Report of the 19th Meeting of the

STRATEGIC AND TECHNICAL ADVISORY GROUP FOR TUBERCULOSIS

11-13 June 2019

Geneva, Switzerland
WHO/CDS/TB/2019.12

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This publication contains the collective views of the Strategic and Technical Advisory Group for Tuberculosis (STAG-TB) and does not necessarily represent the decisions or the policies of WHO.
This report provides the conclusions and recommendations of the 19th meeting of WHO Strategic and Technical Advisory Group for Tuberculosis (STAG-TB).

In its work on TB, the World Health Organization (WHO) aims for a world free of TB and, as part of the Sustainable Development Goals, to end the global TB epidemic by 2030. It seeks to enable universal access to TB prevention and care, guide the global response to threats, and promote innovation. The WHO Secretariat, at all its levels, requires regular scientific, technical and strategic advice from the STAG-TB.

Mission and functions of STAG-TB:

The mission of the STAG-TB is to contribute to ending the TB epidemic, and eventually eliminating the disease, by providing state-of-the-art scientific and technical guidance to WHO. The STAG-TB reports to the Director-General of WHO, and members are appointed by the Director-General. The Terms of Reference for STAG-TB are provided at [http://who.int/tb/advisory_bodies/stag/en/](http://who.int/tb/advisory_bodies/stag/en/)

It has the following functions:

1.1 To provide to the Director-General independent evaluation of the strategic, scientific and technical aspects of WHO's Tuberculosis work;
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, care and control;
   1.2.2 The content, scope and dimension of WHO's collaboration, and support of, countries’ efforts to control TB, including the provision of guidance and capacity-building on policies, strategies, standards and technical assistance;
   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, and of advocacy and communications for TB prevention, care and control 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 between possible areas of WHO activities related to tuberculosis prevention, care and control.

The 19th meeting of the STAG-TB took place from 11-13 June 2019 at WHO Headquarters in Geneva, Switzerland. The meeting was organized by the WHO Global TB Programme (GTB), which provides the Secretariat for the advisory body. Dr Ibrahim Abubaker, Director of the Institute for Global Health, University College London, was appointed by the WHO Director-General as STAG-TB Chair for the period of 2016-2019. He worked with the Director of the WHO Global TB Programme and the STAG-TB Secretariat in the development of the 2019 meeting agenda, found in Annex 1 (to be attached with final document).

At the 2019 meeting, fifteen STAG-TB members participated. The STAG-TB members were joined by senior representatives from the National TB Programmes of China, India and Indonesia, the three countries that carry the greatest burden of TB globally, as well as Members of the WHO Civil Society Task Force on TB, and over 50 other partners including representatives of civil society and affected communities, member states, development agencies and technical, implementation and research partners. The meeting was also attended by WHO staff from Headquarters (HQ), regional and country offices, including from the 30 highest burden TB countries. See Annex 2 for the list of participants (to be attached with final document).

**Nineteenth meeting objectives:**

At this 19th meeting, WHO requested STAG-TB to review and advise on a number of areas of WHO global TB work. The WHO STAG-TB Secretariat and the Chair of STAG-TB developed the agenda for the 19th meeting based on priorities of the WHO in its TB work in 2018 and 2019 and suggested issues proposed by the STAG-TB members at their 18th meeting and a follow up teleconference held in March 2019, including follow-up to the United Nations High-Level Meeting (UN HLM) on TB in September 2018.

The agenda items were:

- Follow up to the UN high-level meeting on ending TB
- Regional and country priorities and initiatives
- TB impact measurement update and new digital platform
- TB preventive treatment
- Civil Society Task Force Priorities and Progress
- The Multisectoral Accountability Framework
- Digital health
- Progress of the Find.Treat.All#ENDTB Initiative
- TB diagnostics, infection control and MDR-TB treatment
- TB research and innovation
Each STAG-TB meeting session began with an introductory presentation(s). Comments and suggested recommendations were provided by one to three STAG-TB members serving as session discussants, followed by comments and recommendations offered by other STAG-TB members, and additional comments by other participants.

The STAG-TB members serving as session discussants developed draft written recommendations, with the assistance of WHO rapporteurs. The recommendations were consolidated by the WHO Secretariat. The consolidated report was reviewed by the STAG-TB Chair and then by all STAG-TB Members. The report will be submitted by the Chair of STAG-TB to the Director-General of WHO.

The report will be posted on the WHO website:

http://who.int/tb/advisory_bodies/stag/en/

OPENING SESSION

Dr Tereza Kasaeva, Director of the Global TB Programme and Dr Ibrahim Abubakar, Chair of STAG-TB, welcomed STAG-TB members and all participants for their collaboration. Dr Soumya Swaminathan, Chief Scientist of WHO, made opening remarks on behalf of the WHO Director-General on the implementation of WHO 13th Global Programme of Work and the WHO Transformation process.

Dr Abubakar and Ms Diana Weil, Global TB Programme, noted the objectives of the meeting, introduced the agenda and meeting processes, as well as the efforts taken to follow-up with STAG-TB to inform them on actions taken on 2018 recommendations through an information note. Note that Declaration of Interest forms for STAG-TB members were reviewed in advance of the meeting and no conflicts of interest were noted that would preclude participation in any of the sessions of the meeting.

CONCLUSIONS AND RECOMMENDATIONS BY SESSION

SESSION 1A: FOLLOW UP TO THE UN HIGH-LEVEL MEETING ON ENDING TB AND STRENGTHENING MULTISECTORAL ACTION AND ACCOUNTABILITY; AND

1B: REGIONAL AND COUNTRY PRIORITIES AND INITIATIVES TO STRENGTHEN CAPACITY AND REACH TARGETS

Dr Kasaeva provided an overview presentation summarizing the targets and commitments of the UN HLM on TB. She highlighted key WHO activities and progress to date since the UN HLM to support countries to address these commitments and to build on the opportunities of the WHO transformation.

Regional representatives from the six WHO regions - Dr Wilfred Nkhoma (AFRO), Dr Rafael Lopez
Olarte (AMRO/PAHO), Dr Muhammad Akhtar (EMRO), Dr Masoud Dara and Dr Askar Yedilbayev (EURO), Dr Mukta Sharma (SEARO), and Dr Tauhid Islam (WPRO) - presented on their efforts to support countries in pursuing the End TB Strategy and related UN HLM targets, focusing on distinct regional priorities.

