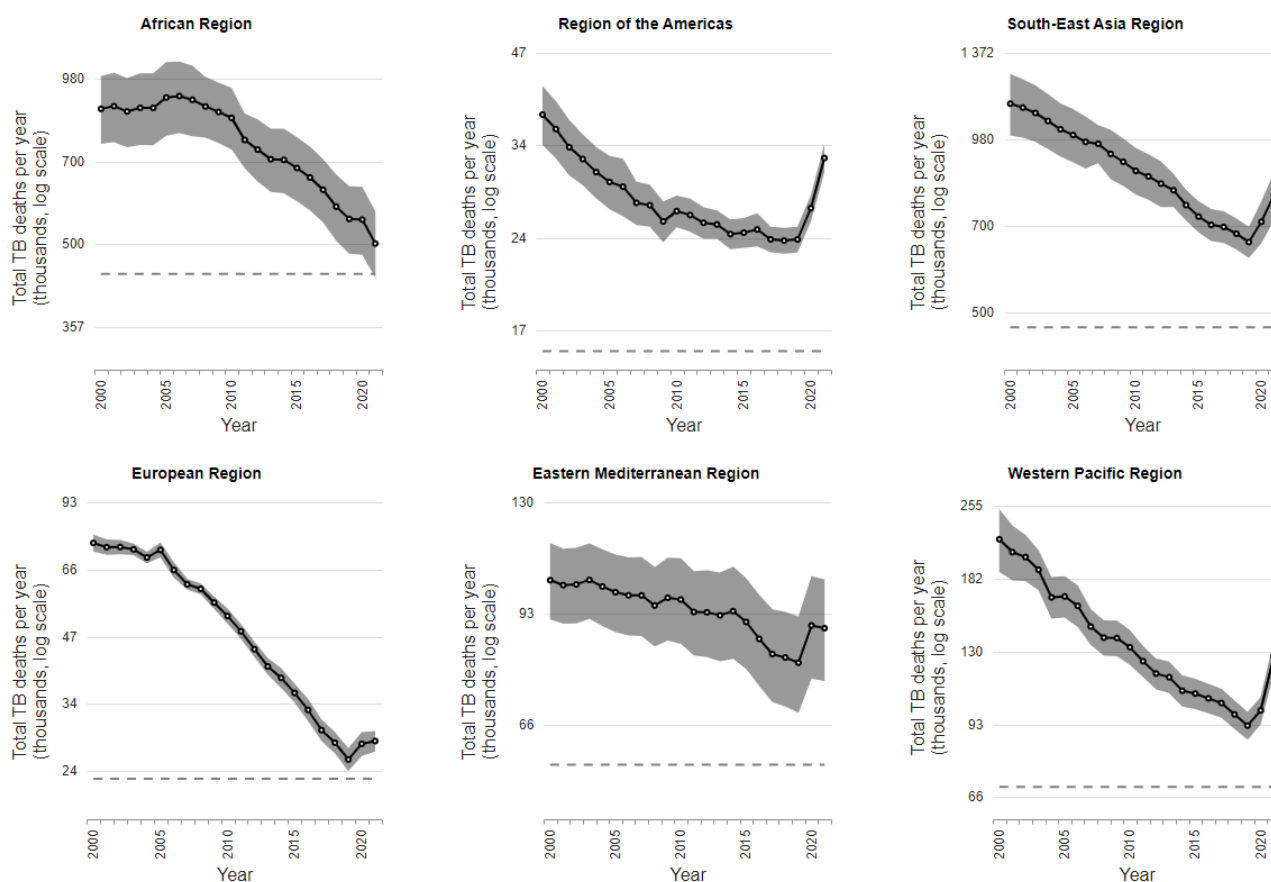
2.2 Preventing avoidable TB-related deaths

In 2021, there were an estimated 1.4 million deaths among HIV-negative people and 187 000 deaths among HIV-positive people, for a combined total of 1.6 million; this was up from best estimates of 1.5 million in 2020 and 1.4 million in 2019, and back to the level of 2017. The progress previously made towards the first milestone of the End TB Strategy, which called for a 35% reduction between 2015 and 2020, has been reversed; the net reduction from 2015 to 2021 was only 5.9%.

In 2021, 82% of global TB deaths among HIV-negative people occurred in the WHO African and South-East Asia Regions. The African and South-East Asia Regions accounted for 82% of the combined total of TB deaths in HIV-negative and HIV-positive people.

The global pattern of a fall in the TB mortality rate (TB deaths per 100 000 population per year), followed by increases in 2020 and 2021, is evident in five of the six WHO regions; the exception being the African Region, where there was a continued decline. Trends in the absolute number of TB deaths at regional level show a similar pattern to the TB mortality rate (**Figure 5**). Reversals of declines achieved up to 2019 have set back progress with respect to the first milestone of the End TB Strategy. The African Region is the closest to the milestone, with a 26% reduction between 2015 and 2021.

Figure 5 Trends in the estimated absolute number of TB deaths (HIV-positive and HIV-negative, in thousands) by WHO Region, 2000–2021

