Quality of Tuberculosis Services Assessment

in the Philippines

Report

June 2019

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MEASURE Evaluation

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Report

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ABBREVIATIONS

CHW	community health worker
DOH	Republic of the Philippines Department of Health
DOT	directly observed treatment
DOTS	directly observed treatment, short-course
DR	drug-resistant
DS	drug-susceptible
DSSM	direct sputum smear microscopy
DST	drug susceptibility testing
iDOTS	integrated directly observed treatment, short-course
IPC	infection prevention and control
IRB	institutional review board
JSI	John Snow, Inc.
LGU	local government unit
LTFU	lost to follow-up
MDR	multidrug-resistant
MOP	Manual of Procedures
MTB	mycobacterium tuberculosis
NTP	National Tuberculosis Control Program (Republic of the Philippines)
PhilSTEP	Philippine Strategic TB Elimination Plan
PMDT	programmatic management of drug-resistant tuberculosis
QA	quality assurance
QC	quality control
QTSA	Quality of TB Services Assessment
RHU	rural health unit
RIF	rifampicin
RR	rifampicin-resistant
SDGs	Sustainable Development Goals
TB	tuberculosis
USAID	United States Agency for International Development
WHO	World Health Organization
WPR	weekly progress report

EXECUTIVE SUMMARY

Introduction

According to the 2018 Global Tuberculosis Report released by the World Health Organization (WHO), tuberculosis (TB) is the tenth leading cause of death and is the leading cause of death from a single infectious agent (WHO, 2018). Heads of state committed to ambitious targets aimed at eliminating TB during the first-ever United Nations High-Level Meeting on Tuberculosis conducted in September 2018 at the United Nations General Assembly.

WHO has identified 30 countries where the TB burden is high, including the Philippines. The country has one of the most severe epidemics, with an estimated 500 new cases per 100,000 population. This rate is higher than the 150 to 400 per 100,000 population in most of the 30 high-burden TB countries. In response, the Philippines has enacted a TB law, which called for the creation of a national strategic plan. The Republic of Philippines National Tuberculosis Control Program (NTP) was charged with implementing the Philippine Strategic TB Elimination Plan (PhilSTEP) from 2017 to 2022.

Studies show that good quality of care in TB services helps patients and their families address their health needs safely and effectively. Therefore, to enhance TB service use, there is a need to assess and improve the quality of TB services. A Quality of TB Services Assessment (QTSA) was conducted by MEASURE Evaluation in the Philippines to assess the quality of TB services in randomly selected health facilities. Its purpose was to identify where services were high-quality and where there were gaps and to ensure that TB patients were receiving the care that they deserve. The study assessed three domains of quality of care: the structure of the health facility, the service delivery process, and the outcomes of service delivery. The results were used to develop programs or interventions to improve TB service delivery. Find more information on QTSAs, including reports and tools related to assessments in other countries, here: https://www.measureevaluation.org/our-work/tuberculosis/quality-of-tb-services-assessments

Methods

The QTSA was a nationally representative cross-sectional study conducted at diagnostic and treatment health facilities in the Philippines. Two hundred and two health facilities (public and private) from the NTP network providing TB and TB-related services, such as diagnosis, care, and treatment, were randomly selected using a multistage sampling procedure. Health facility staff and patients participated in the study to answer questions about the structure, process, and outcomes of TB service delivery. Patients included confirmed drug-susceptible (DS) and drug-resistant (DR) TB patients, ages 15 years and older, who were visiting the health facilities on the day of data collection. For the study, MEASURE Evaluation—a project funded by the United States Agency for International Development (USAID)—developed four tools, with input from the USAID TB Team: Facility Audit, Provider Interview, Patient Interview, and Register Review. These were adapted to the Philippines context and are available at the following link: https://www.measureevaluation.org/resources/publications/tl-19-38/

Data collection lasted nine weeks, from June to August 2018. The main ethics review for the assessment was conducted and approved by the John Snow, Inc. (JSI) Institutional Review Board (IRB), in the United States,

and the Asian Eye Ethics Review Board, in the Philippines. Additional IRB submissions were needed for two hospitals involved in the study. Technical clearance was also received from the Philippine Statistics Authority.

Results

Findings from this assessment provide the Philippines NTP, donors, policymakers, and other stakeholders with relevant information to identify successes in ongoing programming and areas where greater attention to the provision of service delivery is needed. This section summarizes the findings, which are organized by the components of the assessment framework (TB Quality of Care Framework; see Figure 1 below): structural factors, processes, and outcomes. Areas for improvement are also identified.

Structural Factors

The availability of TB services was found to be high in the Philippines, in general, accounting for the role played by community health workers (CHWs) and volunteers in service delivery. The sampled facilities offered TB diagnostic services—especially pediatric TB diagnosis—to a large extent. Most facilities also had a laboratory on site. The availability of pediatric treatment services was also high, as was the provision of community-based services for TB and TB/HIV. Multiple modes of TB screening and diagnosis were available. Screening for TB was mainly done through an assessment of clinical signs and symptoms; 59 percent of cases were screened through X-rays. The main methods used for diagnosis were X-rays and sputum tests (direct sputum smear microscopy [DSSM] or GeneXpert). Patients in the intensive and continuation phases of TB treatment received services at TB facilities. Almost all facilities also offered directly observed treatment (DOT). As for the care of TB patients, a lot of emphasis was given to avoiding loss to follow-up, by focusing on patient tracking for missed appointments and providing reminders to support adherence. CHWs played a big role in TB prevention and care, by providing such services as referrals for TB screening and diagnosis, tracing patients who missed follow-up visits, making follow-up and reminder phone calls to TB patients, TB education, adherence counseling, and emotional and social support.

Although the facilities provided a range of TB care and treatment services, patients reported that services received did not match what they desired (e.g., free chest X-rays, home-based treatment, transport assistance, and one-on-one counseling by medical staff). Services that were offered to a limited extent and that were wanted by approximately 40 percent of the patients included meetings with social workers, one-on-one counseling by a lay counselor, meetings with a psychologist, and rehabilitative services.

The facilities had good infrastructure, both in terms of laboratory services and the availability of equipment and TB-related medications. Most laboratories used some type of quality control and quality assurance (QC/QA) procedure; however, 13 percent of the diagnostic facilities were unsure of the QC/QA procedure followed or did not practice QC/QA. Most facilities had at least one functional piece of the common medical equipment. In shorter supply were central oxygen supply, electrocardiograms, flowmeters, and oxygen concentrators.

In terms of drugs, more than half of the facilities were observed to have available stock of all drugs assessed except Category 2 kits, which were more likely to be stocked in facilities that treated drug-resistant TB (DR-TB) than in those that did not treat DR-TB. Few facilities had expired drugs. Most facilities maintained a buffer stock, especially of Category 1 anti-TB medications. Nevertheless, 17 percent of the facilities had experienced a stockout of at least one anti-TB medication in the past six months.

Most facilities had commodities/supplies that were stored appropriately and were well organized. Generally, hospitals had better storage conditions than nonhospitals. Two areas of concern were the lack of security measures inside stockrooms and the regular monitoring of temperature.

Adherence to general infection prevention and control (IPC) measures was followed by 70 percent or more of the facilities, with hospitals more compliant than nonhospitals. However, far fewer facilities had an approved IPC plan or an annual TB IPC risk assessment. Although most facilities had the necessary supplies and equipment for IPC practices, fewer than half of the facilities had gowns, injection safety precaution guidelines, needles destroyers, eye protection/googles, or methylated spirit and glycerin mixture.

Most providers were aware of proper IPC practices and educated TB patients accordingly. They educated TB patients on cough etiquette, requested TB diagnostic testing if a patient was symptomatic, discussed basic information and skills with close contacts of TB patients to protect them from contracting TB, and always screened all family members of confirmed TB patients for TB symptoms. Almost all providers knew about the use of respiratory protection to prevent inhalation of TB bacteria, but only 76 percent reported the use of a mask or respirator when treating presumptive/confirmed patients. Only one in seven providers reported that they had received training in TB infection control in the past two years.

Just over half of the facilities had a system for screening staff for TB. Fifteen of the facilities assessed had at least one staff member who had been diagnosed with active TB disease in the past two years. In all, 23 staff members among the sampled facilities had been diagnosed with TB.

Training received by providers varied between what the facilities reported and what the providers reported. Fewer providers reported having been trained in the past two years compared with reports from the facilities. When training received more than two years ago was considered, more providers reported having been trained on the Manual of Procedures (MOP) of the NTP than were reported by the facilities. For most other topics, provider-reported training lagged behind facility-reported training. One-third or fewer of the providers had ever received training in provider-initiated counseling and training, IPC, TB diagnosis by X-ray, or TB diagnosis using the Xpert MTB/RIF test.

As to guidelines observed at the facilities, the MOP was the most prevalent. When asked about supervision visits, approximately two-thirds of the providers said that they had received a supervision visit in the past three months.

Processes

As part of TB case management, the providers reported on how they established rapport and trust with patients and what they discussed during initial assessments. Although the providers communicated clearly with patients, fewer than half mentioned being flexible about their patients' needs or addressing their fears about TB. Approximately three-quarters of the providers talked to patients about their knowledge of TB; however, fewer reported discussing patients' ability to follow the treatment plan, their resources for support, or barriers to treatment. During subsequent visits with patients, most providers counseled DS-TB patients on TB and TB treatment, including duration, dosage, and the importance of taking medicines regularly. The providers were less likely to report that they discussed such topics as side effects, the meaning of test results, options for treatment support, or how to prevent HIV infection.

The patients reported that the typical information they received from the providers was how to take their medicines, treatment duration, the importance of adhering to and completing treatment, and cough etiquette. Other topics they mentioned frequently were how the disease could affect their daily lives, side effects from the anti-TB medicines and what to do if they experienced any side effects, danger signs of the disease, and the need for sputum tests at specific times.

The patients' responses showed a high level of knowledge of TB symptoms and common risk factors. The main risk factors they reported were smoking, fatigue, pollution, drinking alcohol, and contact/living with someone with TB. However, more than one-quarter reported that such known risk factors as malnutrition, unhygienic practices, and being HIV-positive were not risk factors. Likewise, the patients' knowledge of the cause of TB and modes of transmission was low. When asked about the normal duration of treatment for their type of TB, 72 percent of DS-TB patients and 63 percent of DR-TB patients accurately stated the expected duration of treatment; however, a larger than expected proportion of the patients (13% to 23%) did not respond to this question, suggesting an unwillingness to attempt an answer for lack of knowledge.

Overall, the patients did not face any major barriers to accessing TB care, especially in terms of transport to access care, the availability of medicines, and clinic hours. As to financial barriers, payment for blood tests and X-rays were the services typically mentioned. DS-TB patients bore a higher financial burden than did DR-TB patients, especially for X-rays. Most patients reported few stigma-related instances or discrimination at the health facility, and felt that they were treated well by the providers. They also reported relatively high levels of overall satisfaction with the services they received.

