A universal health coverage (UHC) approach to ending TB in Pakistan

TB assessment mission, Pakistan, 8-14 December 2021

Contents

Executive summary

The WHO Regional Adviser for TB (RA/RTB) of the WHO Eastern Mediterranean Regional Office (EMRO) conducted a TB mission to Pakistan from 8 – 14 December 2021 with the objectives to (1) assess the TB situation at national and selected subnational levels, (2) review progress of the End TB agenda in Pakistan and (3) identify priorities to make further progress. Interviews of relevant TB stakeholders, visits in selected health facilities and discussions informed a situation assessment and a strengths, weaknesses, opportunities and threats (SWOT) analysis which led to prioritized recommendations.

There is political commitment to end TB in Pakistan, which is not yet accompanied by allocation of sufficient domestic TB funding. Competing health and developmental priorities along with high external TB donor support may explain this situation. Pakistan started to recover from the COVID-19 inflicted decrease in TB case notification. Initiatives to decentralize drug-resistant (DR)-TB services and to pilot the TB multi-sectoral accountability framework (MAF-TB) are progressing. An up-to-date national guideline on programmatic management of preventive TB (PMTPT) is available. Pakistan innovates also, with a toll-free TB helpline, an online training portal for health care workers (HCWs), improved warehouse management systems and solar panel powered diagnostic sites. Integration of TB data in the overall digital health information system 2 (DHIS2) is ongoing. The TB data system evolves towards more case-based, electronic recording and reporting. Provinces meet and exchange, leading to improved TB knowledge and information exchange. Nevertheless, to reach TB elimination and the milestones, goals, and targets of the End TB Strategy, the sustainable development goal (SDG) 3.3, and of the declaration resulting from the TB UN high level meeting (UNHLM) 2018, Pakistan needs to intensify its TB prevention and care efforts. First, the country needs to secure sustainable domestic financing for TB. Second, the government needs to strengthen mechanisms for TB stakeholders to collaborate and coordinate. Third, Pakistan needs to (a) integrate more TB in primary health care (PHC), (b) scale up public private partnerships (PPPs), (c) pass legislations to ban over the counter sale of TB medicines, (d) enforce mandatory TB notification acts, (e) implement PMTPT and (f) provide full access to rapid TB diagnosis.

This report includes prioritized recommendations to address needs and challenges, including the development of an economic case for ending TB and implementation of a collaborative blueprint to improve governance, leadership, and partnership to end tuberculosis in Pakistan, which would yield better results with available inputs. Synergizing services should help maintaining TB services during COVID-19. Pakistan needs to further engage in preparations for the TB UN high-level meeting in 2023. PHC integration, people-centeredness and scaled up PPPs need to improve TB notification. Other recommendations include learning from MAF-TB & PHC integrative experiences in Pakistan, sustainable capacity building, advocacy for TB stigma and engagement of lady health workers and communities.

Succeeding in raising revenue and making further efficiency gains is the key to further progress and reaching TB elimination. Only through a sustainable, holistic, and integrative manner, will Pakistan be able to eliminate TB and reach universal health coverage, in a health for all, by all approach.

Introduction

Pakistan ranks 5th among the 30 high TB burden countries. WHO estimates that in 2020, there were 573,000 TB incident cases and 46,000 TB deaths. 70% of the estimated number of TB cases in the WHO Eastern Mediterranean Region (EMR) occurred in Pakistan. 52% of those estimated are missed/not diagnosed. As per the WHO Global TB report 2021, 49% are bacteriologically confirmed. Pakistan bears the 4th highest burden of Multi Drug-Resistant/ Rifampicin resistant TB (MDR/RR) globally, with 25,000 people who developed MDR/RR TB in 2020. TB human resource turn-over rate in the governmental sector is high. In 2020 43% of the national TB notification was provided by the private sector. A national TB Strategic Plan (NSP), covering the period from 2020 – 2023, is being implemented. Pakistan has not yet reached, milestones, goals, and targets, as stipulated by the End TB Strategy, SDG 3.3, and those of the declaration stemming from the 2018 TB UN high level meeting (UNHLM).

WHO is supporting the Common Management Unit (CMU)/National TB Programme (NTP) and Provincial TB programmes (PTPs) in the fight against TB. Its support extends across all areas of the End TB Strategy in accordance with specific country needs, including the mitigation measures for maintaining the essential TB services during the COVID-19 pandemic. To further strengthen TB prevention and care in Pakistan within the Universal health coverage/Primary health care (UHC/PHC) initiative in the country, WHO supports the country vision and approach that aims for enhanced TB leadership, PHC strengthening, integrated, multisectoral actions, partnership, coordination, governance, and people-centered policies and practices. To this effect, in the fourth quarter of 2021, the Regional TB Programme of the WHO Eastern Mediterranean Regional Office developed a draft 'blueprint to strengthen TB governance, collaboration, and partnership' for Pakistan and shared it with relevant national and international stakeholders for consultation (annex III). In December 2021, the WHO Regional Adviser for TB (RA/RTB) of the WHO Eastern Mediterranean Regional Office (EMRO) travelled to Pakistan to conduct a mission with the national WHO TB Officer.

Objectives of the mission

- Review selected aspects of the TB situation at national and selected subnational levels (Punjab & Sindh, most populous provinces with the highest number of TB cases).
- Review progress of the End TB agenda in Pakistan according to the United Nations High-Level Meeting (UNHLM) political declaration and the Sustainable Development Goals (SDGs)/End TB strategy with various, relevant stakeholders.
- Synthesize the situation in order to identify priorities and develop key priorities suitable for Punjab and Sindh, as well as for entire Pakistan, to make further progress in TB prevention and care.

Expected outputs of the mission

- Situation analysis on TB prevention and care in Pakistan
- SWOT analysis with identification of key strengths, weaknesses, opportunities, and threats
- Identification of next steps/recommendations

Methods

We conducted interviews with various TB relevant stakeholders and visited health facilities at different levels and in different parts of the country. Bilateral and group-discussions led to an update of the situation analysis, which was followed by a SWOT analysis, and the development of recommendations suitable for Punjab, Sindh, and entire Pakistan (Annex I: meetings/visits and Annex

IV: List of people met). The mission took place from 8 to 14 December 2021) in Islamabad, Punjab, and Sindh.

Overview: Situation analysis with NTP/CMU stakeholders and partners, Islamabad

TB governance

NTP/CMU structure

NTP/CMU and PTP responsibilities include the provision of free-of-cost diagnostic and treatment services. Key challenges in these areas include lack of advocacy and public awareness for TB to seek health care in public services.
MoH established a full-time deputy national coordinator position for TB in 2021 to strengthen national TB prevention and care work and for increasing its political TB commitment. It accelerated the recruitment process against vacant posts. NTP/CMU and Provincial TB Programmes hold increasingly interprovincial TB conferences and review meetings, thus improving the exchange of information and knowledge transfer.

TB financing

Domestic financing on TB is still insufficient. From 2017 to 2021 domestic funding sources only contributed 2.4% of the estimated total needs. In 2020, 58% remained unfunded. International TB donors, most importantly from the Global Fund to fight TB, Aids, and Malaria (TGF) provide more than 85% of the national TB funding. This reliance is a risk for maintaining programme performance, e.g., in view of possible donor landscape change.

TB multisectoral accountability framework (MAF-TB)

TGF support from the COVID-19 Response Mechanism (C19RM) is secured to expand the TB multi-sectoral accountability framework (MAF-TB) systematically in 8 districts across Pakistan. NTP/CMU and PTPs currently pilot it in Hafizabad (Punjab) and Sindh, based on a national MAF-TB baseline assessment. This development will help addressing the many social aspects of TB, going beyond the conventional health sector (e.g., within education, occupational health, military, and defence). This development also supports addressing TB comorbidities more effectively.

WHO blueprint to improve TB governance, leadership, and partnership

WHO EMRO developed a zero draft of the blueprint to improve governance, leadership, and partnership to end tuberculosis in Pakistan has been circulated among relevant stakeholders and discussed during the mission with NTP, and PTPs. An updated version, based on input received, during the mission and beyond, is included in this report as annex III.

Private sector integration

According to the NTP, the private sector provides approximately 45% of TB services. Despite improvements, sufficient and efficient collaborative integration with the public sector have not yet taken place. This affects, for example, the accuracy and completeness of TB data collection, analysis, and resulting public health actions. Furthermore, the uptake of WHO compatible, evidenced based service approaches by the private sector is suboptimal. There is no harmonized TB treatment and care approach, which may give rise to development of further drug-resistance.

TB surveillance, monitoring & evaluation (M&E)

Transition to electronic and case-based TB recording and reporting

NTP piloted the transition from paper-based to electronic data reporting at Islamabad Capital Territory (ICT) level. It will gradually scale it up in the provinces. NTP, in collaboration with PTPs, rolled out a DHIS2 case-based module at ICT and issued supporting laptops, and internet connection for ICT focal points and BMUs involved.

Community level TB data collection and services

NTP intends to develop better linkages to reach TB cases more effectively both in the community (via lady health care workers (LHWs), and at tertiary care hospitals to enhance TB case notifications. This will improve the accuracy of TB data collection, reporting, and analysis, and contribute to enhancing TB case finding and holding.

Prevalence survey: increasing TB estimated incidence accuracy

NTP is planning a national TB prevalence survey, the last one dating back to 2010-2011. CMU/NTP leads protocol development with the support of an external partner and WHO. It will help improve the accuracy of TB estimates and better direct public health actions (e.g., in addressing vulnerable groups and areas/" pockets" of patients).

TB household survey on catastrophic costs

NTP will conduct a household survey to assess TB patients facing catastrophic costs. This is instrumental in understanding more accurately the financial burden of TB on households and contributes to improving favorable TB health seeking behaviour. Both the prevalence survey and the survey on catastrophic costs will be opportunities to build capacity on operational research.

TB incidence and case notifications, diagnostics capacity

TB incidence and case notifications

In 2020, WHO estimated that TB incidence was 259/100,000 population in Pakistan. Pakistan notified 334,749 cases in 2019 and 279,261 cases in 2020 due to the direct negative impact of COVID-19 on TB case notifications. This resulted in increased transmission and human suffering.

TB mandatory notification acts

The provinces of Sindh, Khyber Pakhtunkhwa, and Punjab endorsed mandatory TB case notification acts. An electronic mandatory TB notification system is in place at both ICT and the Giligit Baltistan area via legislative orders. These will contribute to improving TB case notification.

Diagnostic capacity

Less than 50% of all TB cases are confirmed by bacteriological diagnosis. A considerable proportion of clinical diagnosis may lead to inadequate or unnecessary/non-indicated TB treatment, or the absence of it (e.g., in view of false positive diagnoses and actual cases missed). Improving bacteriological diagnosis through expanded use of GeneXpert will improve TB diagnostic accuracy, reducing false negative diagnoses among people missing the necessary treatment and false positive diagnoses in people being unnecessarily treated. Furthermore, the development of further drug-resistance will be prevented.

Programmatic management of TB Preventive Treatment (PMTPT)

The TB national strategic plan (NSP) prioritizes PMTPT as one of the key strategic interventions. PMTPT targets 1.6 million people to be started on preventive treatment from 2020 until 2023. NTP developed the national guidelines for PMTPT with the support of WHO and USAID. Meanwhile, a

national strategic and technical advisory group meeting, with the support and involvement of WHO, stipulated next steps to expedite and intensify PMTPT implementation. This will improve TB prevention and care, as TB preventive treatment and care actions are among the most efficient in reducing TB incidence by preventing future cases to occur. Effective TPT roll-out is presently hampered as professional societies fear the development of drug-resistance. Training on this is important, taking advantage of the available platform.