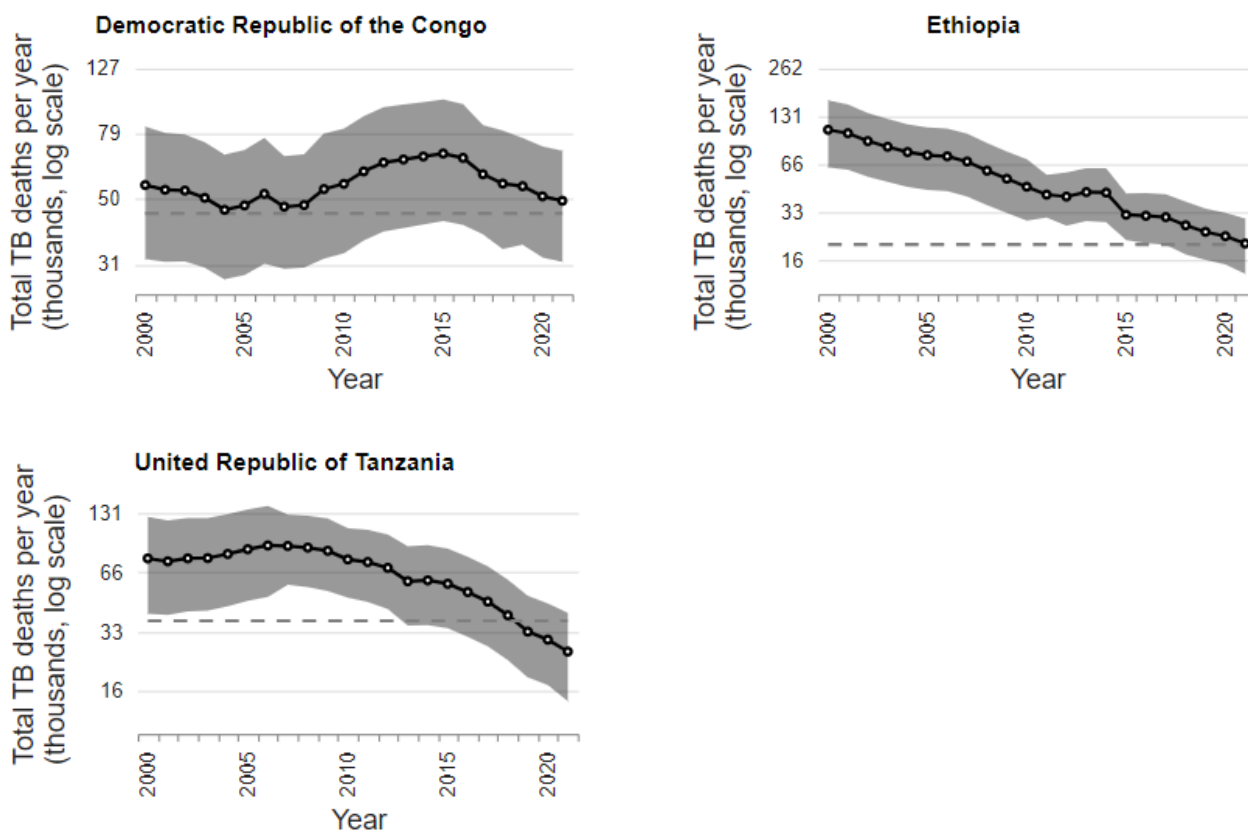


The shaded area represents the 95% uncertainty interval.

Source: Section 2.2 TB mortality. In: Global Tuberculosis Report 2022 [online report]. Geneva: World Health Organization; 2023 (ISBN: 978-92-4-006172-9, <https://www.who.int/publications/i/item/9789240061729>, accessed 10 September 2023).

Trends in the reduction of estimated TB mortality rates in three high burden countries (Democratic Republic of Congo, Ethiopia, and United Republic of Tanzania) are striking (**Figure 6**). Ethiopia has almost reached the second End TB Strategy milestone, with a reduction of 34%.

Figure 6 Trends in the estimated absolute number (in thousands) of TB deaths (HIV-positive and HIV-negative TB) in three high TB burden countries, 2000–2021

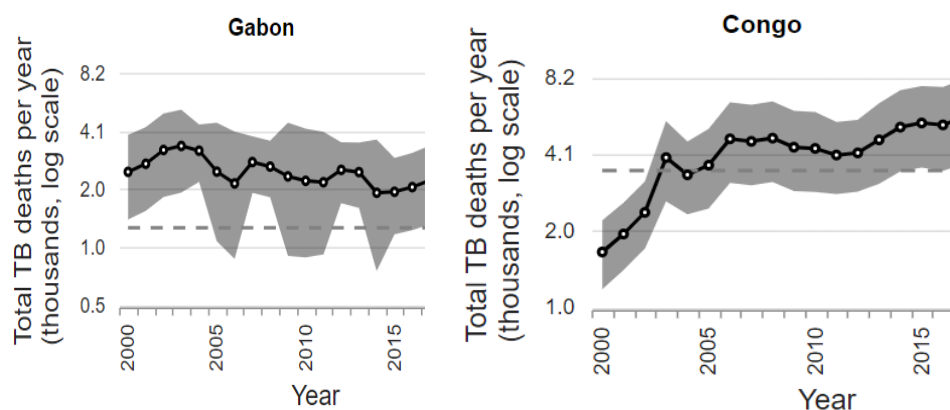


The shaded area represents the 95% uncertainty interval.

Source: Section 2.2 TB mortality. In: Global Tuberculosis Report 2022 [online report]. Geneva: World Health Organization; 2023 (ISBN: 978-92-4-006172-9, <https://www.who.int/publications/i/item/9789240061729>, accessed 10 September 2023).

Trends in the estimated TB mortality rate for Congo and Gabon have been increasing for many years (**Figure 7**). These countries need special attention to strengthen programmatic TB management, including improved human resource coordination between TB and HIV programmes.

Figure 7 Trends in the estimated absolute number (in thousands) of TB deaths (HIV-positive and HIV-negative TB) in two high TB burden countries, 2000–2021



The shaded area represents the 95% uncertainty interval.

Source: Section 2.2 TB mortality. In: Global Tuberculosis Report 2022 [online report]. Geneva: World Health Organization; 2023 (ISBN: 978-92-4-006172-9, <https://www.who.int/publications/i/item/9789240061729>, accessed 10 September 2023).



©WHO AFRO

3

WHO support to countries to achieve TB targets

3.1 Activities

To address challenges during the past year, WHO worked with collaborating partners such as the African Union, Global Fund, Dutch TB Foundation (KNCV), USAID, US-CDC, The International Union Against TB and Lung Diseases, Stop TB Partnership, Elisabeth Glaser Pediatric AIDS Foundation, Damian Foundation, and CARN-WARN to provide technical support to Member States to consolidate gains already made and to open new avenues for faster progress towards ending the TB epidemic.

At the political level, the call to action to address TB and undernutrition in children and put in place swift measures to accelerate and facilitate the scale-up of child-friendly tuberculosis diagnosis, treatment, and care was endorsed by African health ministers during the Seventy-second session of the WHO Regional Committee for Africa (RC72).

The fight against drug-resistant TB was scaled up. In 2022, support missions were deployed to 39 Member States to support updating of policy and treatment guidelines to the latest WHO recommendations for MDR-TB treatment, along with in-county missions for capacity building. All country programmes have acquired Xpert MTB/RIF technology for molecular diagnosis of TB.

WHO provided effective support to countries for HIV and TB programme reviews, as well National Strategic Plan development, which is a requirement for the Global Fund funding request process and for other donor proposals. Eleven countries (Burundi, Central African Republic, Cote d'Ivoire, Democratic Republic of Congo, Lesotho, Namibia, Nigeria, Senegal, South Africa, South Sudan, and United Republic of Tanzania)



©WHO AFRO

have completed the planning process for HIV and 14 countries for TB (Central African Republic, Cameroon, Congo, Democratic Republic of Congo, Gambia, Guinea, Kenya, Lesotho, Mali, Namibia, Rwanda, Senegal, Togo, and Zimbabwe). In addition, Kenya and South Africa have been supported to develop their TB National Strategic Plan.

Five countries (Burkina Faso, Congo, Chad, Niger, and Mali) have been supported through Global Fund Strategic Engagement Initiative in West and Central Africa to improve TB case finding, care, and prevention activities. They are receiving local technical assistance to support operationalization.

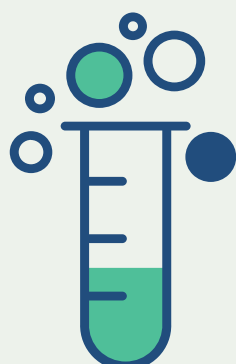
3.2 Impact

Prevention



- The number of people provided with TB preventive treatment in 2021 was similar to 2019 levels and the target for provision of TB preventive treatment to people living with HIV was surpassed. Sixty-one percent of HIV-positive people newly enrolled in care and 40% of children (aged less than five years) who were household contacts of bacteriologically confirmed TB cases were on TB preventive treatment in the region in 2021.

