Strategic and technical advisory group for tuberculosis

Annual meeting report, 3–5 July 2023
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<th>Abbreviation</th>
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<tbody>
<tr>
<td>AI</td>
<td>Artificial intelligence</td>
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<tr>
<td>BCG</td>
<td>bacille Calmette–Guérin</td>
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<td>CSTF</td>
<td>Civil Society Task Force</td>
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<td>MAF-TB</td>
<td>Multisectoral Accountability Framework for TB</td>
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<tr>
<td>PPR</td>
<td>Pandemic Preparedness and Response</td>
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<tr>
<td>SMART (guidelines)</td>
<td>Standards-based, Machine-readable, Adaptive, Requirements-based, and Testable</td>
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<td>STAG-TB</td>
<td>Strategic and Technical Advisory Group for Tuberculosis</td>
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<td>TB</td>
<td>tuberculosis</td>
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<td>UHC</td>
<td>Universal Health Coverage</td>
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<td>UN</td>
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<td>WHO</td>
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1. Introduction

The World Health Organization (WHO), through its Global Tuberculosis Programme, leads and guides the global effort to end the TB epidemic through a human rights-based approach for universal access to people-centred prevention and care, multisectoral action and innovation. The major functions of the Global Tuberculosis Programme include:

- providing global leadership to end TB through strategy development, political and multisectoral engagement, strengthening of reviews and accountability, and advocacy and partnerships (including with civil society);
- developing policies, norms and standards for TB prevention and care, and action on TB determinants, with support for their implementation;
- shaping the TB research and innovation agenda, and stimulating the generation, translation and dissemination of knowledge;
- providing specialised technical support for Member States and partners, and working with WHO regional and country offices to catalyse change and build sustainable capacity; and
- monitoring, evaluating and reporting on the status of the TB epidemic and progress in the financing and implementation of the End TB Strategy.

The Strategic and Technical Advisory Group for Tuberculosis (STAG-TB) is an expert advisory body that was established in 2001. STAG-TB’s mission is to contribute to ending the TB epidemic and eventually eliminating the disease by providing state-of-the-art scientific, strategic and technical guidance to WHO. Its functions are as follow.

1.1. to advise WHO on the prioritisation of WHO’s strategies and activities in TB prevention and care;

1.2. to review, from a scientific and technical viewpoint, progress and challenges in WHO's TB-related core functions, including:

   1.2.1. the content, scope and dimension of WHO's development of TB policies, strategies and standards in TB prevention and care;

   1.2.2. the content, scope and dimension of WHO's collaboration, and support of, countries’ efforts to end TB, including the WHO provision of guidance, technical assistance and capacity building on policies, strategies and standards;

   1.2.3. the content, scope and dimensions of WHO's TB epidemiological surveillance, monitoring, evaluation and operational research activities, their relevance to countries’ efforts to end the TB epidemic, and approaches to be adopted;
1.2.4. the content, scope and dimensions of WHO’s promotion and support of partnerships, advocacy and communications towards ending TB worldwide.

1.3. to review and make recommendations on the establishment of committees, working groups, and other means through which scientific and technical matters are addressed; and,

1.4. to advise on priorities for potential areas of collaboration within WHO, on activities related to TB prevention and care.

As per the Rules of Procedure, members are appointed by the Director-General, and the Advisory Group reports to the WHO Director-General. The full terms of reference for STAG-TB are provided on the WHO STAG-TB website (1). The 23rd meeting of STAG-TB was organised as an in-person meeting on 3–5 July 2023, with a limited number of members joining virtually. All members were required to sign a declaration of interest, and no significant conflicts of interest were identified for any of them.

The agenda for this 23rd annual meeting (Annex 1) included the following five sessions.

- progress updates from the STAG-TB Chairperson, the WHO Global Tuberculosis Programme, WHO Regional TB Advisors and perspective from the WHO Civil Society Task Force (CSTF);
- fast-tracking efforts to translate end TB commitments to action;
- advancing multisectoral engagement and accountability at global and national levels;
- information update: TB Vaccine Accelerator Council; and
- enhancing the health impact of TB programmes through digital innovations.

Session 1 included a presentation from the Director of the Global Tuberculosis Programme, feedback from the STAG-TB Chairperson on a briefing provided to the WHO Director-General, progress updates from the WHO Regional TB Advisors (or staff in equivalent positions) from all six WHO regions, and perspectives from the CSTF. Sessions 2 to 6 each started with a presentation by WHO and other key speakers to set the scene, followed by commentaries from two STAG-TB discussants and a discussion session with STAG-TB members on recommendations to WHO. Background documents were made available to STAG-TB members in advance of the meeting. These documents were intended to inform discussions during the meeting and were considered internal.

With the assistance of the WHO Secretariat, STAG-TB discussants developed draft recommendations following each session. All draft recommendations were reviewed and finalised in plenary on Day 3 by all STAG-TB members.

This report summarises the meeting sessions, focusing on comments and recommendations from STAG-TB members. All reports of STAG-TB meetings are submitted by the Chair of STAG-TB and the Director of WHO Global Tuberculosis Programme to the Assistant Director-General, the Deputy Director-General and the Director-General of WHO, and are posted on the WHO STAG-TB website in conjunction with a widely distributed newsletter.

The complete list of participants for the 23rd STAG-TB meeting is provided in Annex 2.
2. Progress updates

2.1 Debriefing to WHO Director-General and progress reports

Dr Ariel Pablos-Méndez, Chair of the STAG-TB, welcomed STAG-TB members to the meeting. He provided an update to STAG-TB on his meeting with WHO Director-General on the recommendations made at the 2022 STAG-TB meeting. He commended the work of WHO Global Tuberculosis Programme in implementing the recommendations, highlighting key actions and priorities, including:

- continuation of work with countries and partners, including civil society on the WHO Director-General Flagship Initiative (2) to End TB, to fast-track progress towards ending TB and achieving Universal Health Coverage (UHC), noting the need to develop a strategic advocacy plan to ensure adequate focus and visibility of TB;
- outreach to Ministries of Finance in high-burden countries to help bridge the funding gaps and improve domestic funding towards ending TB;
- development of a case study, highlighting how disease-specific programmes like TB can complement and strengthen health systems and integrated service delivery on the road to UHC;
- launch of TB Vaccine Accelerator Council during the annual meeting of the World Economic Forum in Davos in January 2023;
- preparations for the upcoming United Nations (UN) General Assembly High-Level Meeting on TB.

Dr Tereza Kasaeva, Director of the Global Tuberculosis Programme, presented a global overview of progress and preparations for the second UN High-Level Meeting on TB in September 2023.

WHO Regional Advisors on TB, presented the progress made by regions and countries over the year, and also highlighted the key actions needed to reach the End TB Targets.

As a nominated member of the CSTF on TB, Mr Chamreun Choub Sok joined the session and provided an overview of key progress made by the CSTF and civil society perspective on fast-tracking progress to end TB.

