Quality of Tuberculosis Services Assessment

in Afghanistan

Report

May 2022

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TB DIAH
Tuberculosis Data, Impact Assessment and Communications Hub

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Abbreviations

BHC	basic health center
CHS	community health supervisor
CHW	community health worker
COVID-19	coronavirus disease 2019
DM	diabetes mellitus
DOT	directly observed treatment
DOTS	directly observed treatment, short course
DR-TB	drug-resistant tuberculosis
DS-TB	drug-sensitive tuberculosis
DST	drug susceptibility testing
ECG	electrocardiogram
FDC	fixed-dose combination
IDP	internally displaced person
INH	isoniazid
IPC	infection prevention and control
IPT	isoniazid preventive therapy
JSI	John Snow, Inc.
LTFU	lost to follow-up
MDR-TB	multidrug-resistant tuberculosis
MOPH	Ministry of Public Health
MTB	Mycobacterium tuberculosis
NSP	National Strategic Plan
NTP	National Tuberculosis Program
PZA	pyrazinamide
QA/QC	quality assurance/quality control
QTSA	Quality of TB Services Assessment
RBS	random blood sugar
RR	rifampicin-resistant
RR-TB	rifampicin-resistant tuberculosis
SOP	standard operating procedure
TB	tuberculosis

TB DIAH	TB Data, Impact Assessment and Communications Hub
ToT	training of trainers
TPT	tuberculosis preventive therapy
UHI	Urban Health Initiative
UNHLM	United Nations High-Level Meeting
USAID	United States Agency for International Development
WHO	World Health Organization
WPR	weekly progress report

Executive Summary

Background

Tuberculosis (TB), a communicable disease, is one of the top 10 causes of morbidity and mortality worldwide. Until the coronavirus (COVID-19) pandemic, TB was the leading cause of death from a single infectious agent. In 2020, an estimated 10 million people developed TB, and 1.5 million died from it globally (WHO, 2020).

Although Afghanistan is not officially counted among the 30 high-burden TB countries, the disease is a major public health challenge for the country. The estimated incidence rate at the end of 2018 was 189 new and relapse cases per 100,000 population (range: 122–270), and the estimated mortality rate was 29 per 100,000 population (range: 17–44). In 2019, the case notification rate was 138 per 100,000 population (based on the United Nations estimated population), and 52,528 cases were diagnosed and treated for TB. This number is equal to 72 percent of the estimated incidence of 73,000 cases, which means that at least 28 percent of the TB cases were "missed" or never notified. In 2018, the overall treatment success rate for drug-sensitive TB (DS-TB) was 91 percent. In 2019, a total of 513 rifampicin-resistant TB (RR-TB) cases were notified, and there was a 23 percent gap between the number of cases notified and the number enrolled in second-line drug treatment. Since the start of the drug-resistant TB (DR-TB) program in 2011, 1,358 patients have been enrolled in the program and have received second-line drug treatment. In 2018, the treatment success rate for rifampicin-resistant (RR)/multidrug-resistant TB (MDR-TB) cases was 62 percent (WHO, 2019).

Afghanistan committed to accelerating the fight to end the TB epidemic by 2035 by endorsing the Global End TB Strategy and the targets set by the United Nations High-Level Meeting. The National Tuberculosis Program (NTP) committed to reducing TB mortality by 75 percent in Afghanistan by the end of 2025.

In 2020 and 2021, the TB Data, Impact Assessment and Communications Hub (TB DIAH) project, funded by the United States Agency for International Development (USAID), conducted a Quality of TB Services Assessment (QTSA) in Afghanistan, in collaboration with the NTP and local partners. The purpose of the QTSA was to evaluate the quality of TB services provided at health facilities to identify areas of strength and weakness in terms of service quality. The study assessed three domains of quality of care: health facility *structure*, service delivery *process*, and service delivery *outcomes*.

Methods

The Afghanistan QTSA was a nationally representative cross-sectional study conducted at TB diagnosis and treatment facilities in seven provinces in Afghanistan. The seven study provinces were identified by the NTP and were Kabul, Kandahar, Herat, Nangarhar, Paktia, Balkh, and Kunduz. Overall, 245 facilities were assessed in the study, including 239 randomly selected health facilities (public and private), and 6 purposively selected MDR-TB wards located in the study provinces. The facility sample included facilities that provided TB services to special

populations (e.g., prisoners and internally displaced persons [IDPs]), and diabetes centers that served diabetes patients, to evaluate bidirectional screening and management of TB and diabetes. Moreover, because the study was conducted during the peak of the COVID-19 pandemic, additional modules were added to assess the impact of COVID-19 on the delivery of TB services. A facility audit and review of TB registers were conducted at each facility. In addition to the health facilities sampled, 662 TB healthcare providers and 191 community health workers (CHWs) were interviewed, and 389 TB patients (DS- and DR-TB patients who were visiting the health facilities on the day of data collection) were interviewed.

Seven tools were used in the QTSA to capture information. The *Facility Audit* targeted the structures and the processes of providing high-quality care. It included questions on the availability and functionality of services; resource availability; questions specific to the various operational units of the facility, including the TB clinic, laboratory, and pharmacy; and questions related to the impact of COVID-19 on service availability and provision. The *Provider Interview* collected information on the competencies and skills expected of different types of TB care providers to care for TB patients and manage TB services, and their interactions with patients. The *Patient Interview* was an exit interview and focused on the perspectives of TB patients in terms of their experiences at the health facility and with their care providers. The *Register Review* extracted aggregate data on specific TB prevention, diagnosis, and treatment outcome indicators. The *CHW Interview*—a tailored version of the Provider Interview for CHWs who worked at health posts that were associated with the sampled TB facilities—assessed the community-level response to TB. *The Prison and IDP Camp TB Focal Point Interview* assessed the quality of TB services that were provided to prisoners and IDPs, two specific patient populations of interest to the NTP. Last, the *Diabetes Center Provider Interview* explored the extent to which diabetics were screened, diagnosed, and treated for TB. All tools that were used for data collection are available at the following link: Quality of Tuberculosis Services Assessments – TB Data Hub (tbdiah.org)

Results

Sample Characteristics

Facility sample: The sample consisted of 239 TB diagnosis and/or treatment facilities (public and private) and 6 public MDR-TB wards (which were analyzed and presented separately). Half of the TB diagnostic and/or treatment facilities were primary facilities (50.2%), followed by secondary facilities (28.5%), private facilities (17.2%), and tertiary-level facilities (4.2%). The facilities were evenly distributed between urban and rural settings. The six MDR-TB wards were tertiary-level facilities that were affiliated with the provincial hospital but located at a different site and managed separately.

Provider sample: A total of 662 TB service providers (70.4% male, 29.6% female) were interviewed. Nearly half (48%) reported that they were either the TB focal person or a designated TB staff at their facility. Among these service providers, 21 percent were nurses/auxiliary nurses or community nurses, 21.3 percent were medical doctors or clinical officers, 16.2 percent were midwives, and another 15.6 percent were lab technicians.

Patient sample: A total of 389 TB patients (41.5% male and 58.5% female) enrolled on treatment at the time of the study were interviewed. Almost three-quarters (72.8%) of the patients had pulmonary DS-TB, 17.5 percent had pulmonary DR-TB, and 9.7 percent of the patients did not know the type of TB that they were on treatment for. Moreover, 7.2 percent of the patients interviewed reported that they had been diagnosed with diabetes.

Structural Indicators

Availability of TB services: TB screening services were provided by more than half (56.1%) of the surveyed facilities, diagnosis services by 43.9 percent of the facilities, and initiation and/or management of DS-TB treatment by 52.7 percent. Of the facilities that offered diagnosis services, 72.4 percent also diagnosed children under 15 years, and of the facilities that provided treatment services, 84.9 percent also treated children under 15. Fewer than half (45.6%) of the facilities reported that they worked with CHWs, and fewer than one-quarter (20.9%) reported that they also managed other medical conditions and/or comorbidities for TB patients.

TB diagnosis: Most of the facilities surveyed used smear microscopy (90.5%) and clinical signs and symptoms (89.5%) to diagnosis TB, followed by x-ray (51.4%) and tuberculin skin test (TST) (33.3%). Only 18 facilities in the sample (17.1% of the diagnosis facilities) reported using GeneXpert. Only one-quarter (24.8%) of the facilities that provided TB diagnosis services reported having first-line drug susceptibility testing (DST) available, and only 10.5 percent reported having second-line DST. The principal reliance on smear microscopy and clinical signs and symptoms for diagnosing TB, and the low rate of use of GeneXpert and DST, is restricting the TB program's ability to rapidly diagnose and treat TB and detect drug resistance, and this is increasing the likelihood that a high proportion of TB cases are being missed.

Of the 18 facilities that reported using GeneXpert to diagnose TB, all but one reported that the testing was done onsite, indicating either the nonexistence of, or a very weakly organized network system between facilities that had a GeneXpert machine onsite and those that did not.

DS-TB treatment: Just over half of the facilities assessed in the QTSA reported that they initiated and/or managed the treatment of DS-TB, and more than 90 percent of these facilities reported that they provided treatment and support services during both the intensive and continuation phases of treatment. Most of these facilities (85.7%) reported that they provided facility-based treatment, but a substantial number also reported that they provided community-based treatment (64.3%) and home-based treatment (28.6%). Moreover—and in support of an observed trend towards DS-TB treatment outside the facility—the majority of the facilities (84%) reported that they allowed patients to take treatment without the direct supervision of a healthcare professional, with the support of a family member.

DR-TB treatment: DR-TB treatment and management services were only offered at MDR-TB wards, which are tertiary-level facilities established under the current National Strategic Plan (NSP) to decentralize DR-TB services to the provincial level. There were six wards included in the QTSA. The NTP's decision to isolate and contain DR-TB cases by operating these specialized and physically separated wards was a strategic decision made for the sake of containing the spread of MDR-TB in Afghanistan. However, findings indicate weak coordination between the

health facilities and GeneXpert sites, demonstrating that the NTP could benefit from creating closer linkages among these wards, TB diagnosis facilities, and facilities that treat and manage DS-TB. For example, the QTSA found that only 31.8 percent of the other QTSA facilities (non-MDR-TB wards) reported that they had referred patients to another facility for DR-TB treatment in the past 12 months, and only 16.3 percent of the providers reported that they had been trained on the identification of presumptive DR-TB in the past two years.

Community linkages: To assess the quality of TB-related services provided at the community level, 191 CHWs were interviewed using a dedicated tool. TB focal points at health facilities that worked with CHWs were also asked about the services that CHWs provided and how they were managed. Just under half (45.6%) of the facilities surveyed reported that they worked with CHWs. The services that both 80 percent or more of the facilities and more than 80 percent of the CHWs reported providing were educating the community about TB, providing directly observed treatment (DOT), tracing and locating clients who missed follow-up appointments, and providing adherence counseling. The services that the CHWs reported providing the least were following up with TB patients via phone calls or SMS text messages (i.e., for missed appointments, to schedule a home visit, and other follow-up) (1.6%); and identifying and referring children under five who had been in contact with a TB patient to the health facility for isoniazid preventive therapy (IPT) (3.1%). This second finding is puzzling considering that 91 percent of the CHWs reported that they actively screened contacts of TB patients. This potential discrepancy should be further investigated to determine whether and why CHWs were not identifying and referring child contacts for IPT if they were in fact doing contact investigation for adults.

Health facilities were asked about their management and supervision of the CHWs. Most facilities (81.7 %) reported that they had community health supervisors (CHSs), who were responsible for overseeing CHWs and conducting community-level supervision. The majority (78%) of the facilities also reported that the TB focal person met regularly (i.e., monthly or quarterly) with all CHWs who were affiliated with the facility. Although the CHWs appeared to be supervised by facility staff, only 60.6 percent of the facilities with CHWs reported that their CHWs had received any kind of TB training, indicating that there may be a training gap that needs to be addressed in view of the wide range of services that CHWs were being asked to provide.

Bidirectional screening and management of TB and diabetes: In addition to asking the TB facilities surveyed about diabetes screening for TB patients, 19 diabetes centers were assessed to evaluate the bidirectional screening and management of TB and diabetes. Only 20.9 percent of TB diagnosis and treatment facilities surveyed reported that they managed other medical conditions, such as diabetes. Similarly, only 21.3 percent of TB facilities reported that they regularly screened TB patients for diabetes, and of those, only 54 percent reported that they screened all TB patients for diabetes through symptom screening. On the other hand, 78.9 percent of diabetes centers reported that they screened all diabetes patients for TB through symptom screening (with 89.5% also reporting that they documented TB screening results on patient cards).

Laboratory: Adequate laboratory infrastructure is critical for facilities to provide necessary and timely services and to follow required protocols for TB diagnosis and treatment. Among the facilities providing diagnostic services, 78.1 percent reported using only an onsite laboratory; 1.9 percent reported using only an offsite laboratory; and 17.1 percent reported using both onsite and offsite laboratories for TB diagnostic tests. Among the facilities using offsite laboratories, only 45 percent reported having access to a specimen transport service.

Turnaround time is also an essential component in ensuring the timely and effective diagnosis of TB. The assessment looked at the turnaround times for multiple steps in the specimen management and diagnostic pathway. Laboratories reported that, on average, it took about one working day to receive specimens from within the health facility and also about one working day to receive specimens from other health facilities. These facilities also reported that, on average, it took about two working days to receive results from an offsite laboratory.

Equipment and drug availability: The facilities were assessed on the availability of functional basic medical equipment, and valid, unexpired TB-related medications on the day of the assessment. More than two-thirds of the health facilities assessed were found to have at least one functional item on hand among the following medical equipment: stethoscope (95%), adult weighing scale (92.5%), blood pressure apparatus (92.1%), thermometer (89.1%), intravenous infusion supplies (86.6%), light source (81.2%), height board or standiometer (79.5%), child weighing scale (77.8%), infant weighing scale (72.4%), and oxygen cylinders (67.8%). In addition, 40 percent to 67 percent of the health facilities assessed were found to have at least one functional fridge and/or freezer (66.1%), oxygen delivery apparatus (65.7%), oxygen concentrators (58.6%), microscope (57.7%), flowmeter for oxygen therapy (55.6%), nebulizer (46.4%), glucometer (42.3%), pulse examiner (39.7%), glucose test strips (31.8%), electrocardiogram (ECG) machine (29.3%), and central oxygen supply (15.9%).

The survey also assessed the availability and validity (i.e., that drugs were not expired or damaged) of TB treatment drugs and drugs for tuberculosis preventive therapy (TPT) (isoniazid) at all relevant study facilities providing DS-TB treatment. DS-TB drugs were available at 50 percent to 90 percent of the facilities on the day of the assessment. Isoniazid + rifampicin + pyrazinamide + ethambutol (4 fixed-dose combination [FDC]) was most commonly observed, followed by isoniazid + rifampicin + pyrazinamide (3FDC), isoniazid (INH) 100 mg, ethambutol 100 mg, isoniazid + ethambutol (2FDC), INH single tablets, and isoniazid + rifampicin + ethambutol (3FDC). In addition, 31 percent of the facilities reported experiencing a stockout of any TB medicines, and 41 percent reported that any patient went without TB treatment because of stockouts.

Infection prevention and control (IPC): Healthcare settings present a high risk for the transmission of TB. It is therefore critical for facilities to follow IPC procedures to limit the transmission of the airborne disease and infection in the facility. As part of the QTSA, study facilities were asked about the IPC practices in place at the facility and the availability of resources to support IPC. In general, most of the facilities assessed had good basic IPC infrastructure and equipment/commodities in place; however, there were some shortcomings. Surgical masks were observed at only 64.9 percent of the facilities (and 100 percent of the MDR

wards) and N-95 and/or FFP2 respirators at fewer than half (45.6%) of the facilities. Only 33.5 percent of facilities that had masks make them available to presumptive and confirmed TB patients that visit the facility. Interestingly, among these facilities, 91.3 percent reported that patients generally wear them.

The findings for IPC practice were also varied. For example, although more than 70 percent of the health facilities reported routinely asking patients about cough when they entered the facility, and 66.9 percent reported implementing cough triage for patients entering the facility, only 45.6 percent of the facilities reported having a designated IPC focal point. Moreover, only about half or fewer of the facilities reported that the space used to collect TB specimens was away from other patients and that the space was well ventilated. Slightly more than one-third (37.2%) of surveyed facilities reported that they had a system in place to evaluate facility staff for active TB disease. Alarmingly, among the facilities that had a system, 14 facilities (15.7%) reported that they had identified a total of 34 active TB cases among their staff in a two-year period.

Impact of COVID-19 on TB services: The Afghanistan QTSA had a unique opportunity to document the impact of COVID-19 on TB services, resources, and infrastructure from both the facility and TB patient perspectives. About half of the surveyed facilities reported that COVID-19 had impacted the delivery of TB services in some way. According to these facilities, the services that were most often disrupted (i.e., at more than 70% of the facilities) were: referrals of presumptive TB cases (from the community, private facilities, and private practitioners); TB diagnosis by smear microscopy; DOT; and TB awareness and health education services. The majority (70% or more) of the facilities also reported disruptions in planned TB-related training and supervision visits. Just under one-quarter (22.2%) reported that TB service providers were reassigned to provide COVID-19-related services, and about 15 percent of the facilities stated that resources (e.g., clinical space, masks, gloves, personal protective equipment) originally designated for the TB program had been reallocated to fight COVID.

Providers also reported observing changes in service uptake by TB patients. Almost half (46.9%) of the facilities surveyed reported that COVID-19 had impacted the number of presumptive TB patients who were attending the facility, and nearly the same proportion (45.2%) of the treatment facilities reported a change in the number of TB cases initiated on treatment since the onset of COVID-19. The decreased attendance in TB services observed by providers was corroborated by TB patients, more than three-quarters (76.9%) of whom reported that COVID-19 had impacted their decision or ability to access TB services at the health facility. The majority (90.6%) of these patients reported that they were not going to the facility because of fear of contracting COVID-19 at the facility.

On the other hand, COVID-19 made it necessary for the TB program to adopt more flexible and innovative ways to provide and continue services to patients. For example, it encouraged multi-month dispensing of TB medications; increased the use of phone and SMS texts to follow up with patients; and increased reliance on CHWs as TB services were decentralized from the facility level, with more types of services provided at the community level or even home based.

These are practices that COVID-19 has allowed TB programs to test and validate, and would be beneficial for the NTP to continue to use after COVID-19.

Process Indicators

Provider TB knowledge and practices: Overall, the TB providers surveyed scored high on TB knowledge-related questions asked in the QTSA.

TB providers were also asked targeted questions to assess their practices when they engaged with presumed or confirmed TB patients. Although most TB providers (more than 80%) reported engaging in standard recommended practices when interacting with patients, in some instances, these reports were contradicted by the data collectors' observations. For example, although 88.8 percent of the TB providers reported that they used a mask/respirator when treating presumptive or confirmed TB patients, surgical masks were observed at only 64.9 percent of surveyed facilities and respirators at only 45.6 percent of the facilities.

Facility supervision levels were good, with almost three-quarters of surveyed facility TB focal points reporting that they had received a supervisory visit from an upper management-level office and/or health facility in the past three months. However, a low percentage of both the TB focal points and TB providers reported receiving TB-related training in the past two years, indicating a training gap and the need to train or retrain facility staff (including CHWs) in the TB services that they were being asked to provide.

Patient TB knowledge and satisfaction: Patients' knowledge of TB, including risk factors, modes of transmission, and drug side effects, can be improved. The most direct way to do this is by improving the content and consistency of the information and counseling given by providers during patient visits.

There was a wide discrepancy between the TB services that patients wanted to receive from facilities and the services that they actually received from facilities (with the exception of free TB medicines, which almost all facilities were delivering on). This finding highlights several TB-related services, including one-on-one counseling, home- and community-based treatment, and rehabilitative services that facilities can target to improve service availability and service quality. Despite the reported discrepancies in the services patients were receiving compared with the services that they wanted to receive, about 90 percent of patients reported being satisfied or very satisfied with the TB care that they had received.

Outcome Indicators

TB treatment outcomes: The QTSA reviewed the treatment outcomes of 9,654 DS-TB patients who started treatment between June 1, 2018, and May 31, 2019, and found a treatment success rate of 84.8 percent (53.3% cured and 31.5% completed treatment). The study also reviewed the treatment outcomes of 289 DR-TB patients who started treatment between September 1, 2016, and August 31, 2018, and found a treatment success rate of 72.6 percent. Both the DS-TB and DR-TB treatment success rates found through the QTSA were shared with the NTP during the 2021 preliminary data review meeting and were confirmed to be in-line with what the NTP had been observing in recent quarters.

Conclusion

The results of the Afghanistan QTSA highlight a mix of strengths and weaknesses in the quality of TB services provided by the NTP in Afghanistan. The study shows extensive availability of certain types of TB diagnostics—especially smear microscopy—but the need to expand the use of GeneXpert across the country. Treatment services for DS-TB were found to be widely available across different facility levels and types, whereas DR-TB treatment services were centralized to the provincial level by design, with very limited referrals and linkage mechanisms between the two types of treatment services. However, where treatment services were offered, essential first-line and second-line drugs and basic medical equipment to facilitate TB care were widely available. A higher proportion of diabetes centers were found to screen diabetes patients for TB compared to the proportion of general health facilities that were screening TB patients for diabetes, and even a smaller proportion of these facilities reported providing treatment for diabetes and other comorbidities to TB patients.

In addition to highlighting gaps in service quality and availability, the results represent findings from a unique context in two specific ways: it provides a snapshot of the quality of TB services in Afghanistan before the major political shift and regime change that occurred in August 2021 and provides a specific view of the changes that occurred in the services as a result of the COVID-19 pandemic. Overall, the findings highlight key areas that can be targeted for improvement and provide contextualized evidence that can be used by program managers and policymakers to improve TB service quality and availability across Afghanistan.

Introduction

Background

Tuberculosis (TB) is a communicable disease and one of the top 10 causes of morbidity and mortality worldwide. It is the second leading cause of death from a single infectious agent, ranking second to the coronavirus disease 2019 (COVID-19). In 2020, an estimated 10 million people developed TB and 1.5 million died from it globally (WHO, 2020). Although Mycobacterium tuberculosis (MTB) can infect anyone anywhere, TB is a disease of poverty, predominantly afflicting the world's poor. Thirty high-burden TB countries account for almost 90 percent of those who fall sick with TB each year (WHO, 2020a).

TB is a preventable and curable disease. About 85 percent of people who develop TB disease can be successfully treated with a six-month drug regimen. Treatment has the additional benefit of curtailing onward transmission of infection. Since 2000, TB treatment has averted more than 60 million deaths, although access still falls short of universal health coverage (WHO, 2020a). The Global Stop TB Partnership estimates that 3.6 million people are "missed" each year by health systems and do not get the TB care they need and deserve (Centers for Disease Control and Prevention, n.d.). More than 75 percent of missed cases are concentrated in just 13 countries (Centers for Disease Control and Prevention, n.d.).

The emergence and rapid spread of multidrug-resistant tuberculosis (MDR-TB) is a growing health security concern that is also contributing to antimicrobial resistance and the reversal of two decades of progress in mitigating the impact of TB. Globally, in 2019, there were an estimated 465,000 new cases of MDR/rifampicin-resistant TB (RR-TB), but only one in three cases were reported by countries to have been treated (WHO, 2020a). Globally, 3.3 percent of new TB cases and 17.7 percent of previously treated cases had MDR-TB or RR-TB (WHO, 2020a).

To address the worldwide TB burden, the World Health Organization's (WHO) post-2015 End TB Strategy set the following global targets for 2030: (1) 90 percent reduction in the number of deaths due to TB; (2) 80 percent reduction in TB incidence between 2016 and 2030; and (3) zero percent of TB-affected households experiencing catastrophic costs because of TB (WHO, 2014). The United Nations Sustainable Development Goals also address TB, especially Sustainable Development Goal 3 ("Ensure healthy lives and promote well-being for all at all ages"), which specifies that the TB epidemic should be ended by 2030 (UN, 2012). Although these global initiatives and downstream country actions have resulted in a decreased TB burden in many countries, the decline in incidence was slower than needed to meet the End TB Strategy targets.

Recognizing that the world was not on track to reach the 2020 milestones of the strategy, in September 2018, the United Nations High-Level Meeting (UNHLM) on TB set the stage for high-level attention and action on TB. The meeting resulted in the adoption of a Political Declaration on Tuberculosis through which countries reaffirmed their commitment to end the TB epidemic globally by 2030. The political declaration has four new global targets: (1) treat 40 million people for TB disease in the five-year period 2018–2022; (2) reach at least 30 million

people with TB preventive treatment for a latent TB infection in the five-year period 2018–2022; (3) mobilize at least US$13 billion annually for universal access to TB diagnosis, treatment, and care by 2022; and (4) mobilize at least US$2 billion annually for TB research (UN, 2018). Unfortunately, initiatives and actions to reach these targets have been sidelined since early 2020 by the ongoing global COVID-19 pandemic.

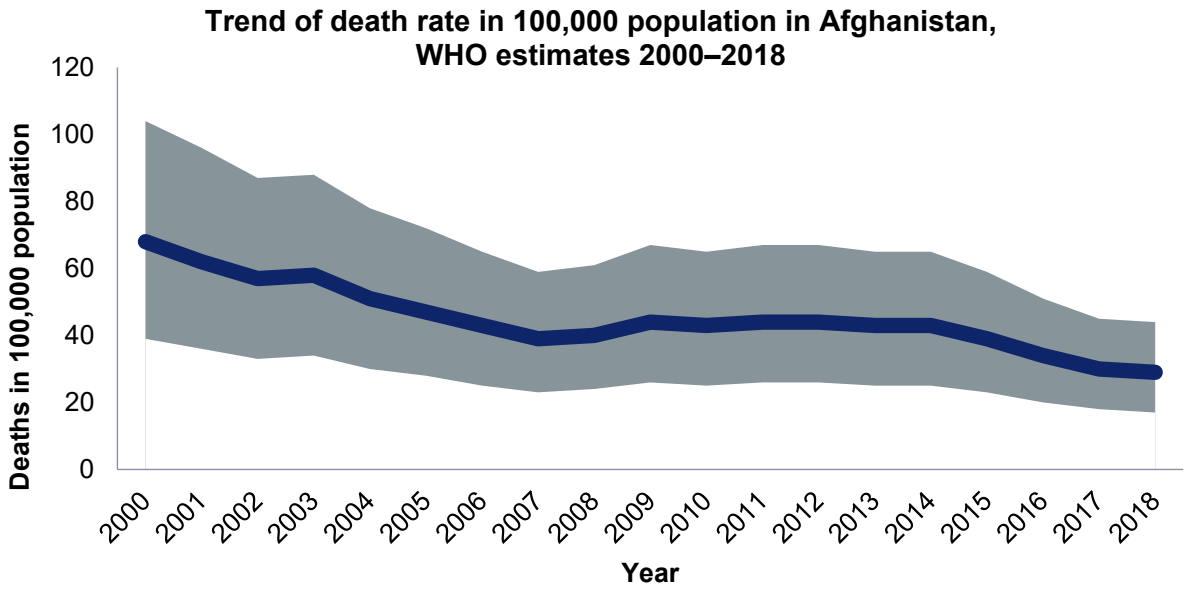
The United States Agency for International Development's (USAID) Global Accelerator to End TB, which was launched at the UNHLM, is an initiative and business model aimed to assist high-burden TB countries achieve the UNHLM targets by accelerating proven anti-TB strategies and helping countries develop programs to achieve an accountable, responsible, and inclusive TB response (USAID, n.d.). USAID also recognized a dearth in the knowledge base for systematic methods to measure and monitor TB quality of care, and a lack of data on quality of TB services across the high-burden TB countries. As such, USAID charged the MEASURE Evaluation project, and its successor, the TB Data, Impact Assessment and Communications Hub (TB DIAH) project, to develop standardized tools to assess the quality of TB services, and to conduct a series of Quality of TB Services Assessments (QTSAs) to establish baselines for the examination and improvement of TB service quality.

This report describes the findings of a 2021 QTSA that was conducted by TB DIAH, in collaboration with the Afghanistan National Tuberculosis Program (NTP).

Tuberculosis Response in Afghanistan

Although Afghanistan is not currently considered one of the high-burden TB countries, the disease continues to be a major public health challenge for the country. In 2000, WHO estimated the TB mortality rate (excluding TB/HIV deaths) to be 67 (range: 39–103) per 100,000 population (MOPH, 2020). The rate declined between 2000 and 2007, with an average annual decrease of 6.9 percent, followed by a period of plateau between 2008 and 2012 before it started to go down again in 2013. At the end of 2018, the estimated TB mortality rate was reported as 29 (range: 17–44) per 100,000 population (Figure 1). The estimated incidence rate, which has been largely constant for the past 18 years, was 189 (range: 122–270) new and relapse cases per 100,000 population.

Figure 1. Estimated TB mortality rate per 100,000 population, 2000–2018[1]



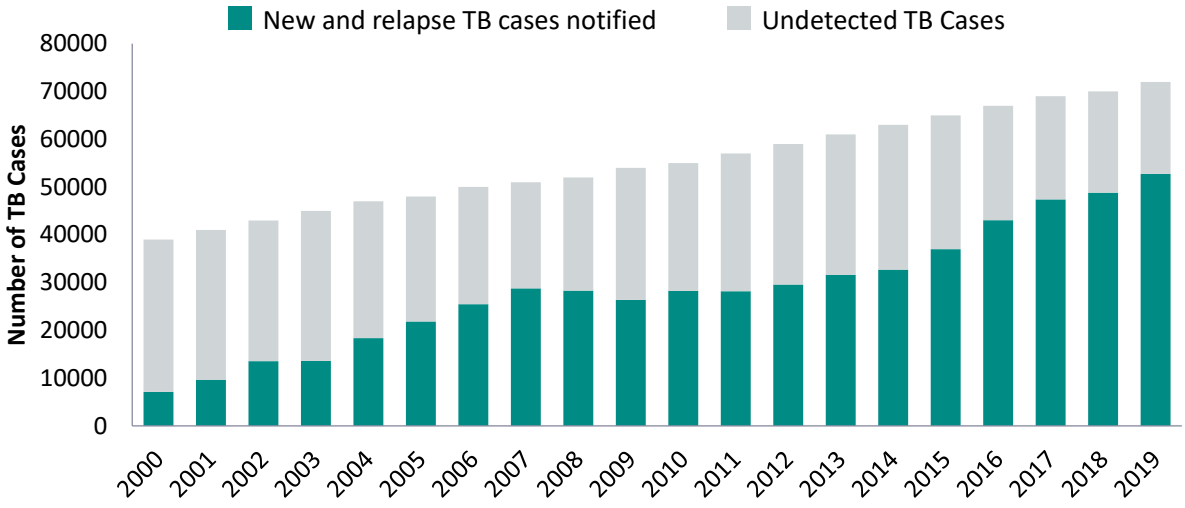
However, the true burden of TB is believed to be much greater, given the trend in increasing TB notifications (discussed below), despite the population's limited access to TB care services.