Laboratory



- All 47 Member States adopted the WHO policy on the use of rapid molecular tests as first line of diagnosis for all presumptive TB cases and rapid molecular tests for first- and second-line diagnoses.
- All country programmes have the required technology for molecular diagnosis of TB.
- In 2021, a WHO-recommended rapid molecular test was used as the initial diagnostic test for 43% of the 1.5 million people newly diagnosed with TB in the region, an increase from 34% in 2020.
- In 2021, National TB Reference Laboratories in 10 countries achieved ISO 15189 accreditation.

TB diagnosis and notification



- In 2021, 60% of the estimated 2.46 million cases in the region were diagnosed and notified.
- Of the 1.29 million people diagnosed with pulmonary TB in 2021, 66% were bacteriologically confirmed (versus 63% at the global level).
- Namibia and Zambia were among the 30 high TB burden countries that had the highest confirmation rates (above 90%).
- The African Region had the highest regional level coverage of HIV testing among people diagnosed with TB. In 2021, 89% of notified TB patients knew their HIV status, while the global rate was 76%.

Drug resistant TB



- Detection of rifampicin-resistant TB (RR-TB) and multidrug-resistant TB (MDR-TB) has been improving with new diagnostics. In 2021, 18 887 laboratory confirmed cases of MDR/RR-TB were notified (25% of the estimated number of cases).
- In 2021, 96% of the 18 887 patients with laboratory confirmed MDR/RR-TB were started on treatment (versus 98% at the global level). However, only 23% of the estimated number of total cases (77 000) in the region were started on treatment (versus 31% at the global level).
- Of the 1079 laboratory-confirmed cases of drug resistant TB in 2021, 907 (84%) were started on treatment.

Treatment coverage



- In 2021, TB treatment coverage in the African Region was 60%, similar to the global level (61%). However, treatment coverage among children (0–14 years) in the region was only 44%.
- Among the 30 high TB burden countries, countries with the highest levels of treatment coverage in 2021 included Mozambique (85%), Zambia (84%), and Uganda (82%).
- Six of the 30 high TB burden countries with worryingly low levels of treatment coverage in 2021 were in the African Region: Lesotho (32%), Gabon (42%), Central African Republic (45%), Liberia (46%), and Nigeria (48%).
- In 2021, 93% of newly diagnosed TB patients who tested HIV positive in the African Region were on antiretroviral therapy (ART).
- Among the 30 high TB/HIV burden countries, best estimates of the coverage of ART among people living with HIV who developed TB ranged from 9–81%. Three of the 30 high burden countries with coverage over 75% were in the African Region (Uganda: 81%; Mozambique: 80%; and Zambia: 79%). Four of the 30 high burden countries with coverage equal to or less than 25% were in the African Region (Congo: 9.5%; Gabon: 13%; Guinea Bissau: 21%; Lesotho: 25%).

Treatment success



- The treatment success rate for new and relapsed cases registered in the region in 2020 was 86%, the same as at the global level.
- The treatment success rate for HIV-positive TB cases registered in 2020 was 81%.
- The treatment success rate for MDR/RR-TB cases who started treatment in 2019 was 72%, higher than the global rate of 60%.

A key success factor has been continued country ownership of TB strategies and activities. In 2019, for instance, four countries (Angola, Botswana, Cabo Verde, and South Africa) reported that domestic expenditure on TB accounted for more than 70% of the total expenditure on the disease.

Regional achievements in 2020/2021		
<p>Prevention</p> <p>61%</p> <p>of HIV-positive people newly enrolled in care received preventive treatment</p>	<p>Laboratory</p> <p>All 47 Member States</p> <p>adopted implementation of the WHO policy on the use of rapid molecular tests</p>	<p>Diagnosis and notification</p> <p>66%</p> <p>of pulmonary TB cases bacteriologically confirmed (63% globally)</p> <p>89%</p> <p>of notified TB patients knew their HIV status (76% globally)</p>
<p>Drug-resistant TB</p> <p>96%</p> <p>of cases with laboratory confirmed MDR/RR-TB started on treatment (98% globally)</p>	<p>Treatment coverage</p> <p>60%</p> <p>of people living with TB were treated during 2021 (61% globally)</p>	<p>Treatment success</p> <p>86%</p> <p>of new and relapse cases were successfully treated in 2020 (86% globally)</p> <p>71%</p> <p>of MDR/RR-TB cases were successfully treated in 2020 (60% globally)</p>

3.3 Regional Green Light Committee (rGLC)

In response to the need to expand the programmatic management of drug-resistant TB, a decision was made at the 20th Stop TB Partnership Coordinating Board meeting (2011) to decentralize the Global Green Light Committee to the regions. The resulting rGLC (Regional Green Light Committee) is a multidrug-resistant tuberculosis (MDR-TB) technical assistance mechanism that supports countries in implementing the End TB Strategy.

The scope of technical support provided by rGLC includes anything from reviewing programme implementation to focusing on capacity building for clinical and laboratory staff. Support is implemented through collaboration with the Stop TB Partnership.

During 2022, 39 out of 41 country requests were satisfied. The impact of the technical support visits by rGLC are reflected in countries through the:

- rapid uptake of new recommendations, increased country capacity (programmatic management, clinical and laboratory skills),
- rapid uptake of molecular tools as an initial test for presumptive TB cases, and
- increased treatment success rate, and stability of the failure rate of the new regimen, at around 2%.

Challenges frequently recorded at the country level include:

- Programmatic imbalances between financial resources needed for new WRD investment and resources available.
- Limited technical capacity of the laboratory network and low laboratory sequencing capacity.
- Large treatment gaps in some countries
- Gaps between the expected number of patients to be diagnosed and notifications received.
- Hyper-centralization of drug-resistant treatment in most countries.
- Current stock-outs of commodities for diagnosis and treatment.
- Low treatment enrollment for people diagnosed with drug-resistant TB, and low treatment success rates in most high-burden countries.
- Inappropriate planning for technical assistance.

Emerging issues and the strategic focus for 2023 and beyond include:

- Strengthening technical support to improve programme performance indicators for susceptible TB and MDR-TB in the context of COVID-19.
- Supporting the development and/or revision of policies and strategies to implement and scale up the programmatic response to drug-resistant TB.
- Expanding the laboratory network to support WHO-recommended rapid diagnostics implementation, capacity building for programmatic management of drug-resistant TB, health system strengthening, and addressing tuberculosis determinants through multisectoral approaches.

3.4 Country impact story

Strengthening laboratory services for improved TB testing and diagnostics in the Central African Republic



With its limited access to laboratory services, the Central African Republic has been reporting only about half of the estimated number of TB cases each year. Starting in 2019, WHO has increased its support to the country to address this critical gap.