Dr Nkhoma highlighted efforts to reach missed cases by supporting expansion of diagnostic capacity, coordination of TA with technical partners, improved impact measurement, and the development by WHO and the African Union (AU) Secretariat of a scorecard for African Continental accountability which has been endorsed by the AU. Dr Lopez Olarte spoke to addressing TB and cross-disease elimination efforts with low-incidence countries, and action to leave no one behind through work on TB with indigenous peoples, and TB in prisons. Dr Akhtar noted ongoing work on complex emergencies, and accountability steps. Dr Dara and Dr Yedilbayev highlighted the region’s work to support coordination of TB and drug-resistant TB platforms, civil society engagement, policy dialogue to ensure sustainable financing, and measures to address the increase in HIV-related TB. Dr Sharma highlighted actions taken based on the Delhi Declaration and UNHLM, advances in reporting of TB cases and development of a regional strategy on TB preventive treatment. Dr Tauhid Islam noted support of special initiatives by Member States building on new targets and high-level action, and framing regional actions linked to UHC policies, preventive treatment scale-up and TB in the elderly.

Dr Ibrahim Abubaker and Dr Christy Hanson were the STAG-TB discussants for the session.

**STAG-TB:**

- Acknowledges the important role of WHO in monitoring global financing of TB and WHO engagement in strengthening methods for calculating the costs associated with ending TB, and encourages WHO to sustain this work;
- Acknowledges the progress being made, as reflected by declining incidence of TB in all regions. However, STAG-TB also notes that sub-optimal rates of treatment success in many regions is a risk to the pace of future progress;
- Notes and is encouraged by the positioning of the Global TB Programme within one of the two Universal Health Coverage (UHC) Divisions at WHO headquarters as this offers opportunities for TB to be mainstreamed into the momentum toward UHC;
- Commends WHO on its active follow-up to the UN high-level meeting on TB (UNHLM), particularly noting the six high-level missions in the past 8 months aimed at securing action against the commitments by these high-burden countries;
- Congratulates the regional offices on the important work undertaken during 2018-2019 to adapt and introduce new technical guidance, and to plan responses to changing funding and demographic landscapes; and
- Given the priorities of member states, recommends that WHO embolden its workstreams in support of the proposed recommendations that follow.
STAG-TB recommends that WHO:

1. Advance financing to end TB by:
   a) Enhancing its work in support of countries along the continuum of health financing; i.e. improving costing methods/data, promoting resource optimization and domestic resource mobilization through UHC platforms and other domestic funding modalities (and including resources for research);
   b) Tracking and reporting on country, regional and global funding gaps alongside progress toward epidemiological and programmatic targets; to consistently consider the role of adequate and efficient use of financing for progress;
   c) Monitoring and addressing any negative implications for the availability of drugs and commodities that result as countries transition from donor to domestic funding;

2. Support improvement of quality of care by:
   a) Continuing to enhance the availability of case-based surveillance systems and capacity for data use to enable real-time programmatic quality improvement in support of care continuation;
   b) Promoting active engagement of civil society, affected communities and the private sector with a view to ensuring the quality of care provided by this sector;
   c) Operationalizing multi-sectoral partnerships for expanding patient-support modalities;
   d) Supporting countries in ensuring adequate numbers and training of health care workers, including community-based workers.

3. Strengthen prioritization in its own work planning and support countries to prioritize action based on evidence of impact against the SDGs, including towards achievement of UHC, to optimize not only epidemiological impact but to reach all people with quality care.

4. Advance multi-sectoral action and accountability by:
   a) Developing clear guidance for countries on how to operationalize multi-sectoral partnerships; i.e. with whom, for what; to address the need to enhance patient support, reduce catastrophic costs due to TB, increase domestic financing, incorporate TB into health benefit packages and ensure quality of care;
   b) Working closely with all sectors to support the accountability systems intended through the multisectoral accountability framework.

SESSION 2: TB IMPACT MEASUREMENT UPDATE AND A NEW DIGITAL PLATFORM FOR TB DATA ANALYSIS AND USE (Information Session)

Dr Katherine Floyd presented an information update on the work of WHO and the WHO Impact Measurement Task Force. Dr Babis Sismanidis presented the new WHO digital platform for TB data analysis and use. As an information session, there were no STAG-TB recommendations.
SESSION 3: TB PREVENTIVE TREATMENT: Outstanding Policy Issues and Accelerating Implementation and Monitoring

Dr Avinash Kanchar presented on global TB preventive treatment policy, treatment support and tools. Dr Sharma presented the development of the SEARO regional draft TB strategy on preventive treatment.

Dr Nguyen Viet Nhung, Dr Unyeong Go, and Dr Seiyo Kato were STAG-TB discussants.

STAG-TB acknowledges:

- Implementation challenges that remain in the scale-up of treatment of TB infection in high TB burden countries, the need to ensure prioritization of those targeted and reached based on the WHO guidelines, the need for ongoing advocacy with governments and health care workers, as well as the need to generate demand for preventive treatment services;
- Ongoing work of WHO staff worldwide and partners to support implementation and scale-up of TB preventive treatment services in high TB burden countries and endorses the need to strengthen capacity at WHO regional level to support member states;
- The need to review evidence and provide clarity on contact investigation in congregate settings, such as prisons or workplaces, and to consider including health care workers as an at-risk population for testing for TB infection and treatment;
- Need to strengthen infection prevention and control in congregate settings as key elements of programmatic management of latent TB infection; and
- High pricing of medicines used in the shorter preventive treatment regimens is an ongoing barrier to access.

STAG-TB recommends that WHO:

1. Support countries, when requested, in setting nationally-appropriate targets for persons reached with TB preventive treatment by 2022.

2. Develop communication messages to help support the scale-up of treatment of TB infection in countries, including using appropriate language and terminology to enable civil society members to generate demand.

3. Develop practical operational guidance for health care and community workers.

4. Develop tools for contact investigation, counseling of people eligible for TB preventive treatment, identification and management of adverse events drawing from available tools developed by partners. Support recording and reporting, and implementation research, across all steps of the cascade of care from screening of target populations, to start of preventive treatment and treatment outcome.
5. Support regional mechanisms to increase capacity to scale up the programmatic management of TB infection at regional level, as a solid platform to support countries to update national strategic plans and develop an investment case to scale-up TB preventive treatment.

6. Support strategic discussion with partners to enhance access to shorter regimens through price reduction, and work with other WHO departments, including essential medicines and prequalification departments, and partners to facilitate overcoming barriers to access.

SESSION 4: CIVIL SOCIETY TASK FORCE (CSTF) ON TB: Priorities and Progress

Ms Lana Syed presented on the revamping of the Task Force and selection of new members and Secretariat support. Mr Roger Kamugasha, CSTF member presented on behalf of the CSTF on the Task Force priorities and progress to date.

Dr Thato Mosidi and Ms Jamila Ismoilova were the STAG-TB discussants for this session.

STAG-TB:

- Supports the direction of the Global TB Programme in deepening partnerships with civil society and affected communities and acknowledges that close collaboration with civil society is critical at all levels of the TB response;
- Compliments the Global TB Programme Director and WHO leadership for their support in establishing the WHO Civil Society Task Force (CSTF). The Terms of Reference of the revamped CSTF are very comprehensive and provide a framework for prioritizing joint and collaborative action by its members and the Secretariat; and
- Notes the variable level of systematic civil society and affected community engagement at regional and country levels as well as insufficient attention to measuring impact of civil society advocacy and community engagement in the TB response.