With the support of donors and partners, the NTP increased TB case notification between 2000 and 2007, and again between 2013 and 2019. During these periods, the case notification of new and relapse cases steadily increased by 9 percent annually. In 2019, 52,528 TB cases (with a case notification rate of 138/100,000, based on the United Nations estimated population) were diagnosed and treated. This number is equal to 72 percent of the estimated incidence of 73,000, which means that at least 28 percent of TB cases—"the missing cases"—were never notified[2] (Figure 2). Interestingly according to NTP data, in Afghanistan a higher proportion of all notified cases are females, with the male to female case notification ratio being 3:4.

[1] World Health Organization (WHO). (2022). Global tuberculosis database. Retrieved from https://www.who.int/teams/global-tuberculosis-programme/data

[2] This calculation is based on the WHO population estimation in 2018 considering the 2.465 percent population growth rate. The number of incident cases was estimated to be 73,000 in 2019.

Figure 2. TB case notification and missing TB cases, 2000–20193



Data show an average annual increase of 15 percent per year in the number of extrapulmonary TB cases notified between 2013 and 2019. The average annual increase in the number of bacteriologically confirmed pulmonary cases and clinically diagnosed pulmonary TB cases also went up by 7.1 percent and 9 percent, respectively, during the same period (MOPH, 2019). The higher rate of notification of extrapulmonary TB cases was most likely the result of changes and improvements in diagnostic protocols and practices, and the introduction of new diagnostic technologies.

The proportion of bacteriologically confirmed TB cases increased from 46 percent in 2013 to 48 percent in 2019. This is believed to be the result of the use of new technologies, such as LED microscopes and GeneXpert at selected health facilities, and training of laboratory staff on these technologies. The proportion of child TB cases notified likewise gradually increased, from 15.5 percent in 2013 to 22 percent in 2019 (MOPH, 2019). During this period, the NTP placed a high priority on addressing child TB, establishing 120 child TB wards in hospitals throughout the country and enhancing contact investigations.

Using Médecins Sans Frontières' data from provinces in the south region of Afghanistan, an estimated 3 percent of new and 12 percent of previously treated cases had RR/MDR-TB in 2018, resulting in an estimated total of 2,500 RR/MDR-TB cases that year. With an increase in RR-testing coverage, the absolute number of notified RR-TB cases also increased sharply. In 2019, a total of 513 RR-TB cases were notified by the NTP laboratory network. This signified an increase in RR-TB case detection from the previous year of 13.5 percent. In 2018, there was a 28 percent gap between the number of RR-TB cases notified and those enrolled in second-line drug

[3] World Health Organization (WHO). (2022). Global tuberculosis database. Retrieved from https://www.who.int/teams/global-tuberculosis-programme/data

treatment. This gap declined to 23 percent in 2019. Since the start of the DR-TB program in 2011, 1,358 patients have been enrolled on second-line treatment (WHO, 2019).

Over the past seven years, the treatment success rate of new and relapse drug-sensitive TB (DS-TB) cases has remained stable at around 90 percent, meeting the End TB targets. In 2018, the overall treatment success rate was 91 percent. Although reported death and treatment failure rates were very low (1.5% and 0.5%, respectively), the proportion of cases that were not evaluated was around 3 percent. Likewise, the treatment success rate for a 2017 cohort of RR/MDR-TB cases enrolled on second-line treatment was 62 percent, which was higher than the 56 percent treatment success rate reported globally for RR/MDR-TB that year (WHO, 2019).

The NTP Afghanistan National Strategic Plan (NSP) 2017–2021 is aligned with the End TB Strategy. It has four pillars (TB detection, prevention, treatment, and systems strengthening) that call for action in 20 strategic areas. The strategy has led to the achievement of several noteworthy accomplishments, especially in the period 2017 to 2019. They include:

- Ten percent increase in testing presumptive TB cases by smear microscopy between 2016 and 2019.
- Seven-fold increase in the use of GeneXpert (an increase in the number of machines from 7 to 49) allowing 77,334 GeneXpert tests to be conducted that resulted in the detection of 19,552 MTB and 1,109 RR-TB cases.
- Active screening of 7,063 presumptive TB cases among prisoners in eight provinces, resulting in the detection of 1,079 TB cases (all forms), (i.e., an average annual increase of 17% in 2019 compared with 2016).
- Active screening of 13,166 presumptive TB cases among internally displaced persons (IDPs) (a 20% increase in 2019 compared with 2016) resulting in the detection of 944 TB cases (all forms) (a 37% increase in 2019 compared with 2016).
- TB screening of children in 120 child TB wards in hospitals across the country, resulting in the detection of 31,668 pediatric TB cases (i.e., an average annual increase of 23% in 2019 compared with 2016).
- When the directly observed treatment, short course (DOTS) strategy was introduced, Afghanistan's treatment success rate for DS-TB was around 85 percent. However, the rollout of the End TB Strategy was followed by further improvements in treatment outcomes, demonstrated by a treatment success rate of 91 percent for the 2018 treatment cohort. Urban DOTS interventions were rolled out to nine provinces in 2019, resulting in a total of 127,806 presumptive TB cases being identified and 11,009 cases of TB (all forms) being detected, which is an annual average increase of 31.1 percent compared with 2016.
- Private sector and community engagement were two additional strategic priorities for this period. Private sector engagement led to the involvement of 811 private practitioners, who referred a total of 47,191 presumptive TB cases, resulting in the detection of 11,664 cases of TB (all forms).
- Between 2009 and 2016, community health workers (CHWs) referred 108,948 presumptive TB cases, resulting in the detection of 8,523 TB cases (MOPH, 2016).

The strategic plan also addresses MDR-TB and contributed to strengthening MDR-TB management:

- Drug-resistant TB (DR-TB) services were decentralized during this period through the creation of three MDR-TB wards in the provinces of Herat, Nangarhar, and Balkh, which enrolled 421 DR-TB patients. Two additional MDR-TB wards were created in Paktia and Kunduz provinces. The establishment of these wards increased the annual average enrollment of DR-TB patients by 38 percent and was associated with a national treatment success rate of 63.1 percent for DR-TB.
- A heightened focus on TB contact investigation from 2017 to 2019, during which a total of 398,340 household contacts of TB cases were tracked and screened for TB symptoms, resulted in the detection of 10,458 confirmed TB cases. Compared with 2016, this represented an annual average increase of 6.9 percent. Isoniazid preventive therapy (IPT) was provided to 70,107 (93%) household contacts who were under five years of age, representing an average increase of 3.3 percent compared with 2016. The IPT completion rate was 70.6 percent (MOPH, 2019).

Despite these successes, there were several gaps that needed to be addressed by the NTP, including: improving the accessibility of TB services for hard-to-reach populations; improving the coverage and networking of laboratories using new diagnostic technologies; identifying the missing TB cases; tackling the growing threat of DR-TB; improving coverage of preventive measures; and sufficiently addressing gender mainstreaming and human rights issues, and the catastrophic costs associated with TB care.

The NTP in Afghanistan was committed to reducing TB mortality by 75 percent by the end of 2025 and continued to work with national and international partners under its NSP 2017–2021 by strengthening its capacity and systems, and mobilizing available resources to cover the gaps.

Quality of TB Services Assessment

Early and accurate detection and appropriate treatment of patients are pivotal strategies employed by NTPs in most high-burden TB countries. In addition to expanding access, TB programs are increasing their efforts to improve the quality of diagnosis, care, and treatment services, and recognizing the important role that quality of care plays in ameliorating case detection and treatment success rates. An article by Kruk, et al. for the *Lancet Global Health* Commission on High Quality Health Systems in the Sustainable Development Goals Era estimated that 60 percent of deaths from conditions amenable to healthcare are due to poor quality of care, whereas the remaining 40 percent resulted from the non-use of the health system (Kruk, et al., 2018). Such data demonstrate that what happens after patients have accessed the health system and whether they are provided the services they need in a competent and caring manner are equally important, if not more important than access to the services (Kruk, et al., 2018; Arsenault, Roder-DeWan, & Kruk, 2019).

Improving the basic standard of TB care aims to ensure that patients receive the care they deserve, and by doing so, encourages more patients to seek services in a timely manner. The International Standards for Tuberculosis Care describe a widely accepted level of care that all healthcare providers—public and private—should strive to adhere to when treating and

managing patients who have, are suspected of having, or are at an increased risk of developing TB (TB CARE I, 2014). These standards are intended to promote the engagement of all providers in delivering high-quality care to patients of all ages, and to empowering patients to evaluate the quality of care they receive from healthcare providers. The standards offer a reference point to assess healthcare provider performance and quality of care, and help identify current and expected levels of quality in healthcare delivery. Failure of providers or systems to adhere to the defined standards of diagnosis, care, and treatment of TB compromises the quality of services provided to patients.

The International Standards for Tuberculosis Care are useful in guiding service providers to offer high-quality TB services; however, there are almost no tools or guidelines available for TB stakeholders to use to assess and monitor the quality of TB services at a programmatic level. The QTSA was designed to fill this knowledge gap.

The QTSA is a facility-based survey, like the Demographic and Health Survey's Program Service Provision Assessment,[4] but is specifically designed to assess the quality of TB services. The QTSA resources include implementation guidelines and a set of standardized tools that employ several data collection methods (i.e., review of facility-based TB registers, interviews with healthcare providers, and patient interviews), to collect information that is used to generate indicators to assess and monitor the quality of TB services provided by the NTP.

First, methods that monitor and improve quality of care are of utmost value to patients, who are the beneficiaries of better-quality services. There is evidence that high-quality healthcare may encourage patients to continue and complete their current treatment, and to seek care for future health challenges. Second, measuring and assessing quality of care demonstrate to healthcare providers that quality is an important component of the program, thereby setting the bar for improving staff performance. Third, when an intervention to improve quality of care is complemented with the routine measurement of quality, the data points that are generated can help identify trends, determine the effectiveness of interventions, and inform future program strategies.

Conceptual Framework

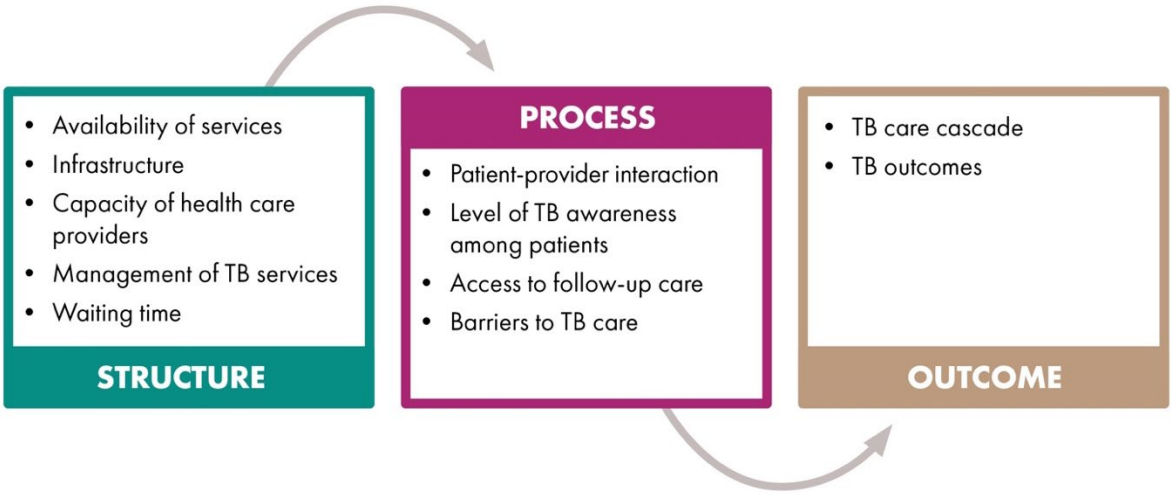
There is also growing evidence that quality of care is linked to health outcomes, and that targeted improvement in quality of care can enhance the use of TB services and, ultimately, improve TB outcomes over the long term. However, according to a systematic review conducted by Cazabon, et al., quality of care in both the public and private sectors falls short of international standards and urgently needs improvement (Pai, 2014; Cazabon, et al., 2017). In this context, a framework and standards that can guide NTPs and other TB stakeholders to systematically measure and improve the quality of TB services would be useful and would fill a knowledge gap.

The QTSA TB Quality of Care Framework, presented in Figure 3 and used to guide the QTSA in Afghanistan, illustrates a logical pathway that identifies and links the key components of high-

4 The Service Provision Assessment survey is a health facility assessment that provides a comprehensive overview of a country's health service delivery. For more information on the Service Provision Assessment, visit https://dhsprogram.com/methodology/Survey-Types/SPA.cfm.

quality TB care. The three components are: *structure,* or the resources available at a health facility, or more generally in the healthcare system; *process,* or interactions in the healthcare system, including between providers and patients; and *outcomes,* or the consequences of care (Donabedian, 2005). These components must be present and functioning properly to achieve desired TB health outcomes. The services that patients receive can be deficient in one or more components, thereby leading to poor quality of TB care.

Figure 3. TB Quality of Care Framework



Source: TB DIAH and MEASURE Evaluation, 2021, adapted from Donabedian, 2005.

This framework can be used to define and measure the key elements in each component, which together, can generate information that policymakers and program managers can use to inform their thinking and decision making to improve the quality of TB services. The three components and elements of TB quality of care are described below.

Structure

Structure refers to the foundational elements and the environmental factors that facilitate (or hinder) health facilities and service providers from providing high-quality TB services and care. This includes the physical infrastructure of the health facility; the availability and organization of specific TB services, as determined by the type and level of the health facility; the availability of and adherence to national TB standards and guidelines; appropriate human resources to provide services offered; staff training and competencies; the availability of drugs, medical equipment, and other supplies; adequate management and supervision structures and systems; and resources and funding for social support, such as payment schemes and incentives, and transportation reimbursement to facilitate the delivery and receipt of TB services.

Process

Process refers to the interaction between TB service providers and patients during the delivery of services, in other words, during the caregiving process. In conjunction with the structural factors, which are associated with the health facility and more generally with the healthcare system, process—or the way in which care is provided—influences the subsequent health-related behavior of patients and, ultimately, their TB outcomes.

Process quantifies "what is done" by asking about the various types of TB screening, diagnosis, treatment, monitoring, and follow-up services and procedures delivered by healthcare providers that are received by patients during the caregiving process, and "how it is done." Services assessed in the QTSA include TB screening and case detection at all service entry points and for key populations; the provision of appropriate diagnostic tests; interpretation and provision of test results in a timely and sensitive fashion; prescription and provision of appropriate treatment according to national standards of care; and identification and testing for TB drug resistance according to NTP algorithms. Delivery of these services, and the interactions with patients, should take place in a way that avoids stigmatizing TB patients and with a focus on addressing their needs. From the patient's point of view, access to TB care and treatment services should be easy; the interaction with providers should be respectful and comfortable; and patients should have a good understanding of their disease and its management.

Outcome

Outcome refers to the consequences of care. Outcomes are measured in terms of TB and related health outcomes and patient satisfaction. Depending on data needs, cases detected and notifications can be disaggregated by multiple factors, including TB type (new, retreatment), site of disease (pulmonary, extrapulmonary), drug resistance status, HIV status, and sex and age group, to gain a better understanding of the types of patients accessing (and not accessing) TB services. Treatment outcomes, including treatment completion, cure, failure, lost to follow-up, and deaths while on TB treatment, provide insights on the NTP's ability to deliver successful treatment services. Assessing patients' satisfaction or their reaction and responsiveness to the care provided by the healthcare system is a key aspect of assessing quality of care because it provides further insights on their subsequent health and care-seeking behavior.

Study Objectives

The purpose of this study was to assess the quality of TB services in randomly selected TB diagnosis and treatment facilities in Afghanistan to identify areas of strength and weakness in terms of service quality. The results, which serve as a baseline measure of TB service quality, can be used by the NTP and TB stakeholders to develop programs and interventions to improve TB service delivery in the country.

The objectives of the study were to:

- Assess the availability of TB services, including those for special populations (e.g., DR-TB patients, prison populations).

- Assess the current condition of TB care in terms of the availability of skilled providers, equipment, and organizational structures.
- Assess provider knowledge and skills, and patient satisfaction.
- Evaluate the clinical outcomes of patients who received TB diagnosis and treatment services.
- Determine the quality of TB services provided at the community level.
- Assess the quality of services for the bidirectional screening and management of TB and diabetes according to national protocols.

Methods

Study Design

The Afghanistan QTSA was a cross-sectional study conducted in a nationally representative sample of health facilities providing TB diagnostic and treatment services in seven provinces of Afghanistan. The seven study provinces, which were selected by the NTP, were Kabul, Kandahar, Herat, Nangarhar, Paktia, Balkh, and Kunduz. The sample included facilities that provided TB services to prisoners and IDPs in three of the seven provinces (Herat, Kabul, and Nangarhar) to assess the quality of services delivered to these specific patient populations. The facility sample also included diabetes centers to assess TB services provided to diabetics and to gauge the extent of bidirectional screening and management of TB and diabetes. At the time that the QTSA was conducted, the COVID-19 pandemic was affecting access to and delivery of health services in Afghanistan. Therefore, the QTSA was further tailored to assess the impact of COVID-19 on the delivery of TB services.

The study population consisted of DS-TB and DR-TB patients, and TB service providers from the sampled health facilities. CHWs, who worked at health posts affiliated with the sampled facilities, were included in the provider sample to assess the quality of TB services at the community level.

The views and perceptions of TB patients are important in the assessment of service quality because they influence whether patients access services for diagnosis, adhere to treatment regimens, and return to facilities for follow-up services. Although more studies are needed to clearly understand the complex relationship among service quality, service use, and treatment outcomes, it is presumed that patients shun what they perceive as poor-quality services despite the proximity of such services (Andaleeb, 2001). The patient perspective, obtained from patient interviews, was a critical component of this study to determine the quality of services that the TB program offers.

The overall quality of TB services offered at the facilities was assessed by examining: the availability of services; the availability and functionality of resources (i.e., material and human); service providers' knowledge and skills; interactions between providers and patients; patients' overall perception of the services and levels of satisfaction; and TB treatment outcomes for DS-TB and DR-TB patients who received treatment during a specific timeframe. International and national tuberculosis guidelines from the WHO and the NTP, and the 2006 International Standards for Tuberculosis Care, developed by the USAID-funded Tuberculosis Coalition for Technical Assistance (TBCTA, 2006), were used as benchmarks to judge the overall quality of TB services offered at the facilities.

Sampling Procedures

Health Facility

The final sample of 245 health facilities consisted of 239 TB diagnosis and/or DS-TB treatment facilities (public and private) and 6 MDR wards. Facilities were sampled from the NTP's master

facility list using a multistage stratified sampling design. Facilities located in districts that posed a security threat were excluded from the sample.

The following steps were taken to finalize the sample of health facilities:

- Qualifying districts in each of the seven study provinces (i.e., those districts that the NTP deemed safe for fieldwork) were stratified into urban and rural strata. Two urban and three rural districts were randomly selected from each province.
- Facility sampling was carried out in the second stage. First, all public and private facilities that provided TB services were identified to construct the sampling frame. This was done by reviewing and comparing the facility lists from the NTP, the country's health management information system, and the one used for the 2018–2019 Service Provision Assessment, and consolidating these lists to eliminate duplication. The facilities in the final frame, organized by district and grouped as public and private, were reviewed, and then validated by the NTP and the QTSA Steering Committee to ensure that all facilities on the list were providing TB-related services. Those that did not (e.g., health post, Community Drop-in Center, Drug Addicted Treatment Center, eye clinic/hospital, mobile health team, rehabilitation center, malaria center, and Maternal and Child Health Clinic), were excluded from the sample.
- Probability proportional to size sampling was used to determine the facility sample size per province and to determine the number of facilities in each province by location (urban vs. rural), facility type, and ownership authority (public vs. private vs. nongovernmental organization).
- The sampling method for facilities was a combination of a total census and random sampling. For the sampled districts that had fewer facilities than the allocated sample size, all facilities in the district were included in the study (irrespective of the number of TB cases being treated at those facilities). For instance, if the three rural districts that were selected for a particular province did not jointly have enough facilities to meet the allocation of facilities for that province, an additional rural district was selected and added to meet the facility allocation for the province. If the districts for a province had more than the sample allocated, the facilities were randomly selected to get the allocated number.
- All prison DICs, regional hospitals, provincial hospitals, and district hospitals that were located in the selected districts were purposively sampled.
- Facilities in Kabul, Herat, and Nangarhar offering TB services to IDPs and facilities that had diabetes centers that offered diabetes services were also purposively sampled.

Service Providers

At each sampled facility, one or more service providers delivering TB services on the day of data collection were interviewed using the Provider Interview questionnaire. Qualifying staff were TB service providers, including staff in charge of TB and TB-related services (i.e., TB focal point). The number of provider interviews conducted at a facility depended on the facility size and type. In general, at small facilities (i.e., sub-health centers and basic health centers [BHCs]), one or two staff delivering TB-related services on the day of data collection were interviewed. For larger sites (i.e.,

comprehensive health centers and hospitals), up to four providers among those present on the day of data collection were randomly selected to participate.

A supplemental tool—the CHW and TB Focal Point Interview form—was developed to specifically include CHWs and TB focal points working at prisons and IDP centers in the provider sample. Ideally, two CHWs who worked at health posts that reported to the sampled BHCs—one male and one female—were requested to report to the BHC on the day of data collection for the interview. Likewise, ideally, two TB focal points—one male and one female—were interviewed at the 17 facilities in the sample that served IDPs in Herat, Kabul, and Nangarhar, and at the eight prison DICs.

To assess the extent of bidirectional screening and diagnosis between TB and diabetes, a Diabetes Center Provider Interview form was developed and administered to diabetes service providers at all regional, provincial, and district hospitals and at the 19 diabetes centers.

TB Patients

The patient sample consisted of confirmed TB cases (DS-TB and DR-TB) who were already on treatment, and who were at the health facility for services on the day of data collection. To the extent possible, the data collectors purposively selected a consecutive sample of three to five TB patients based on the inclusion and exclusion criteria listed below. In some cases, if there were not enough patients present at the facility, the data collectors talked with the TB focal point and consulted the TB register to identify patients who were then targeted for an interview offsite.

Inclusion Criteria

- Patients currently on TB treatment (regardless of whether they had DS-TB or DR-TB, or if they were in the intensive or continuation phase) who had been on treatment for at least two weeks and/or were deemed not to be infectious.
- MDR-TB patients who had been on treatment for six to eight months or were known to be culture converted.
- Pulmonary TB patients and extrapulmonary TB patients.
- Patients who were 15 years or older.

Exclusion Criteria

- Patients who had received treatment for less than two weeks.
- TB patients who had transferred in from another facility.
- Patients who were visiting the health facility for the first time.
- Patients who were too weak to participate.
- Patients who refused to be interviewed.
- Patients under age 15.

Data Collection Instruments

A combination of the standardized QTSA tools, adapted for the Afghanistan context, and country-specific tools were used to carry out the QTSA. All tools were translated into Pashto and Dari, and programmed in SurveyCTO, the electronic data collection and management platform used for the study (Version 2.71.3; Dobility, 2021). The tools were administered via tablet in the local language of each province.

The four standardized QTSA tools—the Facility Audit, Provider Interview, Patient Interview, and Register Review—were first customized to the Afghanistan context, with input and feedback from the NTP, USAID/Afghanistan, and other local partners, before being finalized.

The *Facility Audit* targeted structural factors and the process of providing high-quality care. The tool included questions on the availability and functionality of services and resources appropriate to the type of facility and the services that the facility reported providing. It covered the operational units of the facility, including the TB clinic, laboratory, and pharmacy. In some cases, especially at hospitals where different providers manage different sections of the facility, multiple providers were interviewed to complete the tool. The facility audit required one to four hours to complete, depending on the facility and the availability of providers.

The *Provider Interview* collected information on the competencies and skills expected of different types of TB providers to care for TB patients and manage TB services and their interactions with patients. Completing the provider interview required one hour, on average.

The *Patient Interview* was an exit interview and focused on the perspectives of TB patients in terms of their experiences at the health facility and with their care providers. It provided data on the client's perspective of the quality of services of the TB program. Completing the patient interview required one hour, on average.

The *Register Review* extracted aggregate data on specific TB prevention, diagnosis, and treatment outcome indicators. The indicators included presumptive TB cases, laboratory requests and results, and TB preventive treatment and DS-TB and DR-TB treatment outcomes. The data collectors extracted data from primary source documents, including the Register of Presumptive TB Cases, Laboratory Registers for Smear Microscopy and Xpert MTB/RIF, TB Treatment Register, GeneXpert Register, Drug-Resistant TB Patient Treatment Register, and TB Contact Register. At some facilities, source documents used by the facilities were not standard; nevertheless, the data were extracted from the non-standard registers that were available. Depending on the caseload at the facility, the register review took five to six hours to conduct, on average. Figure 4 provides a summary of the four tools and the respective target variables collected by each tool.

Figure 4. Overview of the standard QTSA tool

To assess the impact that COVID-19 was having on the delivery of TB services, TB DIAH developed *COVID-19 modules* that were added to the Facility Audit and Patient Interview. These modules were piloted and administered along with the other tools.

Last, three country-specific tools covering areas of particular interest to the NTP were developed and used in Afghanistan. They were the *CHW Interview*, *Prison and IDP Camp TB Focal Point Interview*, and *Diabetes Center Provider Interview* forms. The CHW Interview—a tailored version of the Provider Interview for CHWs who worked at health posts that were associated with the TB facilities sampled—was designed to assess the community-level response to TB. The Prison and IDP Camp TB Focal Point Interview was developed to assess the quality of TB services that were provided to prisoners and IDPs—two specific patient populations of interest to the NTP. Last, the Diabetes Center Provider Interview was developed for service providers who worked at these centers to assess the extent to which diabetics were screened, diagnosed, and treated for TB.

For the majority of the survey, respondents were given specific instructions before tool administration to give their responses for the year before the COVID-19 pandemic so as to try to not confound the more recent changes in service delivery and access that were directly related to COVID-19 with the quality of TB services before the pandemic.

Survey Implementation

Tool Pretest

The data collection tools were pretested at five health facilities located in Kabul province between September and October 2020. The pretest facilities were selected based on their similarity to study facilities in terms of such characteristics as facility level and management authority.

After the pretest was completed and the instruments were finalized, the electronic tools were scripted using SurveyCTO. The electronic tools were piloted and tested for consistency against

the paper-based tools, skip logic, and interface for field users and data capture both before and after the training of trainers (ToT).

Training for Data Collectors

TB DIAH conducted online ToT sessions for the local research partner, local consultant, and other Afghan stakeholders in early November 2020. The objective of the ToT was to prepare the in-country team to train QTSA data collectors and field supervisors on all aspects of the QTSA, including the content of the tools; administration procedures; tablet-based data collection; practices for ethical and safe data collection; and roles and responsibilities of the data collection team members.

Although the training of data collectors was initially scheduled for November 2020, a spike in COVID-19 cases in Afghanistan that month resulted in the Ministry of Public Health (MOPH) declaring that the second wave of the pandemic had hit the country, obliging TB DIAH to postpone the training and data collection until the situation improved. It should also be noted that during the last quarter of 2020, the in-country security situation had significantly worsened, as evidenced by the November Kabul University bombings, which further complicated the scheduling and timing of the data collectors' training workshop and data collection.

The training for data collectors was held in February 2021 in Kabul, after COVID-19 cases appeared to have stabilized. Its primary objective was to train the data collectors and team supervisors on the QTSA methodology, the tools, and data quality assurance procedures and protocols to ensure the collection of high-quality data. The Provincial TB Coordinators were included in the training to inform them about the QTSA and enable them to provide support at the provincial level during data collection, which was later deemed to be critical for data collection. Other participants of the training included officials from the NTP and the Monitoring and Evaluation and Health Information System Directorate of the MOPH, and the TB leads of the Urban Health Initiative (UHI) and Assistance for Families and Indigent Afghans to Thrive (AFIAT), two projects that are funded by USAID to improve TB services in Afghanistan.

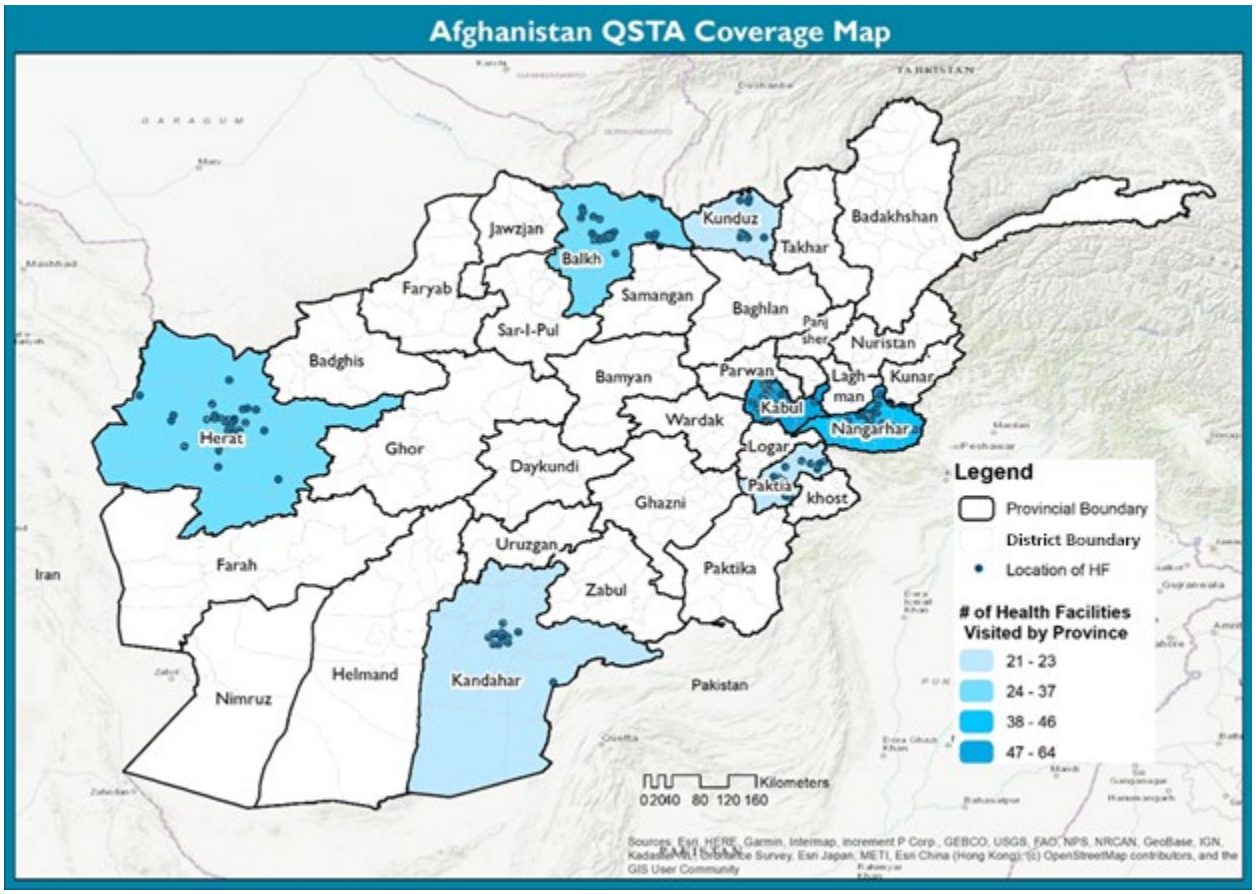
Final revisions to the tools and final logistical arrangements for data collection were made immediately after the training.