TB Outcomes

The TB cascade of care presented information on the timing of events for patients seeking care, receiving a diagnosis of TB, and initiating treatment. Typically, a little more than half of the patients waited more than two weeks to seek care after experiencing symptoms, and a similar number took two weeks to be diagnosed after symptoms were observed, indicating that patients were likely diagnosed with TB very soon after seeking care at a facility. The reported time to treatment was relatively shorter; most started treatment within one week of TB diagnosis. Compared with DS-TB patients, DR-TB patients waited longer after the start of symptoms to visit a clinic and to start treatment after diagnosis.

Data on the duration of TB treatment for DS-TB and DR-TB patients generally matched the expected time for treatment of both groups. Almost all DS-TB patients interviewed had been on treatment for fewer than six months, almost equally divided between those who had been treated for fewer than three months and those who had been treated for three to six months. DR-TB patients had been undergoing treatment for a longer period. Twenty percent had been on treatment for seven to 12 months and almost one-quarter for more than 12 months.

Information was obtained on screening and diagnosis outcomes by reviewing registers at the diagnostic facilities. According to the presumptive TB master lists or hospital TB referral logbooks, 14 percent of the patients who received DSSM or GeneXpert results in 2017 were bacteriologically confirmed to have TB. From the NTP laboratory registers, it was found that 10 percent of the patients who received results from DSSM in 2016 were bacteriologically confirmed TB patients.

As to TB treatment outcomes from 2016 for patients bacteriologically confirmed or clinically diagnosed, including both new and relapse cases, 84 percent had a successful outcome at the hospitals and 89 percent did

so at the nonhospitals. Despite considerable effort on the part of TB service providers, the remaining 11 percent at the hospitals and 16 percent at the nonhospitals had an unsuccessful outcome; the patients had either died, failed treatment, were lost to follow-up (LTFU), or did not have a known outcome.

Key Findings and Recommendations

Findings from the assessment highlighted two main issues: (1) Almost one-third of the patients did not know their TB diagnosis or the phase of treatment they were in, suggesting the need for better patient education and provider counseling. (2) There were considerable differences in the services desired and received by patients. The TB support services provided at the facilities need to be reviewed and considered for expansion, possibly as part of the patient TB care package. Several recommendations are offered based on the study results, which are categorized by the components of the TB Quality of Care Framework: structure, process, and outcomes.

INTRODUCTION

Background

Tuberculosis (TB) continues to be a public health challenge around the world. In September 2018, heads of state committed to ambitious targets aimed at eliminating TB during the first-ever United Nations High-Level Meeting on Tuberculosis conducted at the United Nations General Assembly. According to the 2018 Global Tuberculosis Report released by the World Health Organization (WHO), TB is the tenth leading cause of death and the leading cause of death from a single infectious agent (WHO, 2018). An estimated 1.3 million deaths among HIV-negative people and 300,000 deaths among HIV-positive people were caused by TB in 2017. The case fatality rate for TB deaths was 16 percent. Moreover, there were an estimated 10 million new cases of TB disease in 2017, which is equivalent to 133 cases per 100,000 population. For DR-TB, there were an estimated 558,000 new cases of rifampicin-resistant (RR) TB, 82 percent of which were multidrug-resistant (MDR) TB cases (WHO, 2018).

The WHO has identified 30 countries where the TB burden is high, including the Philippines (WHO, 2018). The Philippines is in the top 20 of both the high-burden TB and high-burden MDR-TB countries. The WHO report states that two-thirds of the world's new cases were estimated to be found in eight countries, including in the Philippines, where an estimated 6 percent of the world's TB cases were identified. The country has one of the most severe epidemics, with an estimated 500 new cases per 100,000 population, which is higher than the 150 to 400 per 100,000 population in most of the 30 high-burden TB countries. Estimates for the total TB incidence in the country was 554 per 100,000 population. For MDR/RR-TB, the incidence rate was 26 per 100,000 population (WHO, 2018).

To address the TB burden, the global agenda has been ambitious, creating strategies in line with the Sustainable Development Goals (SDGs) and the WHO's End TB Strategy (WHO, 2015). SDG 3 ("Ensure healthy lives and promote well-being for all at all ages") specifies that the TB epidemic should be ended by 2030. Aside from reducing the incidence rates of TB, the SDGs include addressing TB under the universal health coverage framework. To further strengthen implementation and monitoring efforts, SDG 17 ("Strengthen the means of implementation and revitalize the global partnership for sustainable development") aims to increase the availability of data and further disaggregate the data appropriately. The End TB Strategy targets by 2030 are: (1) 90 percent reduction in the absolute number of TB deaths; (2) 80 percent reduction in TB incidence compared with 2015; and (3) zero percent of TB-affected households experiencing catastrophic costs because of TB. Although the burden of TB disease has been decreasing in most countries, the decline is slow in relation to the 2020 milestones of the End TB Strategy.

Tuberculosis Response in the Philippines

The main strategy to eliminate TB in the Philippines was enacted in the TB Law, RA 10767: "An Act Establishing a Comprehensive Philippine Plan of Action to Eliminate TB as a Public Health Problem and Appropriating Funds" (Republic of the Philippines, 2016). One of the sections of this law aims to strengthen regional centers in the provision of health services to eliminate TB. In particular, the law states that the Secretary of Health should undertake the following activities to eliminate TB: provide free and quality-assured laboratory services and uninterrupted free and quality-assured drugs; implement public information and

education programs to increase awareness about TB; train and build the capacity of healthcare providers to diagnose and treat TB; and monitor TB cases throughout treatment.

The TB law called for the creation of a national strategic plan. The National Tuberculosis Control Program (NTP) is currently implementing the Philippine Strategic TB Elimination Plan (PhilSTEP), which runs from 2017 to 2022. The PhilSTEP consists of seven strategies:

- First, the national strategic plan focuses on empowering communities and patient groups to promptly access quality TB services. This is done by organizing TB patient groups at health facilities, partnering with nongovernmental organizations for community mobilization, and conducting an integrated marketing communication.
- The second strategy is networking with other agencies to reduce out-of-pocket expenses and expand social protection programs. In this way, domestic funding for TB from the Republic of the Philippines Department of Health (DOH), local government units (LGUs), and other government agencies would increase and the mandate of the Philippine Health Insurance Corporation would be strengthened to provide TB-related packages of care.
- Third, galvanize national and local efforts to mobilize adequate human resources. The goal is to increase human resources at service delivery levels and provide training and supervision on complying with the NTP protocol.
- Fourth, advance TB information generation and use for decision making. This strategy ensures that all healthcare providers notify TB cases, accurate TB information is generated on time, and program managers use information for evidence-based decision making.
- Fifth, guarantee compliance with national standards for TB care and prevention services and the availability of quality products. This strategy looks at certifying health facilities, implementing a quality assurance (QA) system in laboratories, and having no stockouts of anti-TB drugs and laboratory supplies.
- Sixth, expand the provision of integrated patient-centered TB services. The thrust of this strategy is patient-centered and expanded service delivery, such as TB screening and diagnosis, case management, the integration of TB programs with other programs, engagement of private healthcare providers, and inclusion of the directly observed treatment, short-course (DOTS) network in the service delivery network.
- The seventh strategy is to drum up support from national and regional agencies and LGUs on the multisectoral implementation of local TB elimination plans. This strategy encourages multisectoral partnerships to localize the TB elimination plan to address the specific needs, context, and resources at the community level.

The NTP monitors specific outcomes to measure the health impact of the PhilSTEP. The outcomes include the number of notified TB cases, treatment success rate, treatment coverage of latent TB, and out-of-pocket expenses. Overall, the objectives of the PhilSTEP are the reduction of the TB burden in terms of incidence and mortality, reduction of catastrophic costs of TB-affected households, and responsive delivery of TB services.

In addition to the PhilSTEP, the DOH issued Administrative Order 2006-0026 to establish a standard process for the certification of public and private DOTS facilities that meet the core standards set by the NTP. The objective of the certification is to ensure that DOTS facilities are capable of providing sustainable quality services to presumptive TB and TB patients. The certification is effective for three years and is renewable every three years thereafter. DOH-certified DOTS facilities receive automatic accreditation to participate as providers of benefits packages through the Philippine Health Insurance Corporation.

The DOH also responded to the increasing trend of TB/HIV coinfection through Administrative Order 2014-0005, which institutes policies and guidelines to decrease the TB burden on people living with HIV. To improve the case finding capacity, especially among people living with HIV, Administrative Order 2014-0032 was issued to support a systematic approach to scaling up GeneXpert as a rapid diagnostic tool that would be accessible in all provinces and cities.

To streamline the implementation of these policies, the MOP, Fifth Edition, was created (DOH, 2014). The MOP contains the protocols on case finding, case management, recording and reporting, resource management, legal certifications, and monitoring and evaluation. The MOP serves as the guide for all organizational levels on their roles and responsibilities to achieve the NTP's targets.

Quality of TB Services Assessment

Conceptual Framework

Under the DOTS strategy, TB programs typically measure their successes by focusing on the number of patients screened, diagnosed, and successfully treated; however, they did not emphasize the quality of care received. Evidence suggests that quality of care (or lack of it) is related to health outcomes and, therefore, addressing quality of care is a critical investment for TB programs. Studies have revealed that deficiencies in quality of care often result from gaps in provider knowledge, the inappropriate use of available technology, or the inability of health institutions to respond to changes in patient health needs (Berwick, 1989; Murray & Frenk, 2000). A recent article by Subbaraman, et al. (2016) links gaps in the cascade of TB services to specific concerns about quality of care in each step, further emphasizing the importance of quality services.

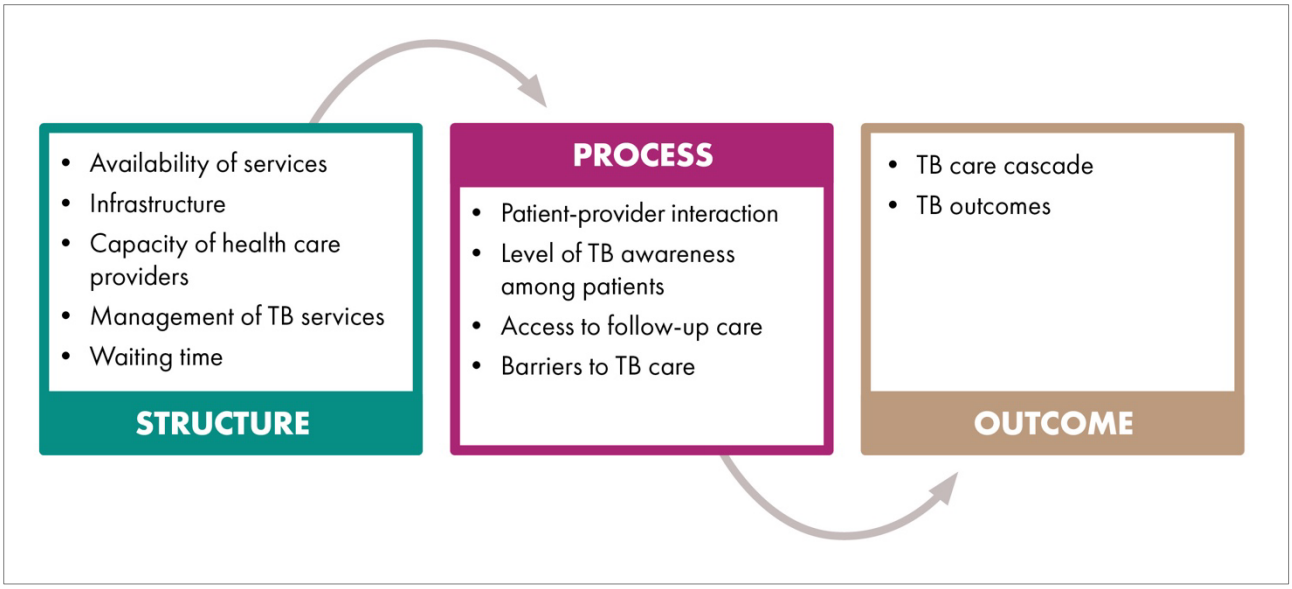
In the global TB community, studies have inspired efforts to develop and promote patient-centered models of care to ensure high-quality TB diagnosis and treatment services. The success of health systems at providing services to improve or maintain good health outcomes depends on the context and influence of political, cultural, social, and institutional factors. For service delivery that targets healthy outcomes and the well-being of the patient, it is important to include the interaction between the patient and service providers as a key element of quality.