Programmatic management of drug-resistant TB (PMDT)

PMDT decentralization

NTP and PTPs have been extending PMDT sites to additional districts through a decentralization approach. In Punjab, management increased from 5 districts in 2021 to 4 more in 2022. In Sindh, there were 4 districts in 2021 and 6 will be added in 2022). This improves TB people-centeredness, access to care, case holding, treatment adherence, and improved treatment outcomes.

DR-TB training

NTP is revising an MDR-TB training module in line with the most up-to-date WHO recommendations. WHO has supported workshops on updating national DR-TB policy and guidelines aligned with current WHO global policy. This will help relevant care providers in providing the care more adequately, including on shortened and all-oral treatment regimens where possible. Thus, this will improve DR-TB treatment outcomes, and reduce suffering and DR-TB mortality.

Innovative approaches

Toll-free DR- and TB helpline

NTP made available a toll-free TB-helpline since November 2019. 25000 calls have been received and responded to since then. It is visible on the NTP/CMU website and has been advocated for through print and electronic media. It contributed to improving DR-TB and TB awareness, TB health-seeking behaviour, and reducing TB stigma and discrimination.

Warehouse Management System (WMS)

NTP/CMU manages and implements a warehouse functionality & management system (WMS) at federal and provincial levels. It aims at rendering the warehouse functions more efficient, by improving the output yield by input unit, e.g., through enhanced digitalization.

Solar panel installation

NTP installed solar panels powering GeneXpert site in 41 BMUs in Sindh. This renders the power supply of such sites more innovative, reliable, and independent of the conventional power grid/power supply. The same is envisaged for Baluchistan.

Capacity building and research

Improving TB knowledge among civil servants

NTP proposed to add a TB module at the civil services academy of Pakistan. This module is designed to orient Civil Service of Pakistan (CSP) officers (Administrative staff destined to support Ministries) on policy-relevant, selected TB matters, to contribute to improving programme effectiveness with the support of district administration. It will improve TB management at district level.

Online training module for physicians

NTP/CMU developed and put on its website a TB online training module. To date, 1,600 doctors have successfully completed it. Furthermore, in December 2021, 1,500 paramedics were enrolled. Upon successful completion of the online training, the Pakistan Medical Commission (PMC) awards 6 credit hours. These activities and actions enhance the quality of TB care and increase motivation and capacity among TB care providers and public health officials. Among the core topics to be further promoted, TB prevention, TB infection management, and management of TB in children need to be underlined.

TB operational research course

The Structured Operational Research Training Initiative (SORT-IT) of the NTP/CMU unit facilitated the generation of TB publications based on national research, which have improved the availability of national TB evidence. This improves evidence-based decision-making, which better informs TB policymaking. National Structured Operational Research and Training initiative (SORT IT) started in 2016. A total of 60 participants from Pakistan have been enrolled in national and international SORT IT courses. This initiative has contributed to approximately 50 scientific manuscripts' publications in open access international peer-reviewed journals.

These SORT-IT courses represent a regular cornerstone of the CMU/NTP country-level research capacity building. International participants are also admitted to the course. The latter improves international research partnerships and the TB evidence pool at national, provincial, and local levels. Capacity building on operational research is a priority in Pakistan and needs to be supported by budgeted activities at NSP level.

Key points of interventions from selected partners

USAID

USAID contributes to supporting NTP/CMU to address funding gaps. In the area of MDR-TB, 3 regional middle-level managers have been appointed at KP, Sindh, and ICT. USAID is working in collaboration with the National Reference Laboratory (NRL) to strengthen the laboratory system at national and provincial reference laboratories (PRL). Capacity-building activities & M & E workshops are also provided

Mercy Corps (MC)

In collaboration with NTP/CMU, the NGO Mercy Corps has been working in PAK on TB since 2007. MC drove the increased involvement of general practitioners in TB, helping to enhance TB case notifications and treatment outcomes. Technology integration to optimize performance and efficiencies is continuously sought. Innovations include the utilization of TB community volunteers, automated systems like Uber for specimen transportation, awareness-raising, and active case-finding (ACF) activities.

DOPASI foundation

DOPASI led the establishment of the End TB Parliamentary caucus and parliamentary task force on SDGs, geared to boost MAF-TB work. The parliamentarians included in the parliamentary task force are representatives from all sectors. Other areas of work to which DOPASI contributes include the provision of diagnostics such as portable X-ray machines in hard-to-reach areas. The development and introduction of a pharmacy app module helped to notify 7,000 TB cases during 36 months in 4 districts.

SWOT analysis

	Key strengths	Key weaknesses
Internal factors	• Political commitment • NTP programme well-structured with competent and committed staff at different levels • Decentralization occurring in some areas of the TB programme (e.g., warehouse and PMDT) • Improved approach to capacity building with the availability of free-cost modules online (1600 doctors and other 1500 HCWs trained in 2021) • External quality assurance (EQA) system for laboratories • Adequate rifampicin testing and DST practices, at least for first line drugs • Innovative approaches being rolled-out, such as toll free- TB helpline (phone), installation of solar panels on roofs of GeneXpert sites to enhance site resilience	• Insufficient domestic funding • High proportion of missing cases (undetected) • Sub-optimal advocacy/public awareness • Insufficient collaboration between private and public sectors • Continued over-the counter sale of TB drugs without drug prescription • Low uptake of TB preventive treatment • Insufficient human resources in some regions of the country and high turn-over of HCWs • Low priority for TB operational research • Quality rapid molecular and phenotypic diagnostics are not available for all patients
	Key opportunities	**Key threats**
External factors	• Full time deputy NTP coordinator post established • TGF support for the COVID-19 Response Mechanism (C19RM) allowing improvement of TB diagnosis and management and expansion of MAF in 8 districts • MAF-TB allowing addressing aspects beyond the health sector (e. g. education, occupational health among others) • Interprovincial TB conferences and review meetings taking place and World TB Day as advocacy opportunity • GeneXpert expansion plan improving quality of diagnosis and subsequent treatment • Toll-free TB-helpline (phone) contributing to better awareness and health education, improving TB service outreach	• High external donor dependency • Limited linkages of the private sector potentially hampering quality TB prevention and care and contributing to increase of TB drug-resistance • Absence of clear, simple, and effective all-partner inclusive partnership approach • Inadequately planned integration of services because of COVID-19 and other co-morbidities hampering the activities of TB coordinators and/or TB staff

Recommendations, priorities: Mission debriefing with CMU/NTP, PTPs

Topic/priorities	Conclusions	Recommendations	Priority level (1 – 2, 1 being top, 2 being high).
Domain: Governance **UHC approach to TB**	High donor dependency: In 2020, 39.6% of the required TB investment needs were covered by external sources. There is a need for increasing sustainable & agile domestic financing and resource utilization for TB. Intensifying PPM contributions, multi-sectoral approaches, and PHC integrative measures could even amplify the efficiency yield. Political commitment is high, but the distribution of roles and responsibilities of partners are not fully clear.	• Explore feasible avenues of improving sustainability and agility of financing mechanisms to improve domestic TB budget allocation and spending efficiencies: for example, re-allocation of funding, flexible line-item budgeting, and through pooling of resources, expanding the warehouse management improvements and installation of solar panels to power GeneXpert sites. • Consider including a country specific TB economic case in the next NSP (When revising the TB national strategic plan in Q4 and Q1 2022/2023). • Ensure that all necessary costs for TB care are fully free of charge, e.g., regarding X-ray exams to investigate TB patient contacts. Include this service in the essential package of health services. (MoH, CMU/ NTP) • Finalize and implement the collaborative 'blueprint' to improve TB governance, collaboration, and partnership to end tuberculosis in Pakistan. This can be linked with or inform the TB economic case (see also above). • Include blueprint in the next NSP. (CMU/NTP, PTPs, WHO & partners)	1

Domain: Governance **Legislation**	Over-the-counter sale of non-medically prescribed TB drugs continues. Implementation of mandatory TB notification acts is not sufficiently fast.	• Ban over the counter sale of TB medicines without prescription by making it a pre-requisite for re-accreditation, or by providing transparent updates about positive contribution of pharmacies to AMR prevention on websites. • Implement mandatory TB notification acts fully and more efficiently, for example by making its implementation a pre-requisite for facility re-accreditation (MoH, CMU/NTP, PTPs)	
Domain: Governance **Preparations for the TB UN high-level meeting, 2023**	The 2018 UNHLM on TB led to increasing the TB efforts in Pakistan. The year 2023 is an opportunity of reporting back and go further.	Take stock of multi-sectoral TB work progress regularly, and suggest, in a working group approach comprised of NTP and PTPs, progress catalyzing actions to MoH. (MoH, CMU/NTP, WHO)	1
Domain: Governance **PHC strengthening, MAF-TB progress, intra-national collaboration, and -partnerships.**	PHC strengthening & MAF-TB piloting at Hafizabad Punjab, and Sindh has commenced. Intra-district, inter-district, inter-provincial reviews, and joint consultations take place, with the involvement of the central level, improving collaboration, information, and experience exchange.	• Expand and expedite MAF-TB roll-out based on the progress and lessons learned in Punjab and Sindh. Share the progress indicator updates regularly with media and on relevant webpages. • Develop and submit a peer-reviewed international journal manuscript or manuscripts to contribute to the pool of emerging evidence on the merits of MAF-TB implementation (MoH, CMU/NTP, WHO, partners) • Maintain a formalized, pragmatic regular, virtual collaborative platform that serves as a basis for technical information exchange and knowledge sharing.	1

	WHO adds value in cross-provincial reviews which will serve as a basis for experience sharing and benchmark development.	• Use WHO to facilitate provincial reviews to benchmark, monitor progress and accountably troubleshoot. (CMU/NTP, PTPs, WHO)	
Domain: Technical **Decrease in TB notification "COVID-19 Dip", missing cases**	The TB notification has not yet fully recovered from the 2020 TB case notification drop of 15%. 52% of estimated cases are missed. Quality rapid diagnostic tools are not available to all patients. Expanding them and combining them with other disease diagnostic activities will improve TB diagnosis validity, improve treatment outcomes, and yield efficiency gains for multi-disease diagnosis.	• Continue TB service outreach activities, also based on lessons learned throughout joint TB-COVID-19 service provision, such as the Toll-free TB phone line, and e.g., through and facilitated by lady health care workers. • Increase PHC integration, public-private mix, involvement of pharmacies, TB people-centredness, by expanding public sector facilities and by allowing hybrid models of work within private and public sectors (CMU/NTP, PTPs, WHO) Expand quality rapid diagnostic tests (phenotypic and molecular), by including them in the essential health service package, and by linking with other disease diagnosis (e.g., HIV). (CMU/NTP, PTPs, WHO)	1
Domain: Technical **Sustainable capacity building and mentoring initiatives**	Online TB training modules for health care providers need to be further expanded both expanding the target for capacity building and identifying suitable organizations able to collaborate with NTP in this effort, including at district levels. This could be facilitated by the MAF-TB educational sector contribution.	• Expand the capacity building to additional target groups (e.g., nurses, laboratory staff, community health workers) and hence render it more impactful at local levels (including through virtual and online applications). To that end, inform about the recently established WHO TB online knowledge sharing platform. • Support suitable institutions, such as OICD, to become WHO TB Collaborating Centers and thus improve their operational research capacity	2