Data Collection and Management

Data were collected from the selected health facilities from February to April 2021 by 10 data collection teams, each comprised of four data collectors and one supervisor. Figure 5 shows the distribution of the health facilities assessed. On average, teams took one day to complete data collection at each health facility. The data collection teams visited a total of 245 health facilities, 37 of which were replacement facilities (i.e., 15.1% of the total sample). The replacement facilities were selected only when security concerns or poor access prevented the teams from reaching facilities in the original sample, when there were facility closures, or when it was learned that facilities in the original sample were not providing TB-related services.

Informed consent was administered to all participants before administering each data collection tool. Data were captured electronically using SurveyCTO software. This allowed for real-time data management through the use of data limits, skip logic, and required responses as the tools were being administered. Field supervisors performed initial checks for data quality and completion, then submitted the reviewed responses to the SurveyCTO server, where the data were further reviewed and cleaned by the local research partner data manager. Back-checking of a portion of patient and provider interviews was also conducted as a data quality assurance measure. Data management and data quality assurance steps are detailed in Appendix A.

Figure 5. Afghanistan QTSA distribution of surveyed health facilities



Data Analysis

Preliminary findings from the assessment were presented in June 2021 at a workshop in Kabul with key stakeholders from the NTP, USAID Mission, and partner organizations to validate the study results and discuss key insights. Feedback from stakeholders helped the study team identify priority results for the final report and how best to present the findings so that they could be used by the NTP and relevant partners.

The final data analysis was linked to the three domains of quality of care (i.e., structure, process, and outcome) described in the QTSA conceptual framework, with an emphasis on priority areas identified by the workshop attendees. After the completion of data cleaning, final data sets were analyzed using STATA v14 software. Disaggregation of the variables in the seven tools is reported in the Results section of this document.

Ethical Review

The ethical review for this study was conducted and approved by the John Snow, Inc. (JSI) institutional review board in the United States and the MOPH's institutional review board in Afghanistan.

Results

This section presents the Afghanistan QTSA findings, which are organized according to the QTSA conceptual framework and the data needs prioritized by the NTP. After a brief description of the characteristics of the health facilities, TB service providers, and patients sampled, findings on the structural, process-related, and outcome-related indicators are presented. When appropriate, the findings are stratified by the level of the health facility (e.g., tertiary health centers, private health centers) and the location of the facility (urban/rural). Additional data are provided in tables in Appendix C.

Sample Characteristics

Facilities

In total, 239 health facilities providing TB services were included in the assessment. In addition, six MDR-TB wards were also assessed separately from the tertiary hospitals to which they were linked. For each facility, one Facility Audit and one Register Review, and multiple Provider and Patient Interviews were conducted. In the presentation of results, Facility Audit respondents are denoted as the TB focal points, whereas Provider Interview respondents are denoted as TB providers.

About half (50.2%) of the facilities surveyed were primary-level facilities, followed by secondary-level facilities (28.5%), private facilities (17.2%), and tertiary-level facilities (4.2%). Facilities were evenly distributed between urban and rural settings, with 49.4 percent located in urban areas and 50.6 percent located in rural areas. The 10 tertiary facilities assessed were all located in an urban setting (Table 1). All six of the MDR-TB wards assessed were also located in urban settings (data not shown).

Table 1. Afghanistan QTSA facility characteristics

Facility Type	Facility Location				Total	
	Urban		Rural			
	No.	%	No.	%	No.	%
Tertiary	10	8.5	0	0	10	4.2
Secondary	32	27.1	36	29.8	68	28.5
Primary	36	30.5	84	69.4	120	50.2
Private	40	33.9	1	0.8	41	17.2
Total	**118**	**100**	**121**	**100**	**239**	**100**

In addition to the assessment of the facilities providing TB services, 19 diabetes centers were surveyed to examine screening and linkages to TB services for diabetics. More than half of the diabetes centers assessed (57.9%) were secondary-level health facilities, 36.8 percent were classified as tertiary-level heath facilities, and only one (5.3%) was classified as a primary-level health facility. The majority of the facilities (68.4%) were located in urban areas, and 31.6 percent were located in rural settings (Table 2).

Table 2. Afghanistan QTSA diabetes center characteristics

Facility Type	Facility Location				Total	
	Urban		Rural			
	No.	%	No.	%	No.	%
Tertiary	7	53.8	0	0	7	36.8
Secondary	6	46.2	5	83.3	11	57.9
Primary	0	0	1	16.7	1	5.3
Total	**13**	**100**	**6**	**100**	**19**	**100**

Patient Loads

The TB focal points interviewed reported the average quarterly TB patient loads. These data were summarized by facility type and facility location (Table C-1.1 in Appendix C). Not surprisingly, tertiary-level facilities reported the highest average of TB patients per quarter (86), followed by secondary-level facilities (38), primary-level facilities (20), and private facilities (7). MDR wards reported serving an average of 37 TB patients per quarter. Interestingly, urban facilities reported serving an average of 15 TB patients per quarter, whereas rural facilities reported serving an average of 25 TB patients per quarter. It should also be noted that ranges for each of the facility-level categories varied greatly.

Staffing

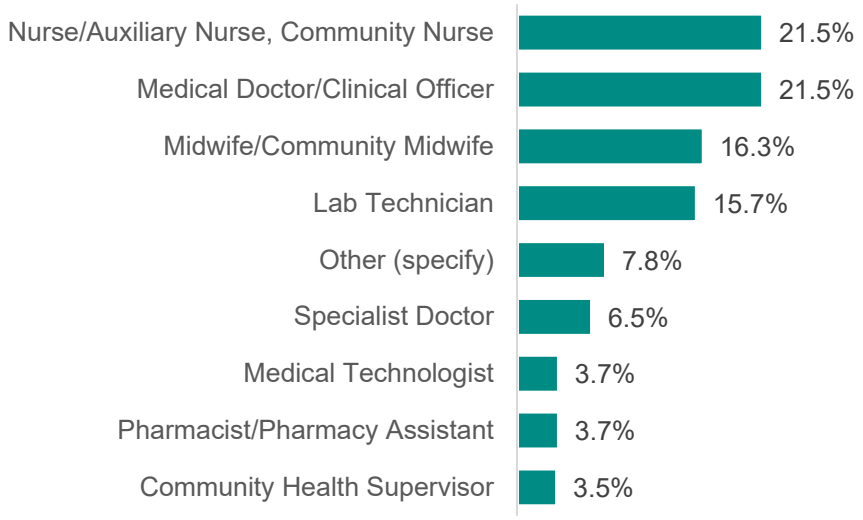
In addition to patient load, the assessment looked at staffing at the facilities assessed. As expected, higher-level facilities had a larger number of full-time and part-time staff dedicated to TB. (Table C-1.2 in Appendix C). On average, tertiary-level facilities reported four full-time staff, secondary-level facilities reported three full-time staff, primary-level facilities reported one full-time staff, and private facilities reported two full-time staff allocated to the TB units. Not surprisingly, a much higher number was reported by the MDR wards, with an average of nine full-time clinical staff allocated to the ward.

Providers

A total of 662 healthcare providers were interviewed for the assessment with a male to female ratio of 70 to 30 (Table C-1.4 in Appendix C). Nearly half (51.8%) reported that they were either the TB focal point or designated TB staff at their facility. Among those interviewed, 21 percent worked as nurses/auxiliary nurses or community nurses, 21 percent worked as medical doctors or clinical officers, 16 percent worked as lab technicians, and 16 percent worked as midwives (Figure 6 and Table C-1.4 in Appendix C).

More than half the providers (56.5%) had a diploma/class 14, and one-quarter had either an MD degree or an MD specialization degree. The majority (85%) were at least 25 years old. When asked about the number of hours per week that they provided TB-related services, more than half (61.8%) reported working 30 hours or more per week, and 19.3 percent said that they worked 10 hours per week or fewer (Table C-1.4 in Appendix C).

Figure 6. Provider occupation (n=662)



Patients

At total of 389 TB patients enrolled on treatment at the time of the assessment were interviewed. Almost three-quarters (72.8%) of them had pulmonary DS-TB, 17.5 percent had pulmonary DR-TB, and 9.7 percent did not know the type of TB for which they were being treated. Moreover, 7.2 percent of the patients interviewed reported that they had been diagnosed with diabetes (data not shown).

More than half (58.5%) of the patients were female, just over half (52.4%) resided in a rural setting, and about one-quarter (24.7%) were between the ages of 25 and 34 years. Most patients (57.1%) had no formal education; 8.5 percent had no formal education but could read and write; 14.4 percent had a primary-level education; and one-fifth (20.1%) reported achieving a post-primary education. When asked about employment status, 27.8 percent stated that they were employed; 37.3 percent reported that they worked in the home; and just under one-third (31.1%) categorized themselves as unemployed (Table C-1.3 in Appendix C).

When asked about access to the facility, the majority of TB patients (82.8%) reported that the facility was close to where they lived and that they could easily access it. Over one-third of patients (39.3%) reported that they typically walked to the facility; 20.1 percent reported using a motorbike to travel to the facility; 17 percent used a car to travel to the facility; 15.7 percent took a taxi; and 8 percent reported taking a bus when traveling to the health facility (data not shown). Additional data on patient characteristics are provided in Table C-1.3 in Appendix C.

Structural Indicators

This section covers the factors that affect the context or environment in which TB care is provided to patients. In this study, structure was measured by the availability and management of TB services, physical infrastructure at the facility, the availability and condition of resources (i.e., equipment, human resources), and organizational characteristics, such as staff training and supervision.

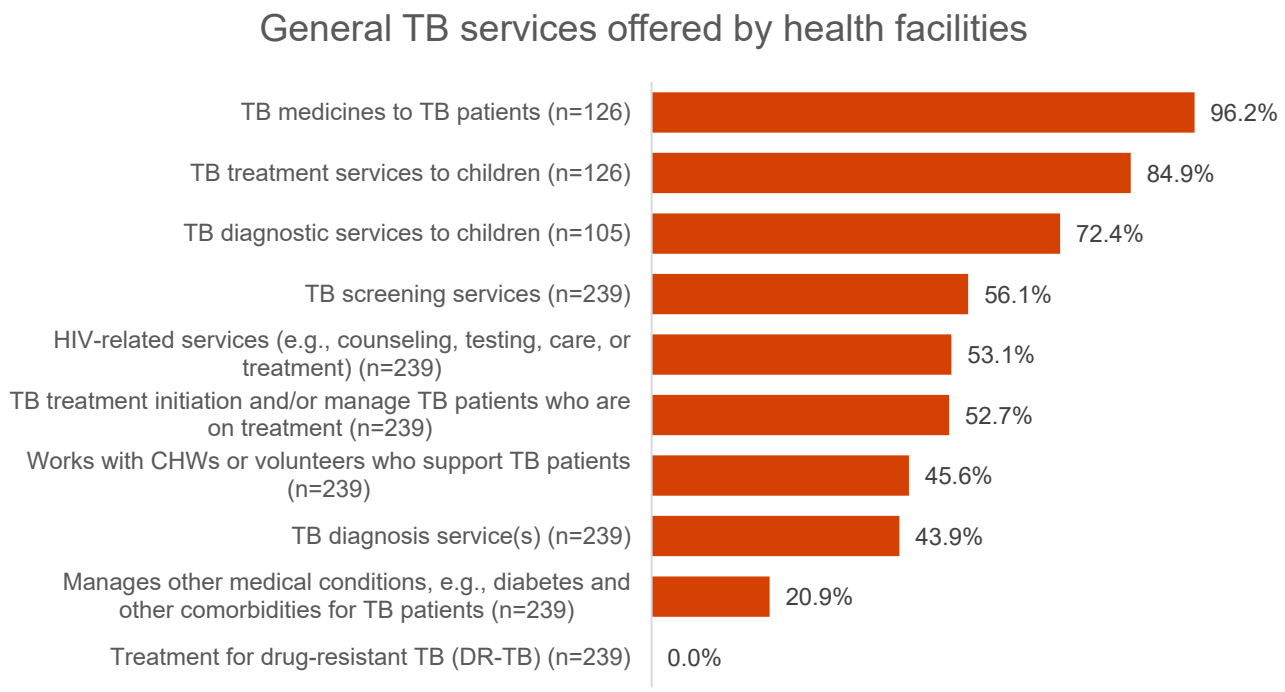
Service Availability

General TB-Related Services

Facilities were asked whether they had provided different types of TB services at any time over the past year.

Almost all facilities (96%) reported providing TB medicines to TB patients. The majority reported that they provided TB treatment services to children (84.9%) and diagnostic services to children (72.4%). More than half of the facilities surveyed reported providing TB screening services (56.1%), initiating treatment for TB and/or managing patients who were on TB treatment (52.7%), or offering any HIV-related services (53.1%). Fewer than half (45.6%) reported that they worked with CHWs who provided TB support services to patients; 43.9 percent provided TB diagnostic services; and fewer than one-quarter (20.9%) reported that they also managed other medical conditions and/or comorbidities for TB patients. None of the 239 facilities surveyed reported providing DR-TB treatment services because this treatment was administered only through the MDR wards (Figure 7). Additional results from the facilities are presented at the end of this service availability section.

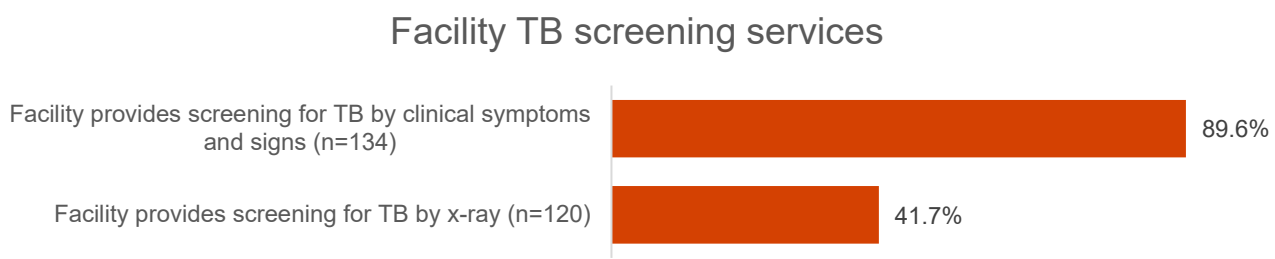
Figure 7. Overview of general TB services offered by health facilities



TB Screening and Diagnosis

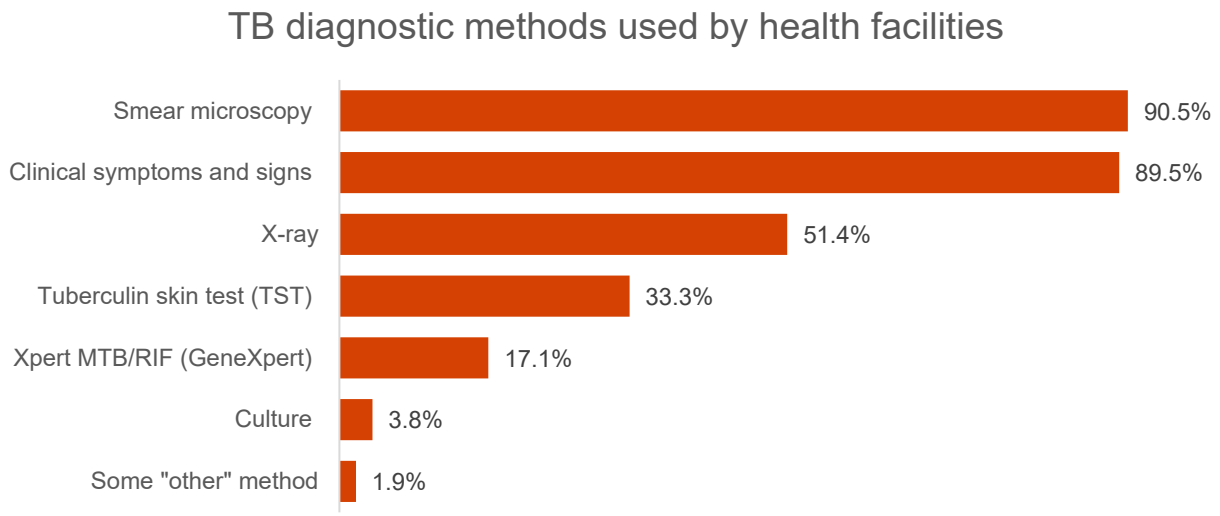
The facilities were asked about TB screening and diagnostic practices used. Just over half (56.1%) reported providing any form of TB screening to patients (Table C-2.1 in Appendix C). Of the facilities that reported providing TB screening services, 89.6 percent indicated that they used clinical signs and symptoms to screen for TB, and 41.7 percent reported that they provided TB screening using x-ray (Figure 8).

Figure 8. TB screening services provided by health facilities



Among the facilities that reported providing TB diagnostic services, the majority reported that they provided TB diagnosis by using smear microscopy (90.5%) and by clinical signs and symptoms (89.5%). Just over half of those facilities (51.4%) reported using x-ray to diagnose TB, and one-third (33.3%) reported using a tuberculin skin test as a method to diagnose TB. Only 17.1 percent reported using GeneXpert to diagnose TB, and 3.8 percent reported using culture (Figure 9 and Table C-2.2 in Appendix C).

Figure 9. Diagnostic methods used by health facilities that provide TB diagnostic services (n=105)



For key diagnostic tests, facilities were asked whether the tests were typically performed at an onsite laboratory, offsite laboratory, or if they used both onsite and offsite laboratories. Among the facilities that performed smear microscopy or culture, all (100%) reported that an onsite laboratory was used to perform the test. For the small number of facilities reporting the use of GeneXpert for TB diagnosis, 94.4 percent reported that GeneXpert testing was done by the onsite laboratory, and 5.6 percent reported that it was conducted at an offsite laboratory. Last, for the facilities that used x-rays for diagnosis, 88.7 percent reported that they were done onsite, 7.5 percent reported that x-rays were performed offsite, and 3.8 percent reported using both onsite and offsite x-ray services (Table C-2.3 in Appendix C).

In addition to discussing the TB diagnostic tests used, the facilities who reported offering TB diagnostic services were asked about their drug susceptibility testing (DST) practices. Only about one-quarter (24.8%) of those facilities indicated that first-line DST was available. Of those facilities, 61.5 percent reported using GeneXpert to detect first-line resistance, and 11.5 percent reported using line probe assays. Only 3.8 percent of these facilities reported using either solid or liquid culture to detect first-line resistance (Table C-2.4 in Appendix C). The remaining 19.4 percent reported using an “other” method for first-line DST or did not know what method was used (data not shown).

For second-line DST, only 10.5 percent of diagnostic facilities reported the availability of this test. Among those facilities offering second-line testing, 36.4 percent reported using line probe assays, 9.1 percent reported using solid culture, and 9.1 percent reported using liquid culture (Table C-2.5 in Appendix C). The remaining facilities reported using an “other” method for second-line DST or did not know what method was used (data not shown).

DS-TB Treatment and Support Services

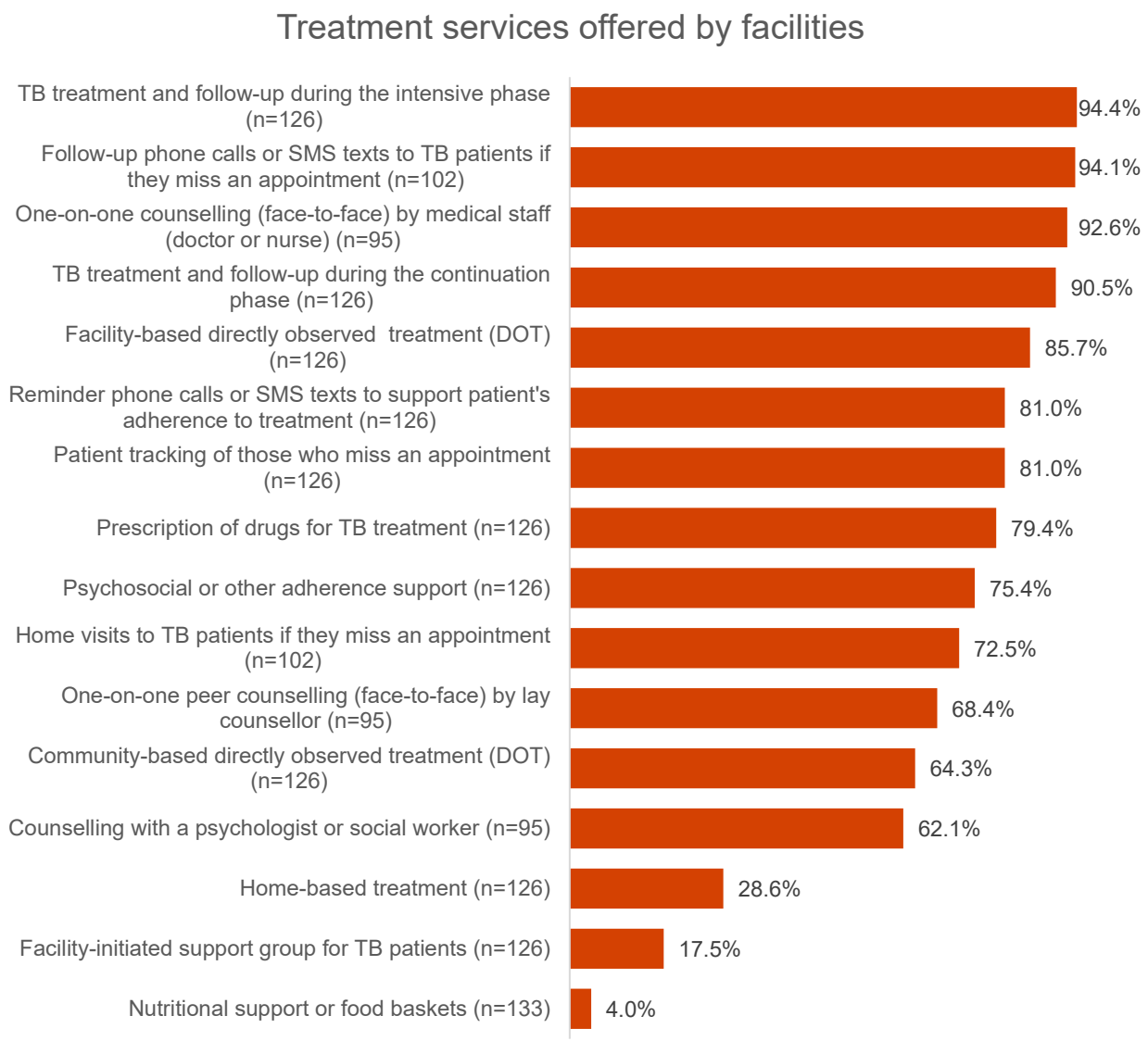
Just over half of the facilities assessed (52.7%) reported that they initiated treatment for DS-TB and/or managed patients who were on DS-TB treatment (Table C-2.6 in Appendix C). These

facilities were subsequently asked to describe the types of TB treatment and TB support services that they offered for TB patients; 94.4 percent reported that they provided TB treatment and follow-up during the intensive phase of TB treatment, and 90.5 percent reported that they provided treatment and follow-up for patients during the continuation phase. However, only 79.4 percent reported that they provided prescriptions for TB treatment medications. In terms of where treatment was offered, 85.7 percent reported that they offered facility-based TB treatment; 64.3 percent provided community-based TB treatment; and 28.6 percent provided home-based TB treatment (Figure 10 and Table C-2.6 in Appendix C).

For treatment support services, psychological and/or other adherence support was offered by 75.4 percent of the TB treatment facilities assessed (Figure 11 and Table C-2.6 in Appendix C). When asked about the specific psychosocial support services provided, 92.6 percent of these facilities reported offering one-on-one counseling (face-to-face) by medical staff (doctor or nurse), and 68.4 percent reported offering one-on-one peer counseling (face-to-face) by a lay counselor. More than half of these facilities (62.1%) reported that they offered counseling with a psychologist or social worker for TB patients (Figure 11 and Table C-2.7 in Appendix C).

In addition to psychosocial support, facilities reported providing services targeted at supporting treatment adherence. Eighty-one percent of the facilities reported using reminder phone calls or SMS for treatment adherence, and 81 percent conducted patient tracking after a missed appointment (Figure 11 and Table C-2.6 in Appendix C). Among those facilities tracking patients after missed appointments, 94.1 percent reported following up via phone calls or SMS, and 72.5 percent reported following up with TB patients through home visits (Figure 11 and Table C-2.8 in Appendix C). Additional treatment support services included facility-initiated support groups for TB patients, which was reported by 17.5 percent of the facilities offering TB treatment services; and nutritional support or food baskets, which was reported by only 4 percent of the facilities offering TB treatment services (Figure 11 and Table C-2.6 in Appendix C).

Figure 10. TB treatment services and treatment support services offered by health facilities



Facilities providing TB treatment were asked about the use of treatment supporters for TB patients. For DS-TB patients, 84.2 percent of the facilities allowed patients to take treatment with the support of a family member, meaning without the supervision of a health professional. Approximately 30 percent of the facilities allowed this only during the intensive phase; 23 percent allowed a family member treatment supporter only during the continuous phase; and 31 percent allowed TB patients to use a family member as a treatment supporter for both phases of TB treatment (Table C-2.9 in Appendix C).

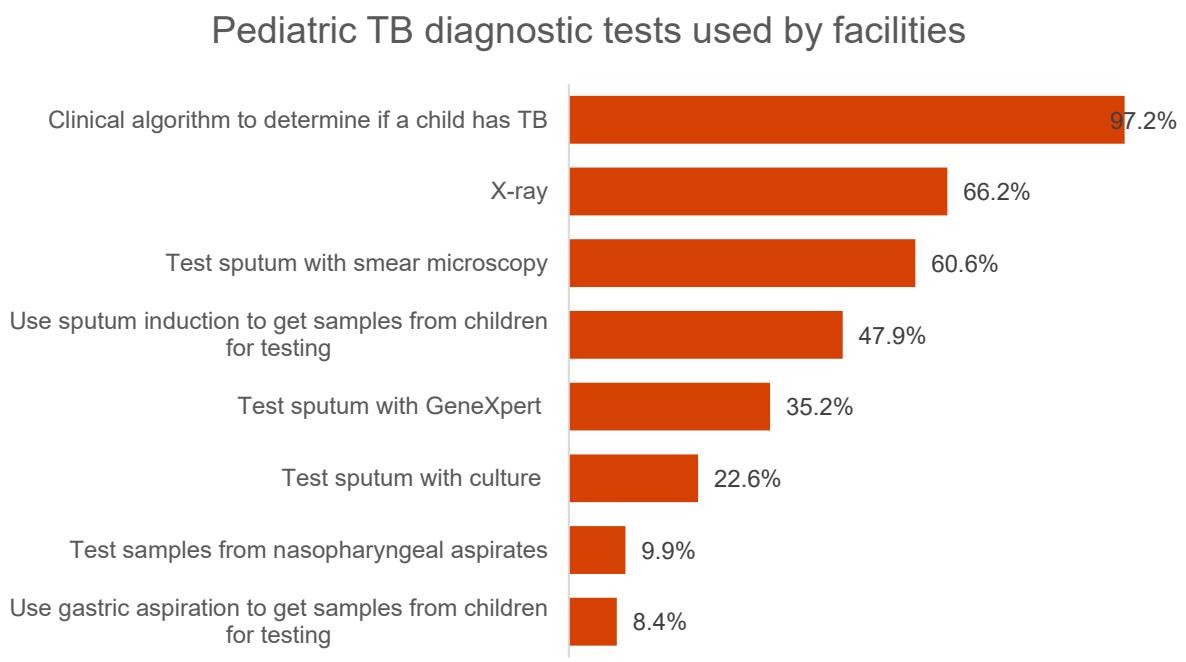
In terms of the frequency at which TB patients collected their TB treatment, during the intensive phase, 41.6 percent of the facilities required patients to collect medications weekly, and 42.9 percent required patients to collect medications monthly. During the continuation phase of TB treatment, 48.5 percent of the facilities reported that their patients collected medications

weekly; 19.1 percent required patients to collect medications biweekly; and 32.4 percent required patients to collect TB medications monthly. The facilities were asked about the mechanisms that they used to monitor the intervals at which patients should collect their TB medications. Twenty percent reported that this was accomplished by checking the patient's empty drug containers; 20.8 percent reported that it was monitored through phone calls to TB patients; 0.8 percent reported monitoring through SMS; and 55.8 percent reported using the patient cards to monitor medication collection intervals (Table C-2.9 in Appendix C).

Pediatric Services

Of the facilities that reported offering diagnostic services, 72.2 percent reported that they provided pediatric diagnostic services. When asked about the methods used to evaluate children with presumptive TB, most (97.2%) reported using a clinical algorithm to determine if a child had TB. More than 60 percent of the health facilities assessed reported that they used x-ray and/or smear microscopy, and 47.9 percent used sputum induction methods to get samples from children for testing. Only 35.2 percent stated that they used GeneXpert to test sputum for TB, and fewer than one-quarter (22. 6%) reported that they used culture to test the sputum of pediatric presumptive TB patients. Last, 8.4 percent of the health facilities reported using gastric aspiration to get samples from children for testing (Figure 11 and Table C-2.10 in Appendix C).