Although access to the healthcare system is needed to maintain or improve health outcomes, it is not enough; once a patient has accessed the system, the services provided need to be available and applied skillfully. Quality can then imply optimizing material inputs (i.e., drugs, equipment) and provider skill to deliver services resulting in positive health outcomes. According to the Institute of Medicine, quality is "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (Institute of Medicine, 2001). Therefore, quality of care can be said to consist of three key elements: *structure* or the resources available at a health facility; *process* or the interaction between providers and patients; and *outcomes* or the consequences of care (Donabedian, 2005). The

services that patients receive can be deficient at the structural, process, or outcome levels, leading to poor quality of TB care.

The framework presented in Figure 1 was used by this assessment to measure the quality of services offered by the TB program in the Philippines. The framework and the analysis of key indicators will inform policymakers and managers about the status of the quality of TB services and highlight pragmatic ways in which services can be improved.

Figure 1. Components of the TB Quality of Care Framework



Source: Adapted from Donabedian, 2005

The framework provides a logical pathway, linking key components of quality of care, including policy and regulations, infrastructure, providers' competency, service environment, and infection control, which should function well to achieve the desired health outcomes. Using this pathway to measure the key data elements for each component provides policymakers and program managers with the information they need to identify problem areas and take action to improve the quality of TB service delivery. The key components and elements of quality care are:

- Structure: The health facility infrastructure, medical equipment, and supplies; staff numbers and their characteristics; and other resources, such as funding payment schemes and incentives.
- Process: The interaction between service providers and patients during which structural inputs from the healthcare system are transformed into health outcomes. Process is contextualized as "what is done" and "how it is done" (i.e., the actual delivery and receipt of care).
- Outcome: The consequences of care. Outcomes are measured in terms of health status and critical services, such as proper diagnosis and case notification; appropriate treatment; adherence to treatment regimens; treatment outcomes; and ultimately, incidence, prevalence, and death rates.

Study Objectives

The success of TB elimination strategies and universal health coverage at the country level and worldwide depends on (1) the service capacity of facilities to provide TB and comorbid services, and to minimize the risk of transmission that may expose patients to danger; (2) the management systems to support a minimum standard of quality for TB-related services; and (3) the capacity of the TB and/or health sector logistics systems to provide a reliable and uninterrupted supply of the commodities required.

There is no doubt that good quality of care in TB services helps patients and their families address their health needs safely and effectively. Therefore, an assessment and improvement of the quality of TB services can enhance TB service use. This study was conducted to assess the quality of TB services in randomly selected health facilities in the Philippines to identify where services were of high quality, where there were gaps, and ultimately, to ensure that TB patients were receiving the care that they deserved. The purpose of the study was to measure the quality of services of the TB program at selected facilities by assessing the three domains of quality of care—the structure of the health facility, the processes, and the outcomes—and use the results to develop programs or interventions to improve TB service delivery.

The study's objectives were to:

- Assess the condition of TB care in terms of the availability of skilled providers, equipment, and organizational structure.
- Determine the quality of TB services provided by facilities and critical gaps that should be filled to improve quality.
- Assess provider competencies and patient satisfaction.
- Evaluate the clinical outcomes of the patients receiving TB care.
- Provide recommendations based on the study's results to address gaps identified in the quality of care.

The two questions that the study sought to answer were:

- What are the gaps in TB service delivery and the needs of TB patients?
- What are the perceptions, views, and experiences of TB patients on the services they received?

METHODS

Study Design

This assessment was a nationally representative cross-sectional study conducted at diagnostic and treatment health facilities in the Philippines. The overall quality of services offered at the facilities was evaluated by examining the availability and functionality of resources (materials and human) in the facilities; the service providers' competencies and skills, and the interactions between the providers and patients; and the patients' overall perception of the services. World Health Organization (WHO), NTP, and International Standards for Tuberculosis Care (Tuberculosis Coalition for Technical Assistance, 2006) were used to judge the overall quality of services offered at the facilities. A review of records on the outcomes of TB patients who had received or were receiving treatment was also used to evaluate the quality of services offered at the facilities. The analysis will enable the tracking of quality of care performance by the TB program if the study is repeated.

Health facility staff and patients were asked to participate in the assessment to answer questions about the structure, processes, and outcomes of TB service delivery. The patients were confirmed drug-susceptible TB (DS-TB) and DR-TB patients, ages 15 years and older, visiting the health facilities on the day of data collection.

Sampling Procedures

Health Facility

Two hundred and two health facilities (public and private) from the NTP network providing TB and TB-related services, such as diagnosis, care, and treatment, were randomly selected using a multistage sampling procedure. The first stage involved stratifying the country's 17 regions into high, medium, and low categories based on the incidence and prevalence of TB and then randomly selecting six regions, with two regions selected from each of the high, medium, and low categories. In the second stage, three provinces or highly urbanized cities were selected from each region. Last, a sample of approximately 10 facilities per province/highly urbanized city in the NTP network of facilities was selected.

Service Providers

In most cases, especially small public health facilities, TB is provided in the context of primary healthcare, which includes staff in charge of TB and TB-related services. For the purposes of this study, one or more staff in charge of TB and TB-related services were interviewed at each TB service delivery point. In small facilities, one or two staff delivering TB-related services were asked to participate in the provider's interview. At larger sites, four providers among those present on the day of data collection were randomly selected for participation in the provider's interview.

TB Patients

It is important to examine the views and perceptions of TB patients on the quality of services because the quality of services is valued not only for its own sake, but also for its perceived influence on service use and adherence to treatment regimens. Although studies have not clearly revealed the nexus among service quality, client use, and outcomes, it is presumed that patients shun what they perceive as poor-quality services despite

the proximity of such services (Andaleeb, 2001, for example). For this study, interviewing TB patients was critical to determine the quality of services that TB programs offer.

The study sampled confirmed TB cases (DS-TB and DR-TB patients) who were on treatment and visited the health facility on the day of the health facility audit. Patients who were too weak to wait for an interview, based on the judgement of the data collector, were excluded from the interviews. The data collector purposively selected a consecutive sample of three to five TB patients who were present on the day of data collection, based on the following inclusion and exclusion criteria.

Inclusion Criteria for Patients

- Ages 15 years or older
- Currently receiving TB treatment at the facility whether or not they were in the intensive or continuation phase
- Pulmonary and extrapulmonary TB patients
- For DS-TB patients, they must have been on treatment for at least two weeks
- For DR-TB patients, they must have been on treatment for at least four weeks

Exclusion Criteria for Patients

- Under age 15
- Visiting the health facility for the first time
- Had received fewer than two weeks of treatment, if DS-TB, or fewer than four weeks of treatment, if DR-TB
- Too weak or ill
- Refused to be interviewed

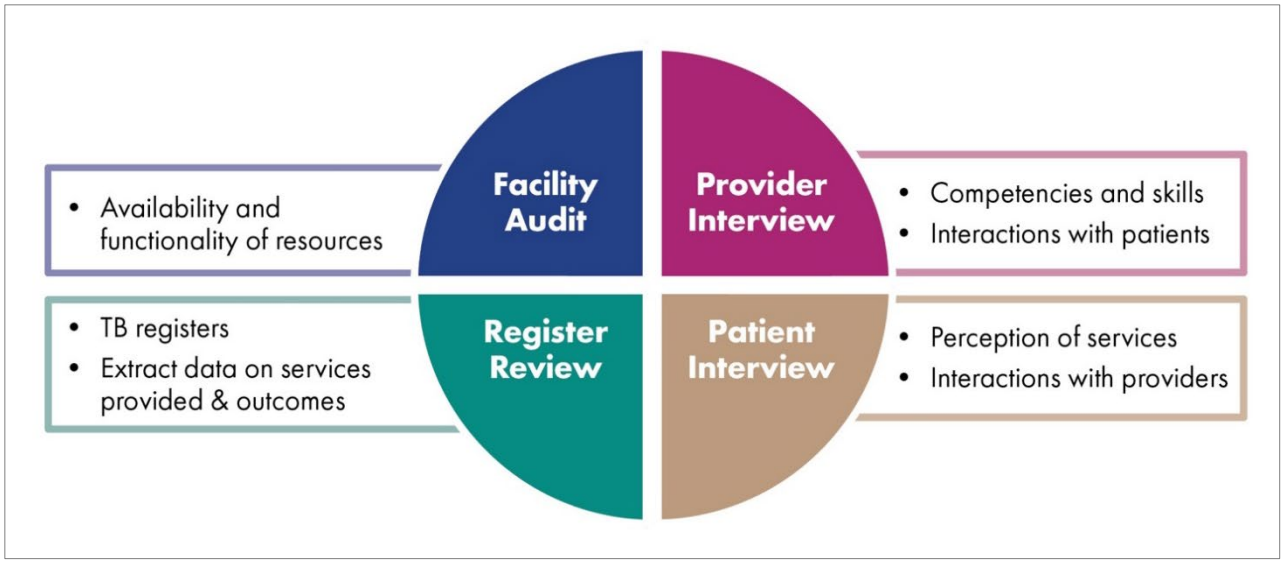
Data Collection and Instruments

Data collection at the 202 facilities sampled in six regions of the Philippines was led by EpiMetrics, Inc., a local research organization contracted by MEASURE Evaluation.

Data Collection Tools

The study used four tools developed by MEASURE Evaluation, with input from the USAID TB Team: (1) Facility Audit; (2) Provider Interview; (3) Patient Interview; and (4) Register Review (Figure 2). With support from EpiMetrics, the tools were adapted to the context of the Philippines by consolidating input from stakeholders, such as the NTP and USAID. The tools were available in English and in the following local languages: Filipino, Bisaya, Hiligaynon, and Ilocano. The tools were administered electronically on tablets, using an application called SurveyCTO (Version 2.41; Dobility, 2019). The four tools administered as part of this assessment are presented in a compendium to this report.