Session 1 was an information session, and as such, there were no STAG-TB recommendations. STAG-TB members welcomed the progress updates and provided comments summarised below.
2.2 STAG-TB comments

STAG-TB:

- commends WHO, its Director-General and the Global Tuberculosis Programme for the overall leadership and work across all three levels of the Organization, notably through the launch of the WHO Director-General Flagship Initiative (2) and targets for 2023-2027 in the lead-up to the UN High-Level Meeting on TB, and for overall progress in implementing the recommendations made by STAG-TB;

- acknowledges WHO’s support to preparations for the Second UN High-Level Meeting on TB, including the Multi-stakeholder hearing, the Secretary-General’s comprehensive progress report, and the ongoing technical support to the intergovernmental consultations;

- recognises the severe impact of the COVID-19 pandemic on progress towards ending TB, and emphasises the need to ensure that pandemic preparedness efforts feature actions to sustain essential services to manage infectious diseases like TB;

- calls on WHO to prioritise actions to address inequalities and the needs of high-risk groups including those affected by the ongoing conflict and other instabilities, to ensure no one is left behind;

- applauds the work of the CSTF and encourages WHO to continue supporting and engaging civil society more actively, especially at regional and country office levels;

- encourages WHO to provide strategic and technical guidance, knowledge sharing and advocacy, to support rapid uptake of WHO guidelines and monitor their implementation;

- urges WHO to commend and share best practices and progress by countries to fast-track the TB response, including enhanced monitoring and availability of data and strategic advocacy;

- notes with concern the termination of funding for key strategic initiatives, including the initiative to Find Missing People with TB, the Data Strategic initiative and the regional Green Light Committees\(^1\) initiative;

- urges WHO to facilitate resource mobilisation to ensure the continuation of the WHO’s work on these initiatives.

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\(^1\) The regional Green Light Committees were established through WHO and its Regional Offices to help address the need for scaling up the programmatic management of drug-resistant TB.
3. Fast-tracking efforts to translate end TB commitments into action

3.1 Background

The WHO’s Thirteenth General Programme of Work (3, 4) focuses on achieving measurable impact on people’s health in all countries. It is structured around three interconnected strategic priorities to ensure healthy lives and well-being at all ages: achieving UHC, addressing health emergencies, and promoting healthier populations. These priorities are supported by three strategic shifts: protect health (strengthening of governance and financing for health emergencies), provide health (radical reorientation to primary health care), and promote health (prevent disease and injuries by addressing their root causes).

Through its Thirteenth General Programme of Work, WHO places countries at the centre of its work. To ensure the effectiveness and relevance of WHO support, engagement with countries requires adaptation to country context and country capacity. The spectrum of support thus varies, ranging from support primarily focusing on policy, strategic and normative issues to support mainly for strengthening service delivery.

WHO’s operating model provides for a harmonised approach across the three levels (headquarters, regional offices and country-based field offices) of the Organization to optimise health outcomes and progress at the country level. Country support needs are identified through collaboration across the three levels, and through coordination with other international and regional technical partners. WHO support is provided by country and regional offices, with headquarters providing specialised and surge capacity as needed. In line with this operating model, it is crucial to ensure that WHO regional and country offices have the resources to support countries optimally and for headquarters to be able to backstop regions and country offices in providing this support.

This three-level organizational approach, with specific roles and responsibilities, aims to facilitate impact at the country level through a demand-driven support mechanism. WHO’s physical presence in the country and close relationships with ministries of health help ensure that the support provided to countries by the Organization is context-specific, comprehensive and aligned with existing and emerging priorities and circumstances prevailing in the country.

WHO’s ability to provide support tailored to country needs is further enhanced through WHO’s leadership in specialised country missions, such as TB programme reviews, epidemiological reviews, and implementation of surveys on TB prevalence, drug resistance and TB patient costs.

For TB, a three-level response to country-specific needs is further facilitated via the WHO TB Technical Expert Network. The Network comprises WHO staff working on TB at the three levels of the Organization in order to optimise the public health impact of WHO support at the country level,
in accordance with the End TB Strategy and the latest WHO guidelines on TB care and prevention, through the following.

- proactive sharing of strategic information and coherence of WHO’s technical work;
- identification, prioritisation and implementation of three-level engagement;
- identification and prioritisation of global and regional technical products; and
- tracking the implementation of TB-related products and services at the country level.

The WHO TB Technical Expert Network primarily functions through regular exchanges involving the entire Network, focussed region-specific discussion involving the three levels of the Organization, and regular contacts between the WHO Global Tuberculosis Programme and the six regional offices. In addition, targeted support is provided to the highest TB burden countries to facilitate the uptake of the latest guidelines and tools.

The following gaps and challenges have been identified.

- WHO acknowledges the significant financial support for the TB response from the United States Agency for International Development, The Global Fund to Fight AIDS, Tuberculosis and Malaria ('The Global Fund'), and other funding agencies. However, as it was also highlighted during the 72nd World Health Assembly (5), WHO needs additional financial resources to be able to meet the needs of countries. TB is one of the areas where this gap in funding (6) is significant, with inadequate funding for human resources at all levels of the Organization, particularly regional and country levels. These gaps are also being observed in regions and countries with the highest burden of TB, with the potential to hamper the attainment of the End TB Strategy targets.

- The COVID-19 pandemic has significantly affected health systems and has had a disproportionate impact on TB programmes. This has also been aggravated by geopolitical conflict and the increasing impact of climate events on the determinants of TB.

- While remote technical assistance has helped to address some of the technical assistance/capacity-building needs during the COVID-19 pandemic, the need for in-country technical support/capacity-building activities remains. This is particularly so given the significant changes to the health systems because of the COVID-19 pandemic. Given WHO’s mandate and access to Member States, there is a need to ensure countries are adequately supported to operationalise the commitments from the upcoming UN High-Level Meeting on TB, and relevant aspects of the High-Level Meetings on UHC, TB and Pandemic Prevention, Preparedness and Response (PPR).

Following the upcoming UN High-Level Meeting on TB in September 2023, it will be crucial to scaling up country support for the operationalisation of the resulting political declaration.

3.2 Topics covered

The topics covered in this session included the following.

- Building capacity to operationalise the UN High-Level Meeting on TB political declaration
- Coordination and collaboration with partners and institutions
- Innovative approaches for providing support to countries
Key actions led and supported by WHO, between June 2022 and June 2023 are outlined below (7).

- regular 3-level calls across headquarters, regional and country offices to continuously share information on new updates and country support needs.
- country missions to support epidemiological reviews, programme reviews, strategic plan development and funding applications to the Global Fund.
- training of consultants on epidemiological reviews and programme reviews.
- annual End TB Summit of the 30 countries with the highest burden of TB globally.
- ongoing engagement and support to countries with the highest burden of TB, through dedicated focal points for each of the countries at headquarters, and in close collaboration with regional and country offices.
- sensitisation of countries on the upcoming UN HLM on TB.

3.3 Questions to STAG-TB

Two questions were posed to STAG-TB:

- What is STAG-TB’s advice on leveraging WHO’s capacities across all levels of the Organization to optimally support the operationalisation of the political declaration of the 2023 UN High-Level Meeting on TB?
- Given the WHO’s mandate, how can WHO leverage partnerships and collaborative mechanisms/arrangements to strengthen and maintain the capacity to implement the UN High-Level Meeting on TB commitments TB at country level?