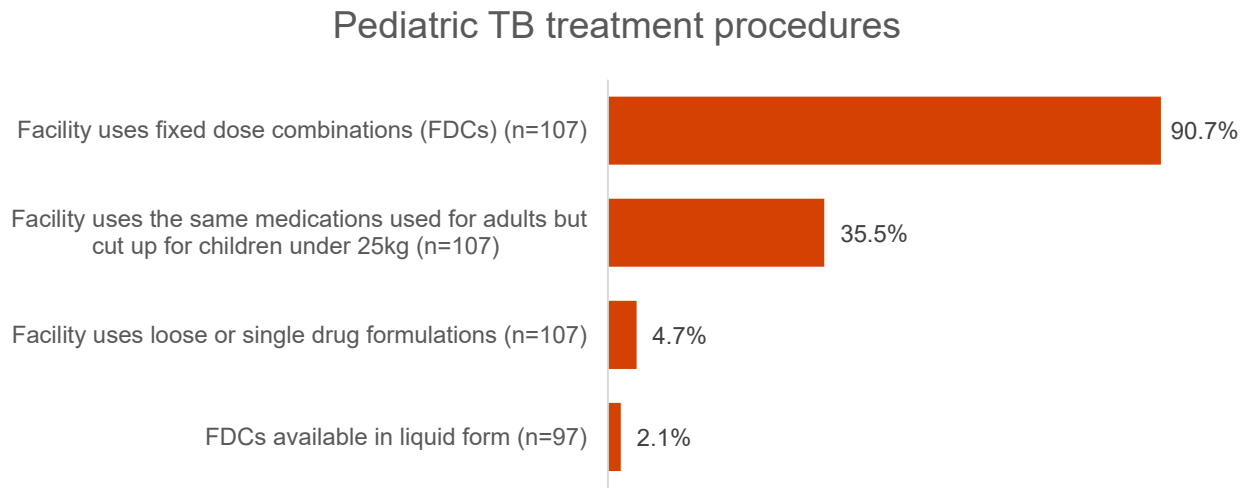
Figure 11. Methods used by health facilities to evaluate children with presumptive TB (n=71)



The facilities that reported providing TB treatment for pediatric patients (85%) were asked about the medicine combinations used to treat pediatric patients. Most facilities reported using fixed-dose combinations (FDCs) (90.7%). About one-third (35.5%) of the facilities offering TB treatment to children reported that they used the same TB medications used for adults but cut

up the pills for children weighing under 25 kilograms. A small proportion of the facilities reported using loose or single drug formulations (4.7%) or having FDCs available in liquid form (2.1%) (Figure 12 and Table C-2.11 in Appendix C). When asked about how the facility determined the dosage for TB treatment for children, 93.5 percent reported that they based the dosage on the child's weight; 2.8 percent indicated that they based the dosage used on the child's age; and 1.9 percent reported that the dosage for children was fixed in the kit (Table C-2.11 in Appendix C).

Figure 12. Pediatric TB treatment procedures used by health facilities



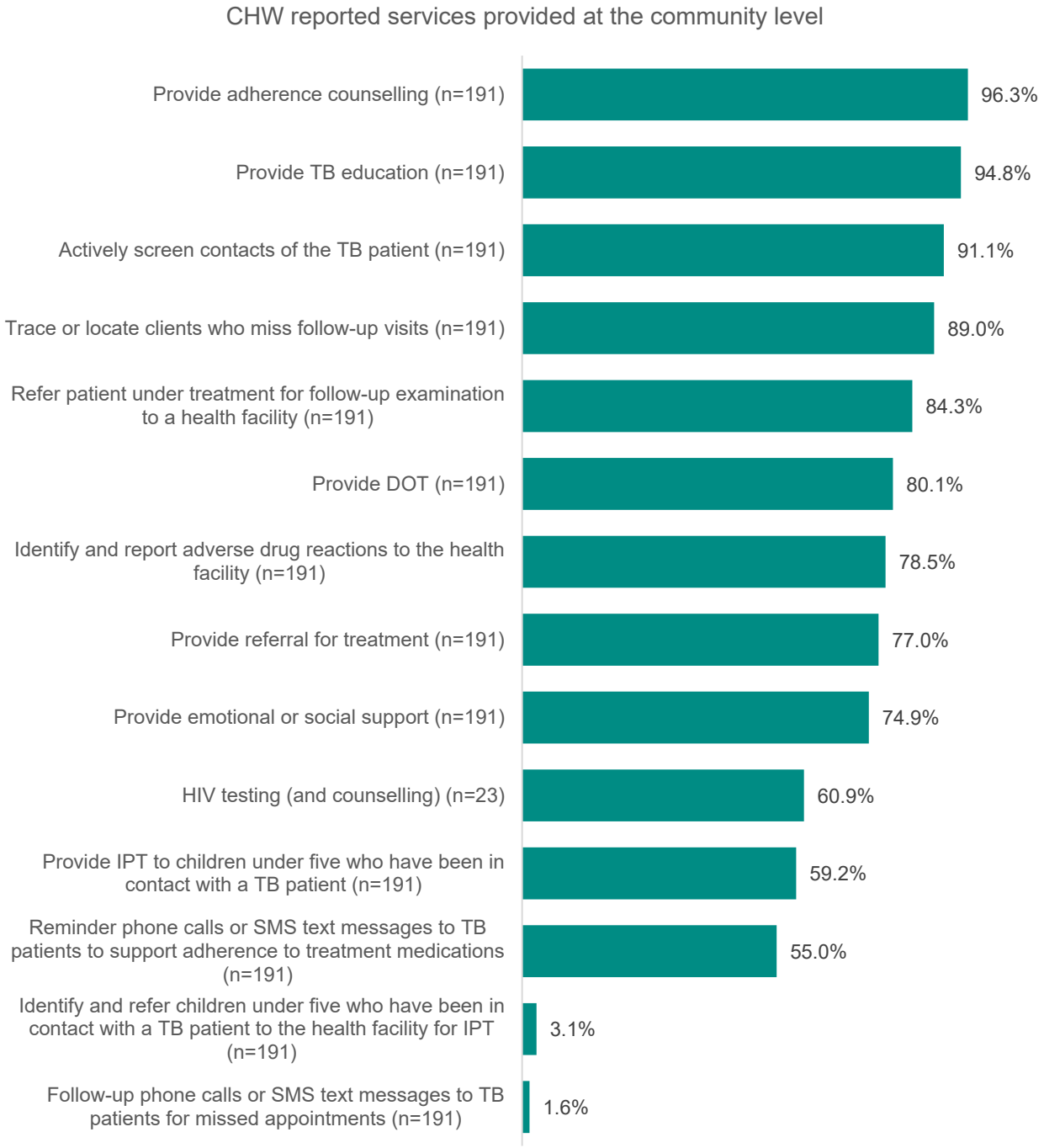
Community-Based TB Services

To understand the TB-related services provided outside the health facility at the community level, the assessment asked facilities that supervised CHWs and the CHWs themselves about the various services provided by CHWs, and questions about the coordination and management of the CHWs. Just under half (45.6%) of the facilities assessed reported that they worked with CHWs to support TB patients. When asked what specific services were provided by the CHWs attached to the health facility, more than 90 percent reported that the CHWs provided education about TB in the community, screening for TB symptoms, referrals for TB diagnosis, DOT, and adherence counseling. More than 80 percent of the health facilities with CHWs reported that the CHWs worked to trace or locate clients who missed follow-up visits, made reminder phone calls or sent SMS texts to support patient adherence to treatment, and referred TB patients for treatment. Last, more than 65 percent of the facilities with CHWs reported that the CHWs were responsible for the collection and transportation of specimens to a diagnostic laboratory, contact tracing for confirmed TB patients, psychosocial support, and making follow-up phone calls or sending SMS texts to TB patients for a missed appointment or to schedule a home visit (Table C-2.12 in Appendix C).

Like the questions asked of health facilities, the CHWs themselves were asked about the TB services they provided in the community. More than 80 percent of the CHWs interviewed

reported that they provided adherence counseling; located clients who missed follow-up visits; provided TB education, DOT, and referrals to patients under treatment for a follow-up examination at a health facility; and screened contacts of TB patients. More than 60 percent of the CHWs reported that they provided referrals for TB treatment, emotional or social support to TB patients, HIV testing and counseling and identification, and reporting of adverse drug reactions to the health facility. Moreover, more than 50 percent of the CHWs interviewed reported that they provided reminder phone calls or SMS text messages to TB patients to support adherence to treatment medications, and IPT to children under five who had been in contact with a TB patient. Only a very small proportion of the CHWs reported that they identified and referred children under five who had been in contact with a TB patient to the health facility for IPT (3.1%) or provided follow-up phone calls or SMS text messages to TB patients for missed appointments, to schedule a home visit, and for other follow-up (1.6%) (Figure 13 and Table C-2.13 in Appendix C).

Figure 13. TB patient support services provided by CHWs, as reported by the CHWs



In addition to service provision, CHWs were asked about the compensation they received for the services they provided. Just over half (52.2%) of the CHWs interviewed reported that they were regularly paid for their services. CHWs were also asked about any other monetary and non-monetary incentives they received for their work. More than half (58.6%) reported that they did not receive anything beyond their monthly remuneration; however, 27.7 percent reported that they received respect in their communities; 26.7 percent reported that their role provided them

with training and self-learning opportunities; and 20.9 percent stated that they received per diem, transportation fares, and refreshments. A small proportion of the CHWs reported receiving recognition or a certificate from the central MOPH or provincial government (14.1%) and gift hampers (which could include items such as shirts, bags, mobile phones, umbrellas, etc.) (2.6%). Of the CHWs interviewed, 3.6 percent reported receiving some "other" form of either monetary or non-monetary incentive for their work (Table C-2.14 in Appendix C).

Health facilities with CHWs attached to them were asked to discuss some of the management and supervision practices in place for CHWs. Most facilities (81.7%) reported that they had a community health supervisor (CHS) in place at the facility who was responsible for conducting community-level supervision of the CHWS, and 78 percent reported that the TB focal point met regularly (either monthly or quarterly) with all CHWs attached to the health facility. About three-quarters (72.4%) of the facilities with CHWs that provided treatment services reported that they had an up-to-date list of all CHWs who provided DOT, and 69.7 percent of the facilities with CHWs reported that they kept records on CHW performance. Only 60.6 percent of the facilities with CHWs reported that their CHWs received any TB specific training, including TB screening, diagnosis, and treatment (Table C-2.15 in Appendix C).

Last, facilities were asked about the frequency of supervisory visits that were provided to CHWs in the past year. Responses varied greatly, with the facilities reporting anywhere from 0 to 48 visits. On average, the facilities reported conducting 11 supervisory visits in the past year. This average did not vary between urban and rural facilities but did differ when looking at the facility type/level. Primary- and secondary-level health facilities reported 10 visits and 12 visits, respectively, in the past year, whereas tertiary-level facilities and private health facilities reported an average of two supervisory visits in the past year (Table C-2.16 in Appendix C).

Diabetes Services Offered by TB Facilities

Bidirectional screening of TB and diabetes mellitus (DM) was assessed as part of the survey. TB facilities were asked about diabetes screening practices for TB patients, and diabetes centers were asked about TB services offered to diabetic patients. Only 20.9 percent of TB health facilities reported that they managed other medical conditions, such as diabetes. Moreover, only 21.3 percent of the facilities reported that they regularly screened TB patients for diabetes, and of those facilities, only 54 percent reported that they screened all TB patients attending the health facility for diabetes through symptom-based screening. When TB facilities were asked what tests were recommended to screen patients for diabetes, 56 percent reported the random blood sugar (RBS) test; 54 percent said an RBS test on the first visit and a fasting blood sugar test on the second visit; and 24 percent reported an A1C test (Table C-2.17 in Appendix C).

The diabetes centers surveyed were asked about their TB screening practices and procedures. The majority (78.9%) reported that they screened all diabetic patients attending the facility for signs and symptoms of TB through symptom screening. They were also asked about the services provided to TB and presumptive TB patients at the diabetes centers. The services/procedures included weighing patients (89.5%), documenting the TB screening results on the patient card (89.5%), completing a checklist for all identified TB patients (new and follow-up patients) (89.5%), and separating presumptive and confirmed TB patients from other patients by

screening for cough (84.2%). Other services were providing presumptive TB patients a sputum container to collect samples (78.9%), screening all follow-up TB patients for diabetes (78.9%), documenting the screening results in a data collection tool (i.e., register) (63.2%), and screening all new TB patients for diabetes at the time of diagnosis, irrespective of symptoms (52.6%) (Table C-2.21 in Appendix C).

Diabetes centers were asked about the TB diagnostic tests performed for presumptive TB patients, and whether the tests were done onsite or whether they referred patients for testing. For smear microscopy, 78.9 percent of the facilities said that the test was performed at the health facility, and 15.8 percent reported that they referred patients to another facility for the test. For GeneXpert, 47.4 percent of the facilities reported that they performed the test, and 42.1 percent reported that they referred presumptive TB patients to another facility for a GeneXpert test. Last, 78.9 percent of the diabetes centers reported that they performed chest x-rays for presumptive TB patients, and 15.8 percent reported that they referred presumptive TB patients to another facility for x-rays (Table C-2.22 in Appendix C).

Last, the diabetes centers were asked about the TB treatment procedures that were in place at their health facility. Over three-quarters (78.9%) reported that they provided TB treatment to diabetes patients that were confirmed to have TB. Most facilities (60%) reported that they provided DS-TB treatment for six months to patients with TB and diabetes. Procedures for treatment reported by the diabetes centers included: initiating TB treatment for diabetics diagnosed with TB according to NTP guidelines and standard operating procedures (SOPs) (93.3%); adjusting the dose of pyrazinamide and ethambutol according to NTP guidelines if creatinine for diabetic nephropathy (73.3%); administering vitamin B6 to prevent isoniazid (INH) induced neuropathy (10–25 mg/day) (73.3%); closely following up and monitoring patients with TB/DM comorbidity (80%); minimizing TB-related stigma among DM patients by delivering DM medication jointly with TB medication via DOT, especially for people with poorly controlled DM or those who did not adhere to DM medications (66.7%); extending TB treatment to nine months for persons with DM, especially people with cavitary disease or delayed sputum clearance (60%); obtaining sputum for acid fast bacilli smear and culture upon completion of TB treatment (93.3%); evaluating patients one year after TB treatment to rule out evidence of relapse (93.3%); nurse/treatment supporter using DOT visits to help people with TB/DM manage their DM (93.3%); DOT workers encouraged lifestyle changes at every encounter, including dietary changes and physical activity (93.3%); and DOT workers used structured and culturally-appropriate diabetes educational materials (66.7%)(Table C-2.23 in Appendix C).

TB Services for Specialized Populations

In addition to the TB services available to adult and pediatric patients, the QTSA looked at service availability for key patient groups, including DR-TB patients and the prison population.

DR-TB Services

In Afghanistan, DR-TB treatment and management services are only offered through MDR wards, which are tertiary-level health facilities linked to provincial hospitals in the country's health management information system, but typically with their own management structures

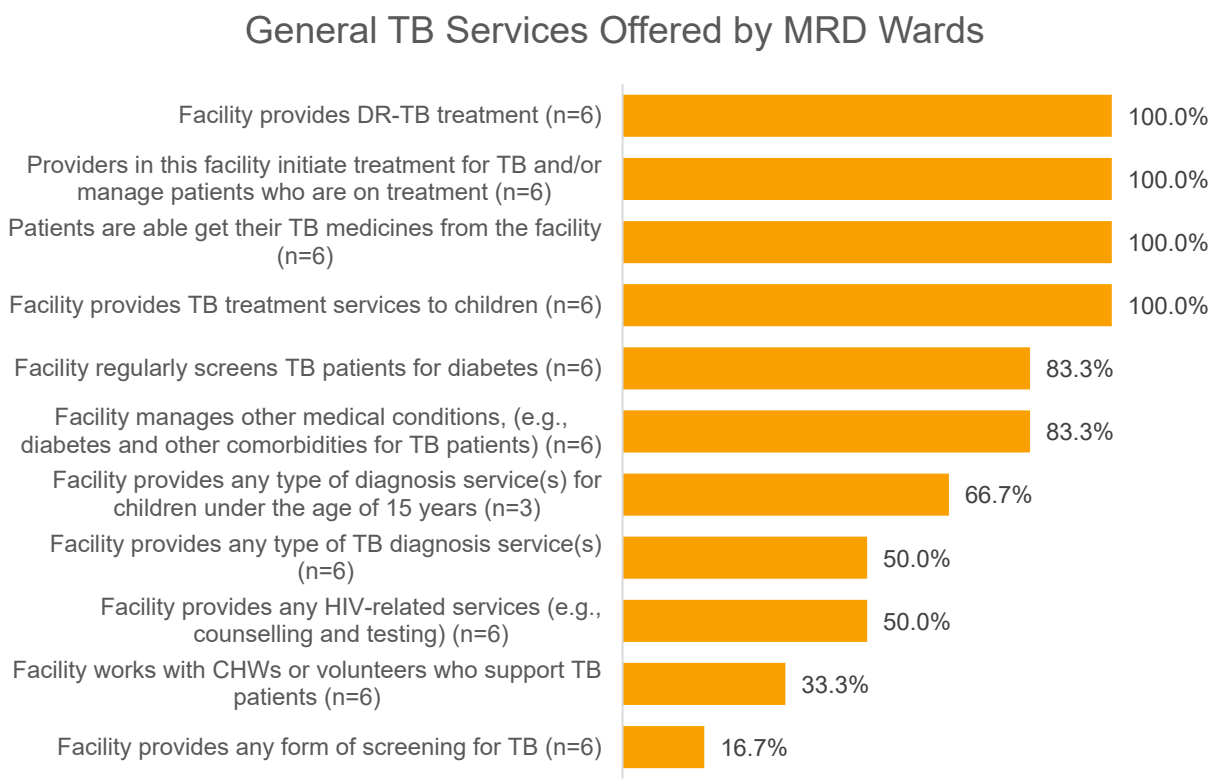
and located separately from the main hospital campus. The six MDR wards were not part of the original sample, and in discussion with the NTP the decision was made to analyze and present results for the MDR wards separately. Selected results are presented below.

Availability of DR-TB Services

Like the other facilities assessed in the QTSA, MDR wards were asked about the availability of general TB services. Only one of the six MDR wards (16.7%) stated that it provided any form of TB screening, which it reported included screening by clinical signs and symptoms and the use of chest x-rays. Only half (50%) of the MDR wards reported proving TB diagnostic services, and among those, only two of these three MDR wards reported that they offered TB diagnostic services for children under the age of 15 (Figure 14 and Table C-2.24 in Appendix C).

In terms of treatment services, all MDR wards (100%) reported that they offered DR-TB treatment, treatment initiation and management for DR-TB patients, and treatment services for children; and allowed patients to get their TB medicines from the MDR ward. In addition to treatment services, 50 percent of the MDR wards assessed provided HIV-related services. Five of the six MDR wards (83.3%) reported managing other medical conditions, such as diabetes and other comorbidities for TB patients, and regularly screened TB patients for diabetes. Last, two of the six MDR wards (33.3%) reported working with CHWs who supported TB patients treated at the facility (Figure 14 and Table C-2.24 in Appendix C).

Figure 14. General TB services offered by MDR wards

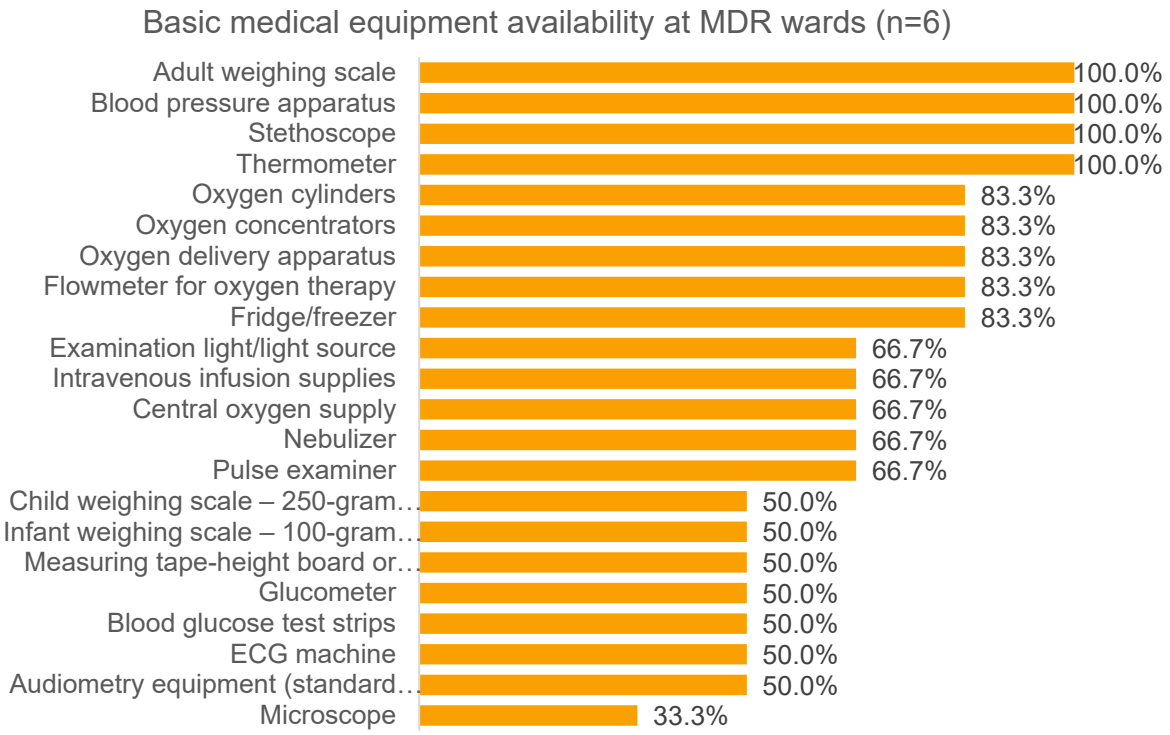


The three MDR wards that reported providing TB diagnostic services were asked about the various diagnostic methods used. All three of these facilities reported using clinical signs and symptoms to diagnose TB, whereas two of the facilities (66.7%) reported using x-rays to diagnose TB. Only one of the three MDR wards offering diagnostic services (33.3%) indicated that it used GeneXpert or smear microscopy to diagnose TB. Last, none of the three MDR wards reported using tuberculin skin test or culture to diagnose TB (Table C-2.25 in Appendix C). In addition to the methods used for diagnosis, these three MDR wards were asked whether they used onsite or offsite laboratories for diagnostic testing. These MDR wards reported providing laboratory-based diagnostic testing. One (33.3%) reported using only an onsite laboratory, one (33.3%) reported using only an offsite laboratory, and one (33.3%) reported using both onsite and offsite laboratories to conduct its TB diagnostic services (Table C-2.26 in Appendix C).

Availability of Essential TB Equipment and Medicines

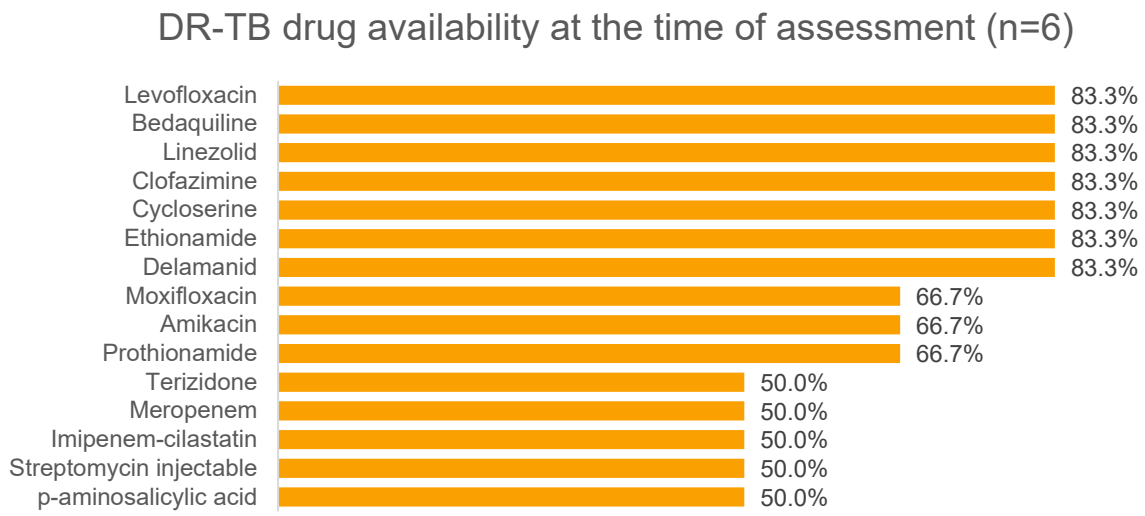
The MDR wards were asked specifically about the availability of key equipment and medicines needed to manage DR-TB patients. All MDR wards assessed (100%) had at least one functional adult weighing scale, blood pressure apparatus, stethoscope, and thermometer available on the day of the assessment. Functional oxygen cylinders, oxygen concentrators, oxygen delivery apparatus, flowmeter for oxygen therapy, and a fridge/freezer were found at five of the six (83.3%) MDR wards. Four of the six (66.7%) MDR wards were found to have a least one functional examination light or light source, intravenous infusion kit, central oxygen supply, nebulizer, and pulse examiner observed on the day of the assessment. Only half of the MDR wards (50%) had a functional child weighing scale, infant weighing scale, height board or measuring tape, glucometer, blood glucose test strips, electrocardiogram (ECG) machine, and audiometry equipment on the day of the assessment. Last, only two of the six MDR wards (33.3%) were found to have a microscope available (Figure 15 and Table C-2.27 in Appendix C). MDR wards with ECGs and audiometry equipment were asked about their frequency of use. These facilities reported that ECGs were performed an average of 30 times per week, and audiometry tests were performed an average of 24 times per week (Table C-2.28 in Appendix C.)

Figure 15. Availability of basic medical equipment at MDR wards (n=6)



An uninterrupted supply of drugs and drug availability are essential for quality TB services. The QTSA assessed, with observation, the availability and validity (i.e., that drugs were not expired or damaged) of second-line TB treatment drugs at the MDR wards. Interestingly, none of the DR-TB drugs assessed were available at all six MDR wards on the day of the assessment. Unexpired levofloxacin, bedaquiline, linezolid, clofazimine, cycloserine, ethionamide, and delamanid were observed at five of the six MDR wards (83.3%). Unexpired moxifloxacin, amikcacin, and prothionamide were observed at four of the six MDR wards (66.7%). Last, half of the MDR wards were found to have unexpired terizidone, meropenem, imipenem-cilastatin, streptomycin injectable, or p-amino salicylic acid available on the day of the assessment (Figure 16 and Table C-2.29 in Appendix C).

Figure 16. DR-TB drug availability at MDR wards (n=6)



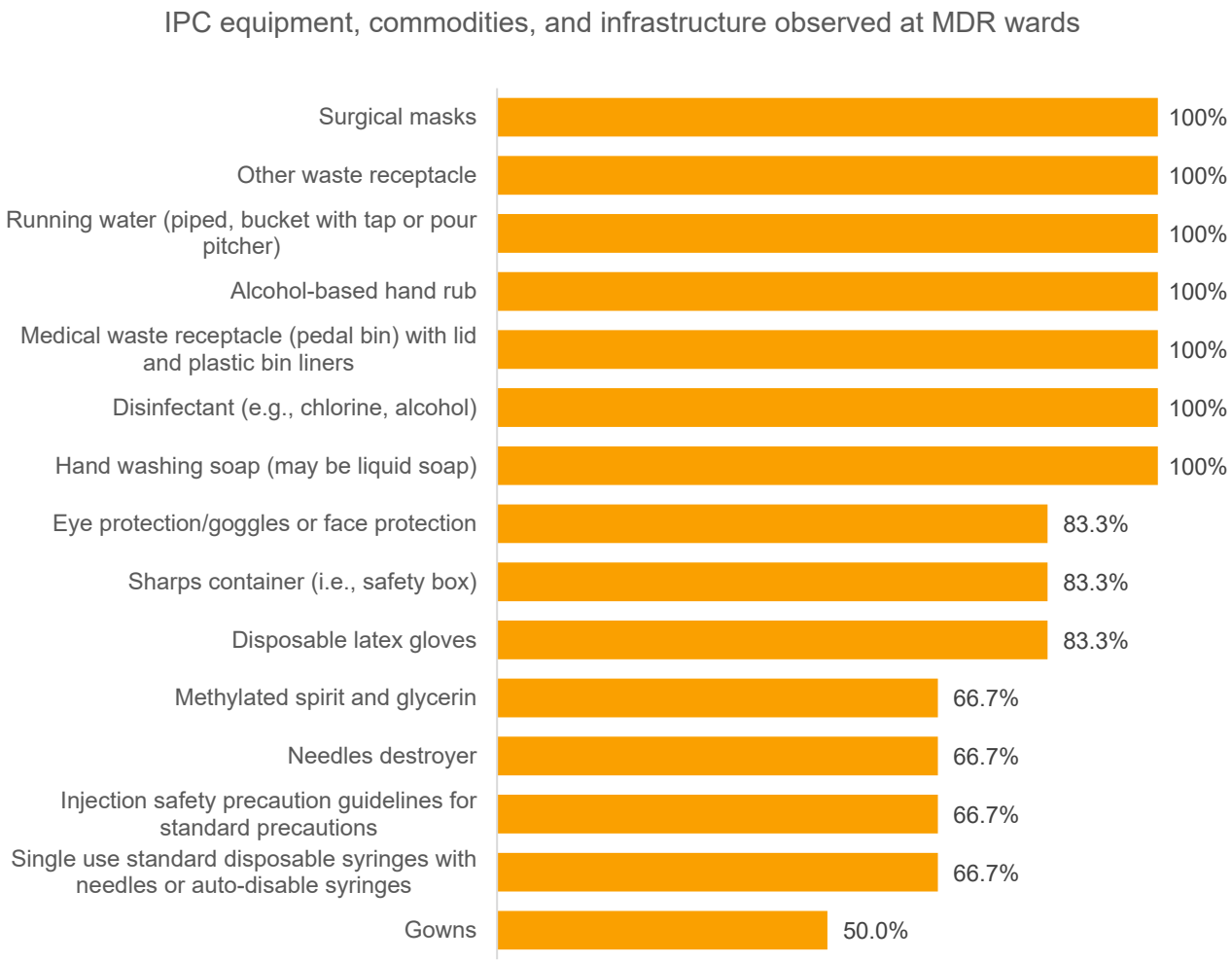
When looking at the storage conditions for medicines at the MDR wards, all facilities were found to have product names and expiry dates of each medicine clearly indicated. Five of the six MDR wards (83.3%) reported maintaining a buffer stock of TB medicines, and four of the six MDR wards (66.7%) had space allocated for expired or damaged medicines. Only two MDR wards (33.3%) reported stockouts of any TB medicines in the six months before the onset of COVID-19, and only one of those facilities reported that patients went without treatment because of a stockout (Table C-2.30 in Appendix C).

Facility Management

As with the other facilities assessed, data collection teams worked to verify the existence of key TB protocols and guidelines available at the MDR wards on the day of the assessment. Smear microscopy and GeneXpert guidelines were observed at facilities that performed those tests, and flowcharts or algorithms on TB diagnosis and guidelines on the use of chest x-rays for TB screening and diagnosis were available at two of the three MDR wards that reported providing TB diagnostic services. Last, guidelines for the clinical management of DR-TB, guidelines on the use of short regimens for DR-TB treatment, and essential drug or medicines lists were observed in five of the six MDR wards assessed (Table C-2.31 in Appendix C).