Figure 2. Overview of the survey tools



The facility audit gathered information about the availability and functionality of facility resources. The tool covered the operational sections of the facility, including the clinic, laboratory, and pharmacy. Multiple providers were interviewed to complete this tool, especially at large facilities, such as hospitals, where different providers manage and operate the different sections of the facility. The tool required one and one-half to two hours for completion, sometimes longer, depending on the availability of the providers. The provider interview collected information about the competencies and skills of the providers, and their interactions with patients. Completing the provider interview required, on average, 50 minutes. The patient interview focused on the perspective of the patients in terms of their experiences at the health facility. Completing the patient interview took, on average, 40 minutes.

The register review extracted aggregate data on country-specific TB indicators. The indicators included presumptive TB cases, laboratory requests and results, DS-TB cases, and DR-TB cases. The data collectors extracted data from source documents, such as the presumptive TB master list, NTP laboratory register, DS-TB register, and DR-TB register. At some sites, source documents used by the facilities were not standard, but data were still extracted from those that were available. Data were also extracted from the integrated tuberculosis information system, when available. Depending on the caseload at the facility, the register review took approximately two to three hours to conduct.

Data Collection

EpiMetrics was responsible for the recruitment, training, and supervision of data collectors, and the collection of the data using SurveyCTO. Thirty-two data collectors formed eight data collection teams assigned to cover the six regions. Senior technical advisers from the MEASURE Evaluation team and EpiMetrics conducted training to equip the data collectors with the technical and administrative skills needed for fieldwork.

Data collection lasted nine weeks, from June to August 2018. Overall, one day was required at each facility to complete data collection. Informed consent was obtained from all participants before administering the tools.

Data were captured electronically using SurveyCTO, which 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 preformed initial checks for data quality and completion, then submitted the final questionnaire to the SurveyCTO server, where the data were further reviewed and cleaned. More details about the data collection and management processes are provided in Appendix A.

Data Analysis

The analysis was linked to the key indicators for each domain in the conceptual framework (structure, process, and outcome), which was used to guide the reporting of results to policymakers, donors, program managers, and other relevant stakeholders. Disaggregation of the variables in the four tools is reported in the Results section below.

The initial findings were presented to the organizations and funders working on TB projects in the Philippines through a consultative meeting held in Manila in September 2018. The preliminary findings were presented in a graphic format, including bar charts and pie charts, which helped illustrate the results. The meeting included a discussion of key insights from the data that were used to draft relevant recommendations for organizations, funders, and policymakers. These are presented in the Key Findings and Recommendations section of this report.

Ethical Review

The main ethics review for this assessment was conducted and approved by the JSI IRB in the United States and the Asian Eye Ethics Review Board in the Philippines. Additional IRB submissions were needed for Baguio General Hospital and Medical Center and Veterans Regional Hospital. Country-level IRB approval through Asian Eye Institute (ERC# 2018-005) was secured by MEASURE Evaluation, and additional IRB approvals for the two hospitals were secured by EpiMetrics. The Baguio General Hospital and Medical Center IRB was approved with protocol number BGHMC-ERC-2018-24, and the Veterans Regional Hospital with protocol number 2018:009. Not all hospitals in the sampling list needed additional review, just those with accredited IRBs of the Philippine Health Research Ethics Board.

Technical clearance was also requested from the Philippine Statistics Authority. This is a required clearance for government-involved research projects. The government agency involved in the research project is required to request clearance, necessitating the help of the DOH's NTP with the clearance submission.

RESULTS

This section describes findings from the Quality of TB Services Assessment (QTSA) in the Philippines, organized by the assessment framework. After a brief description of the characteristics of the sampled health facilities, TB service providers, and patients, the results are presented on the structural, process-related, and outcome-related indicators. In some instances, the findings are stratified by the type of health facility (hospital versus nonhospital), DOH certification, and urban/rural location of the facility.

Sample Characteristics

Two hundred and two health facilities providing TB services were included in the assessment, and most of them were rural, nonhospital facilities (Table 1). Three-fourths of all sampled facilities were DOH-certified. Almost two-thirds of the facilities (62%) were rural health units (RHUs), followed by urban health centers (20%). Hospitals made up 15 percent of the sample. A small percentage of hospitals were private (4%), and were predominantly located in urban areas. Most health facilities (86%) were managed by LGUs. Although the hospitals were fairly equally divided among the managing authorities, nonhospitals were typically run by an LGU. More than 90 percent of the rural facilities were also run by LGUs. All hospitals offered both inpatient and outpatient services, whereas 85 percent of the nonhospitals offered only outpatient services.

Table 1. Facility characteristics (n=202)

	Overall		Hospital (n=30)	Nonhospital (n=172)	DOH-certified (n=152)	Urban facilities (n=68)	Rural facilities (n=134)
All Facilities	202	—	15%	85%	75%	34%	66%
Facility Type							
RHU	126	62%	—	73%	64%	9%	90%
Health center	40	20%	—	23%	17%	59%	—
Public hospital	22	11%	73%	—	13%	15%	9%
Private hospital	8	4%	27%	—	5%	10%	1%
Other	6	3%	—	3%	2%	7%	1%
Managing Authority							
LGU	173	86%	37%	94%	85%	69%	94%
National	14	7%	33%	2%	8%	10%	5%
Other	15	7%	30%	3%	7%	21%	1%
TB Patients Served							
Outpatient only	146	72%	—	85%	70%	72%	72%
Inpatient and outpatient	56	28%	100%	15%	30%	28%	28%

The assessment included 435 TB service providers—most of them female (85%) (Table 2). Most providers were attached to nonhospitals (86%) and worked at rural facilities (68%). Approximately two-thirds had a bachelor's degree (68%) and 16 percent had an educational level lower than a bachelor's degree. Those with a lower level of education were less likely to work in a hospital, whereas providers with a bachelor's degree were more likely to work in a hospital. Almost half of the providers were registered nurses (49%) who were more likely to work in hospitals, and one-quarter were health midwives in rural health facilities (25%). Only nine percent were medical doctors. Overall, 70 percent of those interviewed were the TB focal person at the facility.

Table 2. Provider characteristics (n=435)

	Overall		Hospital (n=59)	Nonhospital (n=376)	Urban facilities (n=140)	Rural facilities (n=295)
All providers	435	—	14%	86%	32%	68%
Sex						
Female	368	85%	76%	86%	83%	85%
Male	67	15%	24%	14%	17%	15%
Highest level of schooling						
Diploma/associate degree/other	72	16%	2%	19%	9%	20%
Bachelor's degree	294	68%	83%	65%	66%	68%
Master's degree	43	10%	12%	10%	19%	6%
Doctorate	26	6%	3%	6%	6%	6%
Occupation						
Registered nurse	215	49%	73%	46%	62%	43%
Rural health midwife	110	25%	2%	29%	15%	30%
Medical technologist	51	12%	15%	11%	6%	14%
Medical doctor	38	9%	7%	9%	10%	8%
Barangay health worker	7	2%	—	2%	2%	1%
Other	14	3%	3%	3%	4%	3%
TB focal person	304	70%	73%	69%	72%	69%

Five hundred and sixty patients were interviewed as part of the assessment; however, five patients did not complete the survey. On average, slightly fewer than three patients were interviewed per facility. Almost two-thirds of the patients were male (61%), and a little more than half of the sample was married (54%) (Table 3). The patients were almost equally distributed across all age groups and where they lived (i.e., an urban or rural area). Not surprisingly, urban dwellers were more likely to be treated at urban facilities and rural dwellers were

more likely to be treated at rural facilities. Nevertheless, 16 percent of the patients at urban facilities came from rural areas and almost one-quarter of the patients attending rural facilities resided in an urban area.

Almost three-fourths of the patients were educated beyond the primary school level, with 44 percent having a secondary school degree. The patients with the highest level of education were more likely to be seen at a hospital, whereas those with the least education were less likely to be seen at a hospital. When asked about their employment status, roughly the same percentage of patients responded that they were employed (47%) as those who were unemployed (44%). Approximately half of the patients had an average monthly household income below 5,000 Philippine pesos. Those with the highest monthly income were more likely to be seen at urban facilities than at rural facilities.

Table 3. Patient characteristics (n=560)

	Overall		Hospital (n=86)	Nonhospital (n=474)	Urban facilities (n=219)	Rural facilities (n=341)
All patients	560	—	15%	85%	39%	61%
Sex						
Male	343	61%	62%	61%	57%	64%
Female	217	39%	38%	39%	43%	36%
Age						
15–24	65	12%	12%	12%	14%	10%
25–34	93	17%	17%	16%	23%	13%
35–44	103	18%	27%	17%	19%	18%
45–54	103	18%	17%	19%	13%	22%
55–64	108	19%	17%	20%	21%	18%
65+	88	16%	9%	17%	10%	20%
Average age in years (range: 15–88)	—	46	44	47	43	49
Marital status						
Married	304	54%	53%	54%	43%	62%
Never married	136	24%	24%	24%	33%	19%
Widowed/divorced/separated	75	13%	13%	14%	12%	14%
Currently living with a partner (unmarried)	45	8%	9%	8%	12%	6%
Residence (nonresponse = 1)						
Rural	266	52%	52%	52%	16%	75%
Urban	293	48%	48%	47%	84%	24%
Highest level of completed education (nonresponse = 1)						
Primary/elementary or less	151	27%	15%	29%	21%	31%
Secondary/high school	248	44%	38%	45%	42%	45%
Post-secondary/technical/vocational	160	29%	45%	26%	37%	23%

	Overall		Hospital (n=86)	Nonhospital (n=474)	Urban facilities (n=219)	Rural facilities (n=341)
Employment status (nonresponse = 8)						
Unemployed	247	44%	43%	44%	43%	45%
Employed (full or part time)	145	26%	27%	26%	32%	22%
Self-employed	118	21%	20%	21%	12%	27%
Retired	27	5%	6%	5%	6%	4%
Student	15	3%	5%	2%	5%	1%
Average monthly household income (Philippine peso) (nonresponse = 35)						
0–5000	276	49%	45%	50%	40%	55%
5,001–10,000	149	27%	27%	27%	21%	30%
10,001 and above	100	18%	24%	17%	28%	11%
Current smoker	42	7%	6%	8%	15%	3%

Table 4 presents information on the TB diagnosis of the patients interviewed. Initial findings from the assessment showed that 53 percent of the patients reported that they had DS-TB and an additional 10 percent had DR-TB. More than one-third of those interviewed (37%) did not know their TB diagnosis, so TB diagnosis was imputed by cross-checking with the facility where they obtained their treatment. If the facility offered DS-TB treatment services only, the patients were assumed to be DS-TB patients. Facilities designated as Programmatic Management of Drug-Resistant TB – Satellite Treatment Centers were assumed to treat only patients who had DR-TB. After imputation, more than three-fourths of the patients were found to have DS-TB and the percentage who did not know their TB diagnosis was reduced to 10 percent.