Between 2020 and 2021, WHO purchased 11 GeneXpert machines. The GeneXpert is an easy-to-deploy platform for laboratories that detects the presence of TB bacteria as well as resistance. The platform provides results within less than two hours. Along with contributing to installation of the machines, WHO provided training to staff on machine installation, use, and maintenance.

Working with national counterparts, WHO supported the country in developing a strategy for transporting sputum and other biological samples in 16 health districts – bringing samples from collection sites to laboratories as quickly as possible. Tools have been developed and implemented, including technical sheets for the preparation and transport of samples and sampling protocols. Sample transport kits, comprised of materials that can be found locally, have been prepared and distributed.

With the support of WHO, the Ministry of Health has been able to significantly improve patient access to TB diagnosis – with three-times as many tests conducted in 2021 as compared to all the years prior to 2019. This has resulted in

a clear improvement in the notification rate of susceptible TB cases in only two years, from 43% in 2018, to 58% at the end of 2021. By using the specimen transport network for TB, the country has provided laboratory access to more people suspected of having TB and thus demonstrated a successful practice in providing TB diagnosis to its population.

As a result, individuals with suspected cases of TB have seen their access to these laboratory services improved and their travel time reduced. WHO has supported the country and developed sample transport plans. Each micro-plan takes into account targets and notification gaps; mapping of available and accessible health facilities and laboratories; inventory of transportation and communication means, including those of partners; inventory of necessary human resources; inventory of potential support partners, including community associations; identification of sample transportation activities that may or may not require a cost; and the definition of a timeline for the implementation of sample transportation activities

WHO has also provided the Ministry of Health with electrification kits for 12 local laboratories that are equipped with GeneXpert machines to allow for a stable supply during the period when the machine is launched for examinations.

4

Strategic focus: Strengthening laboratory networks

The [End TB Strategy](#) calls for the early diagnosis of tuberculosis including universal Drug-Susceptibility Testing (DST). A prerequisite for any national TB programme to reach this goal is a quality-assured laboratory network equipped with rapid diagnostics. The [Framework of Indicators and Targets for Laboratory Strengthening under the End TB Strategy](#) measures programme capacity to detect TB accurately and rapidly using new diagnostics (known as WHO-recommended rapid diagnostics, or WRDs), provide universal DST,⁹ and ensure the quality of testing. The 12 core indicators will be monitored globally by WHO as countries progress towards reaching the targets for each of the three objectives:

1. Increase access to rapid and accurate detection of TB.
2. Reach universal access to DST.
3. Strengthen the quality of laboratory services.

TB laboratory strengthening activities have been aligned following the evolution of WHO guidelines on TB – specifically on laboratory guidelines and policies issued by WHO on [testing and diagnosis](#). The WHO Regional Office for Africa has developed a [framework for implementation](#) of the End TB Strategy in the African Region (2016–2020) as approved by the Regional Committee Resolution for Africa (AFR/RC66/PSC/7). A [regional framework for strengthening TB diagnostic networks](#) in Africa 2015–2020 was also developed and endorsed. There is now a need to develop a new framework for an integrated laboratory system to TB, HIV, STIs and hepatitis covering the period of 2023–2028 and in line with the [Framework for an integrated multisectoral response to TB, HIV, STIs and Hepatitis in the WHO African Region 2021–2030](#), as approved by the Regional Committee (AFR/RC71/6).



©WHO AFRO

4.1 WHO TB Supranational Reference Laboratory Network

The WHO TB Supranational Reference Laboratory Network (SRLN) was created in 1994 and comprised of 14 laboratories, who volunteered their institutional capacity and resources to support the Global Project on Anti-TB Drug Resistance Surveillance. Between 1994 and 2019, the SRLN was expanded to 32 laboratories (Supranational Reference Laboratories, or SRLs), largely driven by regional initiatives and institutional interest in joining the network.

The SRLs continue to support the Global Project, as well as lead the introduction of new TB diagnostics at country level and provide technical leadership to countries in building their laboratory capacity. The expansion of the SRL network in Africa is becoming a critical resource for antimicrobial resistance (AMR) surveillance and for surveillance of HIV drug resistance, thereby contributing to the SDGs for universal health coverage.

The East, Central and Southern Africa – Health Community (ECSA-HC) and TB Supranational Reference Laboratory Network in Western and Central Africa (W/CA), in collaboration with the Ministries of Health of Uganda and Benin through the Uganda and Benin SRLs, have been awarded Global Fund grants to support National TB Reference Laboratories and their networks to improve TB diagnosis in 45 countries in the WHO African Region. Objectives of the two SRLs include:

- Strengthening the inter-state regional network of NTRLs for improved TB management in the African Region.
- Improving laboratory service provision for quality assured phenotypic first- and second-line drug susceptibility testing.
- Enhancing the impact of rapid WHO-recommended diagnostics in the region.
- Consolidating the capacity of NTRLs to undertake epidemiological and/or national level disease monitoring surveys.

4.2 Objectives of the Supranational Reference Laboratory Network

WHO has been supportive in mobilizing funding to support the SRLs in Benin and Uganda in strengthening the capacity of National TB Reference Laboratories in 45 out of 47 Member States. Progress of the project has been evaluated in terms of the relevance, effectiveness, efficiency, networking/linkages, and sustainability of the project on supporting countries to improve TB diagnosis in the region. The project continues to demonstrate its relevance in the region by supporting the differentiated capacity needs of NTRLs in quality assurance, quality management system strengthening, use of WHO recommended-rapid diagnostics, DST, drug resistance survey, prevalence survey, TB specimen referral system, and laboratory information system. The project has responded innovatively to diagnostic evolutions and emerging needs, including the COVID-19 pandemic. The project has been catalytic to in-country partners' support including Global Fund grants, which were focused on providing support for laboratory equipment and maintenance.