STAG-TB recommends that:

1. To help improve systematic engagement of civil society and affected communities, the CSTF and Secretariat:
   a) Identify and nurture linkages with regional and country efforts and groups to boost their commitment to civil society and affected community engagement;
   b) Develop repositories of different regional and HBC groups and networks to catalyse engagement beyond the global level;
   c) Define the role of CSTF members and regional and country level to strengthen engagement.

2. The WHO CSTF Secretariat and the CSTF could consider the following priorities within their work:
   a) Focusing on vulnerable populations (eg. children, prisoners, and refugees);
b) Developing additional indicators to help assess quality and impact of civil society and affected community engagement at different levels;

c) Leveraging routine TB programmatic activities and proposing innovative activities to facilitate and track civil society and affected community engagement at country level (e.g., relevant questions added to supervisory checklists for grassroots supportive supervision of facilities);

d) Identifying and compiling good practices in different priority areas (Multisectoral Accountability Framework for TB (MAF-TB) implementation, Political Declaration processes, national TB programme reviews, etc.) in their base countries and regions.

3. The WHO CSTF Secretariat should ensure adequate resources and capacity building for the full implementation of the CSTF workplan including members’ participation in national TB programme reviews; CSTF and the Secretariat should also systematically advocate for adequate resources for country-level affected community and civil society engagement. Information on funding sources which may be easily accessed by civil society organizations should be collected and shared.

4. The CSTF and Secretariat should raise the importance of scale up of integrated community health programmes in high-burden countries (HBCs) and push for closing the community monitoring and evaluation gap, as currently, one third of countries with national coverage of community-based service delivery do not have community indicators as part of their surveillance systems.

SESSION 5: THE MULTISECTORAL ACCOUNATIBILITY FRAMEWORK FOR TB (MAF-TB): Progress Update (Information Session)

Dr Katherine Floyd and Ms Diana Weil presented the finalization of the WHO Multisectoral Accountability Framework and action being taken to support its country adaptation and implementation in 2019, as requested by the UN General Assembly and World Health Assembly.

As an information session, there were no STAG-TB recommendations.

SESSION 6: EVOLVING DIGITAL HEALTH STRATEGY IN SUPPORT OF ENDING TB

Dr Dennis Falzon, presented progress made on the WHO digital health strategy, ongoing research and implementation experiences.

Dr Daniel Chin and Dr Farhana Amanullah were the STAG-TB discussants for this session.

STAG-TB acknowledges that:

• Substantive progress has been registered by countries and partners in the last four years to move along in the strategic direction recommended by STAG-TB in 2015;
• Examples of creative, large-scale use of digital technologies and of collected data in low-resource settings could fuel similar investment in innovation in high-burden settings through visionary leadership;
• Despite the progress there are still missed opportunities in the mainstreaming of digital technologies across the broad diversity of TB prevention and care activities, even though current evidence and recommendations permit greater implementation; and
• The full application of the data that are being collected – such as in summary dashboards, supply management, clinical decision support tools, and use of artificial intelligence – remains under-exploited in TB programmes.

**STAG-TB recommends that WHO:**

1. Develop the digital health agenda further in the direction proposed, taking advantage of the new WHO digital health department and guidelines, and integrate the use of digital technologies into all areas of work of the Global TB Programme and into country support by Regional and Country Offices.

2. Map how various digital technologies can be applied at different points of an integrated TB care cascade and develops implementation guidance in different languages to overcome critical barriers to quality TB care, with continuous collection of experience within a community of practice.

3. Make bolder statements on the need to be more proactive in implementing digital technologies which are likely to generate benefits to patients and health systems based on evidence or other experience of use, without allowing potential misuse to deter investment, and works with countries and partners to scale-up digital technologies for TB.

**SESSION 7(A): ADVANCING THE FIND.TREAT.ALL#END TB INITIATIVE; and 7(B): ADDRESSING 3 CHALLENGES IN FINDING PEOPLE WITH TB: Access to Diagnosis/integration with Primary Health Care, Clinically-diagnosed cases, and Contact tracing**

Dr Malgoisa Grzemska (GTB), presented alongside Dr Lucica Ditiu of the Stop TB Partnership, and Dr Eliud Wandwalo of The Global Fund to Fight AIDS, Tuberculosis and Malaria, on the progress made under the Find.Treat.All initiative and the Global Fund Strategic Initiative.

Dr Christian Gunneberg presented on proposed approaches to address three of the major challenges in finding those with TB.

Dr Anna Vassall and Dr Farhana Amanullah were the STAG-TB discussants for both sessions. Dr Mahshid Nasehi was unable to attend, however Dr Amanullah made comments on her behalf.
STAG-TB:

- Acknowledges that there is an increase in TB notifications (especially in 13 HBCs supported by the Global Fund Catalytic Initiative and Strategic Initiative of the Global Fund with WHO and the Stop TB Partnership); However, the majority of the new patients have been clinically diagnosed and, therefore, a more granular analysis is necessary to identify the causes thereof;
- Acknowledges that the commitment to find and treat 40 million people with TB and provide TB preventive treatment to at least 30 million people by 2022 requires enhanced screening, equitable access to diagnostics and contact management strategies;
- Agrees with the identified barriers to finding the missing people with TB which include limited capacity of health care workers and lack of TB services at the first point of contact (PHC level and private clinics) and limited contact tracing efforts; and
- Recognizes that without additional human and financial resources and meaningful civil society and community engagement, countries will not be able to scale up intensified and active case finding, including contact tracing activities and, consequently, will not meet the UN HLM targets.

STAG-TB recommends that WHO:

1. Support comprehensive analyses of the latest available data disaggregated by country, to determine the reasons behind the increase in clinically-diagnosed TB (including private sector, pediatric TB and extra-pulmonary TB).
2. Support countries in building front-line health worker capacity in line with system-wide efforts for human resources for health, for recognizing presumptive TB and initiating appropriate diagnostic investigations.
3. Work with partners to support countries in identifying best-suited mechanisms to improve access to diagnostic services, including by improving TB sample transportation (integrated with existing transport systems for other commodities) to ensure availability of TB diagnosis in Primary Care in the public and private sector.
4. Support countries to develop and scale up intensified, and active case finding, and TB contact tracing mechanisms, including approaches of integrated with other community initiatives, such as those related to UHC, HIV, malaria, polio, and noncommunicable diseases.
5. Recommend approaches to address other barriers to finding and treating people with TB, including by addressing gender-specific issues, reducing stigma, promoting and protecting human rights, and enhancing treatment literacy and peer support.
6. Together with the Global Fund and other partners, enable and encourage the evaluation at national level of the cost-effectiveness of strategies to reach and diagnose TB among different populations.
SESSION 8: TB DIAGNOSTICS INFECTION CONTROL AND MDR-TB TREATMENT: New Guidelines, Planned Updates and Implementation Support

Dr Fuad Mirzayev and Dr Kefas Samson presented on WHO’s actions taken to help support implementation of recent new WHO guidance on TB diagnostics and MDR-TB treatment, and plans for additional guidelines development in 2019.