		• Establish a national webpage where TB relevant educational institutions can post their TB educational activities, including lessons learned and results. (CMU/NTP, PTPs, WHO)	
Domain: Technical **Supportive monitoring mechanisms**	Overall, monitoring and support mechanisms are being expanded. M&E training for the newly recruited staff is increasingly offered.40 Health care workers were recently trained on national TB M&E guidelines in KP and Balochistan with WHO support. The roll out of a TB case-based module at DHIS2 is an achievement that will enhance data robustness, accuracy, contact investigation & Public private mix (PPM) contribution. Progress made in moving from aggregate to a case-based systems with piloting in ICT.	• Introduce a supportive monitoring mechanism so that previous recommendations' follow-up is available and serves as a reference for future activities. • Continue M & E training on national guidelines. (MoH, CMU/NTP, PTPs, WHO, USAID) • Scale the DHIS2 and individual e-surveillance up by including it systematically into the existing TB training curricula. (MoH, CMU/NTP, GF, WHO)	1
Domain: Technical **Advocacy, TB stigma, and community engagement**	TB is not perceived as a social disease, but rather as a bio-medical problem.	• Use WTBD to reduce stigma and increase TB awareness in the public on social media, webpages, and in TV clips • Invite TB survivors to speak at TB meetings to give them a voice. (NTP/CMU, PTPs, CSOs, WHO, Dopasi, additional partners)	2
Domain: Technical	Professional societies fear the development of drug-resistance through TPT, which hampers	• Reach out to professional societies, presenting evidence on the benefits of TPT. This will help implement the national guidelines	1

TB preventive treatment (TPT)	its implementation. Outreach on TPT is very limited, for example, at community level.	on Programmatic Management of TB Preventive Treatment (PMTPT). • Empower and capacitate lady health care workers to be more involved in TB prevention and care (this will further improve prevention, case finding, and -holding) (MoH, CMU/NTP, PTPs & with technical assistance by WHO, USAID, and others)	
Domain: Technical **Maintaining TB services during COVID-19, service outreach, and uptake intensification**	C19RM offers the opportunity to continue to synergize COVID-19 and TB service provision. Decentralization of services is ongoing, which enhances TB treatment uptake and treatment adherence through increased people-centredness. 'Sehat Insaf' medical cards enhanced the degree of TB people-centeredness, and hence TB treatment uptake and adherence. This, coupled with home delivery of medicine ensures better treatment continuity.	• Conduct bi-directional testing to test COVID-19 presumptive cases for TB and vice versa and improve thereby TB laboratory diagnosis confirmation, involving also people/centered outpatient and community-based care delivery models to improve programme efficiencies. • Further decentralize TB including DR-TB services, by pooling with services for other diseases, such as HIV and non-communicable diseases. • Scale up digital and innovative TB services, including Sehat Insaf Medical Cards, TB medicine home delivery, and digital TB counselling. This will compensate - to a certain extent - high staff turn-over and -loss rates. (MoH, CMU/NTP, PTPs with support of WHO and partners)	1

Annexes

Annex 0: Situation analysis in Punjab and Sindh

Situation analysis, Punjab (2021 Population: 119,916,829)

The Provincial TB Control Programme of Punjab (PTP Punjab) is under the administrative guidance of the primary and secondary healthcare department of the provincial government of Punjab. This is under the supervision of the Directorate General Health Services Punjab.

The programme exists in all districts and provides diagnostic and treatment facilities from rural health centers care (RHC) to the tertiary care level. PTP Punjab has established 636 Basic Management Units (BMUs), both in the public and private sector for Drug Susceptible TB (DS TB) diagnosis, treatment facilities. All are functional and are equipped with TB microscopy labs. Punjab is the biggest province of Pakistan accounts for approximately 60% of the national TB notifications.

In 2021, The annual incident TB cases are 310,000 in Punjab. In 2020 provincial notification dropped to 153,970 cases, mostly because of the pandemic. During quarters 1-3 of 2021 PTP Punjab has notified 142,308* TB cases. This suggests good recovery, with case notifications projected to soon re-reach numbers of 2019 (189,712 cases notified in 2019 (pre-COVID-19 era, annex II).

The programme aims to accelerate progress towards ending TB by closing the gaps in TB diagnosis, treatment, and prevention with special emphasis towards UHC through the involvement of Basic Health Units (BHUs, that could provide treatment nearest to patient homes), intra-sectoral and multi-sectoral involvement, intensified research and strengthened accountability using a framework to track and review progress (e-reporting and e-monitoring). These are only possible with increased and sustained funding, including from domestic sources, international donors, and public-private partnerships.

PTP Punjab has established 126 of the BMUs mainly at District Head Quarter (DHQ) and Tehsil headquarter Hospitals (THQ) hospital level and they have been refurbished as “One window TB rooms”, for TB diagnostic services, registrations, and treatment in one room within the institutions. This facilitated the provision of a more people--centered care approach, with less time to complete examination. It contributed to improved patient satisfaction, higher patient throughput, increased case notification, and avoidance of pre-registration loss to follow-up. The laboratory system links to 36 intermediate laboratories.

Free diagnosis and treatment of TB are available at health facilities in Punjab with contributions from TGF and the Health Department, Government of Punjab. The healthcare system of the public sector is composed of three tiers i.e., primary, secondary, and tertiary care. Other players are parastatal organizations and large hospitals run by trusts and private organizations. There are private healthcare providers rendering services on an in- and outpatient basis.

Other key findings:

- Punjab has the highest TB-HIV screening coverage in the country, which improves TB treatment outcomes in this patient group.
- There is adequate coverage of the programme with 636 Microscopy & Treatment Centers in Punjab However, public sector PHC setup offers services mainly at the level of Rural Health centers (RHC) without t wider engagement of Basic Health Units (BHUs). There is a need to engage first-level health facilities (BHUs) in TB care through PHC strengthening and scale up to engage all private providers in TB care.
- The identification of presumptive TB cases improved. Case notification is slowly reverting to the level of the pre-COVID-19 period (see also annex II for more details). This improves mortality and TB treatment outcomes.

- 50% of cases of all forms are bacteriologically confirmed cases (Q3 2021) in the public sector. there is a gradual improvement from 47% in Q3 2019. This has already improved diagnostic accuracy and recording and recording practices and precision. However, there is a need to improve diagnostic accuracy even further, to reduce the risks of false positives being unnecessarily treated, and false negatives missing TB treatment (or commencing it late, during a more advance disease stage with a lower probability of successful treatment outcomes). The figure is even lower (40% in Q3 2021) in the private sector, which accounts for 39% of TB notifications.

Key challenges:

- Donor dependency especially for DR-TB, making progress vulnerable to a changing donor landscape.
- The continued sale of unprescribed, 'over-the-counter', non-quality assured, anti-TB drugs, resulting in drug-resistance development and contributing to unsuccessful treatment outcomes.
- Missing TB cases representing one cause of avoidable transmission.
- Use of TB laboratories for COVID-19 testing, reducing the diagnostic capacity for TB.
- TB preventive therapy: operational issues related to challenges in the field, chest radiography costs, additional work for HCWs. There is only a little information on the TPT roll-out
- Reluctance to take TPT without diagnostic evidence, contributing to stalling progress with regards to TB burden.
- Very limited diagnostic tool availability for LTBI detection, explaining in part the slow uptake of TPT.
- Lack of governmental funding for chest radiography exams for TB contacts, resulting in low uptake and diagnostic yield of contact investigation.
- Insufficient community engagement with impacts on the case holding and treatment adherence.

Situation analysis, Sindh (2021 Population: 52,778,566)

PTP Sindh estimated that in 2021, Sindh faced a TB disease burden of 0.136 million cases per year. According to PTP Sindh in the year 2020, the cases detected were 64917 (49% %) with 51 % missed form notification. , while the MDR TB cases notification in 2020 was 823. The treatment success rate for DS-TB has been 91% in 2019. According to CDC Sindh, the total number of reporting BMUs across Sindh is 399. There are 104 GeneXpert sites, three BSL-3 and 05 BSL-2 labs working in the province.

Key findings from health facilities visited, including epidemiology, Sindh

Population Density	308/Km^2
Districts	30
DS- TB Incidence	259/100,000
DR TB Incidence	4.2 % new cases 7.3% previously treated
Estimated burden of disease/year/pop	DS TB: **136696** DR-TB: 5806 (11/100,000)
DR TB patient notified till Q-3,2021	812
Treatment success rate	DS TB (Q-2,2020): 92% DR TB (Q-2,2019): 73%
Death rate (Case fatality) Lost to follow-up	3% 3%

High loss to follow-up rate and low treatment success rates among patients is of concern, as it prevents reaching better treatment outcomes and reducing TB mortality further. Underlying reasons discussed were late self and third-party referral (e.g., a patient selection bias, with proportionately more complex and advanced disease stage TB patients being referred to secondary and tertiary facilities in particular). Therefore, the likelihood of favorable treatment outcomes is lower than in the provincial average. Preliminary data suggest that COVID-19 related decrease in TB notification has plateaued, and notification has started to increase again. (More details about the TB epidemiologic situation in Sindh is available in annex II).

Key achievements:

- Uninterrupted supply of TB medicines and laboratory reagents are regularly provided to all BMUs of Sindh.
- MAF-TB work being implemented in District Badin (Sindh) in collaboration with partners such as Dopasi and Stop TB Partnership. This led to a more whole-of society approach to TB prevention and care, e.g., through involvement of educational and occupational health sectors. The former having particularly improved creating awareness and reducing stigma (e.g., in schools), and the latter has enhanced TB screening.
- Solar panel installation across GeneXpert sites is underway to enhance the reliability of service provision, by rendering them less dependent on power supply from the conventional electricity grid.
- Decentralization of four PMDT sites, Malir Chest Clinic, Jacobabad Institute of Medical Sciences (JIMS), TB Hospital Khairpur, District Head Quarter Hospital (DHQ) Kambar. This improved

patient access, by lowering distances and travel times to facilities, and is expected to contribute to improving case holding and treatment outcomes.

- A TB culture laboratory of TB Hospital Khairpur has been completed and expanded advanced diagnostic capacity, which improves TB case detection capacity and precision of diagnosis.
- Sputum transport mechanism has been successfully piloted in three districts (Q-3,2021); scale-up in the remaining districts will be completed by quarter 1, 2022. This will improve the accuracy of TB diagnosis and TB care people-centeredness.
- Uptake of technology for communications/training has improved, leading to better connecting different levels, including inter-district, inter-provincial, and national and international levels. This improves the exchange of information and cross-fertilization of thoughts and innovations.
- TB screening services at community level have been scaled up, for example through the setting up of chest camps, which offer screening and counseling services. These efforts improve TB people-centeredness, case holding, treatment adherence and ultimately contribute to improving favorable TB treatment outcome rates.
- Some tertiary centres, such as the ICD Kotri, are increasingly capable of diagnosing children as young as less than 1 year, and refer them appropriately if needed (e.g., to Indus Hospital). This improves TB case detection in this age group and subsequently improves treatment outcomes correspondingly.

Key challenges:

- 7% decrease in TB case notification from 56% treatment coverage in 2019 to 49% in 2020 and patient referral owed to COVID-19, contributing to continued and avoidable TB transmission.
- High staff turnover rate and -loss, exacerbating the situation of insufficient case finding.
- Trained District TB Coordinators (DTCs) in all 30 districts? engaged in other campaigns and activities, risking worsening TB detection, case holding, treatment adherence, and favorable TB treatment outcomes.
- Inadequate social support for DR-TB patients, resulting in treatment interruptions, reducing case holding and treatment adherence, contributing to further drug-resistance development.
- COVID-19 infection among employees resulting in insufficient staff available to provide TB services, which amplifies the high staff turnover rate and -loss, with the aforementioned consequences.
- Slow expansion of household contact screening and preventive therapy, which contributes to the insufficient reduction of the pool of infected, therefore more often progressing to TB disease.
- Insufficient implementation of national guidelines on HIV testing (PPM sector)
- Inadequate allocation of funds for operational research (estimated at less than 5%), does not allow for making more convincing cases for stepping up TB investment and commitment, as it does not allow to expand the pool of TB evidence from provincial, district, and local contexts.