- Overall, 15 percent of the patients were interviewed at a hospital and the remaining 85 percent were interviewed at nonhospital facilities. Almost one-quarter of the patients at hospitals had DR-TB compared with 10 percent at the nonhospital facilities. Two-thirds of the patients (61%) were seen at rural facilities and the remaining 39 percent were seen at urban facilities. DR-TB patients were more likely to be seen at urban facilities compared with DS-TB patients, who were more likely to be seen at rural facilities.

Patients were also asked about their phase of treatment. Forty percent reported being in the intensive phase of treatment, 28 percent in the continuation phase of treatment, and approximately one-third did not know which phase of treatment they were undergoing.

Table 4. TB characteristics of patients (n=560)

	Original	Imputed	Overall	Hospital (n=86)	Nonhospital (n=474)	Urban facilities (n=219)	Rural facilities (n=341)
All patients	—	—	560	15%	85%	39%	61%
TB diagnosis							
Drug-susceptible	53%	77%	432	76%	77%	60%	88%
Drug-resistant	10%	13%	70	24%	10%	25%	5%
Unknown	37%	10%	58	—	12%	16%	7%
Phase of treatment*							
Intensive	40%	—	224	34%	41%	41%	40%
Continuation	28%	—	154	27%	28%	29%	26%
Unknown	32%	—	180	40%	31%	29%	34%

* For the overall column, two cases are missing.

Structural Indicators

This section covers the factors that affect the context or enabling environment in which healthcare is delivered. This includes the physical facility, equipment, human resources, and organizational characteristics, such as staff training and supervision. These factors determine how the health system provides services as a measure of the average quality of services rendered. In this study, structure was measured by the availability of services, infrastructure, capacity of TB providers, and management of TB services.

Availability of TB Services

The availability of TB services is the first step in ensuring that patients can access the services they need. Most facilities provided TB diagnostic services (95%) and all but one facility managed patients who were on TB treatment (data not shown). Three-quarters of the facilities (76%) provided HIV-related services (data not shown). The screening and diagnostic services, treatment services, and pediatric services available at the facilities assessed in this study are presented below.

Among the 192 facilities offering diagnostic services, almost all (98%) reported adherence to the NTP guidelines and 90 percent reported having an on-site laboratory (data not shown). The 10 facilities that did not provide TB diagnostic services were asked whether they made referrals. Eight referred clients for DS-TB diagnosis and nine referred clients for DR-TB diagnosis (data not shown).

Several TB screening and diagnostic methods were used by study facilities, although they differed by facility type, as shown in Table 5. All but two facilities conducted screening for TB through an assessment of clinical signs and symptoms. Hospitals and health centers used X-rays for both screening and diagnosis in more than 90 percent of their facilities; however, fewer than half of the RHUs (42%) used X-rays for screening and more than three-quarters (77%) used them for diagnosis. Although diagnosis using GeneXpert was reported by 35 percent of all facilities, its use varied greatly by type of facility. Health centers were more likely to use

GeneXpert for diagnosis than hospitals (82% and 57%, respectively), but hospitals were more likely to have on-site access. RHUs were the least likely to have any access to GeneXpert.

Table 5. TB screening and diagnostic methods, by facility type (n=192)

	Hospital (n=30)		RHU (n=124)		Health center (n=33)	
	Screening	Diagnosis	Screening	Diagnosis	Screening	Diagnosis
Clinical signs and symptoms	100%	—	98%	—	100%	—
X-ray	90%	97%	42%	77%	91%	91%
Sputum tests*	—	100%	—	98%	—	88%
GeneXpert only	—	57%	—	16%	—	82%
On site	—	40%	—	4%	—	27%
Off site	—	17%	—	12%	—	55%

* Generally, sputum tests refer to smear microscopy but could also include GeneXpert.

Approximately one-third of the diagnostic facilities offered drug susceptibility testing (DST) for first-line drugs and approximately one-quarter offered DST for second-line drugs. Table 6 presents the methods used for DST, by drug regimen.

Table 6. DST methods, by drug regimen

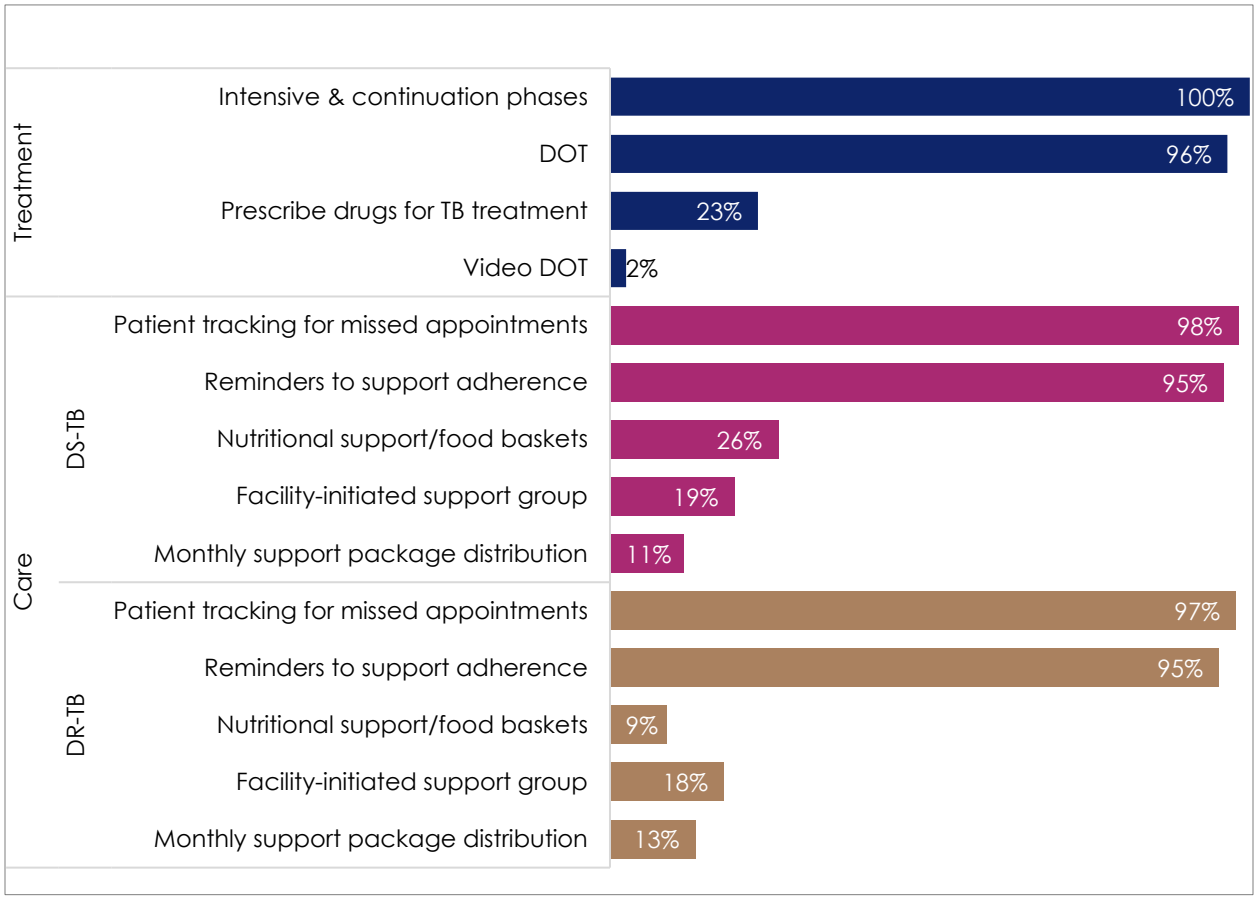
DST method	For first-line drugs (n=65)	For second-line drugs (n=47)
Line probe assays (e.g., MTBDR*plus* to MTBDR*sl*)	26%	28%
Solid culture	15%	19%
Liquid culture	12%	15%

Of the 202 sampled facilities, 201 managed patients on TB treatment. Of the facilities that managed patients on TB treatment, 57 percent provided TB preventive treatment and 44 percent provided treatment for DR-TB. Among the 88 facilities that provided DR-TB treatment, 69 percent did so in a decentralized setting and 64 percent did so by means of integrated DOTS (iDOTS) (data not shown).

The TB treatment facilities were asked about the services they had provided in the 12 months prior to the assessment (Figure 3). All facilities indicated that they had provided TB treatment and follow-up during both the intensive and continuation phases of treatment. Given that anti-TB drugs are provided free to patients, it was interesting that roughly one-quarter (23%) of the facilities indicated that healthcare providers prescribed drugs for TB treatment (i.e., for patients to purchase). Almost all facilities provided DOT, but only two percent of the facilities provided video DOT.

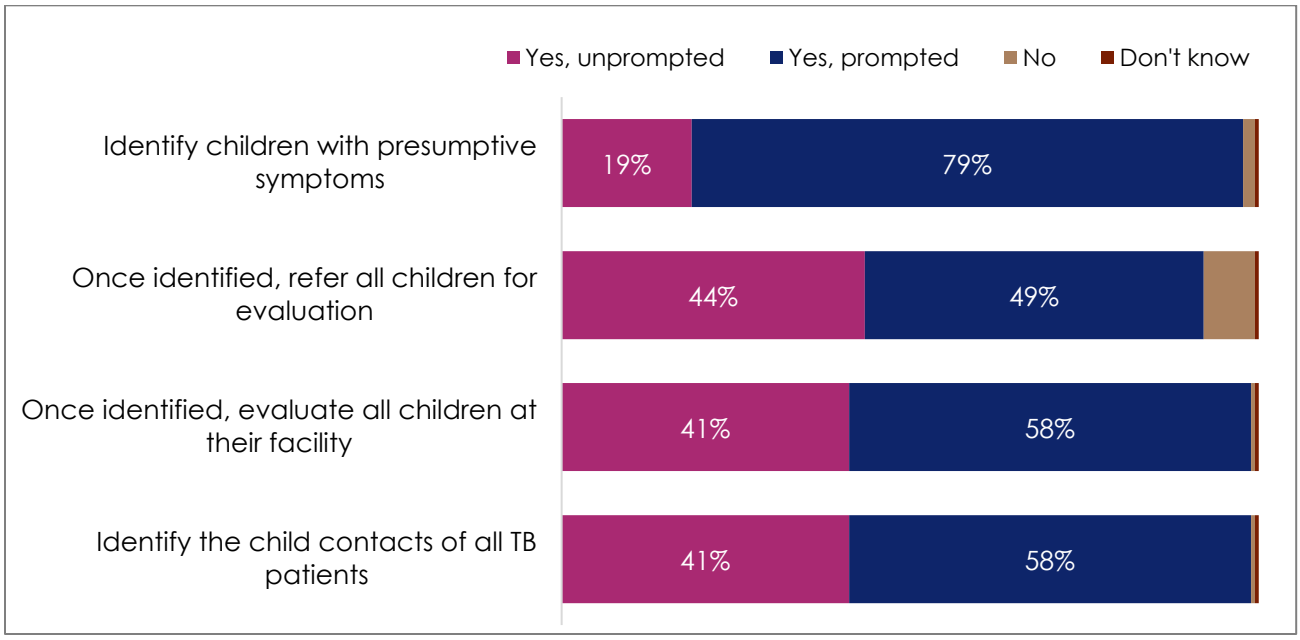
In addition to treatment services, the facilities were assessed on the care services they provided to support TB patients during treatment, stratified by type of treatment. Regardless of the treatment type, almost all facilities used patient tracking systems for missed appointments and provided treatment reminders to patients to support adherence (Figure 3). Other support was available in fewer than 20 percent of the facilities (i.e., facility-initiated support groups and monthly support package distribution). Only nutritional support varied by the treatment type: 26 percent for DS-TB treatment facilities and nine percent for DR-TB treatment facilities.