Dr Kitty van Weezenbeek and Dr Catharina Boehme were the STAG-TB discussants for this session.

STAG-TB:

- Acknowledges and commends WHO for creation of the Scientific Division as part of the WHO transformation process, recognizing its role in optimization of the Guideline Development process;
- Commends the Global TB Programme for the robust process and efforts in updating of recent guidelines for infection prevention and control, drug-resistant TB and diagnostics, keeping pace with the new developments;
- Recognizes the effect of specific health system conditions (e.g. access to diagnostics; human resources for health; active TB drug safety monitoring and management; pharmaceutical supply management) and the importance of targeted implementation research as key to identify and address challenges for the uptake of new tools; and
- Acknowledges that the programmatic management drug-resistant TB is in a period of change that requires agile adoption of interventions at the country level.

STAG-TB recommends that WHO:

1. Continue to develop global recommendations, keeping pace with emerging new evidence while maintaining scientific rigor and independence in the process.
2. Continue to foster involvement of WHO country office and their capacity to engage partners at the country level and facilitate the adaptation of guidelines to specific country context.
3. Continue promoting and supporting implementation research to enable early adoption of diagnostic tools, treatment regimens and other innovations.
4. Help countries establish absorption platforms for rapid implementation and uptake of guidelines, in collaboration with partners.
5. Explore mechanisms to overcome regulatory barriers delaying access to new tools, and continue to work with WHO essential medicines and prequalification departments, and partners.
SESSION 9(A) and 9(B): TB RESEARCH AND INNOVATION - Status of the draft Global Strategy, and update on support for TB vaccine trials

Dr Nebiat Gebreselassie reviewed the development and content of the draft WHO Global Strategy on TB Research and Innovation and noted the upcoming steps for its review by WHO Governing Bodies. Dr Matteo Zignol presented on WHO support with partners to advancing research on the M72 vaccine candidate.

Ms Erica Lessem and Dr Ibrahim Abubakar were the STAG-TB discussants for this session.

STAG-TB:

- Welcomes the progress in the development of a "Global Strategy on TB Research and Innovation" as requested by Member States, together with relevant stakeholders;
- Applauds the framing of the Strategy in alignment, with national health and research strategies to enable country ownership and with over-arching guiding principles, such as Universal Health Coverage and initiatives such as the Secretary-General's High-Level Panel on Access to Medicines, the G20 Antimicrobial Resistance R&D Hub., with the aim to deliver concrete outcomes;
- Commends the WHO on the consultative and inclusive process to develop the draft Research Strategy, and particularly for including civil society-developed targets for country funding contributions to R&D;
- Welcomes efforts to enhance R&D of new TB vaccines along the full spectrum through the development of a full public health value assessment of new TB vaccines;
- Supports WHO’s initiative to advance the further development of the M72 vaccine candidate, guided by the principles of affordability, effectiveness, efficiency and equity; and,
- Commends WHO’s leadership on convening stakeholders regarding promising vaccine candidate M72/AS01 and supports future plans to convene potential funders.

STAG-TB recommends that WHO:

1. Engage with Member States, and work with partners, to support the adoption of the Global Strategy for TB Research & Innovation, as well as fulfilment of the commitments in it, including fully funding TB R&D needs by Member States (at minimum meeting the “fair share” targets) and reporting publicly on these investments.

2. Work with relevant stakeholders to support accountability systems to ensure that research funding includes operational research by Members States.

3. Continues using its convening role to advance without delay the further development of the M72 vaccine candidate (e.g. through a phase III trial) as soon as final 3-year follow-up data confirm the promising 2-year findings, to expedite the availability of vaccines to those who need it.

4. In its support for the clinical development process of M72 vaccine:
a) Support the inclusion of adolescents (down to the age of 12), and people living with HIV, to support equity as well as implementation as soon as possible post-trial; includes a biobanking component; and ensures that trial participants have access to effective interventions, in line with recommendations on effective therapy for TB infection; b) Explore opportunities, together with relevant stakeholders, to advance research into alternative adjuvant systems to AS01, in parallel to ongoing clinical development of M72/AS01; c) Ensure meaningful community engagement throughout the vaccine development process and promotes the need for public education, from trial design through implementation and post-trial access. STAG urges WHO to promote inclusion of investment needs for vaccine literacy and capacity building of civil society groups globally and at study sites as part of funding estimates and investments for M72's development.

5. Conduct an independent full public health value assessment of new TB vaccines, together with relevant public, academic, multilateral, and community stakeholders, to support decision makers in the R&D value chain.

6. Help ensure that M72 is treated as a public good and the benefits accrue to the public, and that an affordable target price for M72 is driven by an independent assessment, and that access at this price is available in all markets, recognizing that the majority of funding will likely be from the public sector.

7. Advocate for the urgent need of more effective TB vaccines, and voices a call to action publicly and advocates for investment in TB vaccine R&D:

8. Continue to work with partners to support the further development of different TB vaccine candidates (including the BCG revaccination trial), as more than one vaccine will likely be needed to support TB elimination efforts:

9. Continue to collaborate with the vaccine development groups in other disease areas (for lessons learned and state-of-the-art best practices), given the lack of recent late-stage vaccine development experience in TB.

**PROPOSED AGENDA ITEMS FOR THE 20TH STAG-TB MEETING: 8-10 June 2020**

The 20th annual meeting of STAG-TB will be held at WHO Headquarters in Geneva Switzerland from 8-10 June 2020. STAG-TB members offered the following suggestions on items to be addressed at the 2020 meeting. The items are listed in the order raised by members, and not by any priority status. Topics that were largely overlapping were consolidated.

1. Sequencing and its role in implementing the DR-TB guidelines
2. Status and strategy for resource mobilization to enable implementation at country level
3. Status of community engagement and contributions to TB detection and care and development and use of appropriate indicators
4. A comprehensive update on finding missed cases, including people with MDR-TB and among key populations, and evolution of case finding strategies and
5. Progress achieved in use of digital technologies, and implications of evidence from ongoing studies on digital technologies
6. An update on promotion and support for research and development, including vaccines
7. Update on WHO processes for norms and standards/guidelines development
8. Update on new guidance processes and roll-out of treatment guidance using new drugs and regimens
9. Progress in implementing the Childhood TB Roadmap
10. Prevention and management of post-TB treatment sequelae
11. Progress in implementation of the Multisectoral Accountability Framework for TB
12. Progress in implementing the PPM Roadmap
13. Addressing the care cascade, including case finding, quality of care, prevention and social support
14. Assessment of, and response to, the dominant TB burden in men
15. Progress in supporting countries in their prioritization of interventions