3.4 STAG-TB comments

STAG-TB:

- acknowledges the high-level global focus on TB through the UN High-Level Meetings on ending TB, Universal Health Coverage and Pandemic Preparedness, given that.
  - TB remains one of the world’s top infectious killers (causing more deaths in 2022 than HIV and malaria combined)
  - The COVID-19 pandemic has reversed years of global progress and resulted in increases in annual incidence and deaths following decades of progressive decline (the TB incidence rate rose by 3.6% between 2020 and 2021, reversing declines of about 2% per year for most of the past 2 decades, and the estimated number of deaths from TB increased between 2019 and 2021, reversing years of decline between 2005 and 2019).

- commends WHO’s efforts to proactively prepare to support the operationalisation of commitments resulting from the 2023 UN High-Level Meeting on TB.

- endorses WHO’s leadership role in facilitating the implementation of the political declaration of the upcoming 2023 UN High-Level Meeting on TB, at the global, regional, and country level.
recognises the following as critical enablers to WHO’s support for the implementation of the commitments:

- WHO’s convening power (global regional and country levels), its country presence and close linkages with Ministries of Health, partners and stakeholders;
- WHO’s mandate to set norms and standards, and its demand-driven, complementary three-level approach to technical support to facilitate uptake at the country level;
- WHO’s health-for-all mandate, which necessitates collaboration on cross-cutting issues relevant to Primary Health Care, UHC, PPR, and antimicrobial resistance for which TB can be a pathfinder and proxy indicator;
- WHO Director-General Flagship Initiative;
- WHO’s investment in technical skills and capacity building of its staff through, for example, the WHO TB Technical Expert Network and other platforms (e.g., WHO’s e-Learning platform on TB) to achieve coherence of technical work and impact at country level;
- various WHO-developed platforms for information sharing and partner engagement, e.g., the TB Knowledge Sharing Platform, the e-Learning platform, the Country Coordination Platform, and the BPaLM Accelerator Platform;

recognises that there are some major hurdles to WHO’s ability to provide the envisaged support to implement the commitments, including:

- the need to increase funding for WHO’s work at all levels, and for country programmes, especially considering the economic recession in many countries;
- humanitarian crises due to geopolitical conflict and climate-related events;
- inadequate capacity to support TB programmes due to human resource shortages (especially in WHO country offices and regional offices), resulting in WHO staff covering numerous disease programmes; and
- ensuring sustained focus on addressing TB in the face of multiple current and emerging health priorities.

3.5 STAG-TB recommendations

STAG-TB made the following recommendations.

3.5.1 Leveraging the WHO Director-General Flagship Initiative, WHO ensures adequate human resources, technical capacity and funding for WHO offices at country, regional and global levels to optimally support countries to implement the UN High-Level Meeting on TB commitments

3.5.2 WHO explores opportunities for cross-cutting synergies in the commitments of the UN High-Level Meeting on UHC, TB and PPR, and highlights how the implementation of the

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2 The WHO BPaLM Accelerator Platform is a forum for technical discussions and exchanges among stakeholders who are involved in the implementation of the BPaLM regimen.
UN High-Level Meeting on TB commitments can contribute and be catalytic to the achievement of shared objectives

**3.5.3** WHO guides countries to operationalise the commitments of the 2023 UN High-Level Meeting on TB, including through high-level engagements to translate and build country ownership of the commitments at the highest levels of government, involving all stakeholders, including communities and civil society

**3.5.4** WHO supports countries to develop/update and implement robust, costed national strategic plans, which incorporate the UN High-Level Meeting on TB commitments, using the latest WHO guidance and tools

**3.5.5** WHO engages and coordinates with existing partners and stakeholders, and consultant networks to strengthen and improve technical assistance to countries

**3.5.6** WHO strengthens coordination and collaboration with non-traditional partners and other sectors (including the private sectors) to leverage opportunities and innovations to achieve the UN High-Level Meeting on TB commitments

**3.5.7** WHO continues to promote technical excellence by providing a forum to share experiences and create best practices on the implementation of actions relevant to the UN High-Level Meeting on TB commitments by learning from each other and locating advice and expertise

**3.5.8** WHO advocates for increased and sustained resources for countries to be reflected as part of commitments in the UN High-Level Meeting on TB political declaration

**3.5.9** WHO supports countries to explore opportunities to leverage other funding sources for TB, such as the World and Asia Development Bank, as TB can be the pathfinder and proxy indicator for various initiatives, including UHC, PPR and antimicrobial resistance

**3.5.10** Acknowledging the leadership of the WHO Director-General in the preparations for the upcoming UN High-Level Meeting on TB, UHC and PPR, STAG-TB urges the WHO Director-General to ensure continued strong collaboration to successfully operationalise the commitments and maximise synergies across the three UN High-Level Meetings.
4. Advancing multisectoral engagement and accountability at global and national levels

4.1 Background

Progress in combating TB cannot be achieved by the health system alone and requires firm political commitment at the highest level, strong multisectoral collaboration (beyond health), and an effective accountability system. This is especially important in the current context, due to the COVID-19 pandemic coupled with ongoing crises such as armed conflict, increasing food insecurity, political and economic instability, that has reversed years of progress made in the fight to end TB, and placed an even heavier burden on those affected.

Since 2019, countries have been supported in systematically adapting and implementing the multisectoral accountability framework (MAF-TB) \(^{(8)}\) to accelerate progress to end TB, by WHO in collaboration with partners. The framework is well aligned with the End TB Strategy and the 2030 Agenda for Sustainable Development and aims to support effective collaboration within and beyond the health sector and accountability of governments and stakeholders at global, regional and country levels to ramp up the response towards ending TB. This builds on the requests made in the political declaration of the UN General Assembly High-Level Meeting on TB, the World Health Assembly resolution WHA71.3 \(^{(9)}\), and the UN Secretary-General's 2020 progress report \(^{(10)}\) that provides WHO the mandate to lead, coordinate and support MAF-TB processes at global/regional and national/subnational levels.

The following actions and activities have been carried out as part of the WHO response.

**At the global level**

At the global level, WHO launched a collaborative multi-stakeholder and multisectoral task force to coordinate the TB response and review progress. As part of this, WHO has been working closely with various partner organisations to build capacity, increase awareness and share best practices and experiences of multisectoral engagement and accountability. The collaborating organisations include UN agencies, including International Labour Organization, International Organization for Migration, World Food Programme, the United Nations Children’s Fund, the Global Fund, Stop TB Partnership, the CSTF, and other civil society and community organisations. The Taskforce will be leveraged in 2022-2023 to support preparations for the second UN High-Level Meeting on TB, in collaboration with the CSTF.