Figure 3. Services provided by treatment facilities in the past 12 months (n=201)



Most diagnostic and treatment facilities provided services to children (92% and 94%, respectively) (data not shown). Respondents from facilities that offered pediatric diagnostic services gave unprompted, then prompted responses to questions about pediatric diagnostic processes at their facilities (Figure 4). Almost all facilities reported identifying children with presumptive symptoms of TB, although only 19 percent confirmed this without being prompted. Fewer than half responded unprompted that once identified, all children with presumptive TB were referred for evaluation or were evaluated at their facility. Approximately the same percentage also reported that they identified child contacts of all TB patients. When prompted, almost all facilities reported that they followed the above-mentioned practices.

Figure 4. Pediatric diagnostic processes (n=177)



Note: Limited to facilities that provided pediatric diagnostic services.

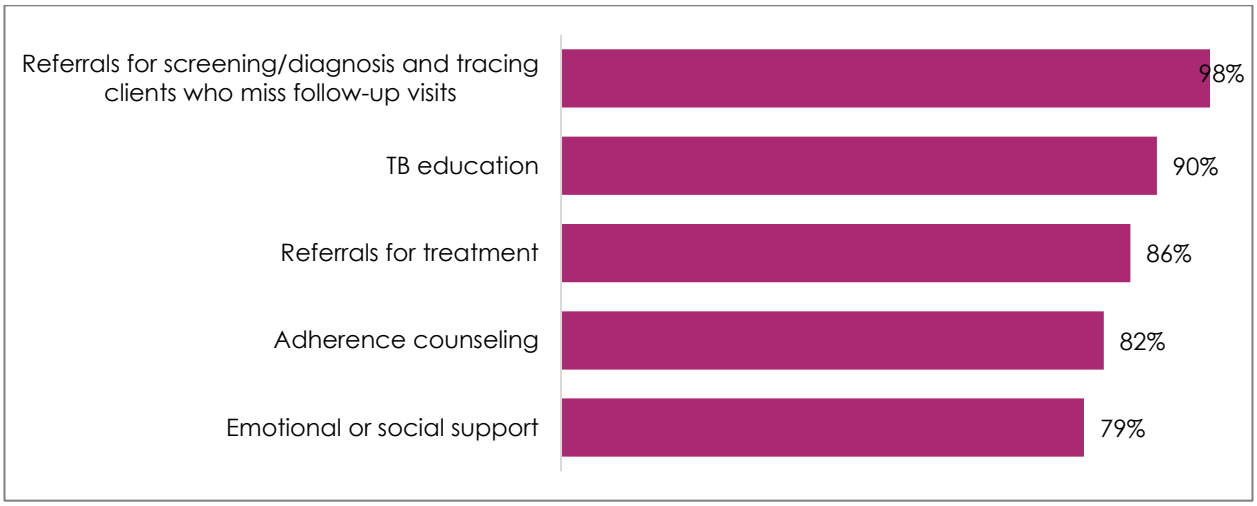
Of the 188 treatment facilities that provided pediatric services, 58 percent gave fixed dosage drug formulations or kits to children with DS-TB and half gave loose or single drug formulations. Most (89%) used weight to determine the dosage (data not shown).

Community Linkages

The role of a community health worker (CHW) or volunteer can be quite important in TB care and prevention efforts. In the Philippines, CHWs may include barangay health workers, faith-based volunteers, nongovernmental organization volunteers, etc. This assessment asked questions about the type of services that CHWs offered to TB patients and whether CHWs received financial support.

More than three-fourths of the 202 facilities assessed (81%) used CHWs to provide additional support or services to TB patients (data not shown). As Figure 5 shows, the CHWs provided an array of services. Almost all facilities had CHWs referring for screening/diagnosis and tracing patients who missed follow-up visits. Most facilities (79%) reported that CHWs provided emotional or social support. Interestingly, only 13 percent of the patients reported that a health worker in the community was their treatment partner (data not shown).

Figure 5. General services provided by CHWs (n=163)



As seen in Table 7, the CHWs provided support based on whether a service was offered by a facility. Facility-specific services provided by CHWs in almost all facilities included follow-up phone calls/SMS to TB patients (93%) and reminder phone calls/SMS to support patients' adherence (92%). The CHWs' role in HIV testing and counseling was considerably lower (24%).

Table 7. Facility-specific services provided by CHWs

Services provided by CHWs	Facilities that offer the service	CHWs provide the service
DOT	156	127 (81%)
Reminder phone calls/SMS to support patients' adherence	155	143 (92%)
Follow-up phone calls/SMS to TB patients	152	141 (93%)
HIV testing and counseling	94	23 (24%)
Collect and transport sputum specimens to an off-site diagnostic laboratory	6	5 (83%)

Note: CHW services offered vary because they are based on the services provided by the facilities.

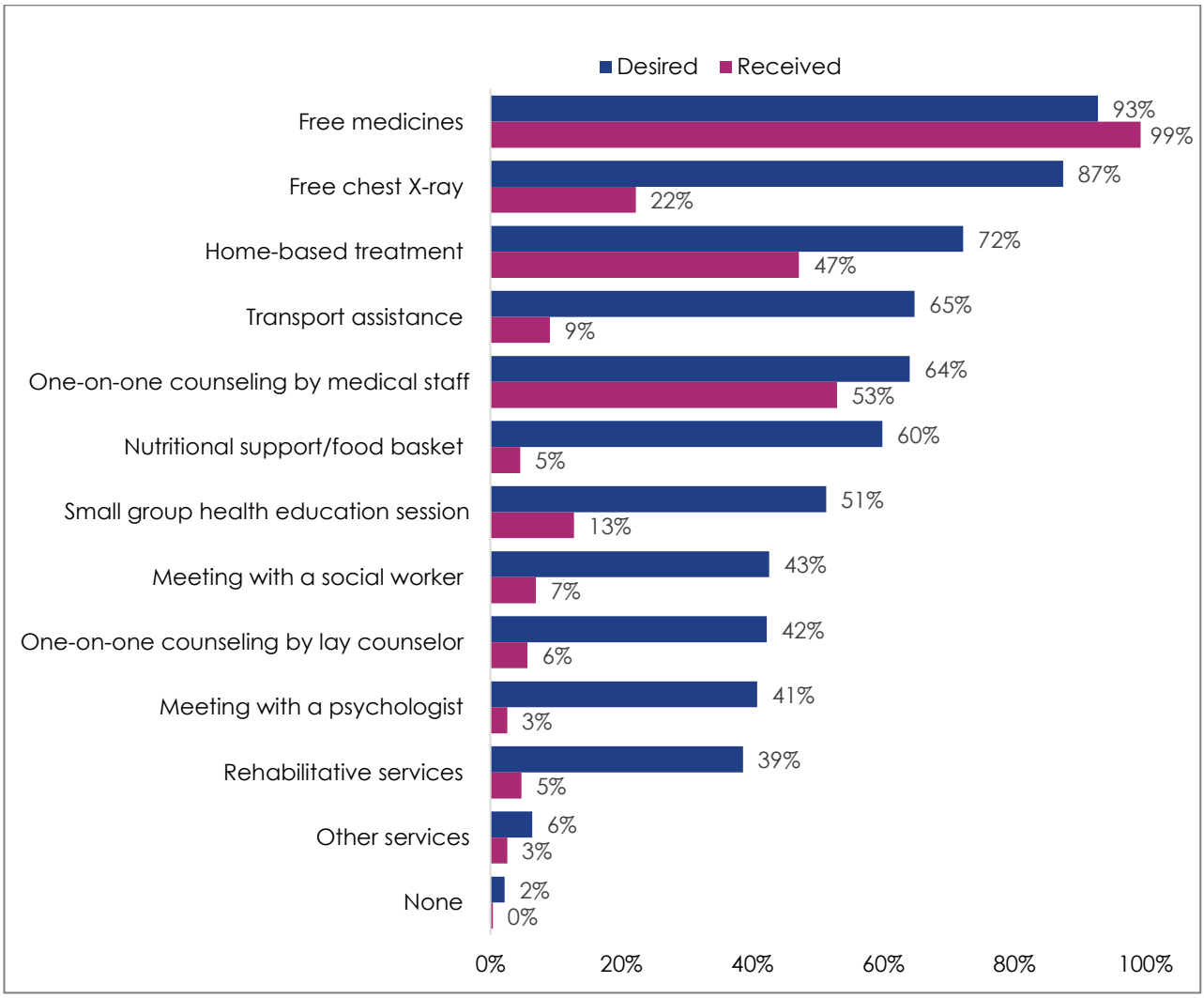
Of the 163 facilities with CHWs, 135 (83%) reported that their CHWs received financial support for their services and, of those, 134 reported that support was provided by some level of government. No financial support was provided by faith-based organizations.

Patients' Perspective about Treatment Support Provided by Health Facilities

To support patients, facilities may offer several services to help them complete their treatment. Patients were asked which supportive services they received from the facility and which services would help them the most in continuing and completing their treatment. Other than the provision of free medicines to TB patients, there was a substantial difference in the services desired by patients compared with what they received (Figure 6). In addition to free medicines, the five main support services desired by TB patients were free chest X-rays, home-based treatment, transport assistance, one-on-one counseling by medical staff, and nutritional support.

Although home-based treatment and one-on-one counseling were available to approximately 50 percent of the patients, the receipt of other services desired was considerably lower (<25%).

Figure 6. Support services desired and received by TB patients at facilities (n=550)



Infrastructure

The infrastructure available provides critical information on the ability of the facility to provide necessary services and to follow required procedures for TB patients.