**CLOSING THE MEETING**

In closing the meeting, Dr Abubakar and Dr Kasaeva thanked STAG-TB members for their comprehensive advice and recommendations, and all participants for contributing to the discussions. Dr Kasaeva and the participants applauded Dr Abubakar for his outstanding work as the Chair of STAG-TB, 2016-2019.
# ANNEX 1:
Strategic and Technical Advisory Group for Tuberculosis 2019

## 19th MEETING AGENDA
11 - 13 June 2019, Executive Board Room, Geneva, Switzerland

### Day 1: Tuesday 11 June 2019

<table>
<thead>
<tr>
<th>Time</th>
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| 9:00 – 9:30| Welcome and introductions                                                          | Ibrahim Abubakar, Chair, STAG-TB  
Tereza Kasaeva, Director, Global TB Programme (GTB)  
Soumya Swaminathan, Chief Scientist, WHO  
Ibrahim Abubakar  
Diana Weil, GTB/PSI |
|            | Opening remarks: The WHO 13th Global Programme of Work and WHO Transformation: Recent developments and significance for meeting End TB targets  
Objectives, agenda and follow-up on STAG-TB 2018  
Opening video |  
| 9:30 – 9:55| **SESSION 1 (A): Follow-up to the UN high-level meeting on ending TB and strengthening multisectoral action and accountability**  
Tereza Kasaeva |  
| 9:55 - 10:15| **Coffee** |  
| 10:15 – 11:45| **SESSION 1 (B): Regional and country priorities and initiatives to strengthen capacity and reach targets**  
Discussants for Session 1(A) and 1(B)  
Session 1 Discussion and STAG-TB Recommendations |  
Tauhid Islam, WPRO  
Mukta Sharma, SEARO  
Muhammad Akhtar, EMRO  
Masoud Dara and Askar Yedilbayev, EURO  
Rafael Lopez-Olarte, AMRO  
Wilfred Nkhoma, AFRO  
Ibrahim Abubakar  
Christy Hanson |
| 11:45 – 12:45| **SESSION 2: TB impact measurement update and a**  
Katherine Floyd, GTB/TME  
Babis Sismanidis, GTB/TME |  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Discussants</th>
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<tbody>
<tr>
<td>12:45–13:45</td>
<td><strong>Lunch</strong></td>
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<tr>
<td>13:45–15:00</td>
<td><strong>SESSION 3: TB preventive treatment:</strong></td>
<td>Avinash Kanchar, GTB/THC</td>
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<tr>
<td></td>
<td>outstanding policy issues, accelerating</td>
<td>Mukta Sharma</td>
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<tr>
<td></td>
<td>implementation and monitoring capacity</td>
<td>Nguyen Viet Nhung, Unyeong Go, Seiyo Kato</td>
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<td></td>
<td>Discussants</td>
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<tr>
<td></td>
<td>Discussion and STAG-TB recommendations</td>
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<tr>
<td>15:00–15:20</td>
<td><strong>Coffee</strong></td>
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<tr>
<td>15:20–16:30</td>
<td><strong>SESSION 4: Civil Society Task Force Priorities and Progress to date</strong></td>
<td>Lana Syed GTB/TSC</td>
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<td></td>
<td></td>
<td>Roger Kamugasha (CSTF Representative)</td>
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<td>Thato Mosidi, Jamila Ismoilova</td>
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<td>Discussion and STAG-TB Recommendations</td>
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<tr>
<td>16:30-17:15</td>
<td><strong>SESSION 5: The Multisectoral Accountability Framework for TB (MAF-TB): Progress Update</strong></td>
<td>Katherine Floyd</td>
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<td></td>
<td>(information session)</td>
<td>Diana Weil</td>
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<td></td>
<td>Questions and Answers</td>
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<tr>
<td>17:15–17:30</td>
<td><strong>Summary of the day</strong></td>
<td>Chair</td>
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<tr>
<td>17:40–19:00</td>
<td><strong>Reception</strong></td>
<td>UNAIDS/WHO D Building Cafe</td>
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<tr>
<td>18:30–19:00</td>
<td>Discussants work on Day 1 draft STAG-TB recommendations, with assistance from GTB rapporteurs</td>
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**Wednesday 12 June 2019**

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<thead>
<tr>
<th>Time</th>
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<tr>
<td>8:30 – 9:30</td>
<td>SESSION 6: Evolving digital health strategy in support of ending TB</td>
<td>Dennis Falzon, GTB/THC Daniel Chin, Farhana Amanullah</td>
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<td>Discussants</td>
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<td></td>
<td>Discussion and STAG-TB Recommendations</td>
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<tr>
<td>9:30 – 10:30</td>
<td><strong>Extended Coffee</strong></td>
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<tr>
<td>10:30 – 12:00</td>
<td>SESSION 7:</td>
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<tr>
<td></td>
<td>(A) Progress of the Find.Treat.All.#ENDTB Initiative</td>
<td>Malgosia Grzemska, Coordinator, GTB/TSC Lucica Ditiu, Stop TB Partnership Eliud Wandwalo, The Global Fund</td>
</tr>
<tr>
<td></td>
<td>(B) Addressing 3 challenges in finding people with TB: access to diagnosis/integration with PHC; clinically-diagnosed cases, and contact tracing</td>
<td>Christian Gunneberg, GTB/TSC</td>
</tr>
<tr>
<td></td>
<td>Discussants</td>
<td>Anna Vassall, Mahshid Nasehi*, Farhana Amanullah</td>
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<tr>
<td>12:00 – 13:00</td>
<td><strong>Lunch</strong></td>
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<tr>
<td>13:00 – 14:10</td>
<td>SESSION 8: TB diagnostics, infection control and MDR-TB treatment: New guidelines, planned updates and implementation support</td>
<td>Fuad Mirzayev, GTB/LDR and Kefas Samson, GTB/TSC</td>
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<tr>
<td></td>
<td>Discussants</td>
<td>Kitty van Weezenbeek, Catharina Boehme</td>
</tr>
<tr>
<td></td>
<td>Discussion and STAG-TB recommendations</td>
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<tr>
<td>14:10 -14:30</td>
<td><strong>Coffee</strong></td>
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<tr>
<td>14:30 – 15:30</td>
<td>SESSION 9: TB research and innovation</td>
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</table>

*Mahshid Nasehi was unable to attend, but provided comments.*
### Status of the draft Global Strategy

(A) Status of the draft Global Strategy

(B) Update on support for TB vaccine trials

Discussants on Session 9 (A) and (B)

Discussion and STAG-TB Recommendations

- Nebiat Gebreselassie, GTB/RTE
- Matteo Zignol, GTB/RTE
- Erica Lessem, Ibrahim Abubakar

<table>
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<tr>
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<tr>
<td>15:30 – 16:30</td>
<td>Review of 1st day recommendations</td>
<td>Chair</td>
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<tr>
<td></td>
<td>Summary of 2nd day</td>
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<tr>
<td>16:30 – 17:30</td>
<td>Discussants work on draft STAG-TB recommendations, with assistance from GTB rapporteurs</td>
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<tr>
<td>19:00</td>
<td>Dinner discussion: STAG-TB Members and WHO Senior Staff</td>
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### Thursday, 13 June 2016