To support countries in MAF-TB operationalisation, WHO developed two documents, an operational guide and a compilation of best practices on MAF-TB adaptation and implementation. The Operational guide provides practical advice on key approaches and interventions needed to establish the MAF-TB at the national (and local) levels with concrete country examples, best practices and case studies under each suggested approach and interventions. The guide also aims
to encourage political leaders, policymakers within and beyond the health sector, civil society and affected communities, international partners, and funders to join forces in efforts to end TB. The compilation of best practices includes case studies from all six WHO regions and provides important insights into how regions and countries are progressing with MAF-TB implementation. It also highlights lessons learnt from experiences at regional, national and sub-national levels that could guide stakeholders in further scale-up of MAF-TB implementation.

WHO continues to advocate for scaling up the MAF-TB through different events and fora to keep a high-level spotlight on the multisectoral response to end TB. This includes the Global TB Symposium, the 7th End TB Strategy Summit and the meetings of the WHO Technical Experts Network on TB. Capacity development efforts to enable MAF-TB adaptation and implementation at country level have been undertaken through a series of virtual orientation webinars, including in collaboration with the Global Fund, Stop TB Partnership and other partners.

WHO has been facilitating information-sharing among Member States through the MAF-TB virtual network hosted on WHO'S interactive platform End TB Forum. The Forum also provides a good platform for communication among all members for sharing experiences and responding to queries.

At the national level

There has been notable progress in MAF-TB adaptation and implementation in countries from all WHO regions. In particular, the number of countries that publish annual TB reports on progress toward national TB-related targets and commitments has increased from 62% to 77% during the 2020-2022 period, with all high-burden countries reporting this to be in place (Figure 1). 63% of countries reported that they have multisectoral accountability and review mechanisms in 2022 compared to 40% in 2020, including an increase reported in high-burden countries from 53% to 70% for the same period (Figure 2). These multisectoral accountability and review mechanisms included non-health sectors and ministries, including education, justice or corrections, labour, finance and social welfare, among others. In 2022, 45% of countries reported that they have representation of civil society and affected communities in their multisectoral accountability and review mechanisms (Figure 3). This is a 1.5-fold increase from 29% in 2020. Countries have implemented a variety of approaches to adapt MAF-TB; some prominent examples documented by WHO are presented in the WHO Best Practices document.

4.2 Topics covered

The topics covered in this session included the following.

- adaptation and implementation of WHO’s Multisectoral Accountability Framework in countries;
- country perspectives on high-level multisectoral accountability mechanisms – experience from Brazil; and
- multisectoral perspectives from inter-agency stakeholders and civil society on accelerating efforts to end TB.

Key actions led and supported by WHO, between June 2022 and June 2023 are outlined in the background above.
4.3 Questions to STAG-TB

Two questions were posed to STAG-TB:

- What is STAG-TB’s advice to WHO on how it can bolster its role in providing technical support and guidance to countries, to help them prepare for the presentation of high-level review of progress and engagement at the UN High-Level Meeting on TB?

- What does STAG-TB propose to WHO to advance the engagement of other sectors and stakeholders in MAF-TB efforts at national and subnational levels, building on the commitments and actions outlined in the WHO Director-General Flagship Initiative and upcoming High-Level Meeting declaration?

4.4 STAG-TB comments

STAG-TB:

- commends WHO’s work on advancing the implementation of the multisectoral accountability framework globally and in countries, including the prioritisation of MAF-TB in the WHO Director-General Flagship Initiative (2) and in preparations for the UN High-Level Meeting through progress reviews;

- recognises the critical importance of high-level leadership, political will and advocacy in accelerating action, progress and resource mobilisation to end TB in countries, especially through the engagement of other sectors;

- acknowledges WHO’s role in strengthening global coordination and collaboration with partners, including UN agencies, civil society and affected communities, through its multisectoral platform, urging replication at the national level;

- welcomes the engagement of civil society and affected communities in all four components of MAF-TB, including in national strategic plan development and implementation, notably through collaboration with the CSTF on TB; and

- underlines the need for bolstering monitoring and review by WHO of MAF-TB implementation in countries

4.5 STAG-TB recommendations

STAG-TB recommends that:

4.5.1 WHO builds on the commitments and actions outlined in the WHO Director-General Flagship Initiative and the upcoming United Nations General Assembly High-Level Meeting declaration, to enhance visibility of efforts to end TB on the health agenda at the global, regional and national levels, and fast-track high-level engagement, intersectoral collaboration and accountability.

4.5.2 WHO supports countries through political advocacy and dialogue in promoting the highest-level leadership of multisectoral accountability review mechanisms in countries to accelerate the effective engagement of other ministries and sectors, including the private sector.
4.5.3 WHO continues its strong leadership role in providing technical assistance and guidance to countries in implementing MAF-TB at the national, subnational and local levels, including through the development of sector-specific guidance and regular dissemination of information.

4.5.4 WHO supports countries in developing robust monitoring and evaluation frameworks as part of their MAF-TB components or plans, to track progress and impact of multisectoral efforts in the TB response, including by providing guidance on meaningful indicators (e.g. Head-of-State engagement, resource allocation, legislation), data collection, and regular reporting, as well as technical assistance in data analysis and interpretation on impact.

4.5.5 WHO prioritises capacity-building efforts to support countries in adapting and implementing MAF-TB, through the sharing of best practices as well as through virtual and/or in-person webinars, workshops, training programmes and WHO’s virtual MAF-TB platform on End TB Forum.

4.5.6 WHO encourages countries to ensure the meaningful participation of civil society and affected communities in all processes and elements of MAF-TB, including review mechanisms.

4.5.7 WHO uses MAF-TB as a tool to address the needs of high-risk, vulnerable groups, including around human rights, discrimination, stigma, labour issues and catastrophic costs.

4.5.8 WHO leverages its country offices to coordinate and scale up the engagement of UN agencies (for e.g. through the UN cluster mechanism) to enable the convening of sectors beyond health, as well as collaboration with partners, civil society and the private sector to strengthen meaningful multisectoral engagement in the TB response, including in national strategic plan development, funding proposals and programme reviews.

4.5.9 WHO expands the membership of its multisectoral and multi-stakeholder platform to especially include financial partners and agencies, such as the World Bank, IMF and other regional banks, that can influence the finance sector and contribute to domestic and international resource mobilisation.

4.5.10 Looking forward, WHO explores opportunities to ensure efforts to end TB are linked to the broader agendas of UHC, pandemic preparedness, food security and climate change.
5. Information update: TB Vaccine Accelerator Council

5.1 Background

Vaccines are one of the most successful and effective public health interventions to reduce and even eradicate life-threatening infectious diseases. However, the only licensed TB vaccine, bacille Calmette–Guérin (BCG), has been inadequate in halting the global TB epidemic, despite its almost global administration. BCG provides moderate to good protection against severe forms of TB in infants and young children (averting thousands of paediatric deaths annually), but it does not adequately protect adolescents and adults, who account for the majority of TB transmission.

Currently, at least 16 vaccine candidates are under active clinical development. However, preliminary results that meet WHO’s preferred product characteristics (11, 12) have been achieved by only one of the 16 candidates. Overall, despite significant progress in reinvigorating the TB vaccine pipeline since 2000, the current candidates display little antigenic and immunological diversity. Furthermore, scientific challenges persist such as a lack of validated, predictive animal models of TB infection and disease; a lack of validated biomarkers that can act as prospective signatures of the risk of developing TB or as correlates of protection; and an incomplete understanding of the nature of protective immunity to TB. From a developer perspective, market uncertainties, as well as the long and expensive research timeline, make TB vaccine development challenging.