Annex I: Details of meetings/visits

8th of December 2021 (Day 1) Islamabad

a. WHO Country office

b. CMU/NTP office

a. WHO Country office: meeting with Dr Palitha Mahipala, WHO Country Representative (WR) and Head of Mission in Pakistan.

The WR raised key TB country challenges: The existence of a significant share of (only) clinically diagnosed TB cases, the related lack of bacteriological confirmation, the high rate of undetected TB cases, the lack of sufficient up-take and implementation of country-context adapted, evidence-based, WHO-conform national guidance documents (particularly in the private sector), emerging TB drug

resistance, and high TB human resources turn-over, the latter exacerbated by COVID-19. He welcomed the initiative of the 'blueprint to improve TB governance, collaboration and partnership in Pakistan' concept note (draft) exchange and online consultations about enhancing TB governance, partnership, and collaborative efforts, within the overall National Health Vision & the Essential Package of Health Services and Health Benefit Plans in Pakistan.

b. CMU/NTP office: Meeting with representatives and partners (for details, see main report section)

9th of December 2021 (Day 2) Punjab

a. WHO sub-office

b. Provincial TB Control Programme

c. Rural Health Center Chung

d. Gulab Devi Hospital and

e. Public-Private Mix (PPM) Facility Dr Ghulam Mustafa clinic in Model Town Lahore

a. WHO sub-office Punjab

The head of the sub-office explained the role of WHO as the fourth tier of WHO to TB prevention and care, next to global, regional, and national levels. He shared a brief history about the support extended to the Provincial Health programs, and specifically to the TB Control programme in preparation of PC 1 by providing technical inputs to secure domestic financing. The PTP has been supported directly by a WHO consultant, whose presence made it more visible. Furthermore, the PTP benefitted from technical assistance and support in all areas of the End TB Strategy and in line with reaching the UNHLM targets.

b. Provincial TB Control programme (PTP Punjab)

The PTP Punjab representatives provided a briefing about key programme activities, including key achievements, challenges, and implementation modalities. The programme has evolved from development mode to regular mode since July 2021, which means that since then, TB medicines, reagents, etc., albeit limited, are covered by regular domestic TB funding. This underscores increased governmental commitment. Besides, PTP managed to add lab posts within this regular funding position, as a follow-up from a recent regional Green Light Committee (rGLC) mission recommendation. This also aims at increasing the sustainability of such services. Despite setbacks owed to, at least in part, the COVID-19 pandemic impacts, notification improved and has been catching up to pre-COVID times. Treatment success rates have continued to be high, and been most recently, for drug-sensitive (DS) TB above 93% and for drug-resistant (DR) TB above 70%, which is better than the global average.

PTP Punjab has been implementing all WHO-approved (and nationally adjusted and adopted) TB management guidelines. PTP Punjab has initiated monthly data surveillance through video links, in addition to quarterly meetings (This close follow-up and support practice is currently only in place in Punjab). It has developed and started to introduce a real-time monitoring application for TB monitors, which aims to timely identify any treatment challenges and address them adequately as needed.

A project involving pharmacies has contributed to case finding so far as it has detected more than 10,000 un-notified cases from June to November 2021. A digital app has been developed and is being piloted in 4 districts.

PTP Punjab ensured uninterrupted TB medicine home delivery to DS-TB and DR-TB patients during COVID-19, including during COVID-19 lockdowns.

Decentralization of DR-TB services has been initiated. Punjab follows already r-GLC 2021 recommendation of the autonomous district PMDT Site. Punjab initiated a modified bridge regimen to cope with potential Fluoroquinolone resistance (FQ-R) under adequate operational research conditions. PTP Punjab conducted 5 workshops (DHQ Sheikhupura, Khanewal, Vehari, DG Khan, Chakwal, and Bahawalnagar staff) to decentralize DR TB Services. Staff from these facilities were given two days of training about DR-TB case management practices, roles, and responsibilities of staff to manage patients. The lesson learned from the decentralization of DR-TB services will improve treatment adherence and treatment outcomes.

c. Rural health center Chung, Lahore

The outpatient department (OPD), the laboratory, and the drug store were visited. The TB-03 register and quarterly laboratory reports were reviewed and found in good order.

The discussion focused on practices relating to presumptive TB case identification, including the yield, case registration at the facility, the catchment area population, and the contribution of lady health care workers' (LHWs) involvement. Referral and counter-referral practices were discussed also from cluster BHUs to other connected entities. Lab services and explanation about follow-up smear positivity rate FSPR. The quarterly lab report was reviewed and considered in order.

d. Gulab Devi Hospital, Lahore

This tertiary care facility was visited to appreciate/view the programmatic management of DR-TB. The facility management and relevant team members provided details about patient enrollment practices. The subsequent discussion focused on DR enrollment, sustaining adherence, and minimizing loss to follow-up. Patient management was also discussed as enrollment at the facility is very high (193 on treatment) with more than 2800 total enrolled since the programme begins in Hospital. Gulab Devi Hospital is one of the oldest & leading facilities in terms of the burden it shares in Punjab for the management of DR TB services. The facility serves also as a training facility for other PMDT sites in Punjab. Mission members visited the drug facility to appreciate the storage and distribution practices, all sections of the biosafety laboratory (BSL) II, to review its functioning.

Certain delays in equipment maintenance and repairs were highlighted and discussed. Underlying causes identified are the limited availability of qualified maintenance/repair staff and of certain spare parts.

e. PPM clinic visit in Model Town, Lahore

The private providers cover areas where public sector facilities are not available and thus complement them. Private clinics can be more convenient to the patients as they provide more flexible operating/opening timings, including in the evening. The diagnostic and treatment services are provided free of charge. PTP Punjab trained doctors, paramedics, and laboratory personnel in the private sector and service providing facilities on a variety of aspects such as necessary TB laboratory reagents and medicine. The Dr Ghulam Mustafa clinic was visited to appreciate the mean private sector contributions.

This clinic has been affiliated with PTP Punjab since 2016. There are six GPs within the area but not all of them are engaged in the provision of TB care services. The facility reported that the workload is feasible, also in the current COVID-19 situation, during which workload increased owing to COVID-19. Facility outreach paramedical staff are responsible for patient follow-up at home which is useful in maintaining treatment adherence.

10th of December 2021 (Day 3) Punjab

a. Secretary Primary & Secondary Health Care Department

b. Deputy Commissioner Hafizabad to review piloting of MAF-TB and PHC strengthening in District Hafizabad

c. Basic Health Unit Chak Chatta

a. Meeting with Secretary Primary & Secondary Health Care Department (P & SHCD)- Punjab

Secretary P&SHCD suggested that TB screening ideally be further optimized. He emphasized the government's responsibility for supplying the components needed to offer adequate TB services, while developing partners continue to provide technical support, which the programme may not be able to provide itself, or by itself without external support. Continued WHO support is highly appreciated.

WHO highlighted that PTP has made improvements in TB case finding, despite resource limitations and that basis TB services were maintained despite COVID-19 pandemic inflicted challenges. COVID-19 testing is shifted to BSL-II labs so that some BSL-III lab diagnostic capacity, at present taken up by COVID-19 needs, may be freed to gradually re-start TB drug susceptibility testing (DST).

Lab tests, other than TB tests, are charged to the patients and result in out-of-pocket expenditures. The matter of free lab tests (other than TB diagnosis tests) for DR-TB patients and contacts of TB patients was discussed and support of Secretary P&SHCD was requested for the programme in public sector facilities.

b. Meeting with the Deputy Commissioner, Hafizabad

WHO appreciated the district management in its role in supporting the pioneering of MAF-TB in the district of Hafizabad. The ongoing pilot was showcased as a good practice example of MAF-TB implementation during the recently concluded global 7th End TB Summit.

DC Hafizabad appreciates PTP Punjab and WHO for having suggested piloting MAF-TB and PHC strengthening in the district. He assured full support from all departments under his administration. He emphasized the role of allied departments supporting TB control efforts in the district. He appointed District TB Coordinator (DTC Hafizabad to update him regularly about TB Control efforts and progress). The role of the education department was highlighted in creating awareness by the DC.

c. Visit to BHU Chak Chatta (District Hafizabad)

BHU was visited to gain insight into PHC strengthening implementation in District. TB presumptive identification/Referral has started recently, following the relevant training to LHWs on 30th November 2021. They conduct outreach activities, e.g., going to patients' places of residence to conduct contract tracing and counselling.

11th of December 2021 (Day 4) Sindh

a. Ojha Institute of Chest Diseases (OICD)
b. Dr Nand Lal Fazl-e-Karim Medical Center (PPM)
c. Meeting with STOP TB Partnership Pakistan

a. Ojha Institute of Chest Diseases (OICD)

Ojha institute of chest diseases (OICD) is a constituent institute of the DOW university of health sciences (DUHS) since the university's inception in December 2003. It was established as a TB sanatorium in 1939. In 1973, it was upgraded from sanatorium to Ojha institute of chest diseases, as it is referred to today. In 1995, the DOTS strategy was implemented. In 1996, DR-TB treatment was started in this institution. In 2010, OICD was selected as a site for the programmatic management of drug-resistant tuberculosis. It is a tertiary care hospital

and postgraduate training center offering diploma and degree courses in chest medicine. It serves patients (self-referred as well and referrals not only from Sindh but from other provinces as well).
The decreasing trend observed among the DR TB patient enrollment by OICD was discussed. An OICD representative explained that his decrease is mostly due to a gradual increase in the number of PMDT sites across Sindh. This led to the OICD TB notification decrease. Related to this, an increased loss to follow-up rate among DR-TB patients was discussed. To that end, it is important to couple the increase of the number of PMDT sites and hence increase of PMDT degree of decentralization, with increased people-centered patient support, to maintain sufficient TB case holding. Based on the current and recent past research practices and contributions of OICD, it was discussed and suggested that it may be a suitable candidate for becoming a WHO Collaborating Centre for TB research, provided the conditions of application are met, for example, documented 2-year collaboration with WHO on TB research topics.

If the application was successful, the contributions of OICD could not only contribute to local, provincial, and national development of TB research capacity but also internationally, within the WHO Region for the Eastern Mediterranean. It would also contribute to regionally implementing the TB research and innovation agenda, in line with the WHO DG report on the implementation of the Global TB Research and Innovation Framework. One next step towards establishing OICD as an EMR WHO TB Collaborating Centre could be that an OICD committee, composed of 4-5 technical members, advance with exploring and completing the milestones related to a successful application.

b. Dr Nand Lal Fazl-e-Karim Medical Center (PPM)

There has been progress in improving the collaboration between the public and private sectors, for example, through establishing means of informing one another about the transfer of TB patients. However, this information flow is mainly determined by personal commitment a leadership of the medical practitioners in both sectors. Furthermore, there have been improvements in making use of joint outreach resources, e.g., with regards to providing TB treatment follow-up support at patients' homes. This phenomenon has even been catalytically facilitated by the COVID-19 pandemic impacts, e.g., the need for rendering services more efficient, through the combining of resources. Despite that fact that TB care if free of charge for all patients, some 'accessory' services are not fully covered. This relates, for example, to x-ray costs, which are incurred by presumptive TB patients, if they have been identified as such (out of pocket expenditures which disincentivize the possible diagnosis of TB).

c. Meeting with STOP TB Pakistan

STOP TB Pakistan explained its key achievements and contributions to TB work in Pakistan, and its role in supporting intensified CSO contributions to TB work. It informed about their role, and about a pilot project of Multi-sectoral Accountability Framework implementation in District Badin. Dr. Sharaf Ali Shah, Vice-Chair of STOP TB also briefed WHO about the role of Bridge Consultants Foundation. WHO commended the STOP TB Partnership, at all levels, for its strong contributions to making TB progress in Pakistan, particularly in being an increasingly strong bridge between the government and communities, through its inclusive partnership-model approach.