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<tr>
<th>Time</th>
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<tr>
<td>9:00 – 10:30</td>
<td>STAG-TB recommendations review</td>
<td>Chair</td>
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<td>STAG-TB recommendations review and finalization</td>
<td>STAG-TB Discussants and STAG-TB Members</td>
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<tr>
<td>10:30 - 10:50</td>
<td>Coffee</td>
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<tr>
<td>10:50 – 11:40</td>
<td>STAG-TB recommendations review &amp; finalization (cont.)</td>
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<td></td>
<td>Suggestions from STAG-TB Members for topics</td>
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<td></td>
<td>Dates: 8-10 June, 2020</td>
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<tr>
<td>11:50 – 12:00</td>
<td>CLOSING REMARKS</td>
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ANNEX 2:

Strategic and Technical Advisory Group for Tuberculosis (STAG-TB)

19th Meeting
11 to 13 June 2019, Executive Board Room, WHO Headquarters
Geneva, Switzerland

List of Participants

STAG-TB Members

1. **Prof. Ibrahim Abubakar**
   Chair, STAG-TB
   Director, Institute for Global Health
   University College London
   London
   United Kingdom

2. **Dr Farhana Amanullah**
   Department of Pediatrics
   The Indus Hospital and Aga Khan University Hospital
   Karachi
   Pakistan

3. **Dr Catharina Boehme**
   Chief Executive Officer
   Foundation for Innovative New Diagnostics (FIND)
   Geneva
   Switzerland

4. **Dr Daniel Chin**
   Deputy Director for Delivery TB Program
   Global Health Program
   Bill & Melinda Gates Foundation
   Seattle, WA
   USA

5. **Dr Unyeong Go**
   Director, Center for Disease Prevention and Korean Network for Organ Sharing
   Korea Centers for Disease Control and Prevention
   Seoul
   Republic of Korea

6. **Dr Christy Hanson**
   Senior Programme Officer TB Programme
   Global Health Programme
   Bill & Melinda Gates Foundation
   Seattle, WA
   USA

7. **Dr Jamilya Ismoilova**
   Project Hope
   Dushanbe
   Tajikistan

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

9. **Ms Erica Lessem**
   TB/HIV Director
   Treatment Action Group
   New York, NY
   United States

10. **Dr Thato Mosidi**
    Public Health Medicine Registrar
    Western Cape Department of Health
    Cape Town
    South Africa

11. **Dr Ya Diul Mukadi**
    Senior Technical Advisor
    Global Health Bureau
    US Agency for International Development
    Washington, DC
    USA
12. Dr Nguyen Viet Nhung  
Director, National Lung Hospital  
Manager of the National Tuberculosis Control Program  
Hanoi  
Viet Nam

13. Dr Kitty Van Weezenbeek  
Executive Director  
KNCAV Tuberculosis Foundation  
The Hague  
The Netherlands

14. Dr Anna Vassall  
Reader in Health Economics  
London School of Hygiene & Tropical Medicine  
London  
United Kingdom

Temporary Advisers

15. Dr Jaap Broekmans  
Chair, WHO Global Task Force on TB Impact Measurement  
The Hague  
The Netherlands

16. Dr Imran Pambudi  
Deputy Director of Tuberculosis  
Ministry of Health  
Jakarta  
Indonesia

17. Dr Kuldeep Sachdeva  
Deputy Director General TB  
Revised National TB Control Programme  
Ministry of Health and Family Welfare  
New Delhi  
India

18. Dr Hui Zhang  
China Centre for Disease Control  
Beijing  
China

WHO Civil Society Task Force on TB Members

19. Mr Elie Gaston Bertrand Kampoer Pfoouminzhouer  
Coordinator  
For Impacts in Social Health  
Yaoundé  
Cameroon

20. Ms Yuliya Chorna  
Executive Director  
TB Europe Coalition  
Kiev  
Ukraine

21. Dr Harry Hausler  
Medical Director  
Project Integrate  
TB Care Association  
Waterfront  
South Africa

22. Mr Roger Paul Kamugasha  
Editor In Chief  
The Health Times Africa Limited  
Uganda

23. Dr Amir Khan  
Association for Social Development  
Islamabad  
Pakistan

24. Ms Evaline Kibuchi  
Kenya AIDS NGO Consortium (KANCO)  
Nairobi  
Kenya

25. Ms Blessina Kumar  
CEO and Patient Advocate  
Global Coalition of TB Activists  
New Delhi  
India

26. Dr Ezio Tavora dos Santos Filho  
REDE-TB  
Brazilian Network of Tuberculosis Research  
Rio de Janeiro  
Brazil
### Strategic and Technical Advisory Group for Tuberculosis (STAG-TB) 19th Meeting
11 to 13 June 2019

<table>
<thead>
<tr>
<th>Participant</th>
<th>Title and Affiliation</th>
</tr>
</thead>
</table>
| **27. Ms Esty Febriani Tasman** | TB Advisor  
Lembaga Kesehatan Nahdlatul Ulama  
Jakarta  
Indonesia |
| **28. Ms Nandita Venkatesan** | Patient Rights Advocate and Journalist  
Thane  
India |
| **29. Dr Phyo Nyan Win** | Health Technical, Monitoring and Evaluation Coordinator  
World Vision Foundation of Thailand  
Bangkok  
Thailand |
| **30. Dr Anh Tuan Nguyen** | Professor  
Department of Tuberculosis and Lung Disease  
Hanoi Medical University  
Hanoi  
Viet Nam |
| **31. Dr Jay Achar** | TB Working Group Leader and TB/HIV Advisor  
MSF UK  
London  
United Kingdom |
| **32. Dr Sreenivas Achuthan Nair** | Regional Advisor  
Stop TB Partnership  
Geneva  
Switzerland |
| **33. Dr Sevim Ahmedov** | Senior TB Technical Advisor  
Global Health Bureau  
USAID  
Washington, DC  
USA |
| **34. Dr Draurio Barreira** | Technical Manager  
UNITAID  
Geneva  
Switzerland |
| **35. Dr Amy Bloom** | Senior Technical Advisor  
Bureau of Global Health  
US Agency for International Development  
Washington, DC  
USA |
| **36. Dr Grania Brigden** | Deputy Director  
TB and HIV Department  
The Union  
Geneva  
Switzerland |
| **37. Dr Karen Brudney** | Senior Expert TB Advisor  
CDC  
Brooklyn  
USA |
| **38. Dr Kenneth Castro** | Senior TB Technical Adviso, USAID & Professor, Emory University  
Atlanta, GA  
USA |
| **39. Dr Sarabjit Chadha** | Regional Technical Director  
FIND  
New Delhi  
India |
| **40. Dr Isaac Chikwanha** | Consultant  
Global Health Innovative Technology Fund (GHIT)  
Tokyo  
Japan |
| **41. Dr Daniela Cirillo** | Head, Emerging Bacterial Pathogens Unit  
San Raffaele del Monte Tabor Foundation  
San Raffaele Scientific Institute  
Milan  
Italy |
| **42. Dr Jacob Creswell** | Head, Innovations and Grants  
Stop TB Partnership  
Geneva  
Switzerland |
43. **Dr Cintia Dantas**  
Global Advocacy and Americas  
Regional Director  
Global TB Caucus  
Brasilia  
Brazil