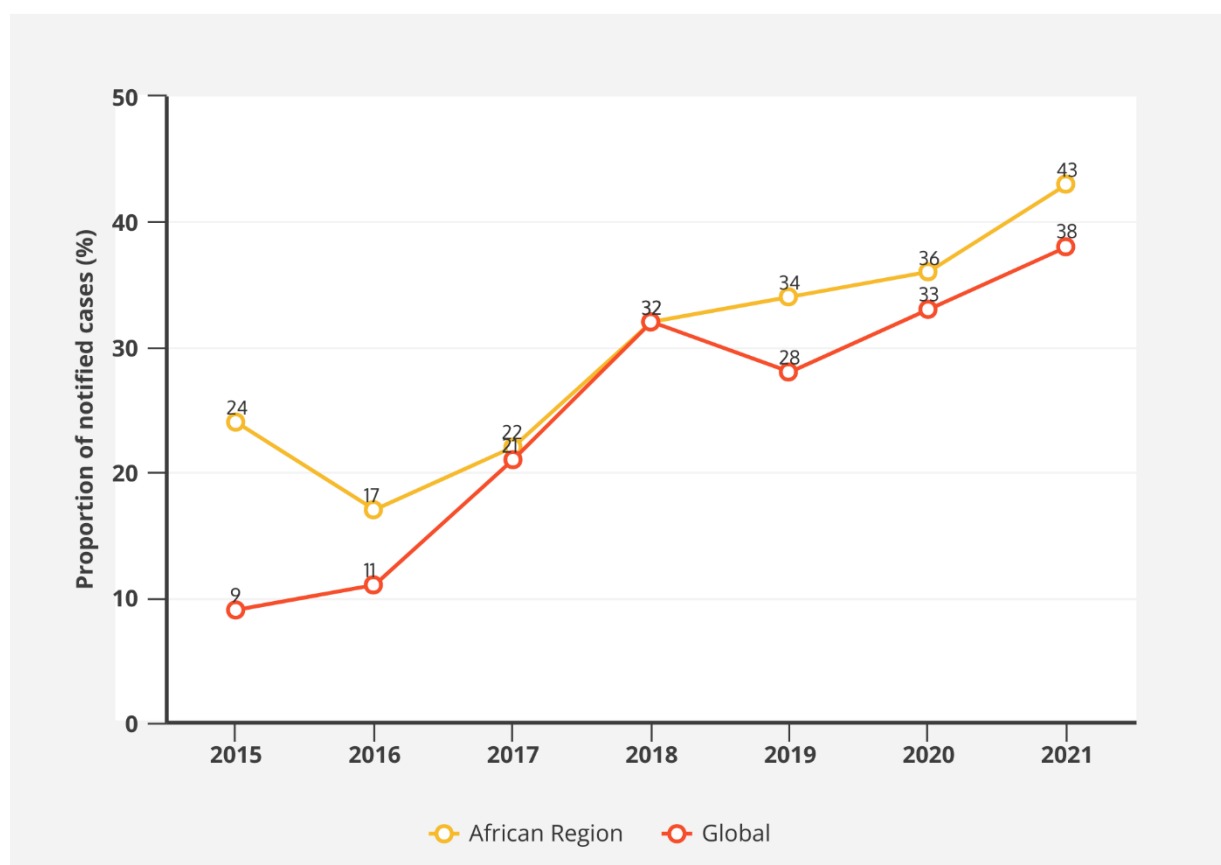
All 47 Member States have adopted and implemented policy on use of rapid molecular tests as the first line of diagnosis for all presumptive TB cases and rapid molecular tests for first- and second-line DST. Sixteen countries have reported coverage of at least 60% for new and relapse TB patients tested with rapid diagnostics at the time of diagnosis. In 2021, 10 countries had their National TB Reference Laboratories achieve ISO 15189 Accreditation.

Advances in new diagnostics, notably for rifampicin resistance (RR), has greatly impacted the diagnosis of drug resistant TB in the region with 60% of new pulmonary bacteriologically confirmed notified cases tested for RR. However, more concerted actions are required to achieve universal DST, including addressing other essential drugs, such as isoniazid and fluoroquinolones, and other new and repurposed drugs (bedaquiline, delamanid, linezolid). For new and repurposed drugs, diagnostics are currently limited to slower phenotypic methods.

4.2.1 Objective 1. Increase access to rapid and accurate detection of TB

Of the 1.5 million notified cases in 2021, only 66% were bacteriologically confirmed in the African Region, and of these, 43% were diagnosed with a WHO-recommended rapid diagnostic (compared with 38% globally).

Figure 8 Proportion of notified TB cases diagnosed with a WHO-recommended rapid diagnostic, WHO African Region and Global, 2021



Source: WHO Regional Office for Africa Programme Data (as of September 2023).

Supranational Reference Laboratories have been assisting countries in adopting new rapid diagnostics through training and mentoring, including benchmarking visits. Technical assistance has included a wide range of activities, including training on the use of GeneXpert machines. Continued technical assistance based on identified needs has contributed to the increased capacity of National TB Reference Laboratory staff to use new diagnostics.

4.2.2 Objective 2. Reach universal access to DST

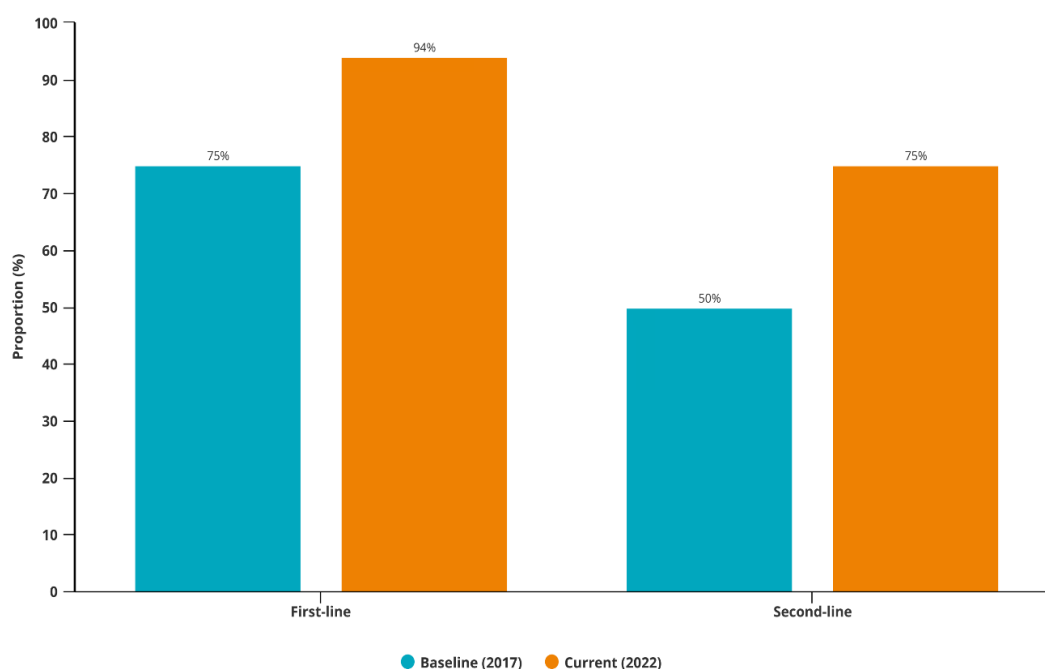
The gains in technical capacity in both first- and second-line DST was pivotal in improving universal access to DST and MDR-TB management in many countries. Technical assistance to implement these technologies has been equally important in addressing biosafety.

4.2.3 Objective 3. Strengthen the quality of laboratory services

The Regional TB Laboratory Project aims to achieve SRL candidacy in Mozambique and Rwanda, and maintain the SRL status of Benin and Uganda. Through this project, SRL Uganda has been supported to provide technical assistance to Mozambique and Rwanda – providing expert guidance that is more proximal, cost effective, and sustainable. In return, SRL Mozambique has been supporting an additional four countries (Angola, Cape Verde, Guinea-Bissau, and São Tomé and Príncipe) and Rwanda, another two (Comoros and Madagascar).