Key actions led and supported by WHO, between June 2022 and June 2023 are outlined below.

- **Investment case for new TB vaccines.** WHO promotes the Full Value of Vaccines Assessment framework to inform decision-making on TB vaccine investment, introduction and use. Using this framework, the health and economic impact of new TB vaccines that meet WHO-preferred product characteristics were estimated in 102 low- and middle-income countries. The findings estimate that, over 25 years, a vaccine that is 50% effective in preventing disease among adolescents and adults could avert up to 76 million new TB cases, 8.5 million deaths, 42 million courses of antibiotic treatment and US$ 41.6 billion in costs faced by TB affected households, especially for the poorest and most vulnerable. A vaccine that is 75% effective could avert up to 110 million new TB cases and 12.3 million deaths. The study further suggests that every US$ 1 invested in a 50% effective vaccine could generate an economic return of US$ 7 in terms of averted health costs and increased productivity.

- **A high-level event on the role of new TB vaccines in ending TB, and the establishment of a TB Vaccine Accelerator Council.** WHO and the World Economic Forum convened an in-person event on ending TB, spotlighting the role of new TB vaccines in the fight against TB on 17 January 2023 in Davos, Switzerland. The event featured deliberations on the
importance of strategic partnerships and investments to boost the development, testing and manufacturing of safe and effective TB vaccines and on global access equity, drawing on lessons learnt from the response to the COVID-19 pandemic. During the event, WHO’s Director-General announced plans to establish a TB Vaccine Accelerator Council. The Council is anticipated to facilitate the licensing and use of effective novel TB vaccines catalysing high-level alignment between funders, global agencies, governments and end users in identifying and overcoming barriers to TB vaccine development.

5.2 STAG-TB comments

STAG-TB:

- congratulates WHO’s Director-General in his convening of a high-level event, spotlighting new TB vaccines at the World Economic Forum (January 2023);
- welcomes progress made by WHO to accelerate the development, testing, authorisation, and use of new TB vaccines, including the publication of an investment case on new TB vaccines (December 2022);
- commends announcement by the WHO Director-General to establish a TB Vaccine Accelerator Council, and calls on the timely establishment of the Council by the Second UN High-Level Meeting on TB.

5.3 Way forward

Though this session was prepared as an information update to STAG-TB, the following was noted.

- STAG-TB calls on the Global Tuberculosis Programme, in its capacity as the Secretariat to the TB Vaccine Accelerator Council, to support the Council’s work on:
  - mobilising adequate and sustainable resources, identifying market incentives, and fostering partnerships between the public, private and philanthropic sectors to expedite the translation of science into TB vaccines, and ensure their supply and equitable access once available;
  - boosting the pipeline of new TB vaccines, including by shaping the scientific work on the discovery of safe adjuvant systems and effective correlates of protection, in the context of different vaccine platforms and delivery systems such as mRNA-based and viral vectored-based vaccines;
  - facilitating the engagement of the Council with relevant stakeholders in TB vaccine development and access, including regulators, as well as communities to increase vaccine acceptability;
  - streamlining the proposed technical working groups under the purview of the Council, with existing initiatives, and engaging partners to reduce duplication.

STAG-TB calls on the Global Tuberculosis Programme to coordinate the work on country preparedness for vaccine introduction and use, in collaboration with relevant partners. This incorporates work on strengthening preparedness for vaccine introduction, including by proposing impactful and sustainable vaccine implementation strategies appropriate for different epidemiological contexts.
6. Enhancing the health impact of TB programmes through digital innovations

6.1 Background

WHO Global Tuberculosis Programme has been working with Member States and partners to engage more comprehensively and promote the use of digital technologies (eHealth and mHealth) in the drive to reach the targets set by the End TB Strategy. WHO, in close collaboration with Member States and partners, defined four functions in digital health for TB: person-centred care, programme management, surveillance and monitoring and eLearning.

In 2017, for the first time, WHO issued evidence-based recommendations for the use of digital technologies to support treatment adherence for TB patients. These include a variety of technologies like electronic medication monitors and mobile text. WHO also recommended video-supported treatment (VOT/VST) as an option to help administer care. Experience in the implementation of digital adherence technologies has increased in recent years, as a result of programmatic implementation as well as research projects in different countries, such as TB REACH and the ASCENT project. While trials from diverse settings attest to the value of these technologies to improve TB medication adherence, they have not shown an effect on improving relapse-free cure or survival.

Digital technologies also have a long history of strengthening surveillance and programme management in the national TB response. Since 2017, a WHO-led, multi-partner effort across multiple disease programmes has seen the development of digital packages for the collection, analysis, visualisation and use of data from routine health facility information systems and subsequent country uptake. Digital TB surveillance packages for individual and aggregated data have been built based on WHO metadata standards and other guidance using DHIS2, an open-source software adopted by many countries for health information systems. Each package contains a machine-readable DHIS2 configuration, an analysis guide with a core set of indicators and dashboards, and an accompanying exercise book. A DHIS2 TB package for case-based data has been available for download since late 2020, in both English and French. WHO has also supported the development the PREVENT TB, a prototype application to illustrate the data elements needed to generate and monitor indicators for TB preventive treatment and screening. WHO also leads efforts in the digital dissemination of TB policy guidance, research and eLearning.

Artificial intelligence (AI) is now capturing everyone’s imagination. In 2021, WHO released its first-ever evidence-based recommendation on a machine-learning-enabled device: computer-aided detection of TB on digital radiography. Other systems that employ AI to analyse the ingestion of

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3 The ASCENT (Adherence Support Coalition to End TB) project aims to help patients succeed in TB treatment using digital adherence technology (https://www.kncvttc.org/en/ascent/).
medicines, ultrasonography, breath sounds and cough are already in the TB development pipeline. However, the full potential of AI in the enhancement of healthcare is yet to be defined.

In November 2022, WHO held a 3-day consultation in Geneva to discuss the recent application of digital tools for TB across different use cases: digital adherence, registers for TB disease and preventive treatment, mediating enablers, laboratory information and connected diagnostics, eLearning, surveillance and health informatics and analytics. A panel of technical and funding agencies proposed a number of actions to promote digital tools in support of national TB programmes: implementing a governance framework to facilitate digitisation that does not disempower the national TB programme; prioritising tools subject to their proven efficacy and relevance in the country context; creating case-based surveillance systems that provide real-time updates (learning from the COVID-19 experience); implementing analytics such as dashboards to visualise key indicators transparently; promoting tools that can help case detection in a post-pandemic recovery phase; reporting timely information about gaps in the TB care cascade; thinking long term when developing tools to promote sustainability; and building human capacity to use the data. The means to reach these ends include engaging the private sector and other collaborative partnerships, creating a dashboard for better visualisation and utilisation of data, enhancing country leadership in digital transformation, and understanding the perspectives of end-users.