Infection prevention and control (IPC) infrastructure, equipment, and commodities were also assessed at the MDR wards. Surgical masks, waste receptacles, running water, alcohol-based hand rub, medical waste receptacles, disinfectant, and hand washing soap were observed at all six MDR wards. Five of the six MDR wards (83.3%) were found to have eye protection/goggles or face protectors, sharps containers, and disposable latex gloves, whereas 66.7 percent of the facilities had methylated glycerin, needles destroyer, injection safety precaution guidelines, and single-use disposable syringes with needles or auto-disable syringes. Only half of the MDR wards (50%) had gowns available (Figure 17 and Table C-2.32 in Appendix C).

Figure 17. IPC equipment, commodities, and infrastructure observed at MDR wards (n=6)



All but one MDR ward (83.3%) reported that the facility had a designated staff member to serve as an IPC focal point for the ward; that patients were routinely asked about cough when entering the facility; and that cough triage was implemented at the MDR ward. Four of the six MDR wards had a separate waiting area to isolate potentially infectious people or those who had a cough monitor to assist with separating coughing patients from others in the waiting area. All but one of the MDR wards had surgical masks available at the facility for presumptive and confirmed TB patients, and among those facilities, four MDR wards reported that surgical masks were worn by presumptive and confirmed TB patients while they were at the health facility (Table C-2.33 in Appendix C).

MDR wards were also asked about their TB screening procedures for facility staff. Five of the six MDR wards (83.3%) had a system in place to screen and evaluate facility staff for TB. However, no staff members from any of the MDR wards had been diagnosed with active TB in the last two years (Table C-2.34 in Appendix C).

Last, when discussing management practices, the MDR wards were asked about the supervision that they had received. Five of the six MDR wards (83.3%) reported that they had had a supervisory visit in the past three months from an upper-level office. When asked about the specific activities that occurred during these visits, five of the six MDR wards reported that the pharmacy, drug stock, expiry records, and TB data (accuracy, completeness, etc.) were assessed. Five of the six MDR wards also reported that the supervisory visits included a discussion of the facility's performance based on TB service data, assessment of lab activities, and the completion of a supervisory checklist. Last, four of the six MDR wards (66.7%) reported that they were provided a record of written comments from the visit (Table C-2.35 in Appendix C).

Staff Capacity

TB focal points at the MDR wards were asked about the training that their TB providers had received in the past two years. Only two of the six MDR wards assessed reported that their providers had received the NTP SOP training. All but one MDR ward (83.3%) reported that their TB providers had been trained on the management of DS-TB, identification of presumptive DR-TB, management of DR-TB treatment, or programmatic management of drug-resistant TB in the past two years. Four of the six MDR wards reported that their providers had been trained on the diagnosis of TB based on clinical symptoms or examination, and half of the MDR wards reported that their providers had received training on screening/diagnosis of TB based on x-rays, diagnosis of TB using GeneXpert, or the integrated TB information system in the past two years. Two of the six MDR wards (33.3%) reported that TB providers had received training on the diagnosis of TB based on sputum tests using smear microscopy, management of TB/HIV coinfection, provider-initiated counseling and testing, or interpersonal communication competence. Only one of the six MDR wards (16.7%) reported that providers had received training on the diagnosis of TB based on sputum tests using culture in the past two years (Table C-2.36 in Appendix C).

General TB-Related Services Provided by Prison Health Facilities

All eight health facilities in prisons that were assessed in the QTSA were primary care facilities. The proportion of prison facilities offering specific TB services differed from the other primary care facilities sampled. Four of the eight prison facilities sampled provided any form of TB screening, which was much higher than the 24.1 percent of primary health facilities that reported offering TB screening. Moreover, a larger proportion of prison health facilities (37.5%) reported that they provided any type of TB diagnostic services, compared with other primary health facilities (11.6%), whereas a smaller proportion (33.3%) of prison facilities provided TB diagnostic services for children, compared with other primary health facilities (61.5%). Nearly two-thirds (62.5%) of prison facilities reported initiating and/or managing TB treatment, which was much higher compared with other primary health facilities (17%). Last, a much higher proportion of prison facilities reported regularly screening TB patients for diabetes (37.5%), managing other medical conditions and comorbidities for TB patients (50%), and providing HIV-related services (75%), such as counseling and testing, compared with the other primary health facilities assessed (Table C-2.37 in Appendix C).

Laboratory

Adequate laboratory infrastructure is critical for facilities to provide necessary and timely TB services and to follow required protocols for TB diagnosis and treatment.

Onsite vs. Offsite Laboratory Services

Facilities providing TB diagnostic services were asked about the various tests performed to diagnose TB and whether they used an onsite or offsite laboratory for testing. Among these facilities, 78.1 percent reported using only an onsite laboratory; 1.9 percent reported using only an offsite laboratory; and 17.1 percent reported using both onsite and offsite laboratories for TB diagnostic testing (Table C-2.38 in Appendix C).

Facilities using offsite laboratories were asked to specify the types of TB diagnostic tests ordered from the offsite labs. Fifty-five percent reported using offsite labs to perform GeneXpert diagnostic tests, first-line DST (not conducted through GeneXpert), and second-line DST. Moreover, 40 percent of these health facilities reported using offsite laboratories to perform smear microscopy (Table C-2.39 in Appendix C).

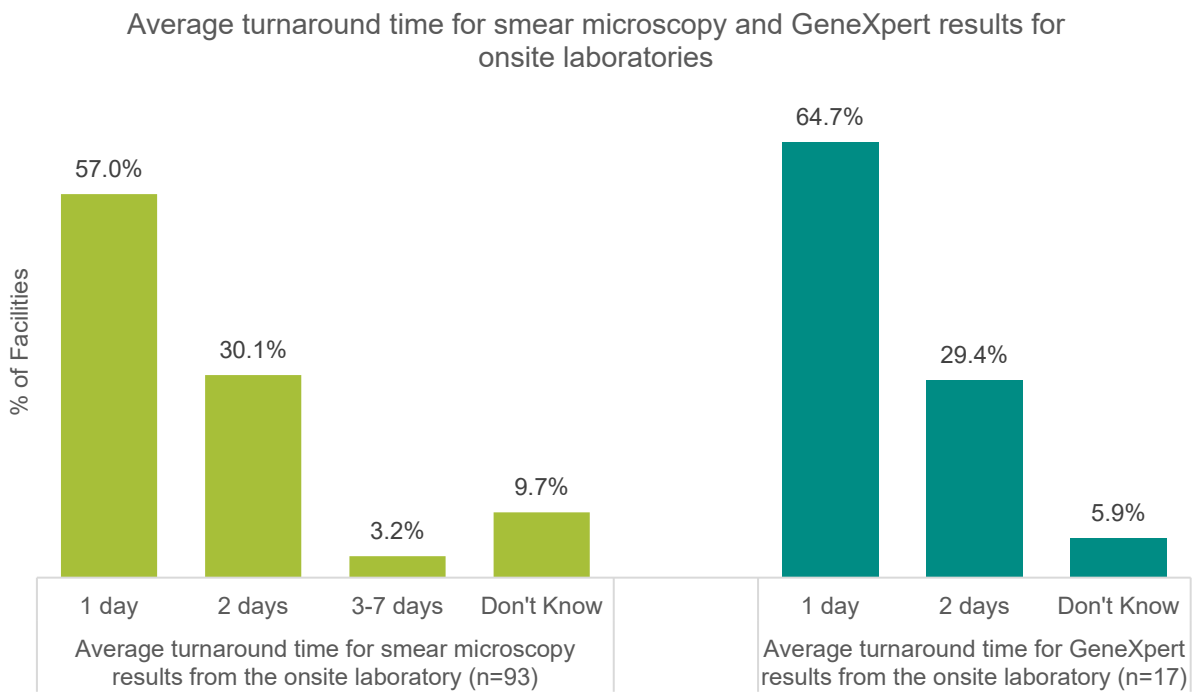
Specimen Management and Supply Availability

For facilities using an offsite laboratory, an effective transport system is essential for timely and efficient diagnoses of TB. Fewer than half (45%) of the facilities using an offsite laboratory reported having access to a specimen transport service (Table C-2.40 in Appendix C).

Turnaround time is also an essential element to ensure the timely and effective diagnosis of TB. The assessment looked at the turnaround times for multiple steps in the specimen management and diagnostic pathway. Laboratories reported that, on average, it took about one working day to receive specimens from within the health facility and about one working day to receive specimens from other health facilities. In both cases, the turnaround time was slightly longer for primary-level health facilities (Table C-2.41 in Appendix C). The assessment also looked at the frequency of specimen transport and found that in most cases, facilities reported daily specimen transport across all health facility levels and in both rural and urban locations. These facilities also reported that, on average, it took about two working days to receive results from an offsite laboratory (Table C-2.42 in Appendix C).

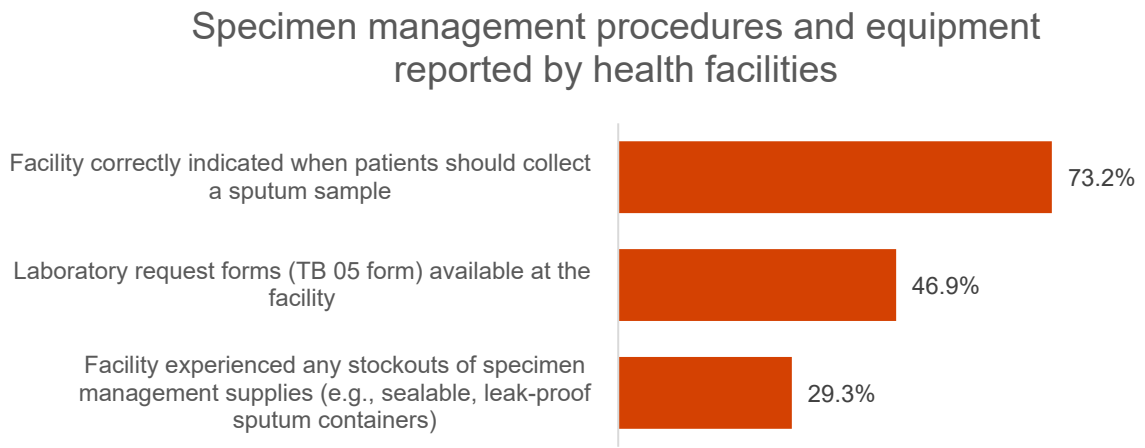
For facilities using onsite laboratories, most (57%) reported receiving results from smear microscopy testing within one day, and 30.1 percent reported receiving smear microscopy results within two days of ordering the test. A small proportion (9.7%) reported that they did not know the turnaround time for smear microscopy, and 3.2 percent reported that it took anywhere from three to seven days to receive smear microscopy results from the onsite laboratory. Most health facilities with onsite GeneXpert testing available (64.7%) reported a one-day turnaround time to receive GeneXpert results. Just under one-third of the facilities with onsite GeneXpert testing (29.4%) reported an average of two days turnaround time to receive GeneXpert results, and 5.9 percent were unsure of the average turnaround time for GeneXpert testing (Figure 18 and Table C-2.43 in Appendix C).

Figure 18. Average turnaround time reported by facilities using onsite labs for smear microscopy and GeneXpert



Facilities were asked to describe their sputum collection procedure. Almost three-quarters of all facilities (73.2%) stated the procedure correctly. In assessing the availability of specimen management supplies, 29.3 percent reported that they had experienced stockouts of any specimen management materials in the six months before the assessment, and only 46.9 percent had laboratory request forms (TB 05 form) available at the facility on the day of the assessment (Figure 19 and Table C-2.44 in Appendix C).

Figure 19. Specimen management procedures and supply availability reported by health facilities (n=239)

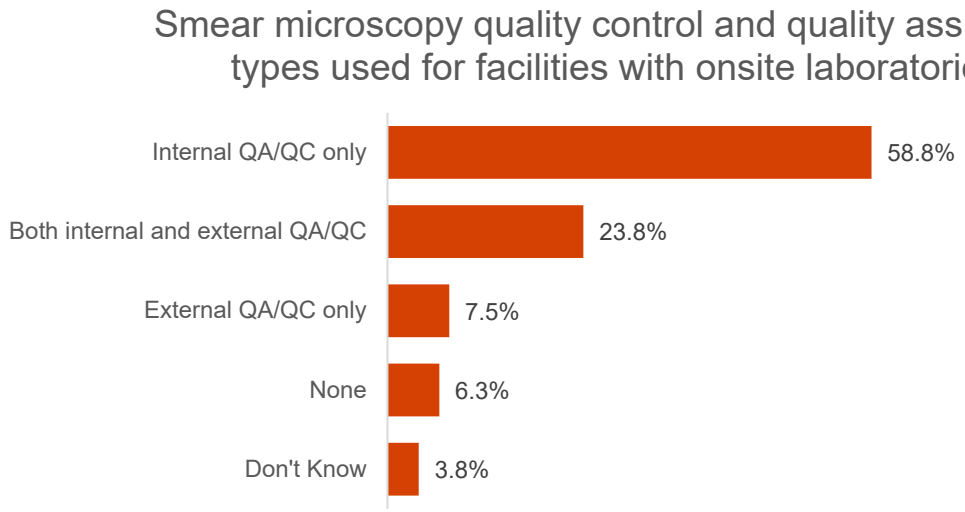


Quality Control/Quality Assurance

Facilities with onsite diagnosis services were asked about quality assurance and quality control (QA/QC) procedures used in their laboratories for smear microscopy (Figure 20). More than half of the facilities with onsite laboratories (58.8%) reported using internal QA/QC measures, whereas only 7.5 percent reported using external QA/QC measures for smear microscopy. Fewer than one-quarter of the facilities with onsite laboratories (23.8%) reported using both internal and external QA/QC measures for smear microscopy, and 10.1 percent reported that they either did not know what kind of QA/QC methods were used or that none were used by the facility (Figure 20 and Table C-2.45 in Appendix C).

Among the facilities implementing QA/QC mechanisms, 88.9 percent maintained records of the results from the QA/QC procedures, and 87.5 percent reported that they had guidelines and procedures for internal and/or external QA/QC for the specimens being assessed. Among the facilities that indicated having standard guidelines and procedures, the majority of those guidelines (93.7%) were observed on the day of the assessment (Table C-2.45 in Appendix C).

Figure 20. QA/QC practices for smear microscopy at health facilities with onsite laboratories (n=80)



Laboratory Equipment Availability

The facilities that reported having onsite laboratory capacity were asked about the availability and functionality of supplies, reagents, and equipment, followed by observation of whether the supplies were available on the day of the assessment. For facilities that used the Ziehl-Neelsen test for acid fast bacilli, 96.1 percent had unexpired carbol fuchsin stain available, 90.2 percent had unexpired sulfuric acid available, and 98 percent had methyl blue stain available (Table C-2.46 in Appendix C).

Almost all relevant facilities (95%) were equipped with a functional fluorescence microscope, and 80 percent had auramine stain for the fluorescence microscope available on the day of the assessment. For facilities with GeneXpert onsite, 93.8 percent had a functional and unexpired GeneXpert cartridge on the day of the assessment, and 75 percent had an Xpert MTB/RIF

cartridge available. Moreover, 92.3 percent of relevant health facilities with onsite laboratories had a biosafety hood or cabinet, and 89.7 percent had biosafety hoods or cabinets that had been certified in the past year (Table C-2.46 in Appendix C).

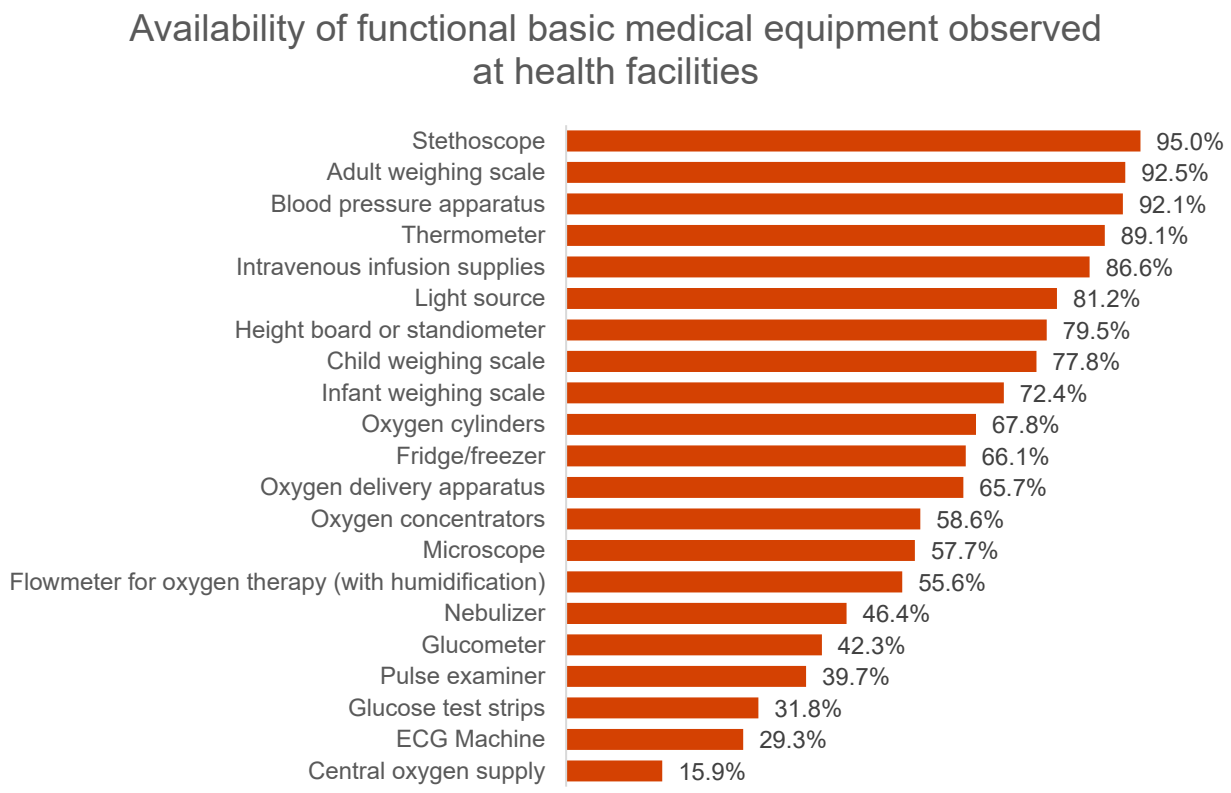
Equipment and Medicine Availability

The facilities were assessed on the availability of functional basic medical equipment and valid, unexpired TB-related medications on the day of the assessment. Findings are reported in the figures below and in the tables in Appendix C.

General Equipment Availability

More than two-thirds of the health facilities assessed were found to have at least one functioning item on hand among the following medical equipment: stethoscope (95%), adult weighing scale (92.5%), blood pressure apparatus (92.1%), thermometer (89.1%), intravenous infusion supplies (86.6%), light source (81.2%), height board or standiometer (79.5%), child weighing scale (77.8%), infant weighing scale (72.4%), and oxygen cylinders (67.8%). Moreover, the health facilities were found to have at least one functional fridge and/or freezer (66.1%), oxygen delivery apparatus (65.7%), oxygen concentrators (58.6%), microscope (57.7%), flowmeter for oxygen therapy (55.6%), nebulizer (46.4%), glucometer (42.3%), pulse examiner (39.7%), glucose test strips (31.8%), ECG machine (29.3%), and central oxygen supply (15.9%) (Figure 21 and Table C-2.47 in Appendix C).

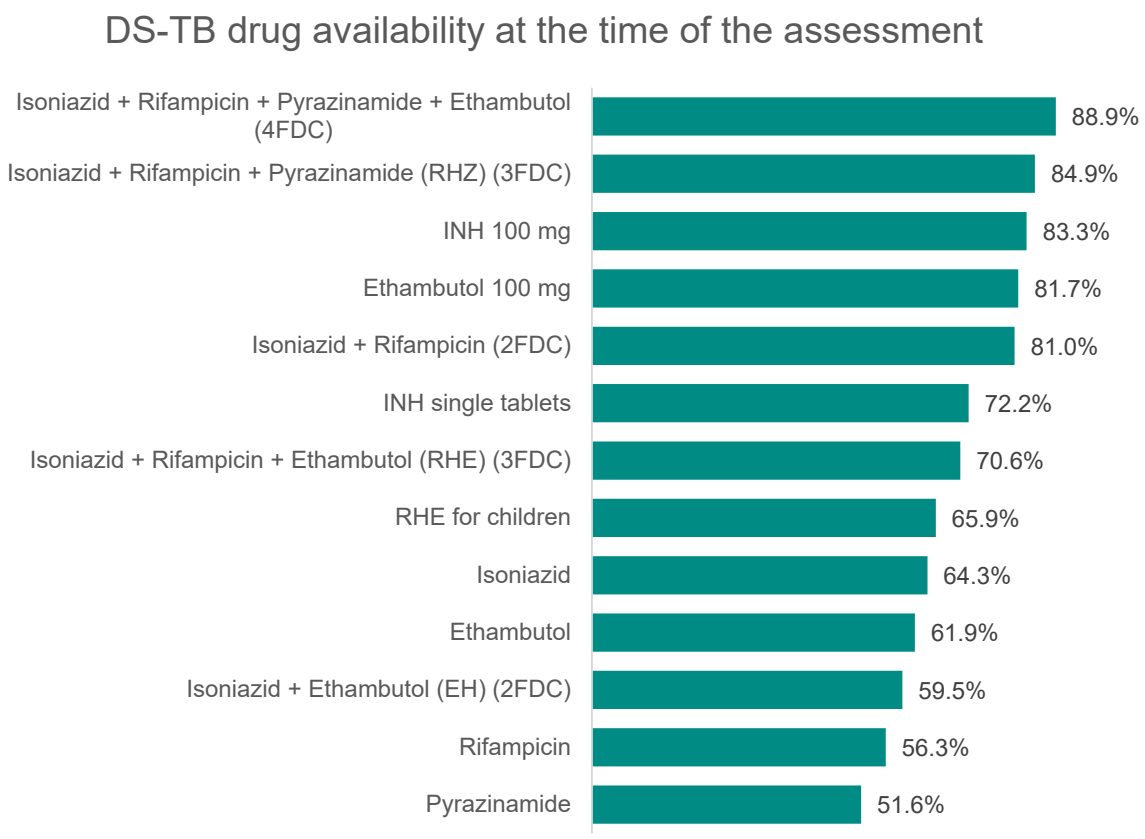
Figure 21. Availability of functional basic medical equipment observed at health facilities (n=239)



Drug Availability

An uninterrupted drug supply and drug availability are essential for quality TB services. The survey assessed the availability and validity (i.e., that drugs were not expired or damaged) of first-line TB treatment drugs and drugs for tuberculosis preventive therapy (TPT) (isoniazid) at all relevant study facilities providing DS-TB treatment. DS-TB drugs were available at between 50 percent and 90 percent of the facilities on the day of the assessment. Isoniazid + rifampicin + pyrazinamide + ethambutol (4FDC) was most commonly observed, followed by isoniazid + rifampicin + pyrazinamide (3FDC); INH 100 mg; ethambutol 100 mg; isoniazid + ethambutol (2FDC); INH single tablets; and isoniazid + rifampicin + ethambutol (3FDC) (Figure 22 and Table C-2.48 in Appendix C).

Figure 22. Availability of unexpired DS-TB drugs at health facilities (n=126)



In addition to assessing the availability of DS-TB drugs at each facility, the assessment teams documented the storage conditions and practices observed. Most of the facilities (80.2%) were found to maintain a bigger stock of TB medications, but 31 percent of them reported a stockout of any TB medicines in the six months before the onset of COVID-19, and 41 percent reported that patients had gone without TB treatment because of stockouts in the six months before the onset of COVID-19. In observing the pharmacy storage area, 93.7 percent of the facilities assessed ensured that product names and expiry dates of the medicines were clearly indicated, and 58.7 percent had an allocated space to store any expired and/or damaged medicines (Table C-2.49 in Appendix C).

Management

Availability of Guidelines/Protocols

Policies, protocols, and guidelines on TB were observed at the study facilities at differing rates, depending on the document that was being asked about. The essential TB drug or medicines list, flowcharts/algorithms on TB diagnosis, and guidelines for conducting smear microscopy were observed at between 70 percent and 80 percent of the relevant health facilities. The training manual for DOT providers or CHWs, guidelines for the management of HIV and TB coinfection, TB messaging posters on walls of the health facilities, and guidelines for TB infection control were observed at between 40 percent and 50 percent of the relevant health facilities assessed. Last, flowcharts/algorithms on TB screening; guidelines on the use of chest x-ray for TB screening and diagnosis; the SOP for Direct Observation of Treatment, Short Course; Programmatic Management of Drug Resistant TB Implementation Guidelines; guidelines for diagnosis and treatment of TB among children; and TB leaflets, brochures, and/or pamphlets in local languages for distribution, (i.e., educational materials about TB) were observed at between 20 percent and 40 percent of relevant health facilities assessed. The GeneXpert testing algorithm for Implementation of Xpert Test as Primary Diagnostic Tool for Presumptive DS and DR-TB among selected vulnerable populations was observed at only 11.3 percent of the health facilities assessed (Table C-2.50 in Appendix C).

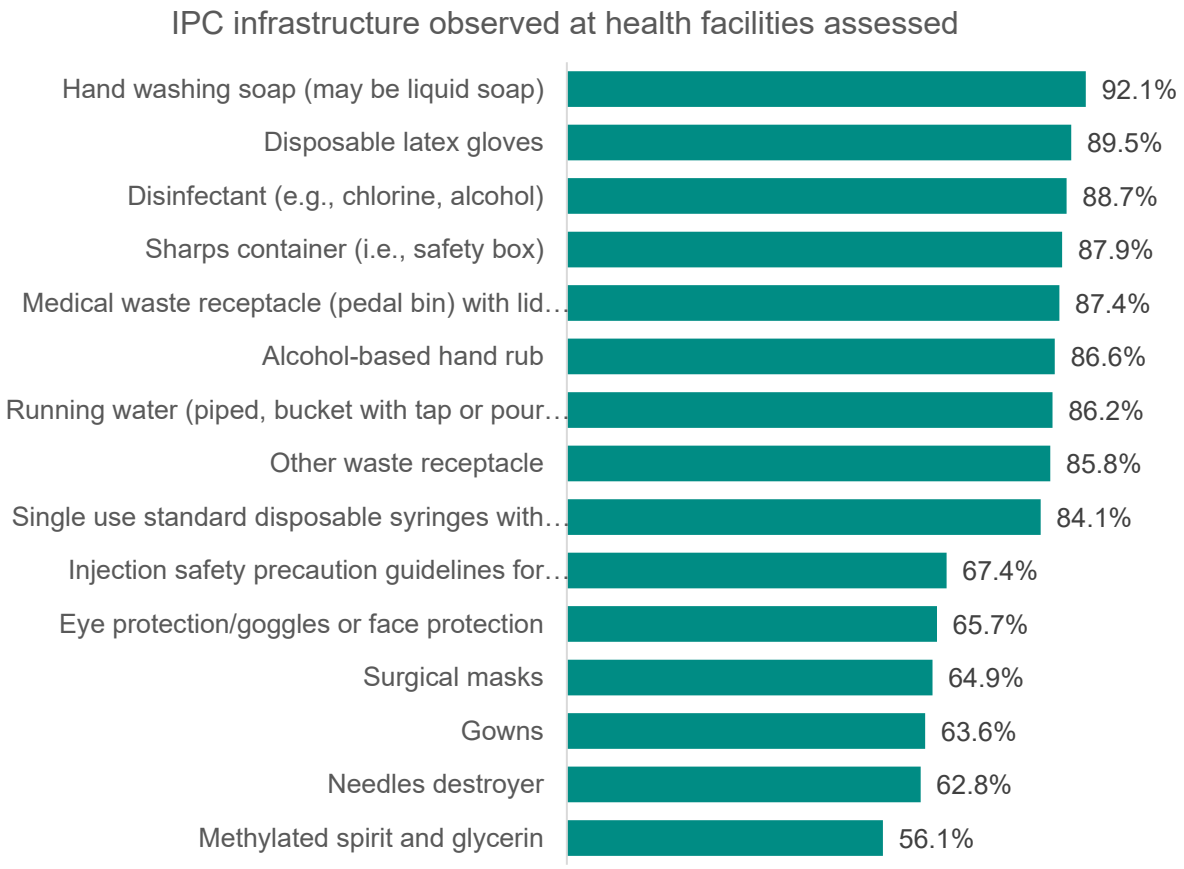
IPC

Healthcare settings present a high risk for the transmission of TB. It is therefore critical to follow IPC procedures to limit the transmission of the airborne disease and infection. As part of the assessment, study facilities were asked about the availability of resources to support IPC efforts and the IPC practices in place at the health facility.

Infrastructure

Generally, most facilities assessed had IPC infrastructure and equipment/commodities in place at the time of the assessment. Ninety-two percent of the facilities were found to have handwashing soap and 90 percent had disposable latex gloves available for health facility staff. Between 80 percent and 90 percent of health facilities were found to have disinfectant, sharps containers, medical waste receptacles with lids and liners, alcohol hand rub, running water, waste receptacles, and single-use standard disposable syringes with needles available at the facility on the day of the assessment (Figure 23 and Table C-2.51 in Appendix C). Between 50 percent and 70 percent of the facilities assessed had injection safety guidelines, eye protection, surgical masks, gowns, needle destroyers, and methylated spirit and glycerin available. Very little difference in availability of these commodities, equipment, or facility infrastructure was observed between the urban and rural health facilities (Table C-2.51 in Appendix C).

Figure 23. IPC equipment, commodities, and infrastructure observed at health facilities (n=239)



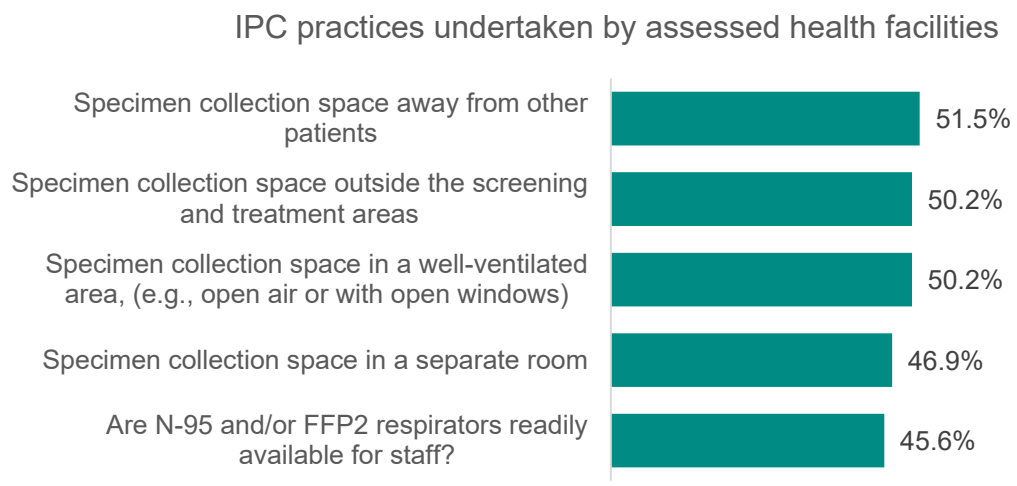
Practices

IPC practices were less common than IPC commodities, equipment, and infrastructure among the health facilities assessed. Fewer than half of the health facilities (45.6%) reported having a designated staff member to function as an IPC focal point for the facility. Surgical masks were found to be available for TB providers and TB patients at only one-third (33.5%) of health facilities assessed; however, among those facilities with surgical masks available, 91.3 percent reported that the masks were generally worn by presumptive and confirmed TB patients while attending their appointments at the health facility. Nearly three-quarters of health facilities (70.7%) reported that patients were routinely asked about cough when entering the facility. Similarly, 66.9 percent reported implementing cough triage for patients entering the facility. Just under half of health facilities (46.4%) reported having a separate waiting area to isolate potentially infectious patients. Cough monitors to assist with separating coughing patients from others existed at 47.7 percent of the facilities (Table C-2.52 in Appendix C).