Specimen Management

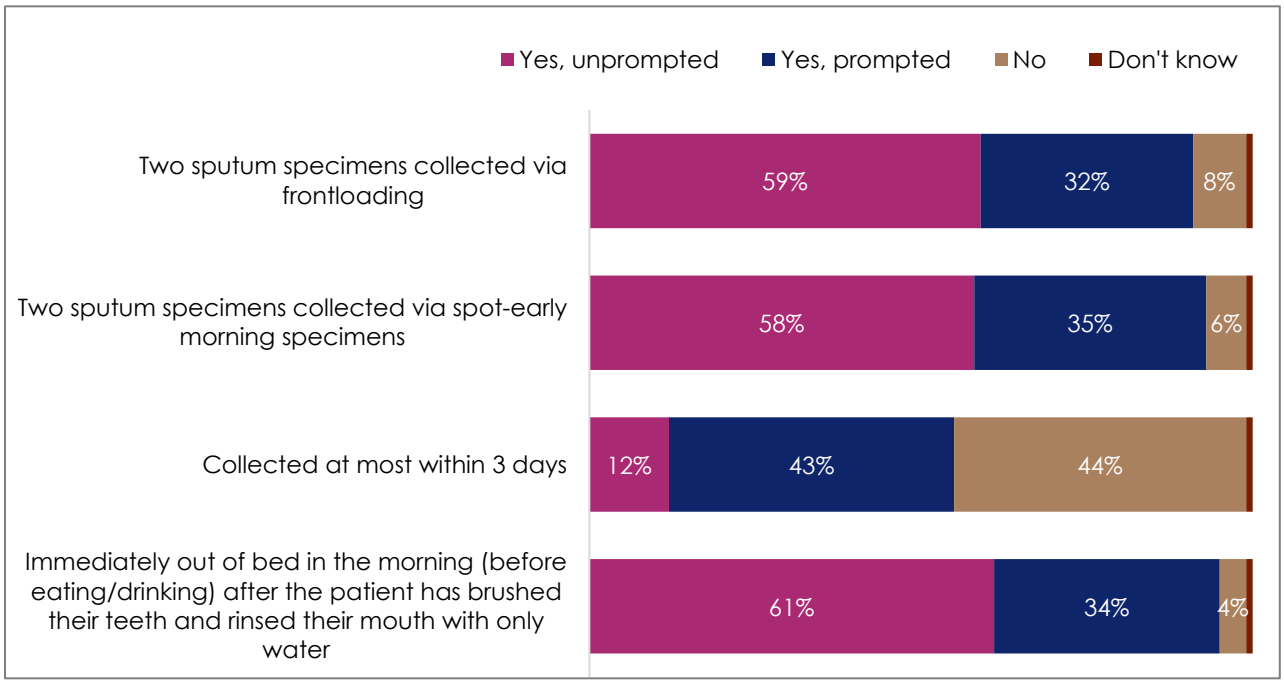
Almost all facilities (97%) had the approved laboratory request forms (e.g., NTP Form 2) available on the day of the survey. Approximately three-quarters of the facilities had the following: standard operating procedures for specimen collection, contact details for their laboratory, and an up-to-date specimen dispatch list (data not shown).

The turnaround time for receiving specimen results varied by the laboratory's location and the type of test. On average, it took three working days to receive specimen results from an off-site laboratory. For on-site

laboratories, the average reported turnaround time for specimen results was two days for DSSM (170 facilities) and three days for GeneXpert (55 facilities) (data not shown).

Respondents at each facility were asked to describe their sputum collection procedure. Figure 7 summarizes both the unprompted and prompted responses. Generally, the facilities reported procedures in equal proportions, except for sputum collection within three days, which was reported by just over half of the facilities.

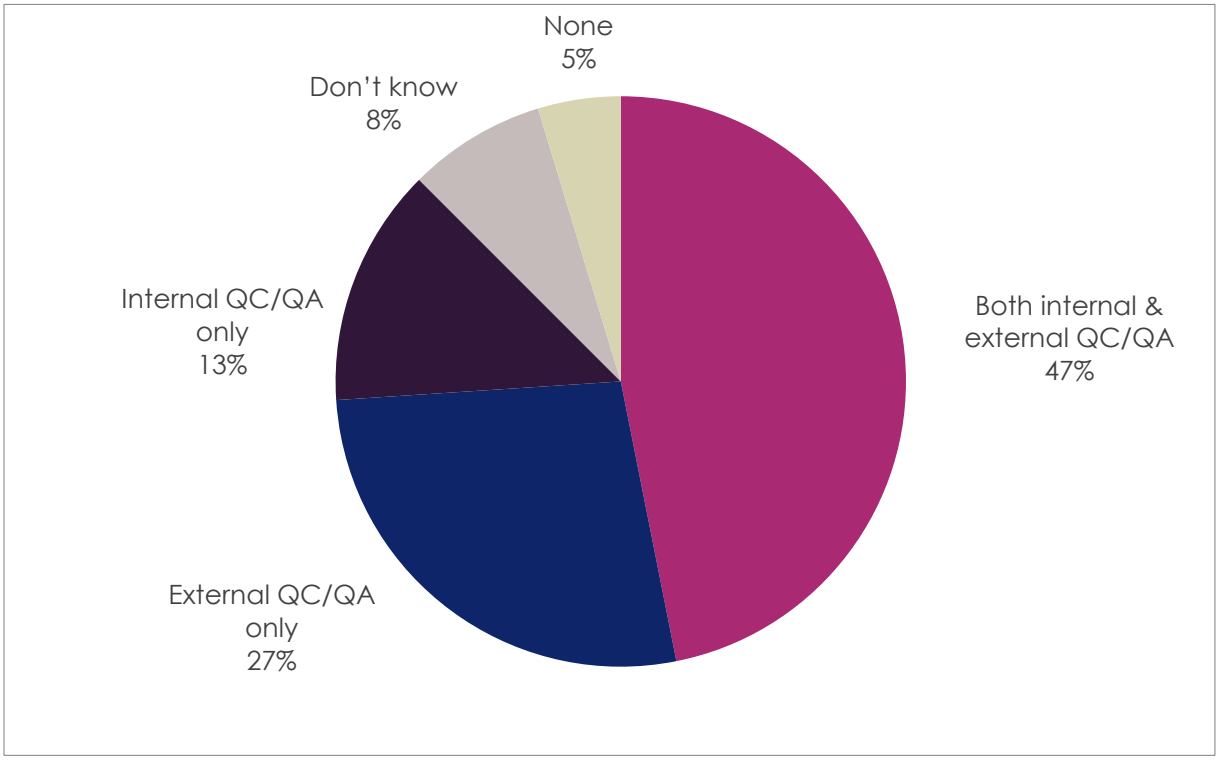
Figure 7. Sputum collection procedures (n=202)



TB Laboratory Procedures

Facilities with diagnostic capabilities were asked about quality control and quality assurance (QC/QA) procedures used in their laboratories (Figure 8). Just under half of the facilities offering diagnostic services for TB (47%) used both internal and external QC/QA procedures for sputum tests. A little more than one-quarter of the facilities relied on only external QC/QA, whereas 13 percent of the facilities used only internal QC/QA.

Figure 8. Type of quality control/quality assurance used by diagnostic facilities (n=192)



It is interesting to note that 13 percent of the facilities either had not used any QC/QA or were unsure of what kind of QC/QA practice was followed at their facility (Figure 8). To see whether there were any differences by type of facility, these facilities were disaggregated by facility type. As shown in Table 8, health centers were more likely to have no QC/QA procedure (18%) compared with hospitals (0%) and RHUs (2%).

Table 8. Diagnostic facilities with no or unknown QC/QA procedures

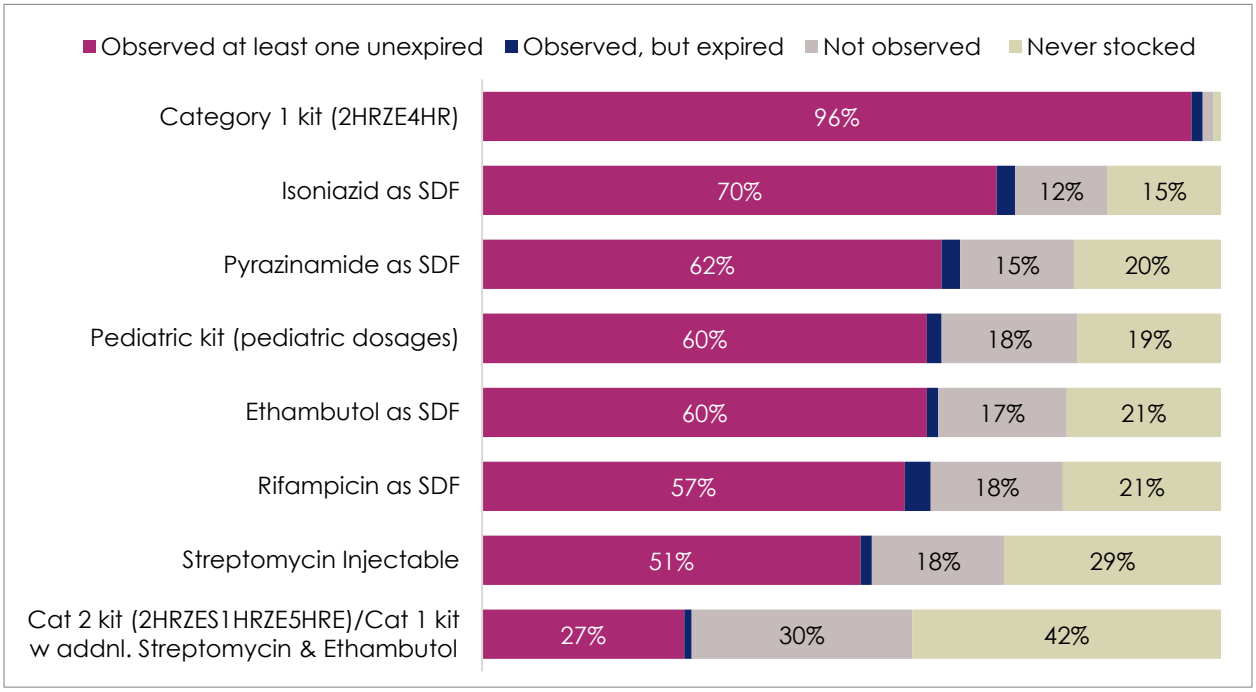
	Hospitals (n=30)	RHUs (n=124)	Health centers (n=33)
Do not know type of QC/QA	3 (10%)	2 (2%)	9 (27%)
No QC/QA procedures	0	3 (2%)	6 (18%)

Medical Equipment and Drug Supplies

The facilities were assessed on the availability of equipment and TB-related medications. Most facilities (>75%) had at least one functional adult weighing scale, infant weighing scale, blood pressure apparatus, glucometer, measuring tape, nebulizer, stethoscope, and thermometer available for use. More than half of the facilities (50% to 75%) had at least one functional child weighing scale, intravenous infusion kits, light source, oxygen cylinders, and oxygen delivery apparatus observed by the enumerators. Fewer than half of the facilities assessed were found to have at least one central oxygen supply, electrocardiogram, flowmeter for oxygen therapy, and oxygen concentrators available for use (data not shown).

Drug availability is another critical aspect that influences the provision of TB services. The availability of drugs, including expired drugs, was noted in all facilities assessed. As Figure 9 shows, the Category 1 kit was observed in almost all facilities (96%). In more than half of the facilities, the data collectors observed that the following stock was available: isoniazid, pyrazinamide, the pediatric kit, ethambutol, rifampicin, and streptomycin. Unexpired Category 2 (and enhanced Category 1) kits were present in 27 percent of the facilities assessed. Overall, a very small percentage of facilities (<5%) had any expired drugs (data not shown). On the other hand, the frequency of stockouts was higher for drugs that were either not observed during the assessment or reported as never stocked by the facility. In almost one-third (30%) of the facilities, Category 2 kits were not observed and 42 percent of the facilities did not stock them. For the rest of the drugs assessed, except for the Category 1 kit, in 12 percent to 18 percent of the facilities, the drugs were not observed, and 15 percent to 29 percent of the facilities did not stock the specified drugs at all.