13th of December 2021 (Day 5) Sindh

a. Institute of Chest Disease (ICD) Kotri
b. Meeting with DGHSS/CDC Sindh

a. ICD Kotri

The Institute of Chest Diseases Kotri Sindh, formerly called the TB Sanatorium**,** was established in 1954 to cater for the health services of Tuberculosis patients of Sindh, the adjacent area of Balochistan and Lower Punjab. The facility caters to self-referred and referred patients. ICD Kotri is considered a centre of excellent for TB, with a particular focus on the management of DR-TB patients. This is widely recognized across Sindh. All primary, secondary and tertiary TB services are available, and provided in line with WHO standards, at Kotri. There has been a lot of progress in rendering TB services more people-centred, e.g., by reducing TB admission times and rates, and providing more care at people's homes/place of residences. Excellent intra-institutional collaboration between the management and senior clinicians has led to improved efficiencies.

Key challenges:

- Insufficient financial support to cover travel costs and no nutritional support for DR-TB patients.
- Only a partially functional, outdated incinerator is available
- Increasing the case load of DR-TB samples to process, it was discussed to consider upgrading the current BSL-II lab to BSL III level.

b. Meeting with the director of general health Services (DGHSS), Sindh

DGHSS, Dr. Juman Bahuto greeted the WHO team and thanked them for the technical support extended by WHO to the CDC Sindh team.
There have been considerable improvements in several areas of the End TB Strategy. This applies particularly to expediting and expanding PMDT decentralization. It has shown intermediate promising effects in improving DR-TB diagnosis, case holding, treatment adherence and treatment outcomes. Similarly, the progress in moving towards more integration of TB in primary health care has improved, with an increasing number of facilities collaborating with the PTP of Sindh.

14th of December 2021 (Day 6) Islamabad

a. Meeting with Dopasi Foundation

b. Meeting and mission debriefing with Dr Faisal Sultan, Federal Minister of Health & Special Assistant to the Prime Minister (PM) on Health

c. Debriefing with NTP/CMU, Punjab and Sindh PTPs

a. Meeting with Dopasi Foundation

Possible benefits of establishing an interagency coordination committee, to foster better inter-partner collaboration and cooperation. This could be in line with or within the blueprint to improve TB

governance, partnership and collaboration in Pakistan initiative implementation, led by WHO, and include monitoring and evaluation, and capacity-building mechanisms.

b. Meeting and mission debriefing with Dr Faisal Sultan, Federal Minister of Health & Special Assistant to the Prime Minister (PM) on Health

Key aspects discussed with the Minister of Health

- Improving self-reliance through increased and sustained domestic financing is a key priority.
- TB is a priority of the Government, besides, for example, nutrition, hepatitis, nursing & HIV, and malaria.
- TB killed more patients than COVID-19.
- The decrease in TB case notification during the ongoing COVID-19 pandemic is in part due to the lower utilization of services. The latter is in part owed to fear of COVID-19 infection, and an according to change in health-seeking behavior (fewer people consulted for TB)
- Wearing masks might have contributed to reducing TB transmission as well.
- There is a need to involve the private sector more systematically and boldly in TB prevention and care. By doing so, and by intensifying TB work integration in primary health care, further progress towards reaching UHC can be made. Universal Health insurance has been further rolled out, contributing to patient protection, by reducing diseases- & illness- related catastrophic costs.
- TB is not always perceived as a public health concern to the extent that it should be, owing to the marginalization of some patient groups.
- One approach to incentivize GPs and other TB relevant physicians, including in the private sector to involve them ore systematically and efficiently in TB prevention and care, could be by offering continuing medical education (CME) credits for (refresher) training on TB.

c. Debriefing with NTP/CMU and Punjab PTP (the latter connected remotely; for details, see main report section**)**

Annex II: Tables and figures illustrating selected indicators of Punjab and Sindh.

Table 1 shows TB notifications (baseline of 2019, the drop during 2020, and recovery in 2021). Figures 1-3 illustrate the status of some TB indicators in Punjab showing, respectively, 1) improved TB presumptive identification from Q3 2020 to Q3 2021, 2) improved TB notifications from Q3 2020 - Q3 2021, 3) gradual increase in DR-TB enrollment (Q1 2020 - Q3 2021).

Table 1: TB case notification in Punjab

Year	TB Cases Registered
2019	189,712
2020	153,970
2021	142,308 (3 Quarters)

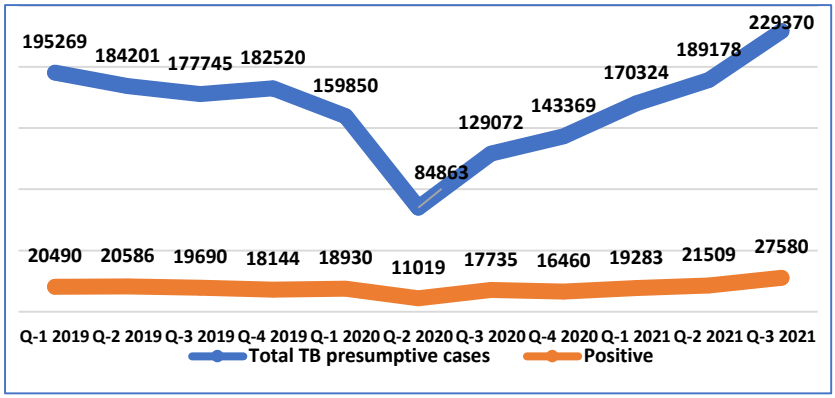


Figure 1: Presumptive TB case identification Punjab

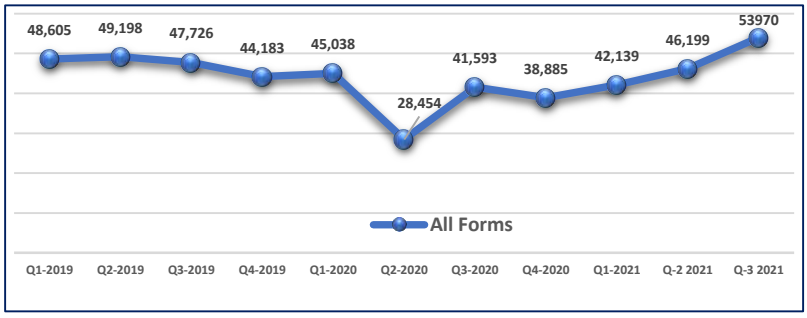


Figure 2: TB notifications, Punjab

Below is a summary of the key progress of 2021 from Punjab (three-quarters data from January to September 2021), namely:

- Almost 600,000 people (588,872) were screened for TB through microscopy vs 511,849 throughout the year 2020.
- 142,308 TB patients were diagnosed and started on treatment vs 153,970 TB cases registered in the whole of 2020.
- This includes 11,262 pediatric TB Cases vs 10,817 cases in 2020
- Additionally, 1051 patients with Drug-Resistant TB were diagnosed and started on treatment vs 1153 cases enrolled throughout the year in 2020.
- 108,552 TB patients screened for HIV vs 68006 in 2020
- The TB treatment success rate remained above 93% (Target – above 90%)

Sindh

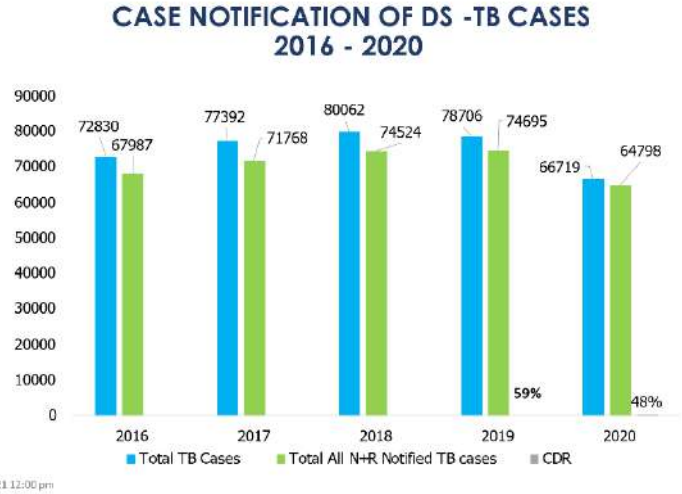


Figure 3: TB case notification (All TB cases, New+ Relapse, Case Detection Rates (CDR), Sindh

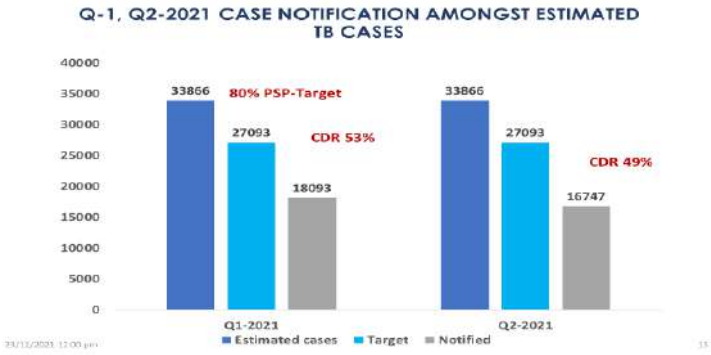


Figure 4: TB Case notification, estimated cases, target & notified, Sindh

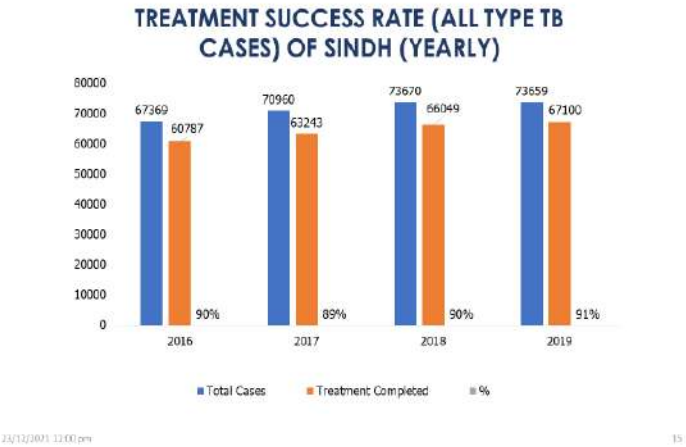
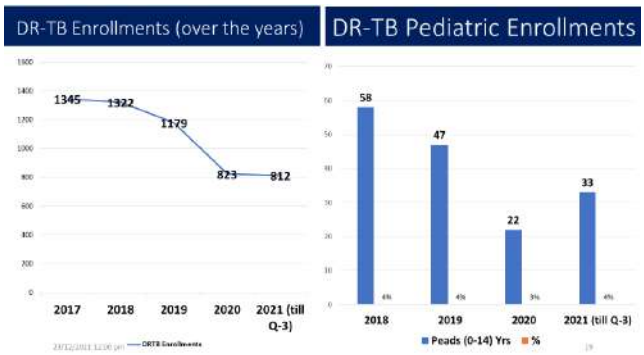