WHO Global Tuberculosis Programme has created a web portal to guide visitors to find digital resources on WHO websites and elsewhere for use by various TB programme components (https://www.who.int/tools/digital-resources-for-tuberculosis/).

6.2 Topics covered

The topics covered in this session included the following.

- A historical perspective of the evolution of WHO-led initiatives on digital technologies for TB over the last decade
- A focus on ongoing work to strengthen TB programme across all different elements of person-centred care (including evidence-based recommendations on digital adherence technologies, computer-aided detection and a new framework to facilitate the uptake of WHO guidelines through digital products – SMART guidelines – Standards-based, Machine-readable, Adaptive, Requirements-based, and Testable – for TB), programme management (including a digital platform to support strategic planning, and a finance and budgeting tool), surveillance and monitoring (including a WHO DHIS2 TB digital environment for the full pathway of prevention and care ) and e-Learning (including the release of e-Courses on openWHO.org)
- Perspectives from WHO Data and Analytics on the creation of a comprehensive WHO Data Policy, including a data governance framework and policies on data protection, data collection, gathering, use, reuse, storage, processing and dissemination. Perspectives from WHO Digital Health and Innovation on the WHO Global Digital Health Strategy 2020-2025 and on taking artificial intelligence for health to the people.

Key actions led and supported by WHO, between June 2022 and June 2023 are outlined below.

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4 WHO guidelines articulate and endorse rigorously tested recommendations for health interventions to be adopted within country programs. When applied correctly and consistently, guideline recommendations save lives. SMART Guidelines are a new approach to systematize and accelerate the consistent application of recommended, life-saving interventions in the digital age. Further information available via https://www.who.int/teams/digital-health-and-innovation/smart-guidelines

- November 2022: A 3-day WHO consultation in Geneva to discuss the recent application of digital tools for TB across different use cases (https://www.who.int/publications/i/item/9789240068254)

- June 2023: updates to the TB training catalogue with new courses on TB screening and national strategic planning for TB (https://openwho.org/channels/end-tb)

- June 2023: launch of a WHO online platform to guide users on where to find digital resources from WHO and other partners to help programmes implement various TB programme components (https://www.who.int/tools/digital-resources-for-tuberculosis/).


- Throughout this period:
  - updates to the WHO TB Knowledge Sharing Platform, including Research & Innovation panel (https://extranet.who.int/tbknowledge) and the recommendation map (https://who.tuberculosis.recmap.org/);
  - updates to the toolkit for implementation research on digital innovations for TB, including language versions (https://www.ir4dtb.org);
  - development of the first Digital Adaptation Kit for monitoring of TB programme recommendation as a key step towards the achievement of SMART guidelines;
  - technical assistance to national TB programmes to implement recommended digital technologies, including DHIS2 (https://dhis2.org/metadata-package-downloads/#tb) and PREVENT TB app (https://www.who.int/activities/preventing-tb#app);
  - revision of WHO guidance on TB surveillance with a strong slant on digital tools;
  - development of an eLearning course on the use of TB surveillance data;
  - development of a digital platform to host country data for strategic planning

### 6.3 Questions to STAG-TB

Three questions were posed to STAG-TB:

- Does STAG agree with the next steps proposed by WHO Global Tuberculosis Programme?

- How can national TB programmes be empowered to retain governance of information systems and data within the Universal Health Coverage agenda?

- In a post-pandemic context, how can countries benefit from innovative technologies – especially those that are nascent and without an established knowledge base - to support the recovery of TB services?
6.4 STAG-TB comments

STAG-TB:

- acknowledges that digital technologies are rapidly evolving and implemented by countries, with huge potential that promises to be transformative;
- acknowledges that the way forward proposed by WHO will deliver meaningful digital products and address country needs, as well as emerging challenges;
- acknowledges that the TB community has for long understood the value of standards for data generation and use. TB continues to be a pathfinder in areas like surveillance, AI and other innovations;
- acknowledges that data and information systems are complicated ecosystems, with equally complicated governance structures, and require collaboration between different actors (e.g. public-private; health and other sectors);
- acknowledges that inter-divisional work within WHO and external partners is ongoing on key issues in data governance, coordination, data policy, and harmonisation with other initiatives under UHC. This work becomes more urgent given the increasing movement towards integration of health systems and the data they produce;
- acknowledges that WHO prequalification processes have not advanced as rapidly as normative guidance on novel technologies;
- acknowledges that Attention should be given to ensure that new systems and tools are available to all, including vulnerable populations; and
- acknowledges that e-Learning tools have a role to improve healthcare worker capacity.

6.5 STAG-TB recommendations

STAG-TB recommends that:

6.5.1 adequate funding, including internal WHO sources, be rapidly made available to allow WHO to deliver on the proposed work on digital products, digital systems and use of the data they produce

6.5.2 WHO Global Tuberculosis Programme solidifies and strengthens collaboration and coordination with other WHO departments on digital systems and data and is part of the development of the new WHO Data Policy. This policy must address key issues such as data governance, supportive legal frameworks and improving interoperability between systems

6.5.3 demand be strengthened for data innovations at country level, with decision-makers who are involved in reorganising information systems for health, including for new products (e.g. World Health Data Hub, SMART guidelines for TB) and new components (e.g. prevention)

6.5.4 WHO promotes the principles of collaboration, sovereignty and access amongst users when data and surveillance systems are implemented, to ensure that the data needs of TB programmes are met at national, regional and local levels
6.5.5  the creation of adequate prequalification procedures, that are responsive to digital technologies, be expedited

6.5.6  WHO strengthens support to countries to collect, analyse and use TB data, and adopt appropriate digital tools, for strategic planning, clinical and programmatic management and surveillance purposes

6.5.7  the development of rapid & light evaluation frameworks be considered to gather evidence on new digital technologies – regardless of type – and to assess the existing context to lessen the risk of creating inequities in access

6.5.8  WHO Global Tuberculosis Programme builds upon collaboration with the World Data Hub, to make data for TB more client-oriented and accommodate different information (e.g. qualitative data)

6.5.9  lessons learnt from COVID-19 on how to make rapid use of evidence to support the use of novel technologies be applied to TB

6.5.10 case studies and illustrative explanations are developed and used to communicate novel concepts like SMART guidelines and generative AI tools to National TB Programmes (“dos and don’ts”), linked to guidance being developed by DHI & ITU

6.5.11 e-Learning efforts be expanded beyond managers and consultants to include frontline workers and evaluated for impact.
Planning for the 2024 STAG-TB meeting

The WHO Secretariat announced that the 24th Annual Meeting of STAG-TB is planned for June 2024 (exact dates to be confirmed), at WHO headquarters in Geneva, Switzerland, preferably as an in-person meeting. Proposed agenda items for the 2024 meeting were requested from STAG-TB members, and a proposed agenda will be compiled and discussed with the STAG-TB Chairperson and subsequently shared with members in the coming months, well in advance of the meeting dates.
References


7. Background paper: Fast-tracking country efforts to translate 2023 UN High-Level Meeting on TB commitments to action, unpublished briefing developed to inform the discussions during the 2023 STAG-TB’s annual meeting. 2023.