SRL Uganda is the main External Quality Assurance (EQA) provider among African countries for smear microscopy, GeneXpert, and Phenotypic and Genotypic DST. This has resulted in a higher number of countries able to provide EQA in DST, culture, and identification in 2022, as compared to 2017 (**Figure 8**). SRL Uganda staff have also provided various capacity building activities for SRL candidate staff in Mozambique and Rwanda, including quality management.

Figure 9 Proportion of countries able to provide EQA in first- and second-line DST, 2017 & 2022*



*Based on responses from 16 NTRLs: Angola, Botswana, Eritrea, Eswatini, Ethiopia, Kenya, Malawi, Mauritius, Mozambique, Namibia, Seychelles, Somaliland, Tanzania, and Zimbabwe (Bulawayo and Harare NTRLs).

Source: WHO Regional Office for Africa Programme Data (as of September 2023).

National TB Reference Laboratory (NTRL) accreditation heralds a laboratory's technical capability and is usually specific to the systems, products, components, or materials for which the laboratory claims proficiency. The accreditation of NTRLs has been assessed by measuring performance against ISO 15189:12, which addresses the 12 quality system essentials (QSEs) – a set of coordinated activities that form the building blocks of a quality management system (QMS). In order to have a functioning QMS, all QSEs must be in place. The project has demonstrated an

upward trajectory in helping more NTRLs to be accredited. So far, 10 NTRLs have been accredited in nine countries: Botswana, Eswatini, Kenya, Mozambique-Maputo and Mozambique-Nampula, Namibia, Rwanda, Uganda, United Republic of Tanzania, and Zambia. The Ethiopian Public Health Institute has been accredited and the country's aspirations and roadmap towards becoming a centre of excellence for TB diagnostics and joining the SRL network is being established.

Almost 14 countries have been assisted in developing their TB laboratory strategic plans. Through the Global Fund project, SRL Uganda has procured a Whole Genome Sequencing (WGS) machine, which allows simultaneous identification of all known resistance mutations as well as markers with which transmission can be monitored. The availability of WGS at the SRL is vital to countries in the region, creating ease of access to sequencing services. The WGS is currently fully operational at the SRL, and samples drawn from country surveillance systems are sequenced there.

The development of national TB laboratory plans has been critical in articulating the technical and resource needs of NTRLs, including the technical assistance needs at country level. It has been observed that national strategic plans were being used as a tool for resource mobilization and guidance for development partner support and

coordination. The SRL has been supporting NTRLs to realign with new developments in TB care and diagnostics by aiding countries with the review and development of laboratory strategic and operational plans. The strategic plan has been an essential tool to achieve accreditation standards, especially for countries who started from a low base with limited resources and staff with limited capacity.

SRL Benin and Uganda conducted NSP training to laboratory managers followed by technical assistance missions to countries, including assisting in situational analysis, strategic plan design, and action plan development. In Ethiopia, Lesotho, Malawi, and Zambia, the project supported the development of integrated NSP. For countries with NSP, the project assisted the development of operational plan specific to NTRL.

PERSPECTIVES FROM THE FIELD

“Over the time we see a lot of improvements in sample referral system and turnaround time. We have seen increase in access and utilization of GeneXpert. We have two critical indicators in the lab: access to DST and access to WRD tests. The USRL has helped us achieving that. If they are able to help us here, imagine the help they can provide to other countries.”

NTP Uganda

“..... If I could be able to give a score, then I would give for all TA activities the highest possible score. We are always happy when we go there to receive training in Uganda or when they are coming here to share with us their talent. It is very good because it does give the new technician the opportunity to learn. This is also a good motivation for the staff and the country. It gives the staff confidence...”

NTRL Mozambique



4.3 Challenges

Despite the considerable progresses, key issues related to capacity in laboratory management at the NTRL level and funding gaps remain to be addressed. The limited budget allocated to whole genome sequencing has not been able to fully support implementation of this innovation, yet countries continue to request for SRL to provide the service. National strategic planning assistance is a consultative process and requires the involvement of all key stakeholders. However, funding limitations have restricted the ability to conduct full stakeholder consultations. As a result, funding for this technical assistance has been heavily dependent on in-country partner funding. This lack of funds to convene stakeholders has also been identified as a main reason preventing countries from developing their strategic plan.

Sustainability at the country level, especially the government to take over or fund interventions, is a huge challenge. Interventions against TB in general at country level are heavily dependent on donors, including TB laboratory services. Many countries have not yet recovered from the socioeconomic effect of COVID-19, and some may require a longer recovery time. Governments in many countries have many competing funding priorities and this has become a continued challenge. Currently, some countries are developing sustainable domestic health financing strategies that include increased donors coordination and private sector investment in health.

Several challenges are country-specific:

- ▶ The NTRL in Eswatini is an accredited laboratory, however progress in introducing EQA for GeneXpert in network laboratories is slow. Human resource competency and availability of financial support were considered as the major hurdles. The Microscopy EQA for network laboratories is still in the early stages, with major improvements needed.

- ▶ In Zimbabwe, both NTRLs (Bulawayo and Harare) have not established or operationalized an EQA network since baseline.
- ▶ Despite good NTRL performance in EQA for GeneXpert and Microscopy, and progress in SLIPTA (Stepwise Laboratory Improvement Process Towards Accreditation) assessments over the years, Lesotho is unable to provide EQA for network laboratories.

4.4 Priorities moving forward

- ▶ The development of a framework for an integrated laboratory system to support TB, HIV, hepatitis and STIs covering the period of 2023–2028 is needed, including its operational plan.
- ▶ The use of a south-to-south technical model, through partnership with an African SRL, is an exceptional approach and a source of pride for the continent. This should be encouraged.
- ▶ For the regional project to stay relevant, it is time to start widening the scope of technical assistance by building a critical mass of maintenance teams (biomedical engineers) at the SRL levels. This will help train biomedical engineers at country level to do routine maintenance to avoid the closure of laboratories and interruption of laboratory services and continue supporting countries that are accredited to maintain their accreditation and support their network.
- ▶ The project should continue supporting the development of TB laboratory strategic plans and make the case on the need for:
 - Considering the value add of effective Laboratory Information Systems (LIS) in strengthening diagnostic capacity and quality assurance. Additional funding and technical assistance for activities such as including TB laboratory indicators in routine health information systems (such as DHIS-2), monitoring systems, and linking various systems between network laboratories is a priority.