Figure 5: Treatment success rate (absolute and as a percentage), Sindh



Treatment Outcome of DR-TB Patients from 2015 to Q-3, 2019 (PMDTs of Sindh Province)								
Year	Cured	Treatment Completed	Treatment Success Rate	Died	Failed	Lost to Follow up	Not Evaluated	Still on Treatment
2015	665	88	66%	179 (16%)	81 (7%)	132 (11%)	4 (0.30%)	0
2016	739	61	64%	201 (16%)	96 (8%)	141 (11%)	6 (0.40%)	0
2017	821	47	66%	211 (16%)	72 (5%)	155 (12%)	12 (0.90%)	0
2018	800	109	69%	175 (13%)	88 (7%)	133 (10%)	15 (1%)	1 (0.08%)
2019 (Q-1,2&3)	549	71	74%	119 (14%)	44 (5%)	44 (5%)	12 (1%)	1 (0.1%)
Above data is taken from ENRS of Sep 2021								
23/12/2021 12:00 pm								

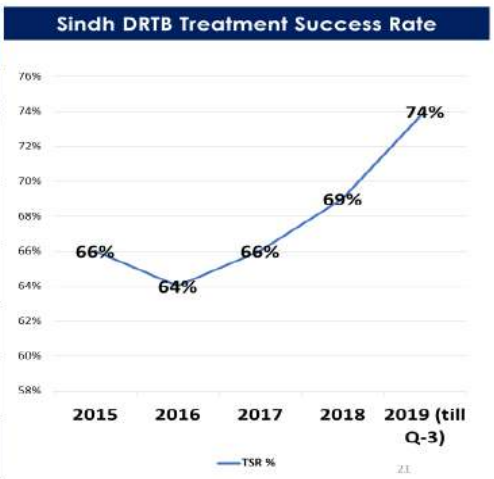


Figure 6, 7, 8, 9: DR-TB enrollment, DR-TB pediatric treatment enrollment, treatment outcomes and DR-TB treatment success rate, Sindh

Annex III: A collaborative blueprint to improve governance, leadership, and partnership to end tuberculosis in Pakistan (Version following partner input and discussions during PAK TB mission, 8-14 December 2021)

AIDS	Acquired Autoimmune Deficiency Syndrome
AMR	Anti-Microbial Resistance
BMUs	Basic Medical Units
COVID-19	Corona virus disease -19
EMR	Eastern Mediterranean Region
GAP	Global Action Plan for healthy lives and Well-being for all
GFATM	Global Fund for AIDS, TB, and Malaria
GPW	General Programme of Work
MAF-TB	Multi-sectoral Accountability Framework on TB
MoFA	Ministry of Foreign Affairs
NTP	National Tuberculosis Programme
PAK	Pakistan
PH TB	Public Health TB
PHC	Primary Health Care
PMTPT	Programmatic Management of Tuberculosis Preventive Treatment
SDG	Sustainable Development Goal
TB	Tuberculosis
UHC	Universal Health Coverage
UNHLM	United Nations High Level Meeting on TB (2018)
USAID	United States Agency for International Development
USD	United States Dollars
WHA	World Health Assembly
WHO	World Health Organization
WHO EMRO	World Health Organization Eastern Mediterranean Regional Office

Introduction

The END-TB strategy calls for commitment, and inclusive multi-sectoral stakeholder collaboration. It stipulates the need for strong governance, leadership, and partnership to reach its vision of a world free of TB and its goal of ending TB. As per the principles of stewardship and accountability, goal can be reached by implementing activities falling under the pillars of 1) integrated patient-centred care and prevention, 2) bold policies and supportive systems, and 3) intensified research and innovation 1. As of November 2021, the WHO Eastern Mediterranean Region [EMR] and Pakistan have made insufficient progress in reaching the END-TB Strategy targets towards reducing TB mortality, incidence rate and catastrophic costs due to TB 2.

Pakistan has a federal government system with a decentralization of health to provinces. Pakistan made progress towards reaching universal health coverage (UHC) through increased integration and multi-sectoral approaches. As the most populous country in WHO EMR, it continues to account for 70% of TB incidence in EMR. In 2020, treatment coverage was 48% (down from 58% in 2019) and 49% of cases are bacteriologically confirmed3. Furthermore, TB work integration in primary health care (PHC) remains under 5%. Private sector contribution to TB prevention and care accounts for approximately 50% of all TB services provided country-wide and is insufficiently linked with governmental TB services 4. In 2020, 58% of the estimated national TB budget needs were unfunded. The COVID-19 pandemic has been amplifying challenges. The TB notification rate decreased by 17% in 2020 compared with 2019, 2% more than the 15% regional average decline 1. A 2020 TB multi-sectoral accountability framework (MAF-TB) assessment yielded country-specific recommendations towards ending TB in Pakistan. While there were conductive structures for multi-sectoral TB work, their degree of development and potential to contribute to TB prevention and care remained limited 5.

Aside from governmental and private health care providers, numerous national and international partners are involved in TB at the central, provincial, district and local levels in Pakistan 4. Involvements include coordination, policy, technical [support] and implementation. However, there are opportunities for better identification of complementarities to reduce inefficiencies and improve coordination. A more concerted, well defined, aligned multi-sectoral, health system-strengthening partnership approach would increase efficiencies and effectiveness. This could be achieved through distribution of roles and responsibilities from governance to leadership, technical guidance and all the way to implementation at all the levels from the central government to health care facilities. The framework of this collaboration can be guided by comparative advantages and mandates. The aim of this blueprint is to delineate TB roles and responsibilities to optimize efforts to end TB from a health system and multi-sectoral perspective in Pakistan.

Purpose

Define a multi-partner and multi-sectoral country specific collaborative blueprint to optimize TB prevention and care in Pakistan.

Expected results

- Coordinated, enhanced leadership for ending TB, governance, TB technical work and implementation
- Optimized collaboration within the health sector and between sectors for TB prevention and care
- Improved quality of care for all people with TB
- Improved community engagement including community led monitoring
- Increased service coverage
- Improved TB treatment outcomes

- Lowered TB burden
- Development process

We analyzed the situation, consulted partners to map their proposed contributions, outlined the framework, and sought endorsement by relevant stakeholders. Consultations and consensus-seeking engaged a) the three levels of WHO, including headquarters, EMRO and the WHO Pakistan Country Office), b) the National TB Programme of Pakistan, including with provincial representatives (PTPs), c) selected national partners representatives (table 4, c) key international partners, including USAID, the Global Fund for AIDS, TB and Malaria (TGF) and the Stop TB Partnership (table 5) and d) representatives from other sectors (table 6). This blueprint will be proposed for endorsement, ultimately, by all stakeholders involved through the national coordination mechanisms and according to relevant legislation and policies during a multi-partner round-table discussion planned for 16 December 2021 in Islamabad, Pakistan. All stakeholders will periodically revisit and adapt this framework according to changing country TB needs and contexts.

We based the proposed blueprint approach on policy declarations and on proposed international and national TB prevention and care work and mechanisms. These include TB policies such as the TB relevant SDG (target 3.3), the End TB Strategy (and its associated WHA resolution 67.1), TB Moscow declaration (and its related WHA resolution 71.3) and the Political Declaration of the United Nations, General Assembly High-Level Meeting on TB. Other broader, cross-cutting references include the GPW 13, the Global Action Plan for Healthy lives and Well-being for all (GAP), the national strategic plan to end TB in Pakistan, 2020 – 2023, the National Health Vision 2016-2025 of Pakistan, and the related recently conducted joint GAP "PHC for UHC Mission to Pakistan" (March 2021).

We reviewed relevant recent country assessments and analyses in the field of TB, including the WHO EMRO led review of the National TB Programme (2019), other TB technical reviews, and the national TB multi-sectoral accountability framework (MAF-TB) baseline assessment. We analyzed support mechanisms, particularly the Global Fund to combat Aids, TB and Malaria (GFATM), which is the largest external provider of financial resources. GFATM funds Pakistan TB work with more than 170 million USD from July 2021 to July 2024 and through the C19RM mechanism with of 50 Million USD, to aimed to address TB and COVID-19 related challenges.

TB governance, leadership partnership related policy, mechanisms, and key implications for Pakistan

TB policy landscape, international

International TB governance, leadership and partnership relevant policy and guidance have implications for the work at the country level (Table 1). Some of its components are repetitive. Analysis reveals a mixed picture regarding the progress of Pakistan in TB prevention and care despite commitments at the national, provincial and district levels. MAF-TB implementation is underway in Punjab and Sindh. Key challenges are related to implementation given the partially funded national budget, and the little progress in TB prevention and in closing the gap between estimated cases and those notified.

TB policy landscape, national

Similarly, the inventory of resources (Table 2) indicates that sufficient guiding TB related governance, leadership and partnership policies, documents and mechanisms exist. Persisting challenges may be related to implementation. Regular review of TB relevant content is needed. This will catalyze implementation. Lessons learned from periodic analysis improves the re-shaping and re-

targeting of TB public health interventions. They will inform replication and contribute to transforming policy into action, and action into improving TB prevention and care.

Tables (3 – 6) aim to lay out key roles and responsibilities for various TB relevant health sector stakeholders both national and international, including other sectors.

National leadership and management

National leadership and management (table 3) focus on coordination and policy. The provincial TB programmes engage in interprovincial discussions and collaboration with NTP and other relevant stakeholders, guide provincial adaptation of national policy, its implementation and contribute to national policy making. CMU focuses on the management of GF projects and oversees the technical aspects and implementation of its projects.

National implementation

National implementers (table 4) collaborate across public and private sectors, and at different levels of TB care provision. Their focus lies on technical aspects and implementation. A feedback mechanism must ensure supportive oversight by governmental TB entities. They are the grass-root level game changers for TB prevention and care, being with and nearest to the patients.

Partners

Partners (table 5), both national and international, share complementing roles and responsibilities. WHO leads the coordination and policy elements. This is supported through the donor facilitation of GFATM and USAID, in advocacy for relevant policy making and implementation. Stop TB Partnership, national TB Partnership and national TB Caucus not only work through advocacy (in the case of the two former), but are also involved in technical work and TB project implementation.

Multi-sectoral framework

Ministries others than the Ministry of Health (MoH) (table 6) complement the contributions towards TB prevention and care in Pakistan. The MoH leads and coordinates the MAF-TB work. Other ministries contribute to MAF-TB delivery. This may be indirect through poverty reduction, food and environmental quality improvements, and directly through Standard Operational Procedures (SOPs) development and implementation, e.g., in occupational health services, and educational facilities. Besides, ministries of interior and foreign affairs can jointly contribute to improving migratory and cross-border TB situations.

Conclusion

The adoption of this blueprint will improve TB partnership, leadership, and governance in Pakistan. The definition of consensus-based roles and responsibilities, based on a policy and guiding frame assessment, will help avoid unnecessary duplications. Similarly, and in parallel, successive implementation of MAF-TB will catalyze the raising and spending efficiency of domestic funding for TB and create positive spill-over effects to other sectors. Efficiency gains stemming from their implementation will progressively deliver the expected results and contribute to health systems strengthening. Periodic review and subsequent adjustments of the blueprint will sustainably sharpen the TB response. They will contribute to ultimately reaching UHC, for example, by freeing and making better use of resources.

This blueprint is a non-exhaustive tool for orientation, to be regarded as a flexible and dynamic document. Collaborative spirit is a key prerequisite for continued all-partners buy-in and ownership, and hence for its success. Partners involved act in complementarity, not in competition. Blueprint implementation, in an all-partners-approach, could be the basis for the future development of a

country context specific TB people-centred service delivery model. Its health systems-approach will foster further health services and sector integration.