Annexes

Annex 1: Final agenda

Monday, 3 July 2023

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<th>Session</th>
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<th>Presenter(s)</th>
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<tr>
<td>09.00 – 09.15</td>
<td>Meeting opening and objectives</td>
<td>Tereza Kasaeva, Director, WHO Global TB Programme (GTB) and Ariel Pablos-Méndez, STAG-TB Chair</td>
<td></td>
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<tr>
<td>09.15 – 09.30</td>
<td>Meeting objectives and overview of agenda</td>
<td>Matteo Zignol, GTB/PCI, Hannah Monica Dias, GTB/ODT and Lice González-Angulo, GTB/PCI</td>
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<tr>
<td>09.30 – 09.35</td>
<td>Global Tuberculosis Programme achievements (Video)</td>
<td>Hannah Monica Dias, GTB/ODT</td>
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<tr>
<td>09.35 – 09.45</td>
<td>Feedback from the Chair on STAG-TB briefing to WHO Director-General</td>
<td>Ariel Pablos-Méndez, STAG-TB Chair</td>
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<tr>
<td>09.45 – 10.05</td>
<td>Global overview of progress and preparations for the Second United Nations General Assembly High-Level Meeting on TB</td>
<td>Tereza Kasaeva, GTB Director</td>
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<tr>
<td>10.05 – 10.30</td>
<td>Break</td>
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<tr>
<td>10.30 – 11.10</td>
<td>Regional and country focus on reaching the End TB Targets</td>
<td>WHO Regional TB Advisors</td>
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<tr>
<td>11.10 – 11.20</td>
<td>Civil society perspective on fast-tracking progress to end TB</td>
<td>Chamreun Sok Choub</td>
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<tr>
<td>11.20 – 12.30</td>
<td>Questions and comments</td>
<td>STAG-TB members</td>
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<tr>
<td>12.30 – 14.00</td>
<td>Lunch break</td>
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### Session 2: Fast-tracking efforts to translate end TB commitments to action

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>14.00 – 14.15</td>
<td>Operationalising country responses to key priorities and political commitments to end TB</td>
<td>Farai Mavhunga, GTB/VCC</td>
</tr>
<tr>
<td>14.15 – 14.30</td>
<td>Perspectives from STAG-TB discussants on fast-tracking the TB response, looking ahead to the 2023 UN High-Level Meeting on TB</td>
<td>Grania Brigden and YaDiul Mukadi</td>
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<tr>
<td>14.30 – 15.30</td>
<td>Questions and comments</td>
<td>STAG-TB members</td>
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<td>15.30 – 16.00</td>
<td>Break</td>
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<tr>
<td>16.00 – 16.45</td>
<td>Questions and comments from STAG-TB members (Cont).</td>
<td>All</td>
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<tr>
<td>16.45 – 17.00</td>
<td>Summary and wrap-up of day 1</td>
<td>Ariel Pablos-Méndez, Chair</td>
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<tr>
<td>17.30 – 18.30</td>
<td>Reception</td>
<td>HQ Cafeteria</td>
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**Tuesday, 4 July 2023**

### Session 3: Advancing multisectoral engagement and accountability at global and national levels

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<tr>
<th>Time</th>
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<tr>
<td>09.00 – 09.15</td>
<td>Progress update: Roll out of WHO's Multisectoral Accountability Framework and country action</td>
<td>Hannah Monica Dias, GTB/ODT</td>
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<tr>
<td>09.15 – 10.00</td>
<td>Interactive Panel: Strengthening and advancing multisectoral engagement and accountability to end TB in countries</td>
<td>Country experience: Ethel Maciel, Health Secretary, Brazil</td>
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<tr>
<td>10.00 – 10.15</td>
<td>Commentary from STAG-TB discussants</td>
<td>UN collaboration: UNHCR - Sandra Harlass; ILO - Afsar Syed Mohammad</td>
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<td></td>
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<td>Civil society engagement: Yuliya Chorna</td>
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<td>10.15 – 10.45</td>
<td>Break</td>
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<tr>
<td>10.45 – 11.45</td>
<td>Questions and comments</td>
<td>STAG-TB members</td>
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### Session 4: Information update: TB Vaccine Accelerator Council

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<tr>
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<tr>
<td>11.45 – 12.05</td>
<td>Update: Building on political momentum to accelerate TB research and innovation to End TB – The TB Vaccine Accelerator Council</td>
<td>Nebiat Gebreselassie, GTB/PCI</td>
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<tr>
<td>12.05 – 13.00</td>
<td>Questions and comments</td>
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<tr>
<td>13.00 – 14.00</td>
<td>Lunch break</td>
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### Session 5: Enhancing the health impact of TB programmes through digital innovations

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Leads: Dennis Falzon and Babis Sismanidis</th>
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</thead>
<tbody>
<tr>
<td>14.00 – 14.30</td>
<td>Digital tools to support country uptake of WHO guidelines and guidance</td>
<td>Babis Sismanidis, GTB/TME and Dennis Falzon, GTB/PCI</td>
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<tr>
<td>15.00 – 15.15</td>
<td>Commentary from STAG-TB discussants</td>
<td>Discussants: Nim Arinaminpathy and Moorine Sekadde-Kasirye</td>
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<td>15.15 – 15.45</td>
<td>Break</td>
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<tr>
<td>15.45 – 17.20</td>
<td>Questions and comments</td>
<td>STAG-TB members</td>
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<tr>
<td>17.20 – 17.30</td>
<td>Summary and wrap-up of day 2</td>
<td>Ariel Pablos-Méndez, STAG-TB Chair</td>
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#### Wednesday, 5 July 2023

### Session 6: Review of draft STAG-TB recommendations

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Lead / Rapporteurs and Ariel Pablos-Méndez Chairperson</th>
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<tbody>
<tr>
<td>08.30 – 10.00</td>
<td>Review of draft STAG-TB recommendations</td>
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<td>10.00 – 10.30</td>
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<tr>
<td>10.30 – 11.30</td>
<td>Finalisation of STAG-TB recommendations</td>
<td>Lead / Rapporteurs and Ariel Pablos-Méndez Chairperson</td>
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#### Closing: Next steps and closing remarks

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<tr>
<td>11.30 – 11.40</td>
<td>Round of suggestions for consideration for the STAG-TB 2024 meeting</td>
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<tr>
<td>11.40 – 11.55</td>
<td>Next steps</td>
<td>Tereza Kasaeva, GTB Director and Ariel Pablos-Méndez, Chairperson</td>
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<tr>
<td>11.55 – 12.00</td>
<td>Closing remarks</td>
<td>Jérôme Salomon, Assistant Director-General Universal Health Coverage/Communicable and Noncommunicable Diseases</td>
</tr>
<tr>
<td>12.00</td>
<td>Meeting closure</td>
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Annex 2: List of participants

STAG-TB Members

1. **Dr Ariel Pablos-Méndez**  
   Professor of Medicine  
   Columbia University Medical Center  
   New York, NY  
   United States of America