Facilities were also asked about their IPC practices for TB specimen collection. Just over half of the facilities assessed reported that the space used to collect TB specimens was away from other patients (51.5%); the facility had a designated specimen collection space outside the screening and treatment areas (50.2%); and the facility had a specimen collection space that was

considered well ventilated. Only 46.9 percent of the facilities reported that their specimen collection space was in a separate designated room at the health facility. Last, fewer than half of the facilities (45.6%) reported that N-95 and/or FFP2 respirators were readily available to their staff (Figure 24 and Table C-2.51 in Appendix C).

Figure 24. IPC practices for specimen collection implemented at health facilities (n=239)



Facility Staff TB Screening Practices

In addition to the general IPC practices in place at the health facility, TB focal points were asked about TB screening for health facility staff. More than one-third (37.2%) of the facilities reported that they had a system in place to evaluate their full- and part-time staff for active TB disease. Among those facilities that reported screening staff for TB, 15.7 percent reported that they had staff members who had been diagnosed with active TB disease in the two years prior to the assessment. When comparing urban and rural facilities, a larger proportion of urban facilities reported having staff screening protocols in place compared with rural facilities. Nearly one-fifth (19.6%) of the facilities in urban locations reported staff members who had been diagnosed with TB, whereas only 10.5 percent of the rural facilities reported staff diagnosed with active TB disease in the two years prior to the assessment (Table C-2.54 in Appendix C).

In looking at the breakdown of TB cases among facility staff at relevant health facilities, primary facilities reported an average of nine cases among full-time staff in the past two years, and private facilities reported an average of two active TB cases among full-time staff. Rural health facilities reported an average of seven active TB cases identified among full-time TB staff compared with urban facilities, which reported an average of one case of active TB among full-time staff (Table C-2.55 in Appendix C). Among the 14 health facilities that reported TB cases among staff in the past two years, a total of 31 active TB cases among full-time staff and three active TB cases among part-time staff were reported (data not shown).

Impact of COVID-19

The Afghanistan QTSA had the unique opportunity to document the impact of COVID-19 on TB services, resources, and infrastructure. The impact was documented from the perspectives of the health facilities and TB patients.

TB Service Delivery Disruption

When asked about the effect of COVID-19 on TB services, TB focal points at just under half of the facilities surveyed (49%) reported that COVID-19 had impacted the delivery of TB services in some way. A larger proportion of higher-level facilities and facilities in urban settings reported that TB services were impacted because of COVID-19 (Table C-2.56 in Appendix C).

Facilities that reported being impacted by COVID-19 were asked to describe the impact observed on various facility services and activities by rating them as highly disrupted, somewhat disrupted, not disrupted, or no longer offered because of COVID-19. Only a very small proportion of the facilities (between zero and 6%) reported that a given service or activity was no longer offered because of COVID-19 (Table C-2.56 in Appendix C).

The activities that facilities reported being impacted by COVID-19 (rated as either highly disrupted or somewhat disrupted) were varied. For example, 76.1 percent of the facilities reported disruptions in referrals of presumptive TB cases from the community; 73.5 percent reported disruptions for referrals of presumptive TB cases by private health facilities; and 73.5 percent reported disruptions for referrals of presumptive TB cases by private practitioners. For diagnostic testing, 72.7 percent of the facilities reported disruptions to smear microscopy testing, and 48.7 percent reported disruptions to GeneXpert testing. Fewer than half of these facilities (46.2%) reported disruptions to specimen transport, and just over half (51.3%) reported disruptions to DST because of COVID-19 (Table C-2.56 in Appendix C).

In discussing the impact of COVID-19 on TB treatment, facilities reported disruptions to DOT (75.2%) and the supply of DS-TB medicines (62.4%). Disruptions to treatment support services were also observed, including treatment support for TB patients outside the health facility (65%), reminder phone calls or SMS texts to support patient adherence to medication and treatment (57.3%); follow-up phone calls or SMS texts to TB patients, (e.g., for a missed appointment, to schedule a home visit) (53%); and TB awareness and health education services (71%) (Table C-2.56 in Appendix C).

Last, 71 percent of these facilities reported that COVID-19 had disrupted planned TB-related training for health facility personnel and planned supervision visits to the TB unit (80.3%) (Table C-2.56 in Appendix C).

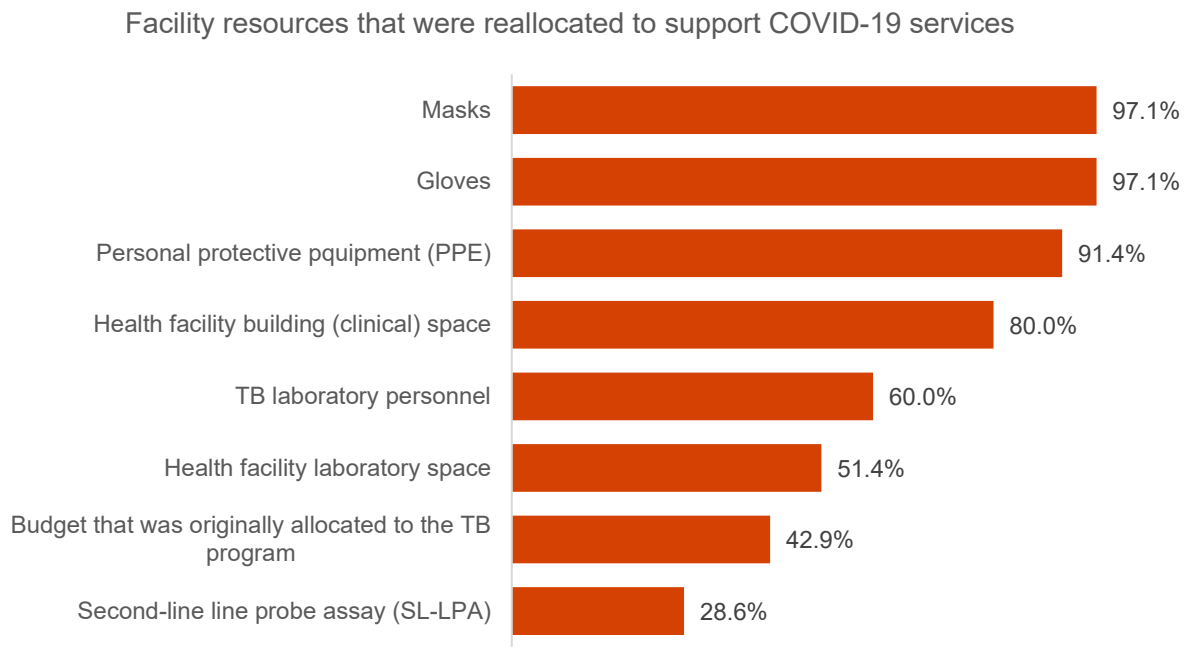
TB Resource Reallocation

In discussing the reallocation of TB resources to support COVID-19 services, only a small proportion (14.6%) of the health facilities surveyed reported experiencing reallocation of any type of resources (e.g., funds, staff, commodities). However, just under one-quarter of the facilities (22.2%) reported that both full-time and part-time TB service providers at their facility were assigned to provide COVID-19 services, and half of the facilities that provided in-patient

services reported that the facility had reduced the number of DS-TB in-patient beds due to their reallocation for COVID-19 patients (Tables C-2.57 and C-2.58 C-in Appendix C).

Facilities that reported experiencing TB resource reallocations were asked to detail the exact resources that were reallocated. Of these facilities, more than 90 percent reported experiencing the reallocation of masks (97.1%), examination gloves (97.1%), and personal protective equipment (91.4%). Eighty percent reported the reallocation of clinical space in the health facility; 51.4 percent reported the reallocation of TB laboratory space; and 60 percent reported the reallocation of TB laboratory personnel to support COVID-19 services. Last, 42.9 percent reported the reallocation of their budget for TB, and 28.6 percent reported the reallocation of second-line line probe assay testing (Figure 25 and Table C-2.57 in Appendix C).

Figure 25. TB resources reallocations due to COVID-19 experienced by heath facilities (n=35)



Changes in TB Service Attendance

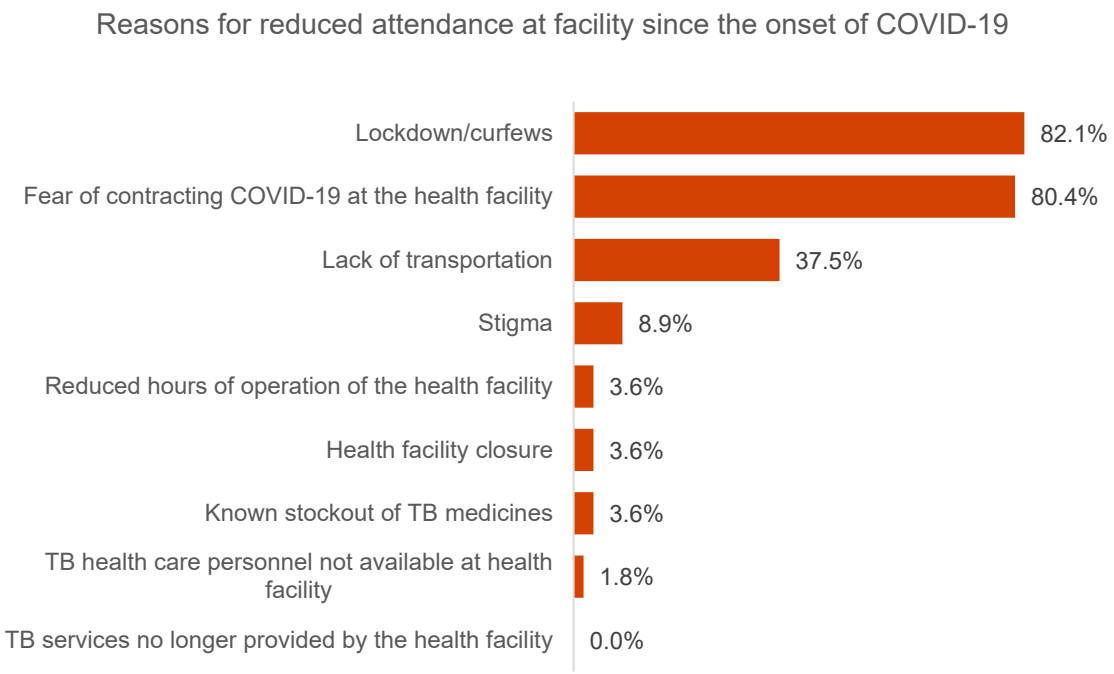
About half (46.9%) of the facilities surveyed reported that COVID-19 had impacted the number of presumptive TB patients that were attending the facility, and 41.1 percent reported that TB testing and diagnosis services had been impacted since the onset of COVID-19. When asked to describe the change in attendance for TB testing and diagnostic services, more than three-quarters of those facilities (78.8%) reported that the rate of TB testing and diagnosis had decreased by either “a little” or “a lot” (Table C-2.59 in Appendix C).

More than two-thirds (67.1%) of the facilities undertaking contact tracing reported that COVID-19 had impacted their ability to perform contact tracing for TB patients. Of those facilities, 66 percent reported that contact tracing was happening for only a limited number of TB cases, and

34 percent reported that they were only able to perform contact tracing of TB patients virtually through calls or SMS (Table C-2.59 in Appendix C).

When asked about the impact of COVID-19 on TB treatment services, 45.2 percent of the facilities offering treatment services reported a change in the number of TB cases initiated on TB treatment since the onset of COVID-19. When asked to qualify the change, 78.9 percent of those facilities reported that the number of TB cases being initiated on TB treatment had decreased by "a little" or "a lot" (Table C-2.59 in Appendix C). The TB focal points at these facilities were further asked to consider the reasons that they believed the number of patients coming to the health facility for TB treatment initiation and/or monitoring had decreased since the onset of COVID-19. The vast majority felt that the decrease was likely because of lockdowns/curfews (82.1%) or the patient's fear of contracting COVID-19 at the health facility (80.4%). About one-third (37.5%) suggested that the decreased attendance was because of a lack of transportation, and 8.9 percent felt that the decrease could be due to fear of stigma. Other reasons for the decreased attendance reported were reduced hours of operation of the facility, health facility closures, known stockouts of TB medicines, and TB healthcare providers not being available at the health facility (Figure 26 and Table C-2.59 in Appendix C).

Figure 26. Reasons given by TB focal points for decreased facility attendance during COVID-19 (n=56)



Changes to DS-TB Treatment Services

Health facilities were asked to describe the changes that had been made to DS-TB treatment services because of COVID-19. Just over one-third of the TB treatment facilities (37.3%) reported that there had not been any changes to TB services since the onset of COVID-19. However, just under half (47.6%) indicated that there had been delays in scheduling routine TB

care visits for TB patients, and fewer than one-third of the facilities (30.2%) reported implementing multi-month dispensing of TB medications for patients to reduce the number of visits they needed to make to the health facility. Moreover, 19.8 percent reported increasing their use of telemedicine consultations in lieu of in-person visits and having greater reliance on community-based treatment supporters to follow-up with patients. The increased use of remote adherence monitoring (i.e., SMS follow-ups, voice reminders) was reported by 14.3 percent of the health facilities. Having limited capacity to conduct follow-up smears for treatment monitoring was reported by 11.1 percent of the treatment facilities surveyed (Table C-2.60 in Appendix C).

COVID-19 Disruptions from the Patient Perspective

In addition to understanding the impact of COVID-19 on TB services from the perspective of the health facilities, the assessment captured the perspectives of current TB patients. More than three-quarters (76.9%) of the TB patients interviewed reported that COVID-19 had impacted either their decision or ability to access TB services at the health facility. When asked what specifically impacted their decision or ability to access TB services, 90.6 percent of the TB patients reported fear of contracting COVID-19 while at the health facility. Lack of transportation (14.1%) was the next most common reason stated. Other factors that impacted their decision to go to the health facility were reduced hours of operation of the health facility (12.9%), lockdowns/curfews (12.9%), health facility closure (9.4%), TB services no longer provided by the health facility (8.2%), and stigma (4.7%) (Table C-2.61 in Appendix C).

When asked what specific services they had difficulty accessing, 60 percent of TB patients had difficulty accessing TB diagnostic services; 34.1 percent of the patients had difficulty initiating their TB treatment; and 14.1 percent reported difficulties with TB treatment follow-up visits because of COVID-19. Only 4.7 percent of the patients reported having difficulties with pharmacy visits and/or medication pickups (Table C-2.61 in Appendix C).

Patients were also asked about the TB treatment support services that they received during the COVID-19 pandemic. Only 29.6 percent received remote advice and support for TB, and of those patients, the vast majority (89.6%) received remote support via a mobile phone. About three-quarters (76.1%) of the patients interviewed reported that TB healthcare providers suggested that they take special precautions during COVID-19. Such precautions included wearing a mask in public (87.8%), observing social distancing (80.1%), self-isolating at home (68.9%), and minimizing their trips outside the home (65.9%) (Table C-2.61 in Appendix C).

Process Indicators

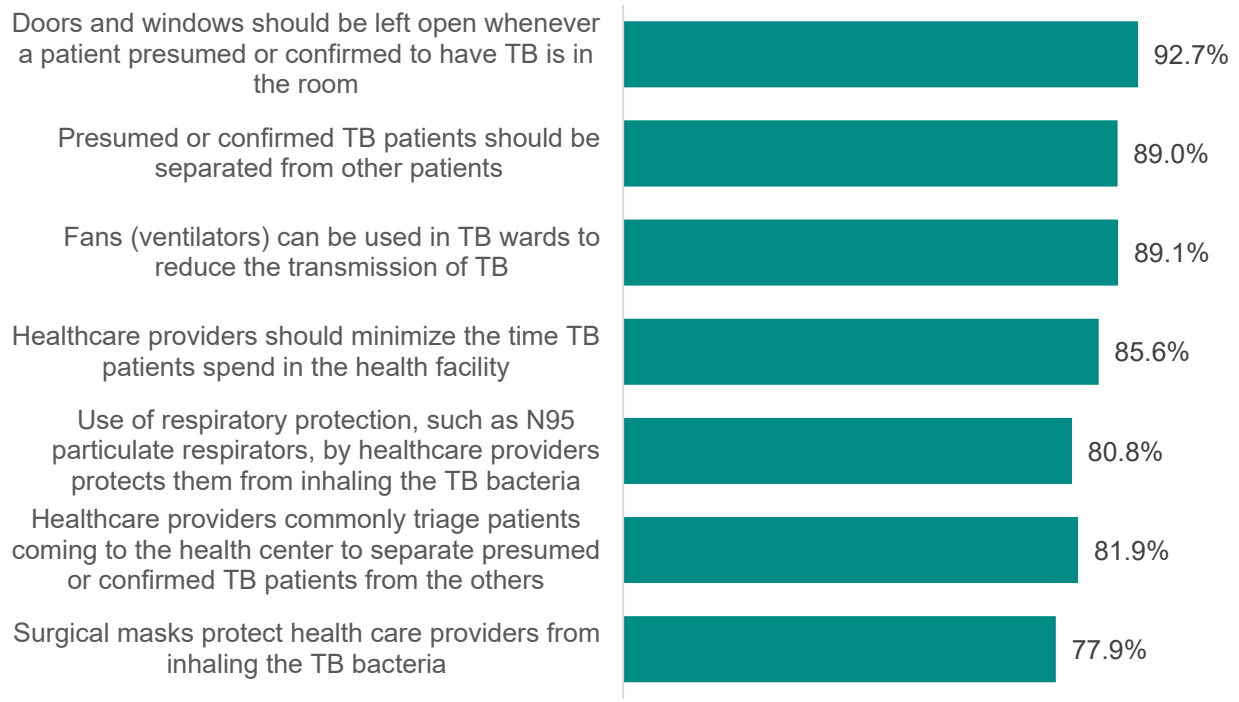
Provider Knowledge and Practices

Providers' knowledge and practices were assessed through the Provider Interview, which posed questions to individual TB providers, and also through the Facility Audit, which posed questions to the TB focal points.

IPC Knowledge

The TB providers were assessed on their TB IPC knowledge using targeted questions (Figure 27 and Table C-3.1 in Appendix C). Overall, TB providers had strong TB IPC knowledge, with each targeted question being answered correctly by more than three-quarters of respondents. An even larger proportion of TB providers (85% or more) knew that doors and windows should be left open when a presumed/confirmed TB patient was in the room; that presumed or confirmed TB patients should be separated from other patients; that fans (ventilators) can be used in TB wards to reduce the transmission of TB; and that healthcare providers should minimize the time that TB patients spend at the health facility.

Figure 27. TB provider IPC knowledge (n=662)



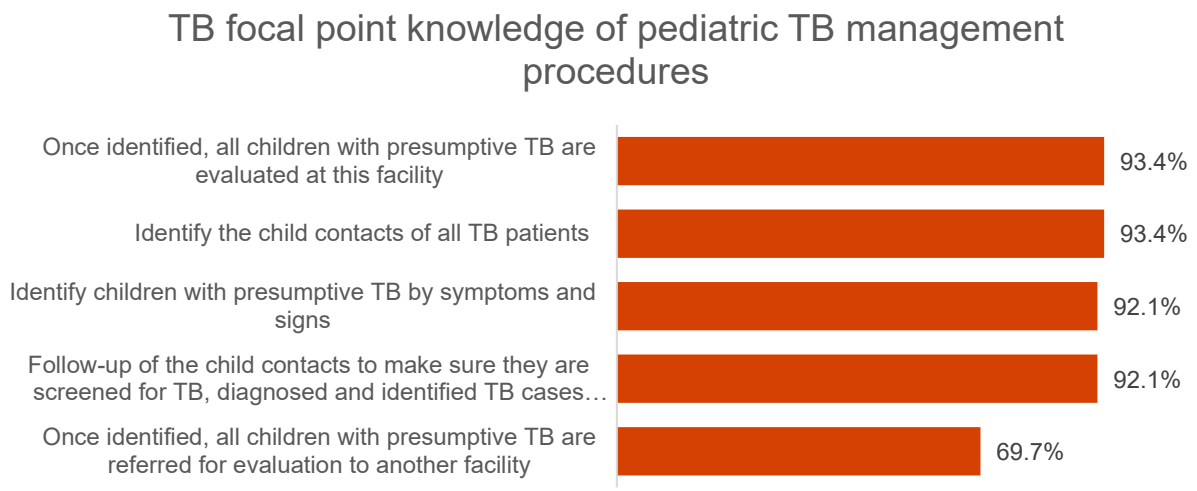
Pediatric TB Knowledge

TB focal points at the health facilities that provide pediatric TB services were asked a series of questions to assess their knowledge of pediatric TB diagnosis and management. When asked about methods for diagnosing TB in children, 47.9 percent of the TB focal points reported that they should use sputum induction to get samples from children, and 2.1 percent reported that they should use gastric aspiration to get samples from children for testing. In terms of diagnostic tests, the majority (97.2%) reported that the clinical algorithm for childhood TB should be used. More than half of the TB focal points reported that x-rays (66.2%) or smear microscopy (60.6%) should be used to diagnose TB in pediatric patients. The use of GeneXpert for pediatric TB diagnosis was reported by 35.2 percent of respondents, whereas only 22.6 percent indicated that

culture should be used, and 9.9 percent indicated that samples from nasopharyngeal aspirates should be tested to diagnose pediatric TB (Table C-3.2 in Appendix C).

In addition to knowledge about diagnostic procedures for pediatric presumptive TB cases, the TB focal points were asked about management procedures for pediatric TB cases. A large majority (92.1%) of the respondents indicated that they could use signs and symptoms to identify children with presumptive TB. Furthermore, 93.4 percent of respondents indicated that once identified, children with presumptive TB were evaluated at the facility, whereas 69.7 percent reported that presumptive TB cases among children were referred to another facility for evaluation. Additionally, 93.4 percent of respondents reported that they should identify the child contacts of all TB patients, and 92.1 percent reported that they would follow up child contacts to make sure that they were screened for TB, diagnosed, and initiated on treatment (Figure 28 and Table C-3.3 in Appendix C).

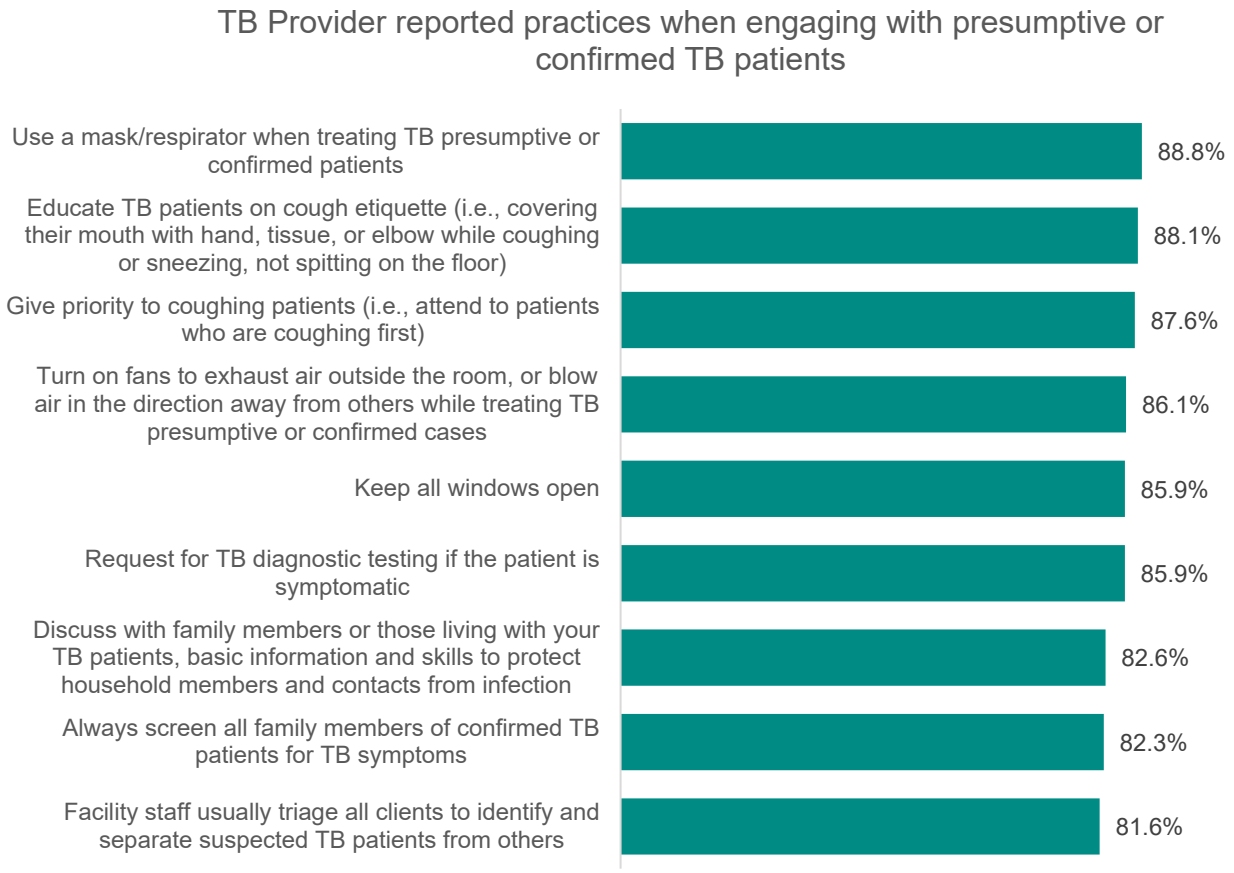
Figure 28. TB focal point knowledge of pediatric TB services and management procedures (n=76)



Provider Reported Practices

In addition to being evaluated on their TB IPC knowledge, TB providers were presented with targeted questions assessing what practices they used when they were with a presumed or confirmed TB patient. More than three-quarters of TB providers indicated that they used a mask/respirator when treating presumptive or confirmed TB patients; attended to patients who were coughing before attending to others; educated TB patients on cough etiquette; turned on fans to exhaust air outside the room or blow air in the direction away from others when treating presumptive or confirmed TB cases; requested TB diagnosis testing if the patient was symptomatic; screened all family members of confirmed TB patients for TB symptoms; kept all windows open; discussed with family members the basic information and skills to protect household members and contacts from infection; and triaged clients to identify and separate suspected TB patients from others (Figure 29 and Table C-3.1 in Appendix C).

Figure 29. TB provider reported practices when engaging with presumptive or confirmed TB patients (n=662)



Provider Capacity

Supervision

When asked about supervision received by the facility, almost three-quarters of the TB focal points (72.8%) reported that someone from an upper management-level office and/or health facility had conducted a supervisory visit in the past three months; however, fewer than half of the private facilities (46.3%) reported receiving a supervision visit in the three months before the survey. In terms of the activities performed during the supervision visit, 80.3 percent reported that the pharmacy was assessed for drug stockouts, expired medicines, records, etc.; 79.9 percent reported that the supervisor completed a supervisory checklist; and 66.1 percent reported that they were provided a record of the written comments or suggestions from the visit. Moreover, just over half of the TB focal points reported that the performance of the lab was assessed (56.5%); TB data quality, completeness, and reporting timeliness were assessed (54%); and TB data were used to discuss the performance of the health facility (53.1%) during the most recent supervisory visit conducted (Table C-3.19 in Appendix C).

Training

The assessment documented providers' capacity to deliver quality TB care in two ways: (1) by asking the TB focal points if any TB providers at the facility had received TB-related training (including refresher training) in the past two years (Table C-3.5 in Appendix C) and (2) by directly asking all TB providers that responded to the Provider Interview about the TB-related training that they had personally received in the past two years (Table C-3.4 in Appendix C). Overall, both the TB focal points and TB providers reported low rates of training. Just over one-quarter of TB focal points (26.4%) reported that TB providers at their facility had received Afghanistan's NTP SOP training in the past two years. When asked about specific topics on which TB providers had been trained, only four topics were reported by more than 20 percent of TB focal points. On the other hand, only 16 percent of the TB providers reported receiving any training in the past two years (data not shown). Fewer than half (41.3%) of TB providers reported being trained on the diagnosis of TB based on clinical symptoms or examination, compared with 34.3 percent of TB focal points reporting this. When asked if they had received training on the diagnosis of TB based on sputum tests using smear microscopy, TB focal points and TB providers gave similar answers (33.5% and 34.4%, respectively) (Tables C-3.4 and C-3.5 in Appendix C). Moreover, 21.8 percent of TB focal points reported TB providers being trained on the identification of presumptive DR-TB, and 21.3 percent of TB focal points reported TB providers being trained on the management of DS-TB treatment (Table C-3.5 in Appendix C).

The most common training received reported by the TB focal points largely aligned with those reported by the TB providers themselves. Overall, 27.3 percent of TB providers reported receiving training on diagnosis of TB based on clinical symptoms or examination, and 20.5 percent of TB providers reported receiving training on diagnosis of TB based on sputum testing using smear microscopy. Moreover, 18.9 percent of TB providers reported receiving training on the management of DS-TB treatment, and 16.3 percent of TB providers reported receiving training on the identification of presumptive DR-TB (Table C-3.4 in Appendix C).