Table 1: TB policy landscape, international

Policy reference documents	Key elements relevant to TB	Current status and gaps	Way forward
SDG target 3.3 6	By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases.	Pakistan may not end TB by 2030, if current TB trends continued.	Intensify commitment to TB SDG target 3.3.
End TB Strategy and associated WHA resolution 67.1 1	By 2030: 80% reduction in in the TB incidence rate, 90% reduction in the absolute number of TB deaths and 100% of TB affected families protected from catastrophic costs due to TB.	If trends or projections continue: Less than 40% reduction in the TB incidence rate. Less than 40% reduction of TB deaths. Less than 40% affected families protected from catastrophic costs.	Maintain strong political commitment. Enhance social protection, community engagement Increase domestic funding. Improve funding efficiency Increase the detection and notification of TB cases. Improve TB preventive treatment airborne infection control.
Moscow (November 2017) declaration and related WHA resolution 71.3 7	Mobilize sufficient and sustainable financing to close gaps in implementation and research. Advance research and development; and Build accountability, including through multisectoral approaches.	MAF-TB baseline assessment done. MAF-TB implementation in Punjab and Sindh. 40% of fund needs covered. 3% of estimated funding needs covered by domestic resources. Research budget < 10% of budget.	Progress towards reaching UHC Mobilize funding for research. Learn lessons from Punjab and Sindh MAF-TB roll-out. Replicate in other provinces and districts.
Political declaration from UNHLM TB, September 2018 8	Translation of Moscow declaration and related WHO resolution into more specific targets, to reach/achieve: 40 million people diagnosed and treated over the period 2018–2022. At least 30 million reached with treatment to prevent TB over the period 2018–2022. Mobilization of sufficient and sustainable financing for universal access to TB care: At least US$ 13 billion	Less than 1 million people diagnosed and put on treatment. Preventive TB treatment not yet implemented. Substantial international funding available. Less than 2 million USD funding for TB research.	Boost TB prevention, diagnosis, and treatment. Increase domestic financing and innovative financing, including for TB research, in line with the UNHLM declaration targets.

	annually by 2022. Research: US$ 2 billion invested annually, over the period 2018–2022.		
13th WHO General Programme of Work (GPW13), period 2019-2023 9	To ensure: One billion more people benefiting from universal health coverage. One billion more people better protected from health emergencies. One billion more people enjoying better health and well-being.	TB treatment coverage: 48% in 2020. Insufficient integration of TB in primary health care. Insufficient alignment of public and private sectors.	Boost TB in primary health care integration. Collaborate systematically with private sector. Decentralize programmatic management of drug resistant TB.
Global Action plan for healthy lives and Well-being for all (GAP)[10]	Participating agencies, institutions align their work to reduce inefficiencies and provide more streamlined country support. Through GAP, agencies support countries deliver on health-related SDGs including on TB.	Challenges in follow-up on UN High-level Meeting on Universal Health Coverage (UHC) and the Astana Conference on PHC, despite a UHC initiative.	Implement the PAK UHC initiative.

Table 2: TB policy landscape, national

References	Key elements	Status and gaps	Way forward
National Health Vision 2016-2025 [11]	Stipulates a health systems approach to addressing health, including good governance and cross- and multi-sectoral partnerships.	TB mentioned as Pakistan's burden is one of the world's top 10. TB not sufficiently reflected. Follow-up mechanism on implementation unclear.	Apply actionable approaches along the lines of the health system building blocks. Seek more synergies with other areas of public health work.
PHC for UHC Mission to Pakistan report[12]	Recommendations support the government in its stewardship and steering role of the health system and to develop and implement a Roadmap for 'PHC for UHC'.	Roadmap developed. Implementation started. Useful framework for TB accountability, but insufficient engagement of TB stakeholders.	To encourage all TB stakeholders to use the framework for TB accountability.
National Strategic Plan to end TB in Pakistan, 2020 - 2023[13]	Recommends bold actions towards closing the gap between estimated and notified cases Suggests people-centred patient-friendly prevention treatment and care	Gap of 52% in case detection Less than 15% of all DR-TB cases put on adequate treatment	Prioritize TB case finding Provide treatment for all, including DR-TB
TB programme review 2019 report 4	Maintain and strengthen TB governance, leader- and partnership.	31 recommendations in 2015 and 51 recommendations of 2019 review report. 11/51 are related to TB governance, leadership, partnership and multi-sectorality. No regular review of the status of implementation of recommendations.	Conduct regular stock-taking on the status of implementation, e.g. via the Inter Agency Coordination Committee (IACC)
PAK country assessment of MAF-TB [5]	Supports improving 'Health and potential allies', 'Social determinants of TB', 'Cross cutting areas' & 'Vulnerable populations' linkages with TB work.	Punjab and Sindh are implementing MAF-TB. Different sectors are involved in TB prevention and care, but insufficiently. Illustrates implementation challenges, particularly at grassroot level.	Learn lessons from Punjab. Improve implementation further. Replicate accordingly elsewhere.

Table 3: National leadership and management

Stakeholders		Coordination	Policy	Technical	Implementation
Government Convenes Provides legislative and executive framework	**National TB Programme (NTP) CMU manages**	Coordinates TB programme, in collaboration with PTPs at provincial levels, for example, through the Strategic Technical Advisory Group (STAG) Coordinates Global Fund funded projects	Develops policy Mobilizes resources	Supervises technical work Seeks advice for technical project work	Monitors key implementation work across NTP network Ensures TB data recording and reporting Reports back to GF project on progress and use of funds
	Provincial TB Programme (PTP)	Engages in interprovincial discussions and collaboration with NTP and other relevant stakeholders (including with district levels)	Guides provincial adaptation of national policy Contributes to national policy making	Plans technical interventions Provides feedback to input received from other TB partners (e. g. regarding practicalities of technical work)	Guides implementation at provincial level

Table 4: National implementers

Stakeholders		Coordination	Policy	Technical	Implementation
Public	**PHC, BMUs**	Leads referral and counter-referral jointly with local level TB health units Coordinates LHWs and CSO involvement in people-centred TB care	-	Initiates patient case study discussions and work, jointly with other stakeholders and partner, including private sector Identifies and manages presumptive TB patients Facilitates contact screening	Leads implementation of TB relevant tasks at local levels, including presumptive TB case identification, PMTPT, CI, psycho-social support

	LHWs	Agree with PHC on TB task portfolio	-	Refer presumptive TB cases to PHC or TB BMU facilities for further investigations	Reach out from PHC with care delivery Receive patient and patient contacts' feedback Report to PHCs for follow-up and monitoring
Private	**Private providers**	Receives input from NTP and PTPs on inclusion in working groups and policy making	Participate in national TB policy development	Report, record, and monitor TB cases based on national guidance	Implement mandatory notification services as per national guidelines
	Mercy Corps	-	-	Shares good practice experience of its projects with NTP and PTPs	Boost impact and inclusion of communities and volunteers

Table 5: Partners

Stakeholders		**Coordination**	**Policy**	**Technical**	**Implementation**
National	**National TB partnership**	Coordinates non-state actors under NTP, PTPs, including community level representatives	Advocates to ensures inclusion of patient perspectives	Advocates for more people-centered care, including stigma reduction, early case finding and contact investigation	Oversees local and community level implementation of all stakeholders Raises concerns to NTP and PTPs
	TB caucus	Liaises with other health, humanitarian and developmental areas and sectors, including on MAF-TB work jointly with NTP	Maintains TB high on parliamentary and political agendas Advocates for TB policy implementation and sufficient domestic funding allocation to TB Holds MOH accountable for	-	Supports NTP, PTPs and district to timely and effectively utilize allocated TB funds.

			allocating and spending of TB funding		
Internationals	**WHO**	Coordinates international support including on MAF-TB	Facilitates national TB policy as per NTP and PTPs needs	Guides technical implementation at central and provincial levels when needed Synergizes all partners' activities	-
	USAID	Coordinates USAID projects and facilitates WHO overall TB work coordination	Advocates for policy development in line with WHO/jointly with WHO	Guides USAID project technical work	USAID mission in Pakistan, with the support of USAID central level, oversees USAID TB work implementation
	Stop TB Partnership	Coordinates Stop TB Partnership work	Advocates for policy development through its donor role	Technically supports national partnership, communities, (former)-patient groups and the TB Caucus	Guides implementation with community level focus, including psycho-social support and stigma
	GFATM	Works with WHO and NTP, to identify the best opportunities to create impact	Flags policy gaps that hinder implementation	-	Supervises GF project implementation

Table 6: MAF-TB in Pakistan: Contributions from different Ministries

Sectors	**Key roles and responsibilities, contributions**	**Operational considerations**	**Comments**
Ministry of Social Affairs	Boosts poverty reduction. Fosters self-sustenance. Increases salary-generation, aiming to render housing, energy, water and sanitation more affordable.	Include representative from social ministry or social affairs or subsidiary entities into NTP. TB relevant poverty alleviating policy in collaboration with non-profit, e.g., charitable organizations. Implement bolder social protection acts and laws.	Poverty impedes diagnosis, reduces access to treatment, renders the organism more prone to TB infection and disease Poverty reduction contributes to reversing and reducing this deleterious effect.
Ministry of Agriculture	Encourages policies on improved food support and quality.	Conducts educational campaigns at community and PHC levels and facilities.	Reduces susceptibility to TB through improved nutrition.

	Enhances diabetes and undernutrition prevention. Links with bovine TB work.	Explores the potential of short(er) and sustainable supply chains, addressing food and nutrition insecurity. Strengthens the prevention of foodborne and zoonotic diseases, including antimicrobial resistance (AMR).	
Ministry of Education and Research	Contributes to foster TB relevant research and innovation.	Ensures that TB prevention and care is included int the pre- & post exam medical curricula, and in those of LHWs, social workers and others not primarily tasked with TB prevention and care. Includes relevant activities in any health promotion activities at schools and universities. Improves peer-to-peer education.	Informs about TB, e. g. by increasing awareness and thereby improving health seeking behavior and reducing TB transmission and stigma.
Interior Ministry/Ministry of environment	Improves indoor and outdoor air quality. Ensures equitable and universal access to safe drinking water, sanitation and hygiene, and integrated management of waste. Minimizes adverse effects of chemicals on health, strengthening adaptive capacity, resilience to climate change and mitigation measures. Destigmatizes alcohol, illicit drug, and tobacco use, and humanely deals with migration (particularly the latter in collaboration with MoFA).	Contributes to joint work on TB, alcohol, tobacco and illicit drug use policy making and implementation.	Contributes to reduce the deleterious effects of various determinants of TB, and hence improve TB treatment outcomes.
Ministry of Defense	Includes TB work in the occupational work terms of references (TORs) and standard operational procedures (SOPs) of occupational health services, for example in penitentiary and military facilities including hospitals.	Engages in joint development, and implementation of TB relevant SOPs.	Improves data exchange between military and civil sectors for PH TB measures that are more targeted and impactful.

Ministry of Foreign Affairs (MoFA)	Keeps TB on its agenda as a potential foreign policy security concern. Ensures duty free and smooth clearance of TB medicines and commodities entering the country. Mitigates and responds to the outbreak of infectious diseases including of TB. Builds international cooperation for development.	Fosters linkages across its borders improving cross-border TB prevention and care.	Improves decriminalization and de-stigmatization. Improves cross-border TB data exchange, and hence render PH TB measures more impactful.

References

1. The End TB Strategy and associated WHA 67.1
2. WHO Global TB report 2021
3. WHO TB Pakistan country profile. Available at: https://worldhealthorg.shinyapps.io/tb_profiles/?_inputs_&entity_type=%22country%22&lan=%22EN%22&iso2=%22PK%22
4. PAK 2019 WHO review report
5. MAF-TB assessment report
6. SDG target 3.3
7. Moscow declaration and associated WHA resolution 71.3
8. TB UNHLM declaration and associated WHA resolution
9. 13th WHO General Programme of Work (GPW13), period 2019-2023
10. Global Action plan for healthy lives and Well-being for all (GAP)
11. National Health Vision 2016-2025
12. PHC for UHC Mission to Pakistan report
13. National Strategic plan to end TB in Pakistan 2020 - 2023

Annex IV: Detailed list of people met

Note: Aside from the below mentioned, Drs Martin van den Boom and Laeeq Khawaja participated in all meetings.