2. **Dr Denise Arakaki-Sanchez (Remote participation)**  
   Deputy Director  
   Department of Chronic Communicable Diseases and Sexually-Transmitted Infections  
   Secretariat of Health Surveillance  
   Ministry of Health  
   Brasilia  
   Brazil

3. **Dr Nimalan Arinaminpathy**  
   Professor in Mathematical Epidemiology  
   Imperial College London  
   London  
   United Kingdom of Great Britain and Northern Ireland

4. **Dr Grania Brigden**  
   Director  
   Senior Advisor  
   The Global Fund to Fight AIDS, Tuberculosis and Malaria  
   Geneva  
   Switzerland

5. **Dr Glenda Gray**  
   President and CEO  
   South African Medical Research Council  
   Johannesburg  
   South Africa

6. **Ms Jamila Ismoilova**  
   Regional Social Behaviour Change and Gender Advisor  
   Abt Associates  
   Dushanbe  
   Tajikistan

7. **Dr Seiya Kato**  
   Director  
   Research Institute of Tuberculosis  
   Tokyo  
   Japan

8. **Dr Knut Lönnroth (Unable to attend)**  
   Professor of Social Medicine  
   Department of Global Public Health  
   Karolinska Institutet  
   Stockholm  
   Sweden

9. **Dr Ya Diul Mukadi**  
   Senior Technical Advisor  
   Global Health Bureau  
   U.S. Agency for International Development  
   Washington, DC  
   United States of America

10. **Dr Anastasia Samoilova (Remote participation)**  
    First Deputy Director  
    National Medical Research Center of Phthisiopulmonology and Infectious Diseases of the Russian Ministry of Health  
    Moscow  
    Russian Federation

11. **Ms Ingrid Schoeman (Remote participation)**  
    Director  
    Advocacy and Strategy  
    TB Proof  
    Cape Town  
    South Africa

12. **Dr Moorine Sekadde**  
    Paediatric TB Coordinator  
    National TB & Leprosy Program  
    Ministry of Health  
    Kampala  
    Uganda
13. **Dr Syed Karam Shah**
   Advisor
   Communicable Diseases Control
   Ministry of National Health Services, Regulations and Coordination
   Karachi
   Pakistan

14. **Dr Chen Wang** *(Remote participation)*
   President
   Chinese Academy of Medical Sciences and the Peking Union Medical College
   Beijing
   China

**WHO Civil Society Task Force on TB Members**

15. **Ms Yuliya Chorna**
   TB Advocate
   Toronto
   Canada

16. **Mr Chamreun Sok Choub**
   Executive Director
   KHANA
   Phnom Penh
   Cambodia

**Country Representative**

17. **Dr Ethel Maciel**
   Secretary of Surveillance for Health and Environment
   Ministry of Health
   Brasilia
   Brazil

**Other Agencies of the United Nations System**

18. **Ms Sandra Harlass**
   Senior Public Health Officer
   United Nations High Commissioner for Refugees
   Geneva
   Switzerland

19. **Mr Afsar Syed Mohammad**
   Senior Technical Specialist
   ILO Programme on HIV/AIDS and the World of Work
   International Labour Organization
   Geneva
   Switzerland

**Observers**

20. **Dr William Coggin**
    Health Scientist
    U.S. Centers for Disease Control and Prevention
    Atlanta
    United States of America

21. **Dr Lucica Ditiu**
    Executive Director
    Stop TB Partnership
    Geneva
    Switzerland

22. **Dr Agnes Gebhard**
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    KNCV Tuberculosis Foundation
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    Netherlands (Kingdom of the)

23. **Dr Koura Kobto**
    Director
    TB Department
    International Union Against Tuberculosis and Lung Disease
    Paris
    France

24. **Dr Cherise Scott**
    Senior Technical Manager, Strategy Team, a.i.
    Unitaid
    Geneva
    Switzerland

25. **Dr Mohammed Yassin**
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    Switzerland
WHO regional offices

Africa and the Eastern Mediterranean

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26. Dr Michel Gasana
   Medical Officer TB
   Communicable and Noncommunicable Diseases
   HIV, Tuberculosis and Hepatitis
   WHO Regional Office for Africa
   Brazzaville
   Congo

Region of the Americas
27. Dr Pedro Avedillo
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   Pan American Health Organization / WHO Regional Office for the Americas
   Washington, DC
   United States of America

Eastern Mediterranean Region
28. Dr Martin van den Boom
   Regional Advisor, TB
   Division of Communicable Disease Control
   Stop Tuberculosis
   WHO Regional Office for Eastern Mediterranean
   Cairo
   Egypt

Europe

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29. Dr Stela Bivol
   Unit Lead
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   Denmark

South-East Asia and the Western Pacific

South-East Asia Region
30. Dr Vineet Bhatia
   Regional Advisor, TB
   Tuberculosis Control
   Department of Communicable Diseases
   WHO Regional Office for South-East Asia
   New Delhi
   India

Western Pacific Region
31. Dr Rajendra Yadav
   Coordinator
   Integrated Communicable Diseases
   WHO Regional Office for Western Pacific
   Manila
   Philippines

WHO headquarters

Division of UHC/Communicable and Noncommunicable Diseases (UCN)
32. Dr Jérôme Salomon
   Assistant Director-General

Global Tuberculosis Programme
33. Dr Tereza Kasaeva
   Director

Office of the Director
34. Mrs Hannah Monica Dias
   Cross-cutting Lead
   Strategic leadership and multisectoral engagement

35. Mrs Karina Halle
   Cross-cutting Lead
   Enhanced TB Collaboration for country impact

36. Ms Yi Wang
   Technical Officer

37. Ms Anna Stukalova
   Technical Officer

Planning, Analysis and Risk Management
38. Mr Michael McCullough
   Unit Head

TB Prevention, Diagnosis, Treatment, Care and Innovation
39. Dr Matteo Zignol
   Unit Head
40. **Dr Dennis Falzon**  
   Team Lead

41. **Dr Nazir Ismail**  
   Team Lead

42. **Dr Fuad Mirzayev**  
   Team Lead

43. **Dr Nebiat Gebreselassie**  
   Technical Officer

44. **Ms Lice González-Angulo**  
   Technical Officer

45. **Lou Maureen Comia**  
   Office Assistant

46. **Maria De Los Angeles Vargas Gordillo**  
   Office Assistant

47. **Jasmine Solangon**  
   Assistant to the Team

48. **Dr Farai Mavhunga**  
   Unit Head

49. **Dr Tauhidul Islam**  
   Team Lead

50. **Dr Kerri Viney**  
   Team Lead

51. **Ms Lana Syed**  
   Technical Officer

52. **TB Monitoring and Evaluation**

53. **Dr Charalampos Sismanidis**  
   Team Lead

54. **Dr Katherine Floyd**  
   Unit Head

55. **Division of Data, Analytics and Delivery for Impact**

56. **Mr Stephen Mac Feely**  
   Director  
   Data and Analytics

57. **Science Division**

58. **Mr Sameer Pujari**  
   Technical Officer  
   Be Healthy, Be Mobile