Patient Knowledge

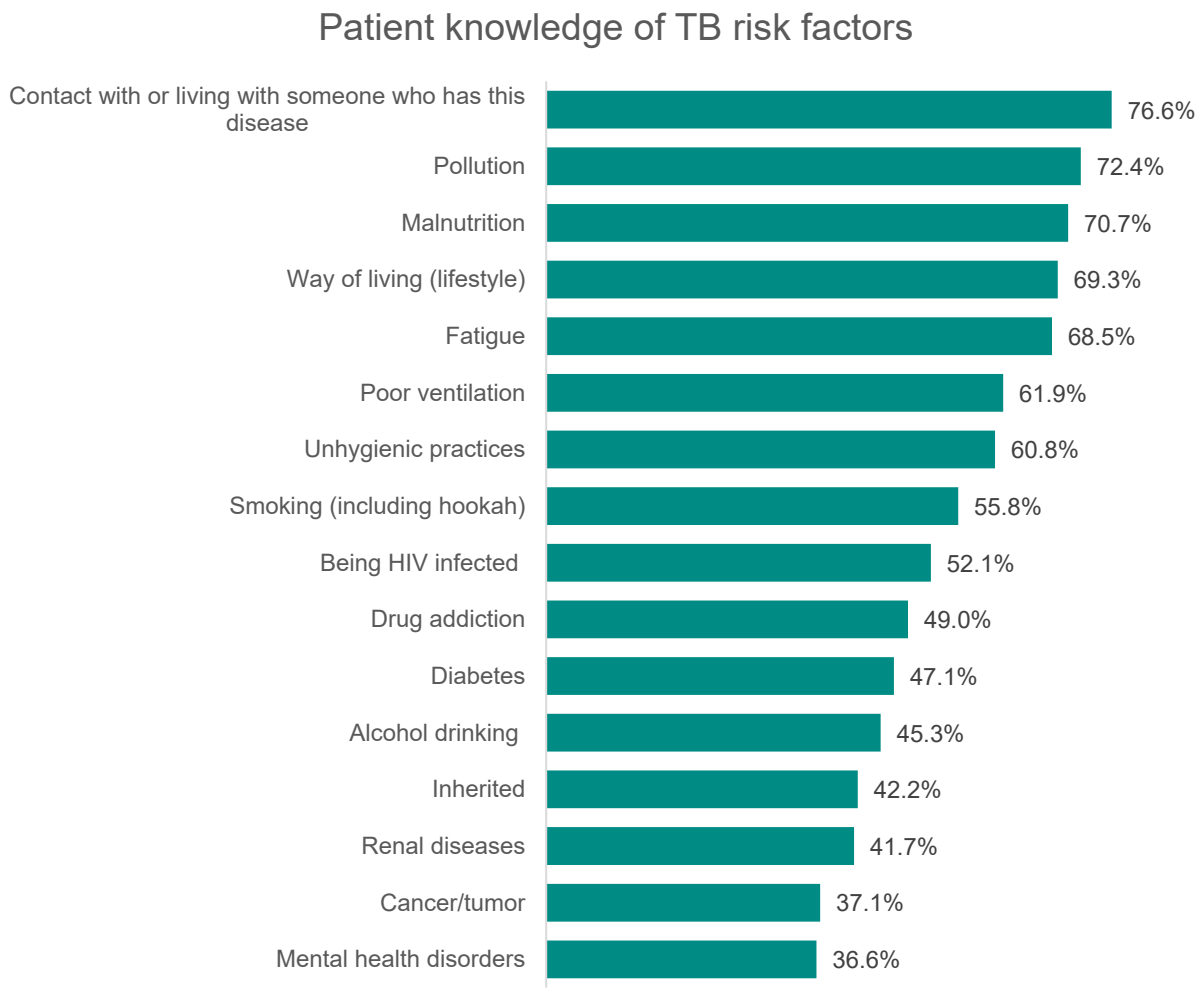
Patients were asked to list TB risk factors, modes of transmission, and drug side effects to gauge their level of knowledge of TB disease. They were first asked to give their answers unprompted and were then prompted with any remaining answers that they did not initially mention. Further disaggregation of the responses provided by DS-TB patients compared with DR-TB patients (for patients who knew their TB status) and/or between patients from urban and rural areas are available in the tables in Appendix C.

Risk Factors

Patients from urban and rural areas and patients with DS-TB and DR-TB gave similar responses when discussing risk factors for TB (Figure 30 and Table C-3.6 in Appendix C). Among patients interviewed, 68 percent or more mentioned lifestyle, malnutrition, fatigue, pollution, and contact with/living with someone who had TB as risk factors for the disease. Between 50 percent and 67 percent of the patients reported smoking, unhygienic practices, poor ventilation, and being HIV infected as risk factors. Fewer than 50 percent of the patients stated that diabetes,

drinking alcohol, cancer or tumors, renal diseases, mental health disorders, drug addiction, and genetics were risk factors associated with contracting TB.

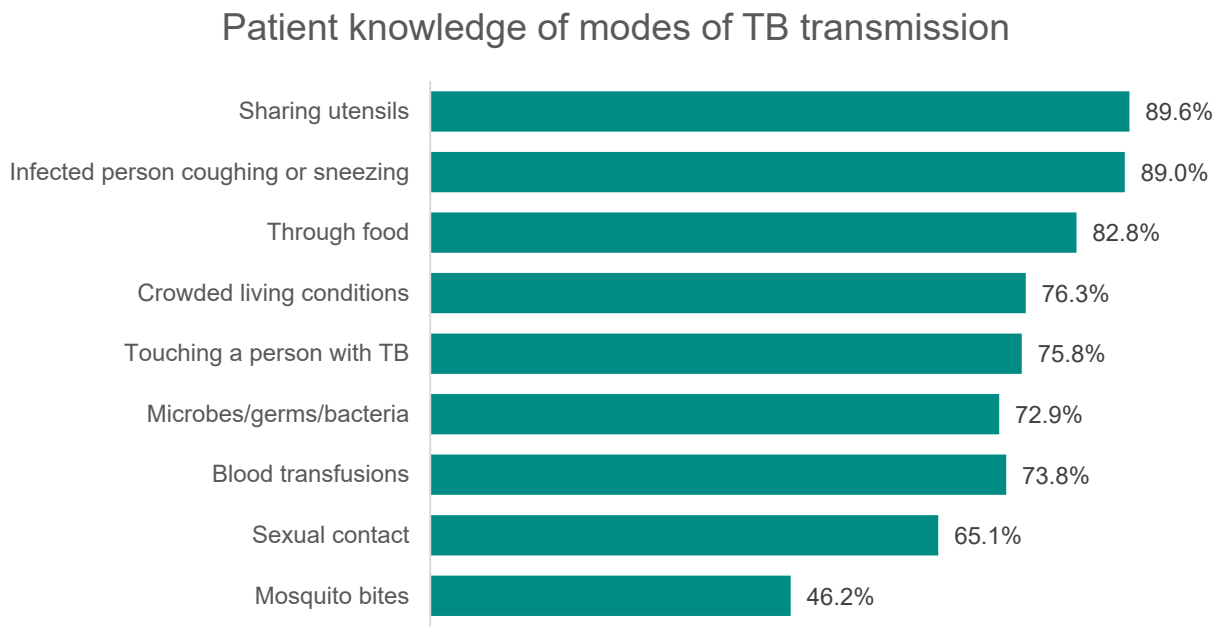
Figure 30. Patient knowledge of TB risk factors (n=355)



Transmission Knowledge

Patients had an overall high level of knowledge about the modes of TB transmission, with 68 percent or more of the patients reporting that TB can be transmitted through microbes/germs/bacteria, the coughs or sneezes of an infected individual, crowded living conditions, blood transfusions, sharing utensils, touching a person with TB, and through food (Figure 31 and Table C-3.7 in Appendix C). A smaller proportion identified mosquito bites and sexual contact as possible modes of transmission (46% and 65%, respectively).

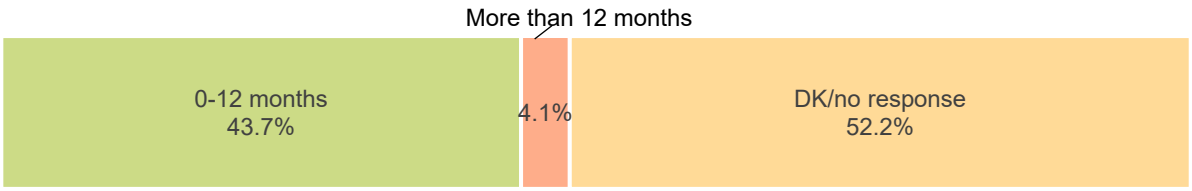
Figure 31. Patient knowledge of modes of TB transmission (n=355)



Treatment Duration

Patients were asked whether they knew the typical duration of treatment needed for DR-TB (Figure 32). Although 44 percent of the patients believed that treatment took between 0 and 12 months, more than half of the patients either reported that they did not know the answer or did not provide a response to the question. A small proportion believed that treatment took longer than 12 months.

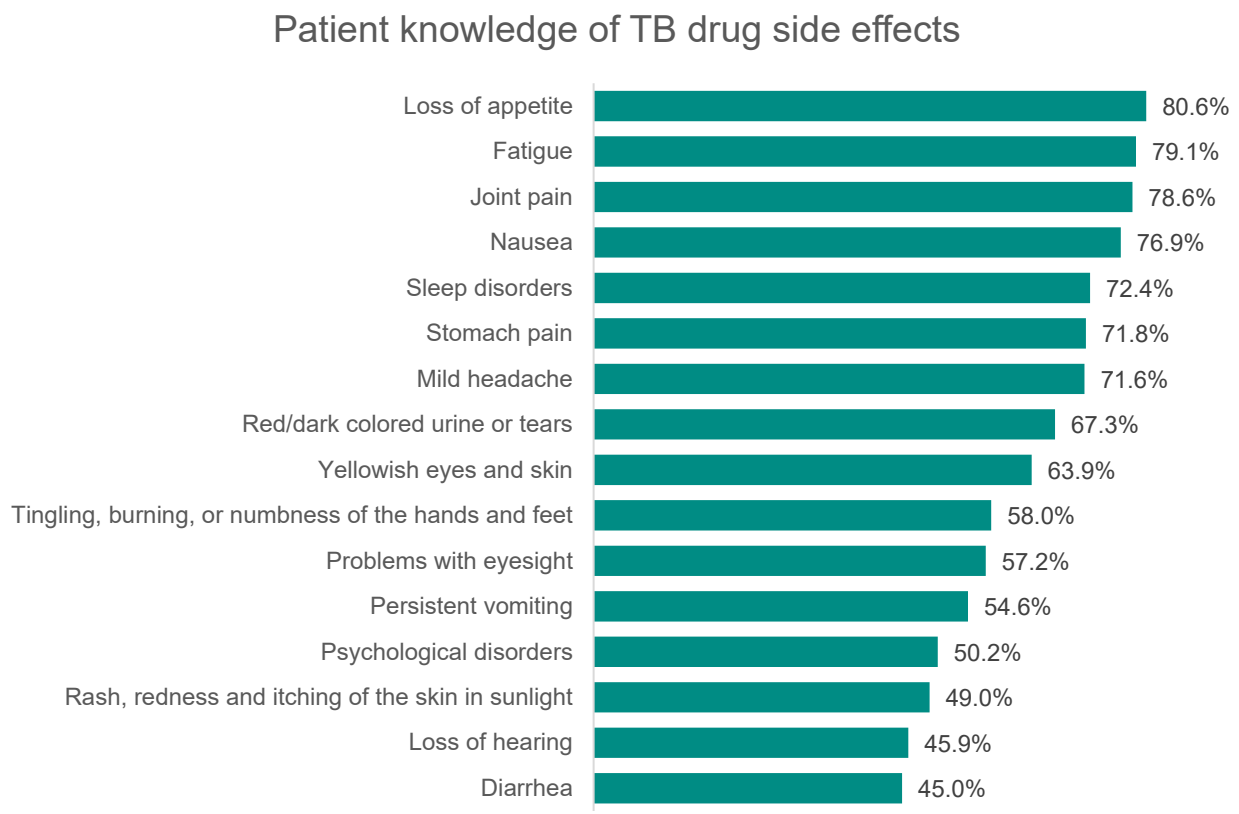
Figure 32. Patient knowledge of DR-TB treatment duration (n=389)



Side Effects

At least 75 percent or more of the patients mentioned nausea, loss of appetite, joint pain, and fatigue as side effects associated with TB medications (Figure 33 and Table C-3.9 in Appendix C). Between 50 percent and 75 percent of the patients mentioned persistent vomiting, psychological disorders, red/dark colored urine or tears, yellowish eyes and skin, problems with eyesight, stomach pain, sleep disorders, mild headache, and tingling of the hands and feet. Fewer than 50 percent of the patients mentioned loss of hearing, diarrhea, and rash.

Figure 33. Patient knowledge of TB drug side effects (n=355)



Patient-Provider Interaction

The study collected information about patient-provider interactions during TB service delivery from both the provider's and the patient's perspectives.

Patient Perspective

Patients were asked about the interactions that they had with healthcare providers during their visits to the facility (Tables C-3.10 and C-3.11 in Appendix C). More than 85 percent of the patients said that providers explained things in a way that they could understand; listened to their opinions and ideas on the best way to follow treatment; discussed their status or progress at every scheduled appointment; listened carefully to them; addressed their worries about the disease seriously; provided them with enough privacy during the examination; explained how to cope with their problems; told them how the disease could affect their everyday life; and gave them a chance to ask questions about anything that concerned them. About 64 percent of the patients said that they worried that other patients could hear their conversation with their healthcare provider.

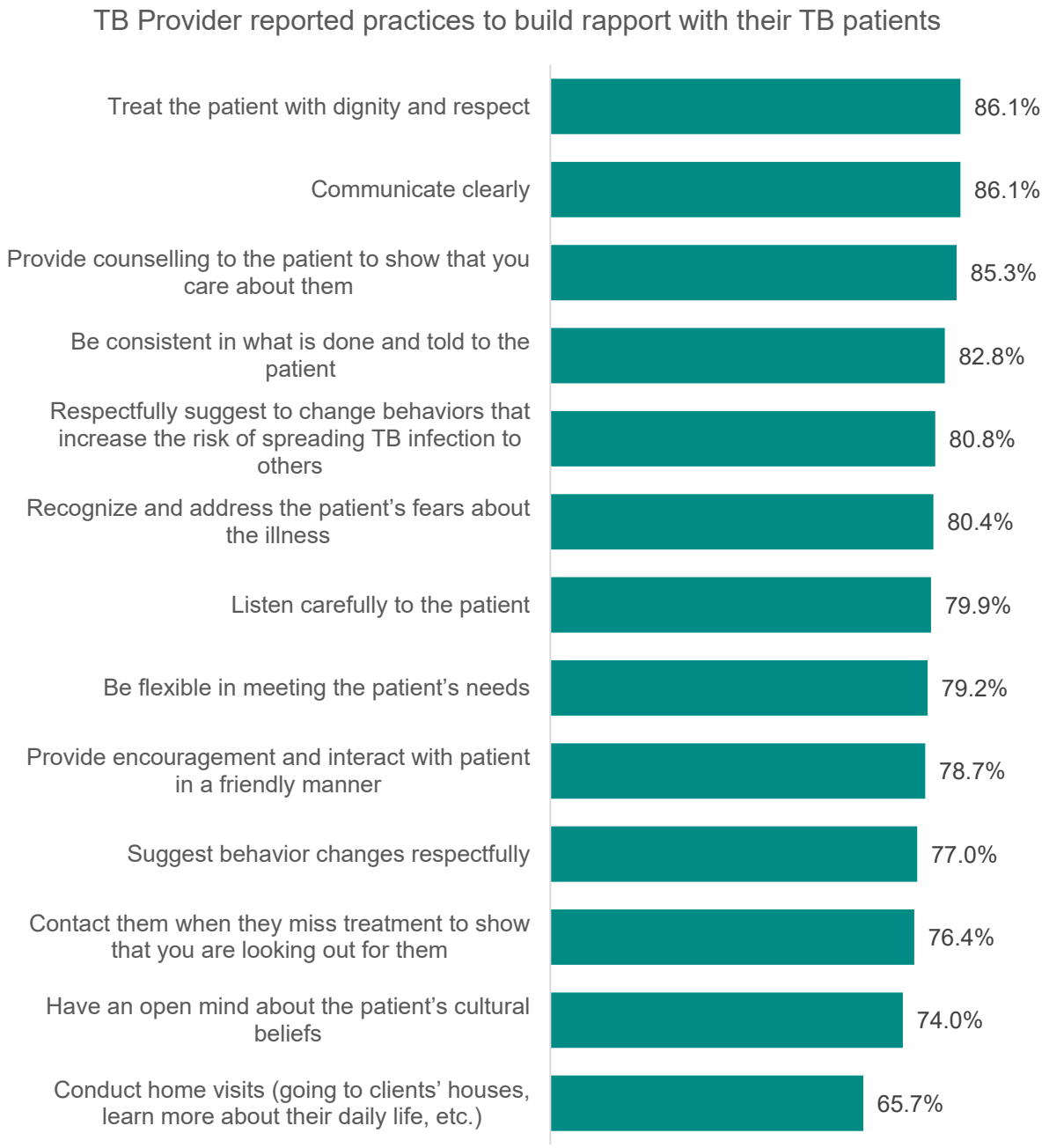
Patients were also asked about the information healthcare providers shared with them during their visits, first unprompted without any answer options provided to them, and then prompted with responses that they did not initially provide (Table C-3.12 in Appendix C). More than 90

percent of the patients (prompted and unprompted) said that they had received information about how the disease was spread to others; cough hygiene; that TB could be cured; how long treatment would last; the importance of taking medicines regularly and under DOT; the need for follow-up sputum tests; the importance of taking medicines through the end of treatment; when to come back for the next TB follow-up care visit; and how to prevent the spread of disease to other people. About 87 percent of the patients reported being told about the danger signs of the disease getting worse and what to do if they had side effects from the medicine. Although just 30.8 percent of the patients said that they had received materials from the health facility to remind them about the treatment information, all those who had received materials said that they were appropriate to their health situation, and 98.3 percent said that they understood the materials and found them helpful.

Provider Perspective

TB providers were asked what they did to establish a good rapport and build trust with their patients (Figure 34). Providers in urban and rural areas provided similar responses (Table C-3.13 in Appendix C). More than 85 percent of providers reported that they communicated "clearly" with patients, treated their patients with "dignity and respect," and showed that they cared for patients by providing them with counseling. At least three-quarters of the providers said that they were flexible in meeting their patients' needs, listened carefully to patients, recognized the patients' fears about TB, suggested behavior changes respectfully, suggested behavior changes to reduce the risk of spreading the disease, contacted patients after they missed an appointment, and provided encouragement to patients.

Figure 34. TB provider reported practices to build rapport and establish trust with patients (n=662)



Providers were asked about the questions they asked their patients during the initial assessment to determine their understanding of TB (Table C-3.14 in Appendix C). In some cases, differences were observed in the responses given by providers at the four types of facilities (tertiary, secondary, primary, and private). For example, 85.9 percent of providers asked patients about their previous medical/psychosocial history, and 79 percent asked about the patient's attitudes/beliefs about TB. More than 70 percent of providers at tertiary-, secondary-, and primary-level facilities, but under 60 percent of providers at private facilities, asked patients for

their personal information (professional activity, living situation, etc.). Providers mentioned asking patients about potential barriers to treatment and relevant resources least often (56.1% and 53.5%, respectively).

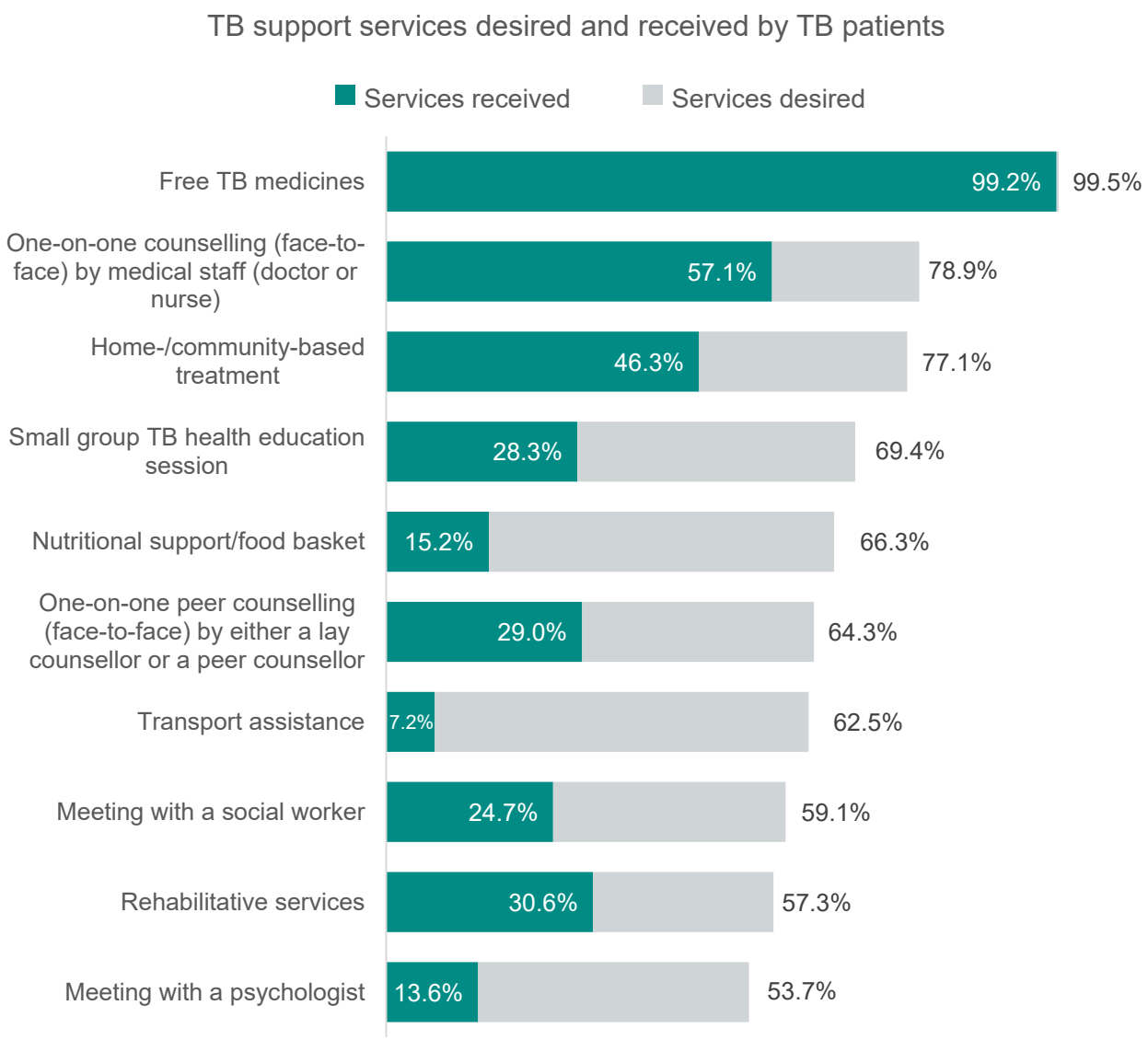
Providers were also asked about the information or topics that they discussed with patients during diagnosis and treatment (Table C-3.15 in Appendix C). More than three-quarters reported telling patients what TB was; that TB could be cured; how medications should be taken; how long TB treatment would last; and the importance of taking medications for the full course of treatment. At least 60 percent of providers told patients how to protect household members and contacts from infection; what the test results meant; what to do when they missed their treatment; the need for a treatment supporter; the options available for treatment support; what to do if they ran out of TB medications; possible medication side effects; what to do if they experienced side effects from the TB medication; and overall good practices to follow, including not smoking or drinking alcohol, practicing good hygiene, and IPC.

Patient Satisfaction

Desired vs. Received Services

Patients were asked to indicate the TB services that they wanted to receive versus the services that they had actually received during their treatment (Figure 35 and Tables C-3.16 and C-3.17 in Appendix C). Although nearly all patients who indicated that they wanted free TB medicines received them, there were wide discrepancies between the other services that patients wanted and the services that they had actually received. For example, although 62.5 percent of the patients expressed a desire for transport assistance, only 7.2 percent indicated that they had received this service.

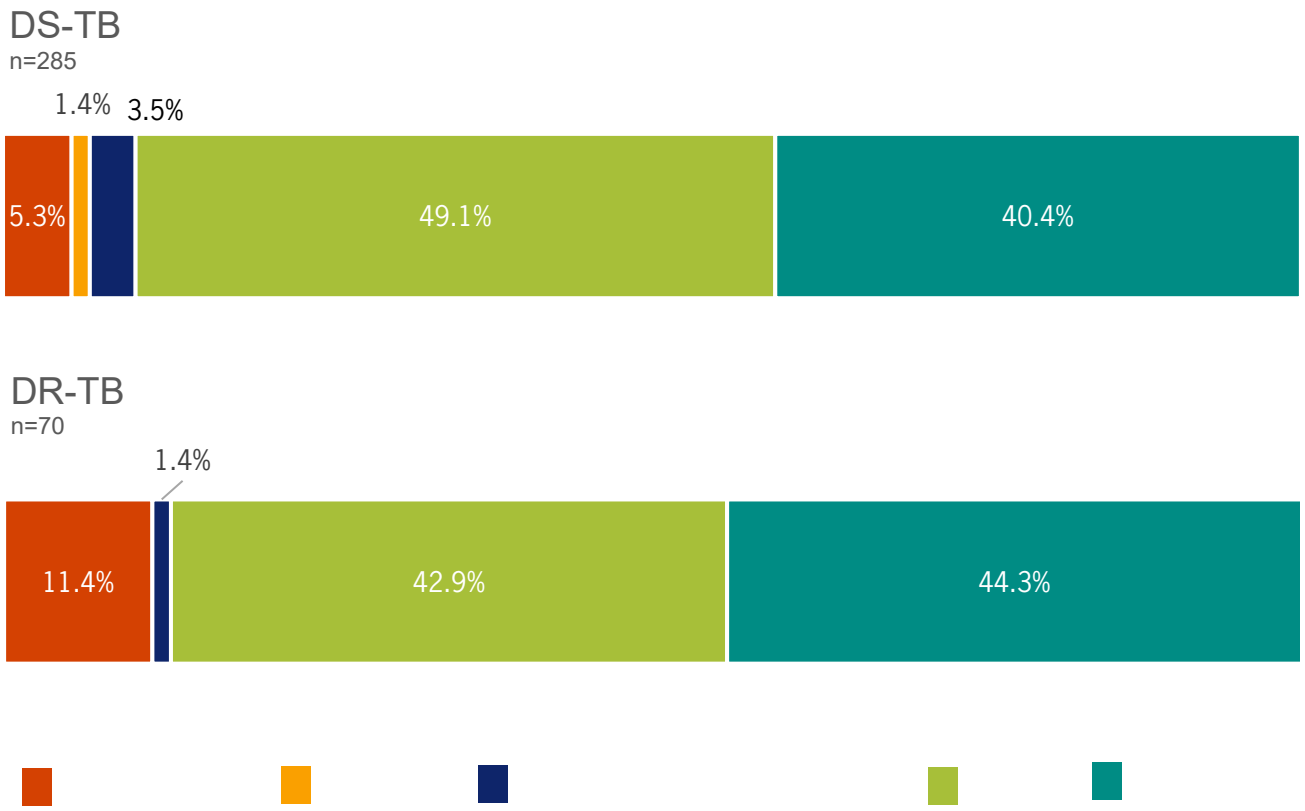
Figure 35. TB support services desired and received by TB patients (n=389)



Overall Satisfaction

Despite many patients not receiving all the services that they desired, about 90 percent of them reported being either satisfied or very satisfied with the TB care that they had received (Figure 36). In some cases, there were slight differences in patient satisfaction between patients with different characteristics, including between patients with DS-TB and DR-TB. More DR-TB patients indicated that they were very dissatisfied compared with DS-TB patients (11.5 % versus 5%, respectively). The highest levels of dissatisfaction were reported by patients who selected "other" as their employment status (20%) (Table C-3.18 in Appendix C). Patients who travelled by taxi or bus to the health facility reported higher levels of dissatisfaction than patients who used other means of transport.

Figure 36. Overall patient satisfaction with TB care received at facility, by patient type



Outcome Indicators

Patient health outcomes are a vital component of an assessment of the quality of TB services. The patient interviews and register reviews provided information on TB prevention and treatment outcomes. However, because of the limited availability of registers at health facilities at the time of data collection, and a large proportion of missing outcome data in registers that were available, the method for calculating outcomes was altered. Rather than using the total number of people initiated on treatment as the denominator, DS-TB, DR-TB, and TPT outcomes were calculated using the total number of outcomes recorded in the available registers as the denominator.

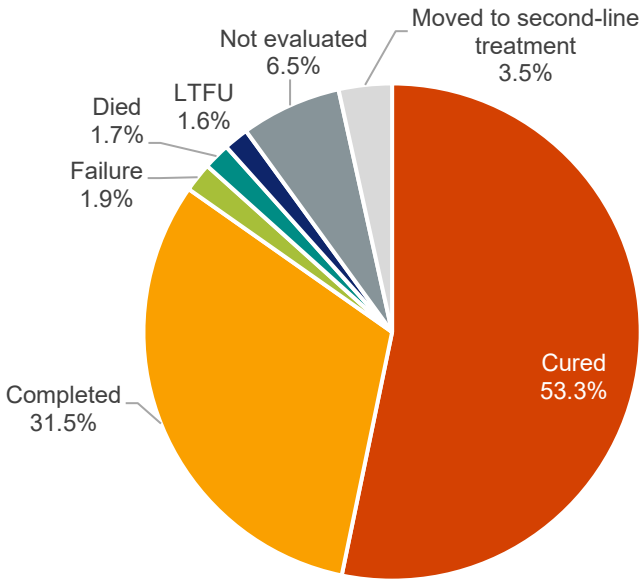
DS-TB Outcomes

TB treatment outcomes for DS-TB were assessed using the TB Treatment Register. Data for all DS-TB patients who started TB treatment between June 1, 2018, and May 31, 2019, and had an outcome recorded were reviewed and included in the calculation.

As Figure 37 and Table C-4.1 in Appendix C show, 53.3 percent of DS-TB patients were cured, and 31.5 percent completed treatment, giving a treatment success rate of 84.8 percent. Two percent each were recorded as having treatment failure, having died during treatment, and as being classified as lost to follow-up (LTFU). Another 6.5 percent of the cohort were not

evaluated (i.e., did not have an outcome recorded), and 3.5 percent were moved to second-line treatment. Appendix B provides detailed definitions for each treatment outcome.