44. **Dr Anand Date**  
Associate Chief, Global TB Branch  
Center for Disease Control (CDC)  
Atlanta, GA  
USA

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

46. **Ms Fran Du Melle**  
Sr. Director  
International Programmes & Activities Organisation  
American Thoracic Society  
New York  
USA

47. **Dr Razia Fatima**  
Research Coordinator  
National TB Control Program  
Islamabad  
Pakistan

48. **Dr Paula Fujiwara**  
Scientific Director  
The Union  
Paris  
France

49. **Dr Jennifer Furin**  
DR-TB Stat  
Chicago, IL  
USA

50. **Dr Agnes Gebhard**  
Senior Consultant  
KNCV Tuberculosis Foundation  
The Hague  
The Netherlands

51. **Dr Mustapha Gidado**  
Challenge TB  
The Hague  
The Netherlands

52. **Dr Alexander Golubkov**  
Senior TB Technical Advisor  
US Agency for International Development (USAID)  
Washington, D.C.  
USA

53. **Dr Philip Hopewell**  
Professor of Medicine  
Curry International TB Center  
University of California  
San Francisco General Hospital  
San Francisco, CA  
USA

54. **Dr Ridha Jebeniani**  
Consultant  
Tunis  
Tunisia

55. **Ms Thandi Katlholo**  
Programme Officer  
Stop TB Partnership  
Geneva  
Switzerland

56. **Dr Amera Khan**  
Technical Officer  
Stop TB Partnership  
Geneva  
Switzerland

57. **Ms Daisy Lekharu**  
Disease Advisor TB  
The Global Fund to Fight AIDS, TB and Malaria  
Geneva  
Switzerland

58. **Ms Sharonann Lynch**  
HIV and TB Policy Advisor  
MSF  
New York  
USA

59. **Dr Ethel Maciel**  
Rede-TB President  
Universidade Federal do Espirito Santo  
Vitória  
Brazil
<table>
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<tr>
<th>No.</th>
<th>Name</th>
<th>Title/Position</th>
<th>Organization/Location</th>
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<tr>
<td>60.</td>
<td>Dr Adam Macneil</td>
<td>Epidemiologist, Global TB Branch</td>
<td>CDC, Atlanta, GA, USA</td>
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<tr>
<td>61.</td>
<td>Dr Shelly Malhotra</td>
<td>Director, Market Access</td>
<td>Global Alliance for TB Drug Development, New York, NY, USA</td>
</tr>
<tr>
<td>62.</td>
<td>Dr Susan Maloney</td>
<td>Chief, Global TB Branch</td>
<td>Center for Global Health, Centers for Disease Control and Prevention, Atlanta, GA, USA</td>
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<td>63.</td>
<td>Dr Refiloe Matji</td>
<td>Regional Director</td>
<td>University Research Corporation, Pretoria, South Africa</td>
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<tr>
<td>64.</td>
<td>Mr Andrei Mosneaga</td>
<td>Regional Advisor</td>
<td>Stop TB Partnership, Geneva, Switzerland</td>
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<tr>
<td>65.</td>
<td>Dr Howard Njoo</td>
<td>Deputy Chief Public Health Officer and Chief Medical Advisor for the Infectious Disease Prevention and Control Branch</td>
<td>Public Health Agency of Canada, Ottawa, Canada</td>
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<td>66.</td>
<td>Dr Pierre Yves Norval</td>
<td>Director</td>
<td>TeAM, Paris, France</td>
</tr>
<tr>
<td>67.</td>
<td>Dr Nnamdi Nwaneri</td>
<td>Specialist, TB Strategic Initiatives</td>
<td>The Global Fund, Geneva, Switzerland</td>
</tr>
<tr>
<td>68.</td>
<td>Dr Kosuke Okada</td>
<td>Director International Programmes</td>
<td>Japan Anti-Tuberculosis Association, Tokyo, Japan</td>
</tr>
<tr>
<td>69.</td>
<td>Dr Regina Osih</td>
<td>TB/HIV Senior Technical Expert</td>
<td>The Aurum Institute, Johannesburg, South Africa</td>
</tr>
<tr>
<td>70.</td>
<td>Mr Steve Otieno</td>
<td>Advocate</td>
<td>TB Free World Health Organization, Nairobi, Kenya</td>
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<td>71.</td>
<td>Dr Zhi Zhen Qin</td>
<td>Technical Officer</td>
<td>Stop TB Partnership, Geneva, Switzerland</td>
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<tr>
<td>72.</td>
<td>Dr Lal Sadasivan Sreemathy</td>
<td>Director, Infectious Diseases TB Portfolio</td>
<td>Global Health, Population and Nutrition, FHI 360, Washington, DC, USA</td>
</tr>
<tr>
<td>73.</td>
<td>Dr Suvanand Sahu</td>
<td>Deputy Executive Director</td>
<td>Stop TB Partnership, Geneva, Switzerland</td>
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<td>74.</td>
<td>Dr Celeste Sandoval</td>
<td>Technical Officer</td>
<td>UNAIDS, Geneva, Switzerland</td>
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<tr>
<td>75.</td>
<td>Dr Mariam Sianozova</td>
<td>Regional Director for Europe and Eurasia</td>
<td>Project HOPE, Yerevan, Armenia</td>
</tr>
</tbody>
</table>
76. Dr Zelalem Temesgen
Professor of Medicine
Executive Director
Mayo Clinic Center for Tuberculosis
Rochester, MN
USA

77. Dr Carrie Tudor
TB Project Director
International Council of Nurses
Pretoria
South Africa

78. Dr Alexander Trusov
Senior Director
TB Portfolio
Project Hope
Millwood
USA

79. Mr Carlos Van Der Laat
International Organization for
Migration
Geneva
Switzerland

80. Mr Kristian Van Kalmthout
Digital Health Consultant
KNCV Tuberculosis Foundation
The Hague
Netherlands

81. Mr Job Van Rest
Digital Health Consultant
KNCV Tuberculosis Foundation
The Hague
Netherlands

82. Dr Eliud Wandwalo
Senior Technical Advisor
Tuberculosis
The Global Fund to Fight AIDS, Tuberculosis and Malaria
Geneva
Switzerland