NTP/CMU 8 DEC 2021

NTP/CMU Team		International partners		Public & Private sector (PR/SR)	
Name	**Designation**	**Name**	**Designation**	**Name**	**Designation**
Mr. Bashir Khetran	National Coordinator	Dr. Martin van den Boom	Regional Advisor TB, WHO Regional Office for the Eastern Mediterranean Region	Dr. Farah Naureen	PD Mercy Corps
Dr. Abdul Wali Khan	Dy. National Coordinator (DNC-TB)	Dr. Laeeq Ahmed	National Professional Officer, WHO, Pakistan	Kinz-ul-Eman	Director Program-Dopasi Foundation
Dr. Ramesh Kumar	Dy. National Coordinator (DNC-HIV/AIDS)	Dr. Abdul Ghafoor	Advisor, MDR-TB	Dr. M. Tariq	CHTB & LTBI Coordinator Mercy Corps
Dr. Basharat Javed Khan	M&E/Surveillance Specialist	Dr. Kamran Ajaib	Technical Advisor, USAID	Lubna Javaid	Director of Programs
Dr. Razia Fatima	Chief Research	Dr. Muhammad Aamir Safdar	Consultant TB Punjab, W.H.O	Dr. Urooj Aqeel	IHR Coordinator MoNHSR&C
Mr. Shafaqat Hussain	MIS Officer				
Dr. Aliya Zafar	M&E Coordinator				

9th December 2021

WHO Sub-office

1. Dr Jamshaid Ahmad Head of Sub-office WHO
2. Dr. Muhammad Aamir Safdar Consultant TB Punjab, WHO
3. Dr Nauman Khan Technical Officer EPI Punjab WHO
4. Dr Irfan Ahmad NPO WHE Punjab WHO
5. Dr Yahya Gulzar NPO RMNCH Punjab, WHO

Provincial TB Control office PTP Punjab

1. Dr Muhammad Asif, Additional Director TB Control Punjab
2. Dr. Muhammad Aamir Safdar Consultant TB Punjab, WHO
3. Dr Sarmad Deputy Program Officer PTP Punjab
4. Dr Usman Lodhi Provincial MDR Coordinator
5. Ms Lubna Javaid Program Director Mercy Corp
6. Dr Muhammad Tariq CHTB & LTBI Coordinator Mercy Corps
7. Dr Farkhanda Akhtar Program Head Mercy Corp Punjab
8. Mr Hussnain Mahmood

RHC Chung, Lahore

1. Dr Rizwan Khalil Senior Medical Officer
2. Dr Imran Sattar, District TB Controller Lahore
3. Mr Ehsan District Lab Supervisors Lahore and
4. Mr. Nasar DOTs Facilitator Lahore

Ghulab Devi Hospital Lahore

1. Dr Saadia MDR Physician GDH
2. Dr Nadia Pharmacist
3. Miss Fauzia Psychologist
4. Miss Tasmia Social Support
5. Miss Uzma Case Management
6. Mr Arsalan Treatment Coordinator
7. Mr Akram Treatment Coordinator
8. Mr Karim Program Assistant

PPM Ghulam Murtaza Clinic

1. Dr Ghulam Murtaza
2. Ms Lubna Javaid Program Director Mercy Corp
3. Dr Muhammad Tariq CHTB & LTBI Coordinator Mercy Corps
4. Dr Farkhanda Akhtar Program Head Mercy Corps Punjab
5. Mr Hussnain Mahmood

10th December 2021

Visit to Secretary Primary & Secondary Health care Department in his office at Lady Bird Wood Road.

1. Mr Imran Sikandar Baloch Secretary Primary & Secondary Health care Department
2. Ms Saleh Zafar Special Secretary P&SHCD
3. Ms Syeda Ramla Deputy Secretary Vertical Programs P&SHCD
4. Dr Haroon Jahangir Khan Director General Health Services Punjab
5. Dr. Martin Van Den Boom, Regional Advisor TB EMRO

6. Dr Khawaja Laeeq Ahmed, National Professional Officer TB, WHO
7. Dr Muhammad Asif, Additional Director TB Control Punjab
8. Dr. Muhammad Aamir Safdar Consultant TB WHO Punjab
9. Dr Usman Lodhi Provincial MDR Coordinator and
10. Mr Hussnain Mahmood

Visit to District Hafizabad

Meeting with Deputy Commissioner Hafizabad on WHO Supported MAF-TB Piloting and PHC Strengthening in District Hafizabad

1. Mr Rana Saleem Ahmad khan Deputy Commissioner Hafizabad
2. Mr Hamid Nasir Gorya Additional Deputy Commissioner General
3. Murad Hussain Assistant Commissioner Hafizabad
4. Mudassar Mumtaz assistant Commissioner Pindi Bhattian
5. Dr Rehan Azhar Chief Executive officer (Health)
6. Dr. Martin Van Den Boom, Regional Advisor TB EMRO
7. Dr Khawaja Laeeq Ahmed, National Professional Officer TB, WHO
8. Dr Jamshaid Ahmad Head of Sub-office WHO
9. Dr Muhammad Asif Additional Director PTP Punjab
10. Dr. Muhammad Aamir Safdar Consultant TB WHO Punjab
11. Dr Javaid Iqbal Babar CEO (Education)
12. Dr Ashfaq District Health Officer (Preventive Services)
13. Dr Jahanzaib District TB Controller
14. Dr Ishfaq Mir District Health Officer
15. Dr Zaheer Ahmad Deputy District Health Officer
16. Dr Masood Nabi Wahla District Manager PHFMC
17. Muhammad Atif Ali District Population Welfare officer
18. Dr Zeba Deputy District Officer Health Pindi Bhattian
19. Sohail Anjum Communication officer DC office
20. Dr Usman Lodhi Provincial Coordinator MDR TB PTP Punjab

Basic Health Unit Chak Chatta (Distt Hafizabad) Piloting of PHC strengthening

21. Dr Rehan Azhar Chief Executive officer (Health)
22. Dr Jahanzaib District TB Controller
23. Dr Zaheer Ahmad Deputy District Health Officer
24. Dr Masood Nabi Wahla District Manager PHFMC
25. Dr Faiza Butt Women Medical Officer
26. Sumaira Akhtar School Health Nutrition officer
27. Riffat Iqbal Lady health Supervisor

11 December, Meeting at OICD Karachi

1. Professor Dr Zarnaz Waheed, Pro Vice Chancellor, DUHS
2. Professor Dr Fauzia Parveen, Principal DIMC/ Director OICD
3. Dr. Ershad Kazmi, Deputy Director General CDC, Sindh
4. Miss Sanam Soomro, Director Quality Enhancement (QEC)
5. Dr Faysal Zuberi, Professor Pulmonology, OICD
6. Dr. Saifullah Baig, Assistant Professor, Pulmonology OICD
7. Dr Murtaza Soho, In charge OICD
8. Dr. Arun Kumar, Assistant Director CDC, Sindh
9. Dr. Abid, Project Manager, CDC Sindh

10. Dr. Saleem Kazmi, SPPO, CDC Sindh
11. Dr. Muzaffar Kooharo, Provincial Coordinator, Sindh Mercy Corps
12. Dr Khalid Farrough, Greenstar
13. Dr. Yahya Noori, Incharge PRL, OICD
14. Dr. Abdul Samad, PPO Karachi, CDC Sindh
15. Dr. Rashid, PPO Karachi, CDC Sindh
16. Nazaar Abbasi, Senior Coordinator Monitoring, Mercy Corps
17. Abbas Haider, Coordinator Monitoring, Greenstar
18. Nazeer, M&E Lab, CDC Sindh
19. Dr. Badar, WHO
20. Dr. Afshan K Isani, Provincial TB Advisor, USAID, Sindh

PPM Visit Karachi

Dr Nand Lal

13th December, 2021

ICD Kotri, Sindh, participants:

1. Dr. Ershad Kazmi, Deputy Director General CDC, Sindh
2. Dr. Ali Akbar Dahiri, Addition Director General CDC, Sindh
3. Dr. Ghulam Akbar Abro, Director ICD Kotri
4. Dr. Shahida Channar, Deputy Director ICD Kotri
5. Dr. Rafi Siddiqi, MDR Physician ICD Kotri
6. Dr. Amanullah Jhatial, Additional DG, CDC, Sindh
7. Dr. Arun Kumar, Assistant Director CDC, Sindh
8. Dr. Sara Salman, WHO Head of Sub-office Sindh
9. Dr. Abid, Project Manager, CDC Sindh
10. Dr. Saleem Kazmi, SPPO, CDC Sindh
11. Dr. Mohammad Sharif, PPO, CDC Sindh
12. Dr. Muzaffar Kooharo, Provincial Coordinator, Sindh Mercy Corps
13. Najeeb Burghri, Molecular Lab technologist, ICD Kotri
14. Dr. Afshan K Isani, Provincial TB Advisor, USAID, Sindh

Meeting with Stop TB Pakistan

- Dr Sharaf Ali Shah, Vice Chair STOP TB partnership, Pakistan
- Dr Shahana Urooj, VC Women University Swabi, KP
- Dr Hussain Baksh, Commissioner Health care commission, Sindh
- Dr Iqtidar, STOP TB partnership Pakistan

Participants 13th December, Meeting with DGHSS/CDC Sindh

1. Dr. Juman Bahuto, Director General Health Sindh
2. Dr. Ershad Kazmi, Deputy Director General CDC, Sindh
3. Dr. Abdul Hameed Soomro, Deputy DGHSS
4. Dr. Ali Akbar Dahiri, Addition Director General CDC, Sindh
5. Dr. Amanullah Jhatial, Additional DG, CDC, Sindh
6. Dr. Zulfiqar Dharejo, Additional DG, CDC Sindh
7. Dr. Arun Kumar, Assistant Director CDC, Sindh
8. Dr. Sara Salman, WHO Head of Sub-office Sindh
9. Dr. Abid, Project Manager, CDC Sindh
10. Dr. Saleem Kazmi, SPPO, CDC Sindh
11. Dr. Mohammad Sharif, PPO, CDC Sindh

12. Dr. Murtaza Memon, CDC Sindh
13. Dr. Muzaffar Kooharo, Provincial Coordinator, Sindh Mercy Corps
14. Dr Lubna Javaid, Director of Programs MC
15. Nazaar Abbasi, Senior Coordinator Monitoring, Mercy Corps
16. Abbas Haider, Coordinator Monitoring, Greenstar
17. Asghar Sahar, Regional Coordinator Greenstar
18. Dr. Afshan K Isani, Provincial TB Advisor, USAID, Sindh

Debriefing with Dr Faisal Sultan, Special Assistant to PM on Health in his office, 14th December, 8.45 – 9.30 am (next to him, see the below)

Debriefing with CMU 14 December, 2021

	Sr. No.	Name	Designation
NTP/CMU Team	1	Dr. Abdul Wali Khan	Dy. National Coordinator (DNC-TB)
	2	Dr. Basharat Javed Khan	M&E/Surveillance Specialist
	3	Dr. Razia Fatima	Chief Research
	4	Dr. Aliya Zafar	M&E Coordinator
International partners	5	Dr. Laeeq Ahmed	National Professional Officer, W.H.O
	6	Dr. Abdul Ghafoor	Advisor, MDR-TB
	7	Dr. Aamir Safdar	Consultant TB Punjab, W.H.O
PTP Team (virtual participation)	8	Dr. Muhammad Asif	PTP Manager Punjab
	9	DR. Usman Lodhi	SM&E Officer Punjab