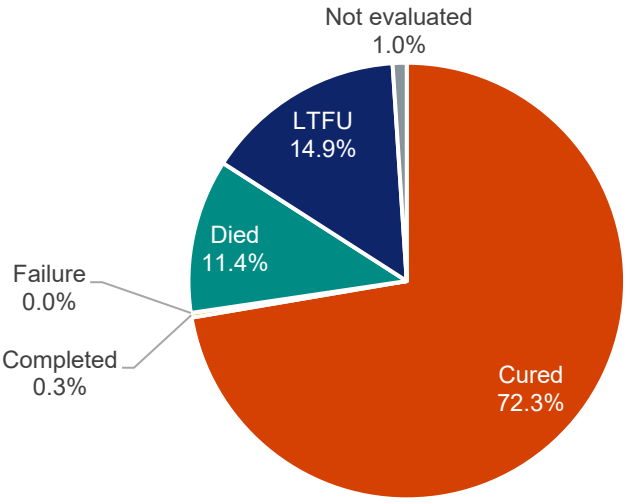
Figure 37. Treatment outcomes for new DS-TB patients (n=9,654)



DR-TB Outcomes

TB treatment outcomes for DR-TB were assessed using the DR-TB Patient Treatment Register. Data for all DR-TB patients who started treatment between September 1, 2016, and August 31, 2018, and had an outcome recorded were reviewed and included in the calculation. As Figure 38 and Table C-4.2 in Appendix C show, 72.3 percent of the patients treated for DR-TB were recorded as cured (and an additional 0.3 percent were recorded as completing DR-TB treatment), giving a 72.6 percent treatment success rate. Eleven percent of the patients were recorded as having died during treatment, and 14.9 percent were recorded as LTFU. Another one percent did not have an outcome recorded.

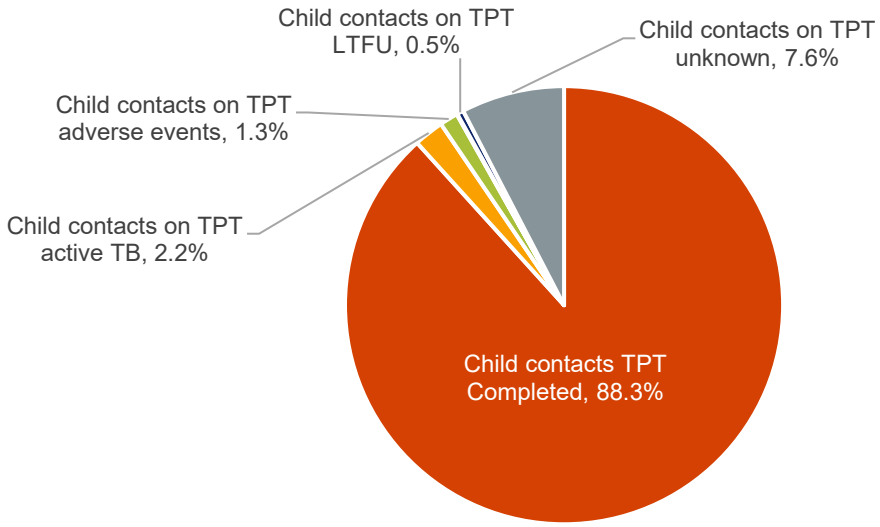
Figure 38. Treatment outcomes for new DR-TB patients (n=289)



TPT Outcomes

Outcomes for TPT were assessed for child contacts using the TB Contact Register. Data for all child contacts under five years of age who started TPT between September 1, 2018, and August 31, 2019, and had an outcome recorded were reviewed and included in the calculation. As Figure 39 and Table C-4.3 in Appendix C show, most children initiated on TPT were recorded as having completed the six-month regimen (88.3%). Eight percent of the children had an unknown TPT outcome, 2.2 percent were listed as having developed active TB, and one percent was listed as having stopped TPT due to an adverse event.

Figure 39. Child TPT outcomes (n= 4,159)



Discussion

TB Diagnosis

The majority of diagnostic facilities surveyed in Afghanistan used smear microscopy (90.5%) and clinical signs and symptoms (89.5%) to diagnose TB. Only 18 facilities in the sample (17.1%) reported using GeneXpert. Only one-quarter (24.8%) of the facilities that provided TB diagnosis services reported having first-line DST available, and 10.5 percent reported having second-line DST. The principal reliance on smear microscopy and clinical signs and symptoms for diagnosing TB, and the low rate of use of GeneXpert and DST are restricting the TB program's ability to rapidly diagnose and treat TB and to detect drug resistance, and are increasing the likelihood of a high proportion of TB cases being "missed" by health facilities. During the implementation of the most recent NSP, the NTP made efforts to increase the use of rapid diagnostics by procuring additional GeneXpert machines, increasing the total number of units in the country from 7 to 49. However, Afghanistan still has a long way to go to further the use of advanced diagnostic techniques for TB.

Of the 18 facilities that reported using GeneXpert to diagnose TB, all but one stated that the testing was done onsite, indicating either a nonexistence of, or a very weakly organized network system between facilities that had a GeneXpert machine onsite and those that did not. With the limited number of machines available in the entire country, very few facilities can expect to have GeneXpert capabilities onsite, making it necessary to build and support a diagnostic network system whereby facilities that do not have a machine can still access rapid diagnosis services for their patients by sending samples to a GeneXpert site and receiving results in a timely manner. This type of network infrastructure should be set up at the provincial level, with the objective of optimizing the use of available machines, while assessing the need to procure more.

DS-TB Treatment

Just over half of the facilities assessed in the QTSA reported that they initiated and/or managed the treatment of DS-TB. More than 90 percent of these facilities reported that they provided treatment and support services during both the intensive and continuation phases of treatment.

In terms of where and by whom the treatment was administered, as expected, most facilities (85.7%) reported that they provided facility-based treatment, but a substantial number of the facilities reported that they provided community-based treatment (64.3%), presumably with the support of the CHWs. A lower but nevertheless substantial number reported that they provided home-based treatment (28.6%) as well. In support of the observed trend toward DS-TB treatment outside the facility that the data show, most facilities (84.2%) reported that they allowed patients to take treatment with the support of a family member, meaning without the direct supervision of a healthcare professional.

The QTSA reviewed the treatment outcomes of 9,654 DS-TB patients who started treatment between June 1, 2018, and May 31, 2019, and had an outcome recorded in the treatment register, finding a treatment success rate of 84.8 percent (53.3% cured and 31.5% completed treatment). The DS-TB treatment success rate found by the QTSA was reviewed by the NTP

during the preliminary data review meeting in June 2021 and was confirmed to be in-line with what the NTP has found in recent quarters.

Community-Level TB Services

To assess the quality of TB-related services provided outside the health facility at the community level, the QTSA asked facilities that supervised CHWs, and the CHWs themselves, about the various services provided by CHWs and questions about the coordination and management of the CHWs. Just under half (45.6%) of the facilities assessed reported that they worked with CHWs. Additionally, 191 CHWs were surveyed separately.

The services that were reported by 80 percent or more of the facilities and 80 percent or more of the CHWs were educating the community about TB, providing DOT, tracing and locating clients who missed follow-up appointments, and providing adherence counseling. The services that the CHWs reported providing the least were following up with TB patients via phone calls or SMS text messages (i.e., for missed appointments, to schedule a home visit, and other follow-up) (1.6%), and identifying and referring children under five who had been in contact with a TB patient to the health facility for IPT (3.1%). Although the current NTP strategy states that health facility regular staff and not CHWs are supposed to conduct contact investigations, 91.1 percent of the CHWs surveyed reported that they actively screened contacts of TB patients.

Health facilities were asked about their management and supervision of the CHWs. Most facilities (81.7%) reported that they had a CHS in place at the facility, who was responsible for overseeing CHWs and conducting community-level supervision. In fact, 4 percent of the providers interviewed for the QTSA were CHSs. The majority (78%) of the facilities also reported that the TB focal points met regularly, either monthly or quarterly, with all CHWs who were affiliated with the facility. Although CHWs appeared to be supervised and supported by facility staff, only 60.6 percent of the facilities with CHWs reported that their CHWs had received any kind of TB training, indicating that there may be a training gap that needs to be addressed, in view of the wide range of services that CHWs were being asked to provide.

Bidirectional Screening and Management of TB and Diabetes

Seven percent of TB patients interviewed for the QTSA reported that they had been diagnosed with diabetes. In reality, diabetes prevalence in Afghanistan may be closer to 12 percent, similar to that in neighboring countries with a similar culture and lifestyle, according to a systematic review and meta-analysis conducted by Akhtar, et al. (2021). According to the International Diabetes Federation, the number of people with diabetes is expected to increase about 50 percent globally between 2019 and 2045, with a median increase of 99 percent in the high-burden TB countries. Because DM is associated with a twofold to threefold risk of TB disease, a twofold risk of death during TB treatment, a fourfold risk of TB relapse after treatment completion, and a twofold risk of MDR-TB, the upward global trend in diabetes prevalence is expected to negatively affect TB incidence and mortality in Afghanistan and the rest of the world in the coming years.

Although not a part of the core QTSA assessment, the NTP advocated to include an objective in the Afghanistan QTSA to assess the bidirectional screening and management of TB and diabetes because it was recognized as a critical issue for the country. Therefore, in addition to asking the TB facilities sampled about their screening practices for diabetes, 19 Diabetes Centers were added to the facility sample to assess their screening practices for TB.

Only 20.9 percent of the sampled TB facilities reported that they managed other medical conditions, such as diabetes. Similarly, only 21.3 percent of these facilities reported that they regularly screened TB patients for diabetes, and of those, only 54 percent reported that they screened all TB patients for diabetes through symptom screening. On the other hand, 78.9 percent of the diabetes centers reported that they screened all diabetes patients attending the facility for TB through symptom screening (with 90% also reporting that they documented TB screening results on patient cards). The same percentage reported that they provided TB treatment to diabetes patients that were confirmed to have TB. Although we cannot really make an inference due to the small sample of diabetes centers that were surveyed, anecdotally, it appears that the diabetes centers were performing better at screening diabetics for TB, and even providing TB treatment for those confirmed to have TB, compared with how TB facilities were performing in terms of screening TB patients consistently for diabetes.

TB and diabetes require coordinated care and follow-up to optimize the management and treatment of both diseases concurrently. This needs to be done at both facility and community levels. WHO has been recommending that countries provide collaborative care for people with TB and diabetes since 2011, when it released the Collaborative Framework for Care and Control of TB and Diabetes, which is organized around three objectives: establish mechanisms for collaboration; detect and manage TB in patients with diabetes; and detect and manage diabetes in patients with TB. Results of the QTSA demonstrate a gap in the management of diabetes as a comorbidity of TB and highlight opportunities for improvement in Afghanistan.

DR-TB

In Afghanistan, DR-TB treatment and management services are only offered at MDR-TB wards. These wards are tertiary-level facilities that are linked to provincial hospitals in the country's health management information system, but typically have their own management structures and are physically separated from the main hospital campus. The MDR-TB wards were established under the current NSP to decentralize DR-TB services to the provincial level. According to the NTP, this step has reportedly increased patient enrollment in treatment and has contributed to achieving Afghanistan's DR-TB treatment success rate, which is above the global average. Six MDR-TB wards were included in the QTSA facility sample to assess the quality of DR-TB services.

The NTP's decision to isolate and contain DR-TB cases by operating these specialized and physically separated wards was a strategic decision made for the sake of containing the spread of MDR-TB in Afghanistan. Findings demonstrate weak coordination between the health facilities and GeneXpert sites indicating that the NTP would benefit from creating closer linkages among these wards, TB diagnosis facilities, and facilities that treat and manage DS-TB. For example,

the QTSA found that only 31.8 percent of the other QTSA facilities (non-MDR-TB wards) reported that they referred patients to another facility for DR-TB treatment in the past 12 months, and only 16 percent of providers reported that they had been trained on the identification of presumptive DR-TB in the past two years.

The QTSA reviewed the treatment outcomes of 289 DR-TB patients who started treatment between September 1, 2016, and August 31, 2018, and had an outcome recorded in the DR-TB treatment register, and found a treatment success rate of 72.6 percent, which is higher than the global average. The DR-TB treatment success rate found by the QTSA was reviewed by the NTP during the preliminary data review meeting held in June 2021 and was confirmed to be in-line with what the NTP had found in recent quarters.

IPC Practices

Healthcare settings present a high risk for the transmission of TB. It is therefore critical for facilities to follow IPC procedures to limit the transmission of the airborne disease and infection at the facility. As part of the QTSA, study facilities were asked about the IPC practices in place at the facility and the availability of resources to support IPC. In addition, TB providers were asked questions to assess their knowledge of IPC practices (discussed under Provider Knowledge and Skills).

In general, most facilities assessed had good basic IPC infrastructure and procedures in place; however, there were some shortcomings. Surgical masks were observed at 45.6 percent of the facilities (compared to 100 percent of the MDR wards) and N-95 and/or FFP2 respirators at fewer than half (46%) of facilities. However, only 33.5 percent of facilities reported that they make the surgical masks available to presumptive and confirmed TB patients that visit the facility. Interestingly, among the facilities that make masks available to their patients, 91.3 percent reported that patients generally wear them.

Findings concerning IPC practices varied depending on the practice. For example, although 70.7 percent of health facilities reported routinely asking patients about cough when they entered the facility, and 67 percent reported implementing cough triage for patients entering the facility, only 46 percent of the facilities reported having a designated IPC focal point. About one-half or fewer of the facilities reported that the space used to collect TB specimens was away from other patients and that the space used was well ventilated.

Slightly more than one-third (37.2%) of surveyed facilities reported that they had a system in place to evaluate facility staff for active TB disease. Among the facilities that had a system in place, 14 (15.7%) reported that they had identified a total of 34 active TB cases among their staff in a two-year period.

Provider TB Knowledge and Practices

Overall, providers scored strongly on TB knowledge-related questions asked in the QTSA, including IPC knowledge. However, scores on specific questions concerning pediatric TB diagnosis asked of TB focal points at the health facilities that provided pediatric TB services

were lower than expected. For example, fewer than half of the focal points reported that they should use sputum induction to get samples from children.

TB providers were also asked targeted questions to assess their practices when they engaged with presumed or confirmed TB patients. Although most TB providers (more than 80%) reported engaging in standard recommended practices when interacting with patients, in some instances, these reports were contradictory to the data collectors' observations. For example, although 89 percent of TB providers reported that they used a mask when treating presumptive or confirmed TB patients, surgical masks were observed at only 65 percent of the facilities assessed, as mentioned above.

Facility supervision levels were good, with almost three-quarters of surveyed facilities reporting that they had received a supervisory visit from an upper management-level office and/or health facility in the past three months. However, a low percentage of the facilities and providers reported receiving TB-related training in the past two years, indicating a training gap and the need to train or retrain facility staff (and CHWs) on the TB services that they are being asked to provide.

Patient TB Knowledge and Satisfaction

Patients' knowledge of TB, including of risk factors, modes of transmission, and drug side effects, can be improved. The most direct way to do this is by improving the quality of the information and counseling that is provided to patients by TB providers during their facility visits.

There was a wide discrepancy between the TB services that patients wanted to receive from facilities and the services they actually received, with the exception of free TB medicines, which the facilities were delivering on. This finding highlights several services, such as one-on-one counseling, home-based and community-based treatment, and rehabilitative services, which facilities can target to improve service availability and service quality.

Impact of COVID-19 on TB Services

The Afghanistan QTSA had a unique opportunity to document the impact of COVID-19 on TB services, resources, and infrastructure from both the facility and TB patient perspectives.

About one-half of the surveyed facilities reported that COVID-19 had impacted the delivery of TB services in some way. According to these facilities, the services that were most often disrupted (i.e., at more than 70% of the facilities) were: referrals of presumptive TB cases (from the community, private facilities, and private practitioners), TB diagnosis by smear microscopy, DOT, TB awareness, and health education services. The majority (70% or more) of the facilities also experienced disruptions in planned TB-related training and planned supervision visits.

The decreased attendance for TB services observed by providers was corroborated by TB patients, more than three-quarters (77%) of whom reported that COVID-19 had impacted their decision or ability to access TB services at the health facility. The majority (91%) of these

patients reported that they were not going to the facility because of their fear of contracting COVID-19 at the facility.

On the other hand, COVID-19 made it necessary for the TB program to adopt more flexible and innovative ways to provide services to patients. For example, it encouraged multi-month dispensing of TB medications, increased the use of phone and SMS texts to follow-up with patients, and increased reliance on CHWs as TB services were decentralized from the facility level and more types of services were provided at the community level or even home based. These are practices that COVID-19 made necessary in order to alleviate the disruption to services, but it also gave the TB program the opportunity to test and validate the efficacy of these practices, and it would be beneficial for the NTP to continue to improve upon and use them even after COVID.

Challenges and Limitations

A number of challenges and limitations arose during data collection, data analysis, and the interpretation of findings.

These included the following:

Challenges

Security concerns: One of the biggest challenges encountered during the Afghanistan QTSA was related to security. Although the original sample had taken the security situation into account by limiting the study to regions that were considered safe, the situation was fluid and worsened during the course of the survey. Coupled with the COVID pandemic, this caused delays in the study implementation timeline. When data collection commenced, the security situation had substantially deteriorated, and as a result, many of the facilities in the original sample had to be replaced. In certain districts, data collection teams were prevented by the provincial authorities from carrying electronics, including tablets, necessitating paper-based data collection. Data were collected at the facilities on paper forms and later entered electronically so that they could be submitted. This raised data quality assurance concerns and required both the field teams and the data manager to do additional data quality checks downstream. It also extended the timeline needed to complete data collection in certain areas.

Replacement facilities: Due to security and accessibility issues, and findings during data collection that health facility status and type were often different from what the study team believed them to be, many health facilities needed to be replaced during data collection. In some cases, backup facilities were exhausted, forcing the research team to search for other facilities that could serve as a substitute. This process extended the time that teams had to spend in the field to complete the assessment.

Limited availability of TB registers: Collecting the necessary data for the register review was one of the biggest data challenges faced by the study team. Many facilities were found to not have any registers available, and for those that did have the necessary registers, many of them were incomplete, hindering our ability to extract and calculate outcome data.

Timing of data collection: As mentioned in the methodology section, the timing of data collection was delayed due to an elevation in the number of COVID-19 cases. Because of this, data collection did not take place immediately after training, requiring supervisors to spend more time refreshing their teams on data collection procedures in the early stages of data collection. Moreover, because of the high number of replacement facilities that were needed, and the time it took to identify them, the time that teams spent in the field was extended.

Timing of final analysis and reporting: Preliminary analysis of the assessment was conducted immediately following the finalization of the data collected. These results were presented to country stakeholders at the end of June 2021. Feedback was collected during this meeting, and additional updates to the data sets and analysis plan were made. However, due to

worsening security conditions and eventual regime change in Afghanistan in August 2021, there was at first limited, then no contact with country-based partners. Analysis and report writing were put on hold, then completed by the headquarters team without the usual process of review, feedback, and validation of the final results from country counterparts.

Limitations

Facility selection: Although the final sample was nationally representative, specific provinces were excluded from the sample due to security concerns. This, coupled with accessibility issues in the provinces that were included, resulted in data being collected from districts that were located either in or around the provincial capitals, leading to a much higher proportion of urban facilities in the final sample as compared to the general distribution of TB health facilities in Afghanistan. Given the many differences between urban and rural facilities, some bias could have been introduced in the final QTSA results.

COVID-19: The COVID-19 pandemic had multiple layers of impact on the assessment. In addition to affecting training and data collection procedures for the field teams, the influence of COVID-19 very likely impacted the results of the assessment. Because many questions were asked within the timeframe of "the past year," this included both the pre- and post-COVID context. Moreover, the generalizability of these results may be limited given that information was collected during the very specific context of COVID-19, which may not be applicable to future contexts.

Recall bias for varying reference periods: The QTSA tools included multiple reference periods for various lines of questioning. For questions where respondents were asked to compare the situation pre-COVID with the current state, there was likely recall bias introduced in their responses.

Desirability bias: The study primarily relied on the self-reported practices of TB clinicians, who may have overstated the use of "correct" practices, meaning that although they knew the correct procedures, they actually may not have been implementing a specific practice. Moreover, patients may have been more likely to provide positive responses to the questions about services received or their experience at the health facility because of concern that their responses would impact their current or future care.

Generalizability of patient responses: Patients targeted for the QTSA were those who came to the facility on the day of the assessment. Although this limited the bias that can be introduced by having providers select or recruit TB patients for interviews, it does not prevent selection bias because the patient sample did not include patients who did not frequent the health facility, those who received treatment at the community level, or those who had stopped TB treatment (LTFU). Moreover, patients who were at the facility on the day of the assessment were likely to have had different characteristics and/or beliefs than other TB patients with different health-seeking behaviors.

Limited availability of cohort data: The availability of TB registers was limited among the facilities that were assessed, and in many cases, when they were available, the data were incomplete. Because limited data were captured from the register review, the research team was limited in the analysis that could be performed. Moreover, the generalizability of the outcome findings reported may be limited because the data were from a limited number of health facilities.

Conclusions

The results of the Afghanistan QTSA highlight a mix of strengths and weaknesses in the quality of TB services provided by the NTP in Afghanistan. The study shows extensive availability of certain types of TB diagnostics, especially smear microscopy, but a need to expand the use of GeneXpert across the country. Treatment services for DS-TB were found to be widely available across different facility levels and types, whereas DR-TB treatment services were centralized to the provincial level by design, with very limited referrals and linkage mechanisms between the two types of treatment services. However, where treatment services were offered, essential first-line and second-line drugs and basic medical equipment to facilitate TB care were widely available. A higher proportion of diabetes centers were found to regularly screen diabetes patients for TB compared to the proportion of general health facilities that were regularly screening TB patients for diabetes. Furthermore, an even smaller proportion of facilities providing TB services reported providing TB patients with treatment for diabetes and other comorbidities.

In addition to highlighting gaps in service quality and availability, the results represent findings from a unique context in two specific ways: it provides a snapshot of the quality of TB services in Afghanistan before the major political shift and regime change that occurred in August 2021 and also provides a specific view of the changes that occurred in the services as a result of the impact of the COVID-19 pandemic. Overall, the findings highlight key areas that can be targeted for improvement and provide contextualized evidence that can be used by program managers and policymakers to improve TB service availability and quality across Afghanistan.

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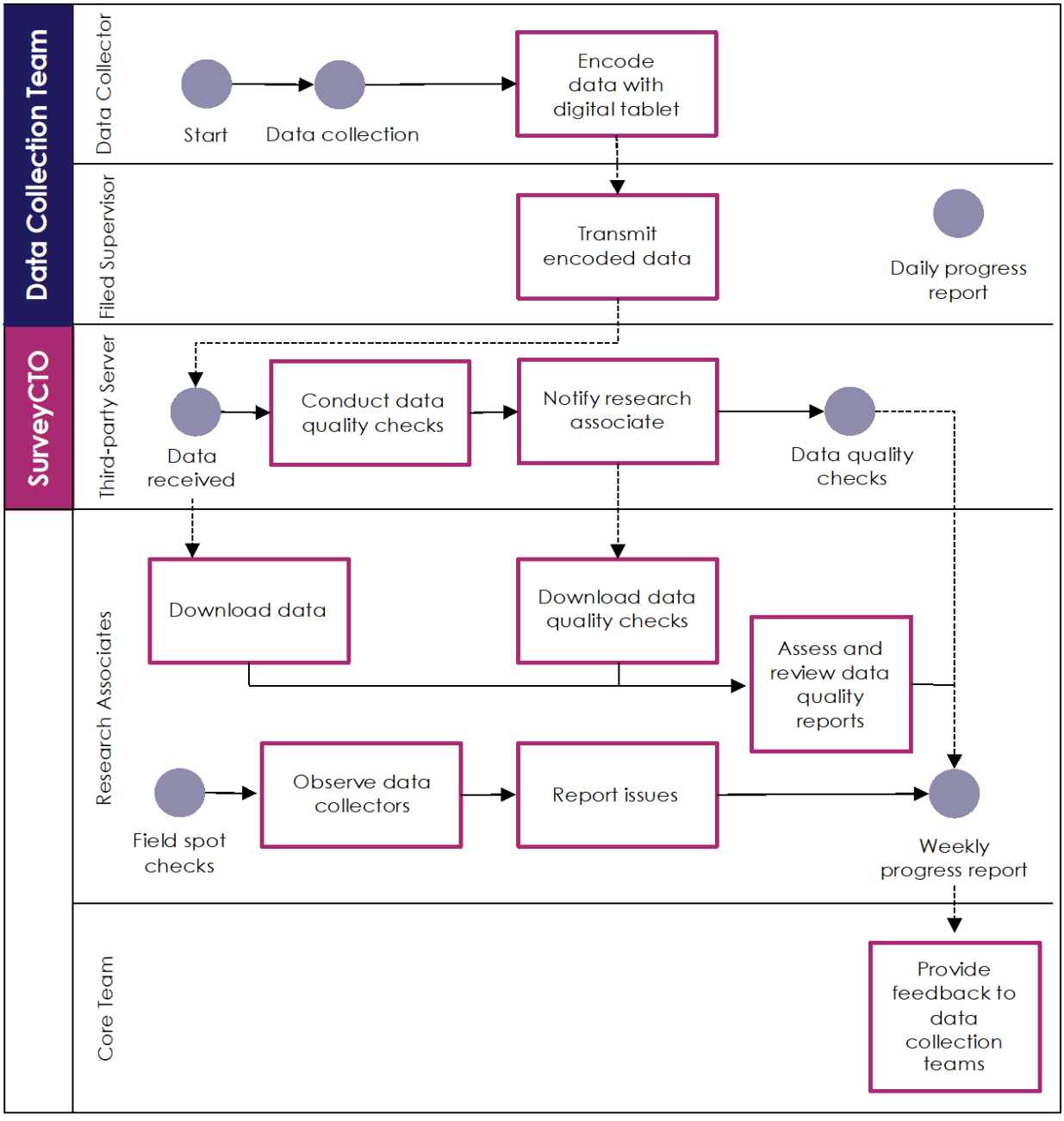
Appendix A. Data Management

Data quality was ensured through the following mechanisms: in the tools, daily progress reports, field spot checks, weekly progress reports (WPRs), and data quality checks (Figure A1).

Figure A1. Data management flowchart



SurveyCTO allowed for real-time data collection and management as the tools were being administered. Data quality was assured by data limits, skip logic, and required responses in the tools. The data collectors were not allowed to enter anything that was lower or higher than the

set limit. If there were any exceptions to the limits, they were reported to the research associates so that the data set could be changed, and when appropriate, the tool could be adjusted. Skip instructions were important to determine the right questions to ask the respondents. For example, if a service was not available at a facility, questions pertaining to that service were automatically skipped by SurveyCTO. The mechanism for required responses meant that SurveyCTO would not allow the data collectors to move on to the next question until a response was entered. Although SurveyCTO was used to collect data onsite at the majority of the facilities, the opposition forces (i.e., Taliban) that were in control of some districts and provinces did not allow tablet-based data collection. Therefore, the data collection teams working in these areas had to collect data from the facility using paper-based tools and transfer the data to SurveyCTO at a later time. This had a significant impact on data quality because the data collectors were not able to benefit from the data quality assurance mechanisms that were pre-programmed in the electronic tools, and it consequently significantly increased the time it took to clean the data set.

Data quality was ensured at the level of the field supervisors through the daily progress reports, which were submitted per facility visited. They were used to track the progress, challenges, and best practices of the data collection teams. Each member of the data collection team was assigned to a specific tool. Once a tool was completed, the field supervisor checked for data quality and completion. When they were satisfied, field supervisors transmitted the data to the server and reported the number of tools completed on the day of their visit, and the status of the interviews (e.g., completed interviews, patient refusals, and ineligible patients). This was also a way for the data collectors to report any schedule changes that were necessary. Schedule changes varied. Most of the time they were due to safety concerns, facility refusals, difficult weather conditions, and lack of patients.

To ensure that the data collection protocol was followed and that good data quality was obtained, the research associates conducted spot checks during the first three weeks of the data collection period. During the spot checks, the implementation of protocols and the administration of the tools were assessed. The research associates observed the data collectors individually as they administered the tools to ensure that data collection protocols were being followed. The spot checks were also a means for the research associates to understand the contexts in the regions, provinces, and cities that made their processes unique or similar in comparison with other areas. Feedback sessions with the data collection teams were done after each spot check to provide comments and recommendations about the data collection. These sessions were vital to relay the issues and comments observed by the research associates. The data collectors were also able to give comments and pose questions that they had about the protocols and tools.

The WPR was the regular mechanism for updating TB DIAH on the progress of data collection. It contained the number of interviews completed, a summary of the challenges encountered in the field, best practices and lessons from the data collection teams, action points for the data collectors, and data quality checks per tool.

Data quality checks were also featured in the WPR. The data quality checks were coded in SurveyCTO to report high frequencies of “No Response” or “Don’t Know” responses and outliers.

SurveyCTO produced daily warnings about the data quality. To investigate these warnings, a research associate contacted the data collectors and documented the source of the issue, if required. Some issues were due to the contexts of the health facilities, data collector entry errors, or values that exceeded limits. When necessary, changes were made to a tool, such as increasing the limits. The data quality checks were compiled weekly and reported in the WPR. Data in the SurveyCTO server were further cleaned for any inconsistencies.

Appendix B. TB Outcome Definitions

TB Outcome Definitions

Cured

DS-TB: A patient with bacteriologically confirmed TB at the beginning of treatment and who was smear- or culture-negative in the last month of treatment and on at least one previous occasion in the continuation phase.

DR-TB: Treatment completed as recommended by the national policy without evidence of failure AND three or more consecutive cultures taken at least 30 days apart are negative after the intensive phase.

Treatment completed

DS-TB: A patient who completes treatment without evidence of failure but with no record to show that sputum smear or culture results in the last month of treatment and on at least one previous occasion were negative, either because tests were not done or because results were unavailable.

This group includes:

- A bacteriologically confirmed patient who has completed treatment but without direct sputum smear microscopy follow-up in the last month of treatment and on at least one previous occasion.
- A clinically diagnosed patient who has completed treatment.

DR-TB: Treatment completed as recommended by the national policy without evidence of failure BUT no record that three or more consecutive cultures taken at least 30 days apart are negative after the intensive phase.

Treatment failed

DS-TB: A patient whose sputum smear or culture is positive at the end of month four or later during treatment.

OR

A clinically diagnosed patient (child or extrapulmonary TB) for whom sputum examination cannot be done and who does not show clinical improvement anytime during treatment.

DR-TB: Treatment terminated or need for permanent regimen change of at least two anti-TB drugs because of:

- lack of conversion by the end of the intensive phase; or
- bacteriological reversion in the continuation phase after conversion to negative; or

- evidence of additional acquired resistance to fluoroquinolones or second-line injectable drugs; or
- adverse drug reactions.

Died

DS-TB: A patient who dies for any reason during the course of treatment.

DR-TB: A patient who dies for any reason during the course of treatment.

Lost to follow-up

DS-TB: A patient whose treatment was interrupted for two[5] or more consecutive months.

DR-TB: A patient whose treatment was interrupted for two or more consecutive months.

Outcome not recorded/"not evaluated"

DS-TB: A patient for whom no treatment outcome is assigned in the register. This includes cases transferred to another treatment facility and whose treatment outcome is unknown.

DR-TB: A patient for whom no treatment outcome is assigned. This includes cases "transferred out" to another treatment unit and whose treatment outcome is unknown.

Source: Adapted from WHO, 2013 and WHO, 2020b.

[5] Definition used in Afghanistan: A patient whose treatment was interrupted for one or more consecutive months.

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