83. Dr Jacqueline Weekers
Director
Migration Health Division
International Organization for
Migration
Geneva
Switzerland

84. Dr William Wells
Senior TB Technical Advisor
US Agency for International Development
Washington DC
USA

85. Dr Mohammed Yassin
Senior Advisor, Tuberculosis
The Global Fund to Fight AIDS, Tuberculosis and Malaria
Geneva
Switzerland

WHO Headquarters Staff

Office of the Director General
86. Dr Souyma Swaminathan, Chief Scientist

Global TB Programme
87. Dr Tereza Kasaeva, Director

Policy, Strategy and Innovations Unit
88. Ms Diana Weil, Coordinator
89. Ms Hannah Monica Dias
90. Ms Marzia Calvi
91. Ms Amy Collins
92. Ms Shagun Khare
93. Ms Jasmine Solangon
94. Ms Yi Wang

Laboratories Diagnostics and Drug Resistance Unit
95. Mr Ivan Babovic
96. Dr Christopher Gilpin
97. Ms Licé Gonzalez-Angulo
98. Dr Ernesto Jaramillo
99. Dr Alexei Korobitsyn
100. Dr Tiziana Masini
101. Dr Fuad Mirzayev

Technical Support Coordination Unit
102. Dr Malgorzata Grzemska, Coordinator
103. Ms Yulia Bakonina
104. Ms Natacha Barras
105. Ms Annemiek Brands
106. Dr Giuliano Gargioni
107. Ms Media Gegia
Strategic and Technical Advisory Group for Tuberculosis (STAG-TB) 19th Meeting
11 to 13 June 2019

108. Dr Christian Günneberg
109. Ms Karina Halle
110. Ms Soleil Labelle
111. Dr Carl Michael Nathanson
112. Dr Linh Nhat Nguyen
113. Dr Kefas Samson
114. Ms Lana Syed
115. Mr Michael Tabiszewski
116. Ms Eloise Valli
117. Ms Clarisse Veylon Hervet

**TB Monitoring and Evaluation Unit**
118. Dr Katherine Floyd, Coordinator
119. Dr Anna Dean
120. Ms Maria Anglica Flores
121. Ms Ines Garcia Baena
122. Dr Philippe Glaziou
123. Dr Marek Lalli
124. Dr Irwin Law
125. Mr Tomas Matas
126. Dr Nobuyuki Nishikiori
127. Dr Gita Parwati
128. Ms Valerie Robert
129. Dr Charalampos Sismanidis
130. Mr Hazim Timimi
131. Dr Olga Tosas Auguet

**Programme Management Unit**
132. Dr Michael Mc Cullogh, Programme Manager
133. Ms Janet Coutin
134. Ms Tracey Mawer
135. Ms Catherine McMahon
136. Ms Dorris Ortega
137. Ms Cassiana Tissot
138. Ms Henrikkka Weiss

**Research for TB Elimination and TB/HIV Unit**
139. Dr Matteo Zignol, Coordinator
140. Ms Lou Maureen Comia
141. Dr Nebiat Gebreselassie
142. Ms Annabel Baddeley
143. Dr Dennis Falzon
144. Dr Avinash Kanchar
145. Dr Carmen Figueroa

**HIV/AIDS Department (HIV)**
146. Dr Gottfried Hirnschall, Director
147. Dr Meg Doherty, Coordinator
148. Dr Satvinder Singh

**Initiative for Vaccine Research (IVR)**
149. Dr Johan Vehemans

**WHO Regional and Country Staff**

**WHO/AFRO**
150. Dr Wilfred Nkhoma, Leader TB, a.i., Regional Office (RO)
151. Dr Jean Iragena, RO
152. Dr Farai Muvhunga, RO
153. Dr Michael Gasana, RO
154. Dr Andre Ndongosieme, IST WA
155. Dr Richard Mbumba, IST CA
156. Dr Javier Aramburu, CO Angola
157. Dr Laurent Moyenga, CO Burkina Faso
158. Dr Hubert Wang, CO Cameroon
159. Dr Aristide Désiré Komangoya-Nzonzo, CO Central African Republic
160. Dr Noel Djemadj-Oudjiel, CO Chad
161. Dr Hermann Judicael Ongouo, CO Congo
162. Dr Nicolas Nkierere Masheni, CO Democratic Republic of the Congo
163. Dr Ismael Hassen Endris, CO Ethiopia
164. Dr Esther Mary Aceng, CO Ethiopia
165. Dr Ghislaine Nkone Asseko, CO Gabon
166. Dr Joyce Kerubo Onsongo, CO Kenya
167. Dr Susan Zimba Tembo, CO Lesotho
168. Dr Claude Rutanga, CO Madagascar
169. Dr Naye Bah, CO Mali
170. Dr Nurbai Calu, CO Mozambique
171. Ms Mary Nana Brantuo, CO Namibia
172. Dr Mariama Baïssa Abdoulaye, CO Niger
173. Dr Ayodele Awe, CO Nigeria
174. Dr Philippe Patrobas, CO Nigeria
175. Dr Amos Omoniyi Fadare, CO Nigeria
176. Dr Jules Mugabo Semahore, CO Rwanda
177. Dr Ndella Diakhate, CO Senegal
178. Dr Kassa Ketema, CO Sierra Leone
179. Dr Patrick Hazangwe, CO South Africa
180. Dr Nkateko Mkhondo, CO South Africa
181. Dr Nomthandazo Lukhele, CO Kingdom of Eswatini
182. Dr Bhavin Jani, CO Tanzania
183. Mr Muggaga Kaggwa, CO Uganda
184. Dr Mkohkelhi Ngwenya, CO Zimbabwe
185. Dr Lastone Chitembo, CO Zambia

WHO/AMRO
186. Dr Massimo Ghidinelli, Coordinator, HIV/TB/HEP, RO
187. Dr Rafael Lopez Olarte, Regional Adviser, TB, RO
188. Dr Pedro Avedillo, RO
189. Dr Fabio Moherdaui, CO Brazil
190. Mr Mauricio Cerpa Calderon, CO Haiti

WHO/EMRO
191. Dr Muhammad Akhtar, Regional Adviser, RO
192. Ms Kenza Bennani, RO
193. Dr Mohammad Aloudal, CO Afghanistan
194. Dr Ali Akbar, CO Iraq
195. Mr Yassine Aqachmar, CO Morocco
196. Dr Khawaja Laeeq Ahmad, CO Pakistan
197. Dr Iraneus Sindani, CO Somalia

WHO/EURO
198. Dr Masoud Dara, Coordinator, Communicable Diseases, RO
199. Dr Askar Yedilbayev, TB Team Leader, RO
200. Dr Ogtag Gozalov, RO
201. Dr Gayane Ghukasyan, CO Armenia
202. Dr Javahir Suleymanova, CO Azerbaijan
203. Dr Viatcheslav Grankov, CO Belarus
204. Dr Saltanat Yegeubayeva, CO Russian Federation
205. Dr Sona Valiyeva, CO Turkmenistan

WHO/SEARO
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