- Establishing a system for knowledge transfer and creating a critical mass of trainers at the NTRL/country level is essential to cope with staff turnover and responding to the increasing demand for technical assistance at country level. Creating a centre of excellence in selected countries/NTRLs on selected high impact interventions should be another focus area. This would help expand the technical support base in the continent.
- Sharing WHO guidelines to countries, including adopting quick guidelines from different sources, is essential. Availing quick references after each mentoring/benchmarking visits could also reduce further demand for follow up visits.
- There is a need to increase the budget for SRL staff training, including mentors and management staff to continue providing high-quality technical assistance to countries and stay competitive in the market. The Benin and Uganda SRLs need to benchmark with other SRLs, like Antwerp (Belgium), to ensure that it stays on par with respected institutes in the field. A dedicated budget should be allocated for monitoring the performance of SRL and provide assistance as needed.
- The SRL model should be used to boost HIV laboratory networks on the continent to attain 90/90/90 targets by strengthening testing and follow-up.
- Strengthening its visibility and linkages with partners at regional and country level as set out in the project sustainability plan to ensure funding support for this activity.
- Strengthening its networking/ collaboration with WHO to carve out issues and facilitate follow up process with the responsible unit at WHO for SRL candidature.



©WHO AFRO

5

Strategic focus: the state of the science

5.1 Introduction

In 2020, global TB research investment was US\$ 915 million, less than half of the US\$ 2 billion per year target set in the political declaration of the United Nations General Assembly High-Level Meeting (UNHLM) on TB.

Globally, the World Health Organization (WHO) plays a crucial role in shaping and guiding the global TB research agenda in policy development, and programme implementation. WHO monitors drug resistance trends globally and provides guidance on the management of drug-resistant TB, including guidelines for the use of newer drugs like bedaquiline and delamanid. WHO is actively involved in coordinating and supporting research on TB vaccines.

Scientists are continually studying the biology of *Mycobacterium tuberculosis* and the host immune response to better understand how TB infection progresses to acquire the knowledge that can lead to the development of more effective treatments and vaccines.

5.2 Progress

There have been significant advancements in TB diagnostics. Rapid molecular tests have made it easier to detect TB and drug-resistant TB. There is a need to ensure that they are accessible. New drugs and regimens are being developed to address drug-resistant TB more effectively.



©WHO AFRO

In Africa, the Regional Office is involved in drug resistance surveys and TB cost surveys to support countries in research protocol development, implementation, data analysis and dissemination. Drug resistance surveys are being conducted in Chad, Madagascar, and Burundi. TB cost surveys are being conducted in Togo, Congo, and Rwanda.

Bedaquiline and delamanid have been increasingly used in the treatment of drug-resistant TB particularly in MDR-TB. All countries in the region are using the new drugs to treat DR-TB.

Pretomanid in combination with bedaquiline and linezolid for treating extensively drug-resistant TB (XDR-TB) is already used in South Africa for MDR-TB. Ethiopia and Nigeria were piloting active case-finding campaigns in high-risk communities to identify and treat TB cases more proactively. The use of digital technologies, such as mobile apps for reporting and tracking TB cases, was being explored to enhance surveillance and data management. South Africa has integrated mobile health (mHealth) technologies into its TB control programme. Mobile apps and SMS-based reporting systems are used to monitor patient adherence to treatment and track contact tracing efforts

5.2.1 Challenges

Despite progress, TB research funding often fell short of the estimated needs. The TB research community faced competition for resources from other health priorities. Coordinating research efforts and data sharing among researchers, institutions, and countries was essential to maximize the impact of research funding.

Developing a more effective TB vaccine continued to be a long and complex process. The BCG vaccine, while providing some protection, was not entirely effective in preventing adult TB.

Developing effective treatments for multi-drug-resistant TB (MDR-TB) and extensively drug-resistant TB (XDR-TB) required substantial resources and innovation.

5.2.2 Priorities moving forward

- Leverage the upcoming United Nations General Assembly high level meeting on TB to improve the financing landscape for TB research and innovation.
- WHO will develop an advocacy document summarizing the findings from the health and economic impact assessment of new TB vaccines.
- WHO will continue political advocacy and monitoring progress on TB research and innovation.



©WHO AFRO

6

Challenges and opportunities

Despite the continuing decline in TB cases in the region, TB incidence rates are some of the highest in the world and the burden from TB and TB/HIV remains persistent. There is growing concern over how to ensure adequate responses to TB in the face of multiple global public health challenges, threats, and priorities.

Access to TB diagnosis and treatment services remains low, at approximately 60%. This is due to several factors including weak general health delivery systems, suboptimal coverage with modern diagnostic laboratory services, sub-optimal performance indicators, and inadequate financial resources to support the desired scale up of intervention towards realizing the End TB Strategy targets. For drug-resistant TB, there is low case detection rate, partly due to inadequate application of the more sensitive and specific molecular testing technology and a persisting diagnosis-treatment gap for confirmed cases. Furthermore, country adaptation to new WHO guidelines is not yet universally achieved.

In 2021, the second highest coverage in terms of HIV testing among people diagnosed with TB was achieved in the WHO African Region: with 89% of TB patients knowing their HIV status. In several countries – including Central African Republic, Mozambique, Uganda, United Republic of Tanzania, and Zambia – at least 95% of HIV-positive TB patients are on antiretroviral treatment. Several countries continue to face several challenges, including stock-outs of commodities for diagnosis and treatment, low uptake of WHO guidelines, and insufficient decentralization of services and provision of HIV and TB services in the same



©WHO AFRO

health facilities. To enhance patient follow-up and reduce the higher mortality rates among people living with HIV/AIDS, there is a need for more intensified TB case-finding among people attending HIV care services and for strengthened linkages between TB and HIV recording and reporting systems.

TB prevention and control programmes also face challenges in the identification of cases among children. Reasons for the large gap include challenges with specimen collection and bacteriological confirmation of TB in young children, as well as the fact that children and adolescents usually access primary health care or child health services, where capacity to diagnose TB may be limited. In addition, weak integration of child and adolescent TB services with other programmes leads to missed opportunities for contact investigation, TB prevention, detection, and care. With an estimated 322 000 children and young adolescents aged 0–15 years (one third of cases among children under 15 years worldwide), increased measures are required to improve detection, bacterial confirmation, and treatment of paediatric TB.

For many countries in the region, national TB prevalence surveys remain the best available source of determining disease burden for baselining and tracking the impact of interventions over time. To date, only 16 of the 47 Member States have either completed or are in the process of conducting such surveys. Countries in west and central Africa are particularly under-represented in this respect. Further, many countries do not have any available data, and the accuracy of reported data remains unclear.

There are several ‘free TB care’ policies in the region. However, national TB patient cost surveys have shown that TB-affected households finance a significant proportion of TB care and bear unaffordable cost with devastating consequences for households. Such costs pose a barrier to TB care and may fuel disease transmission and resistance. Further, only very few countries have determined the level of catastrophic costs considering need for social protection under the universal health coverage principle.

Despite the significant challenges posed by COVID-19, the pandemic also demonstrated how diagnostics can be scaled up, applied outside traditional laboratories, and on people not seeking care. Several positive impacts on TB diagnostics include the increased use of community health workers for TB detection, notification, and treatment; the scale-up of alternative methods of distribution of medicines; enhanced contact tracing; improved communication strategies; strengthened infection control practices; and the development of contingency plans. The number of GeneXpert machines in the African Region also increased substantially during the pandemic – with the potential to utilize the machines for TB diagnostics.

There were significant funding gaps in TB control efforts, even with the progress seen. These gaps limited the ability to scale up essential services, especially in high-burden countries. The financing situation for TB control and prevention efforts has been a critical aspect of the global response to TB. Funding is essential to support research, diagnosis, treatment, and public health programmes aimed at reducing TB incidence and mortality. In 2021, in the African Region, the Global Plan to End TB 2018-2022 estimated US\$ 3.9 billion would be required to achieve the targets but only US\$ 0.9 billion was mobilized for TB prevention, diagnosis and treatment. Domestic funding in Africa was about 51% and 49% for international funding. From 2016, domestic funding has been reduced year after year. The COVID-19 pandemic diverted resources and attention from TB programmes, resulting in disruptions in TB diagnosis and treatment services. It also placed additional financial strain on health systems. Funding for TB research is essential to develop new drugs, diagnostics, and vaccines. Ensuring adequate resources for research is crucial for advancing TB control efforts.

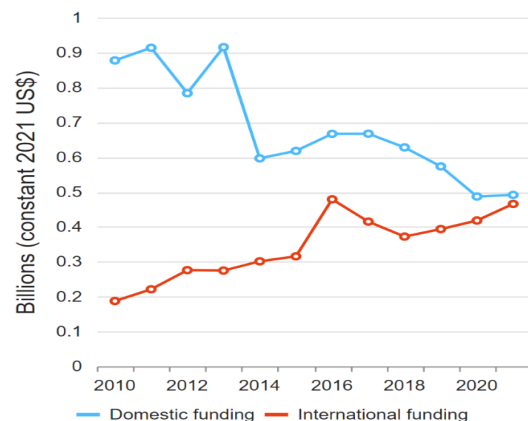
7

Funding requirements

In 2020, the Global Plan to End TB estimated that US\$ 3.9 billion would be required to achieve targets for the African Region, however only US\$ 0.9 billion was mobilized for TB prevention, diagnosis, and treatment. The funding gap included US\$ 2.3 billion in the 17 high TB burden countries in the region. The rest of the budget remains unfunded, seriously undermining elimination efforts. This requires all stakeholders inside and outside the health sector to increase awareness of TB and to allocate sufficient financial, technical, and human resources to accelerate progress towards ending this disease.

Increases in domestic funding (which have been decreasing since 2016, and is currently at 51%), alongside international funding for TB, are required to ensure sustainability of resources and quality of care (**Figure 10**). Policies and health financing mechanisms need to ensure the quality and affordability of care, thus accelerating country progress towards universal health care. Efforts to increase public financing for TB should be viewed from a health systems wide approach and not in isolation, as the lack of human resources, infrastructure, logistics, service delivery efficiency, etc., often impede the uptake of WHO TB guidance, and these are typically financed by the health system not specially by TB programmes.

Figure 10 Spending on TB prevention, diagnostic, and treatment services from domestic sources and international donors, WHO African Region, 2010–2021



Source: Global Tuberculosis Report 2022. Geneva: World Health Organization; 2023 (ISBN: 978-92-4-006172-9, <https://www.who.int/publications/i/item/9789240061729>, accessed 28 June 2023).



©Freepik



8

Looking ahead

Ending TB by 2030 requires a collaborative effort involving governments, international organizations, NGOs, and communities. This coordinated effort must be supported by sustained political will and financial investment to ensure a long-term commitment to tuberculosis control. The issue of drug resistance is one of the most important problems that must be solved. To achieve the MDR-related UNHLM goals, diagnostics, treatment, and care must become more readily available. In addition, there is an urgent need to address other determinants of tuberculosis, such as poverty. Moreover, to achieve the End TB objectives, it is essential to invest in research and encourage innovation in the field. In addition, ensuring long-term sustainability of TB control efforts is a concern. Sustainable financing models that can continue beyond donor funding are being explored, which need to be applied also to laboratory strengthening efforts.

Considering progress made and the challenges that remain, priority activities will focus on:

- Supporting country programmes to develop or update national strategic and action plans that are consistent with recommended global strategies and regional frameworks. This will also include supporting continuing update of national case management policies and guidelines in line with new WHO recommended guidelines.
- Supporting accelerated adoption of WHO approved rapid and more sensitive laboratory diagnostic technologies and increasing coverage with services for both first- and second-line anti-TB medicines.
- Supporting countries to establish country level accountability frameworks and surveillance systems to monitor progress towards set global and regional targets, including for drug susceptibility testing and TB/HIV indicators, and to conduct disease burden and patient cost surveys in the interest of social protection.



©WHO AFRO

The UN-HLM on TB will galvanize political will to accelerate progress toward End TB global targets.

- ▶ The second United Nations High Level Meeting on the fight against TB: September 2023 will shine the spotlight on the disease and mobilize high-level political commitment to get us back on track to end TB by 2030.
- ▶ The Regional Task Force for children and adolescents is in the process of being established and will address the Call to action on Childhood and Adolescent TB.
- ▶ WHO is working with partners to the Establishment of the new regional network for TB control among Southern and East African National TB Programmes (NTPs), known as SEARN-TB, based on lessons learned from Western and Central African Countries (WARN-CARN). This platform will be used to disseminate guidelines and other information.

References

- ¹ Global Tuberculosis Report 2022. Geneva: World Health Organization; 2023 (ISBN: 978-92-4-006172-9, <https://www.who.int/publications/i/item/9789240061729>, accessed 28 June 2023).
- ² Global Tuberculosis Report 2022.
- ³ Global Tuberculosis Report 2022.
- ⁴ Global Tuberculosis Report 2022.
- ⁵ Access to NCD medicines: Emergent issues during the COVID-19 pandemic and key structural factors. Geneva: World Health Organization; 2023 (ISBN: 978-92-4-006944-2, <https://www.who.int/publications/i/item/9789240069442>, accessed 28 June 2023).
- ⁶ Pillay Y, Pienaar S, Barron P, Zondi T. Impact of COVID-19 on routine primary healthcare services in South Africa. *South African Medical Journal*. 2021;111:714-719. <https://doi.org/10.7196/SAMJ.2021.v111i8.15786>
- ⁷ Global Tuberculosis Report 2022.
- ⁸ Global Tuberculosis Report 2022.
- ⁹ Universal access to DST is defined as providing DST for at least rifampicin for all patients with bacteriologically confirmed TB and providing further DST for at least fluoroquinolones and second-line injectable agents for all TB patients with rifampicin-resistant TB. DST methods include genotypic (molecular) and phenotypic methods.
- ¹⁰ WHO. Impact of the Covid-19 Pandemic on TB detection and Mortality in 2020. *J Chem Inf Model*. 2021;53(9):1689–99