Figure 9. Anti-TB drug availability at treatment facilities (n=201)



For most of the TB drugs assessed, there were no significant differences in availability between facilities that provided DR-TB treatment and those that did not. Nevertheless, some differences in drug stocks were noted based on whether a facility provided DR-TB treatment (Table 9). It was observed that facilities that treated DR-TB were more likely to have valid stocks of pyrazinamide single dose formulations, streptomycin injectables, and Category 2 kits. Facilities that did not treat DR-TB were less likely to stock streptomycin injectables.

When anti-TB drug stocks were stratified by facilities providing DR-TB treatment versus those that did not, differences in drug availability were noted for pyrazinamide, streptomycin, and Category 2 kits. No significant differences were noted for the other drugs. As expected, drugs that are used in DR-TB treatment regimens were more likely to be observed at facilities that provided DR-TB treatment then those that did not.

Nevertheless, 20 percent to 40 percent of the facilities providing DR-TB treatment never stocked the three second-line drugs, as seen in Table 9.

Table 9. Comparison of second-line TB drug stocks based on the provision of DR-TB treatment (n=201)

Anti-TB drug	Facility provides DR-TB treatment	Observed at least one unexpired	Never stocked
Pyrazinamide as SDF	Y	70%	20%
	N	56%	19%
Streptomycin injectable	Y	65%	23%
	N	41%	34%
Category 2 kit	Y	42%	40%
	N	16%	43%

In addition to drug availability, stockouts of anti-TB medications were investigated. Approximately three-quarters of the facilities (78%) maintained a buffer stock of at least one-quarter of Category 1 TB medications. However, 34 facilities (17%) were stocked out of at least one anti-TB medication in the past six months (data not shown). As a result, 10 of these facilities indicated that at least one of their patients did not have TB treatment available to him/her because of stockouts in the past six months.

Storage conditions for commodities and supplies were evaluated against the NTP storage guidelines at each facility. The results are presented in Table 10. Most of the facilities assessed had commodities/supplies that were stored appropriately and were well organized. Generally, hospitals had better storage conditions than nonhospitals. Almost all facilities had storage facilities that prevented water damage to commodities and stored them away from direct sunlight. The number of facilities with a properly lit stockroom, and with product names and expiry dates of medicines clearly indicated was more than 85 percent. There were some areas of concern. Only two-thirds of the facilities had some type of security measure in their stockroom (63%) and only half monitored temperature regularly (52%). Temperature monitoring was found to be especially low at urban facilities (41%).

Table 10. Facilities storing commodities/supplies per NTP guidelines (n=202)

Storage condition	Overall (n=202)		Hospital (n=30)	Nonhospital (n=172)	Urban facilities (n=68)	Rural facilities (n=134)
Storage prevents water damage and is away from direct sunlight	193	96%	100%	99%	98%	99%
Stockroom is properly lit	178	88%	90%	88%	91%	87%
Product names and expiry dates of medicines are clearly indicated	173	86%	87%	86%	96%	81%
Stockroom is clean and dust-free	162	80%	100%	77%	78%	81%
Stockroom is well ventilated	157	78%	93%	75%	82%	75%
Storage avoids direct contact with walls or floors	143	71%	87%	68%	79%	66%
There is some type of security measure inside the stockroom	128	63%	77%	61%	72%	59%
The temperature is monitored regularly in the room	105	52%	60%	51%	41%	57%

Infection Prevention and Control

TB healthcare settings present a high risk for transmission of TB. It is therefore critical to follow infection prevention and control (IPC) procedures to limit the transmission of airborne diseases and infection. As part of the assessment, the facilities were asked about the IPC practices they implemented (Table 11). Overall, hospitals followed more of the standard IPC practices compared with nonhospitals. Under general IPC measures, most facilities asked patients about coughing (93%), provided masks to patients (89%), or implemented cough triage (86%). However, only three-fourths of the facilities provided separate waiting areas (74%), had a designated person to assist with cough triage (72%), or a designated IPC focal point (70%).

Although IPC resources were observed in the facilities to a great extent, there were a couple of exceptions. Fewer than half of the facilities had an updated and approved IPC plan (45%) or had conducted an annual TB IPC risk assessment (33%).

In approximately 90 percent or more of the facilities, the following IPC supplies/equipment were observed: running water, hand washing soap, alcohol-based hand rub, disposable latex gloves, disinfectant, single use disposable syringes with needles, sharps container, and non-pedal bin waste receptacle (data not shown). However, the IPC supplies listed in Table 11 were observed in fewer than 80 percent of the facilities. Approximately half of the facilities had gowns or injection safety precaution guidelines for standard precautions. The presence of eye protection/goggles (22%) and methylated spirit and glycerin mixture (17%) was especially low.

As for other IPC practices, more than 90 percent of the facilities collected specimens outside the treatment area in a well-ventilated area away from patients, and 68 percent of the facilities collected specimens in a separate room (data not shown).

Table 11. Infection prevention and control practices (n=202)

IPC practices	Overall (n=202)		Hospital (n=30)	Nonhospital (n=172)	Urban (n=68)	Rural (n=134)
General IPC measures						
Patients are routinely asked about cough when entering the facility	187	93%	100%	91%	91%	93%
Surgical masks are available for presumptive and TB patients	179	89%	97%	87%	87%	90%
Cough triage is implemented	173	86%	97%	84%	85%	86%
Separate waiting area exists in the facility to isolate infectious individuals	149	74%	93%	70%	78%	72%
Designated person to assist with separation and triage of coughing patients	145	72%	73%	72%	72%	72%
Designated IPC focal point exists with specific duties	141	70%	83%	67%	68%	71%
Observed IPC resources						
Patient waiting areas with access to continuous fresh air	182	90%	97%	89%	85%	93%
Supplies for coughing patients (tissues, masks, etc.)	163	81%	90%	79%	81%	81%
Updated and approved IPC plan	90	45%	57%	42%	41%	46%
Annual TB IPC risk assessment	66	33%	47%	30%	35%	31%
IPC supplies in examination areas*						
Medical waste receptacle with lid and plastic bin liners	153	76%	87%	74%	81%	66%
Gowns	96	48%	57%	46%	35%	54%
Injection safety precaution guidelines for standard precautions	94	47%	63%	44%	47%	46%
Needles destroyer	79	39%	57%	36%	46%	36%
Eye protection/goggles or face protection	45	22%	30%	21%	25%	21%
Methylated spirit and glycerin 70:30	34	17%	37%	13%	25%	13%

* The table lists only those IPC supplies that were observed in fewer than 80 percent of the facilities.

Providers' IPC Knowledge and Practices

In addition to evaluating facilities on the availability of IPC-related materials, providers were assessed about their IPC knowledge and practices. Most providers (>90%) knew that doors and windows should be left open when a presumed/confirmed TB patient was in the room and that presumed/confirmed TB patients should be separated from other patients at the facility. However, only 62 percent knew that healthcare providers should minimize the time TB patients spend at a health facility. Nevertheless, most providers (89%) said that they gave priority to patients who were coughing. Most providers (91%) indicated that they turned on fans to blow air away from others when treating presumptive/confirmed TB cases, yet only 84 percent of

the providers responded that using fans in the TB ward could reduce the transmission of TB. Almost all providers interviewed (98% to 99%) educated TB patients on cough etiquette, requested TB diagnostic testing if a patient was symptomatic, discussed with close contacts of TB patients' basic information and skills to protect them from contracting TB, and always screened all family members of confirmed TB patients for TB symptoms (data not shown).

Providers gave mixed responses when it came to personal respiratory protection. Although 95 percent of the providers knew that using respiratory protection, such as N-95 particulate respirators, could protect them from inhaling the TB bacteria, 62 percent of the providers reported that surgical masks could reduce their chance of infection, and only 76 percent indicated that they used a mask or respirator when treating presumptive or confirmed TB patients. Interestingly, at 142 of the facilities (70%), N-95 respirators were observed to be readily available for staff, but only 123 of those facilities were found to have staff trained on the proper fit of the respirators. Moreover, only 52 facilities reported that staff members used the N-95 respirators according to national guidance all or most of the time. Last, half of the providers (224) said that they had received training on TB infection control, but only 61 of them had received the training in the past two years (data not shown).

TB Screening of Staff

Only 58 percent of the facilities assessed were found to have a system in place to screen staff for TB (data not shown). Of the 117 facilities that had a staff screening system in place, 15 had at least one staff member who had been diagnosed and treated for active TB disease in the past two years (Table 12). Among these 15 facilities, 23 staff had been infected, 21 of whom were full-time staff members.

Table 12. Facilities with staff infected with TB in the past two years (n=117)

Number of facilities	Number of infected staff per facility		Total infected staff
	Full-time	Part-time	
2	3	–	23
4	2	–	
7	1	–	
2	–	1	

Capacity of TB Providers

TB focal persons at the facilities were asked about training (both new and refresher) received by any providers at their facilities in the past two years. Providers were asked about the same training received either in the past two years or more than two years ago. Facility respondents typically reported a higher level of provider training on all topics in the past two years compared with that reported by the providers themselves (Table 13). Except for training on GeneXpert and iDOTS, a much larger percentage of the providers had received training more than two years ago than had received training recently.

Table 13. Provider training: Facility perspective versus provider perspective

New or refresher training received by providers	Provider at a facility trained in the past 2 years* (n=202)	Provider training (n=435)	
		In the past 2 years	More than 2 years ago
Manual of Procedures	63%	20%	54%
Integrated TB information system	59%	15%	24%
Programmatic management of DR-TB	47%	15%	21%
Provider-initiated counseling and training	33%	8%	25%
Interpersonal communication competence	29%	6%	23%
Diagnosis of TB by X-ray	25%	2%	8%
Diagnosis of TB by Xpert MTB/RIF (GeneXpert)	—	5%	2%
Diagnosis of TB by direct sputum smear microscopy	—	8%	28%
Integrated direct observation of treatment, short-course	—	21%	20%

* Percentage of facilities that reported having any TB providers at their facility trained in the past two years.

Management of TB Services

In addition to the infrastructure for iDOTS and the Programmatic Management of Drug-Resistant TB (PMDT) Implementation Guidelines.

Table 14. Observed TB policies, protocols, and guidelines (n=202)

Documentation observed during data collection	
MOP (5th edition)	84%
TB posters on walls, leaflets, brochures, and/or pamphlets in local languages for distribution	83%
Department Memorandum 2016-0285: Implementation of GeneXpert Test as Primary Diagnostic Tool for Presumptive DS and DS-TB among Selected Vulnerable Populations	42%
iDOTS	37%
PMDT Implementation Guidelines	37%

Privacy and Waiting Times

Reported privacy was almost the same for facilities and patients. Eighty-one percent of facilities offered privacy for counseling and diagnosis, with a private room available for individual counseling. An equally high percentage of the patients interviewed felt that they had privacy during counseling and diagnosis. Almost all patients also reported acceptable waiting times to talk to health providers. The average time spent at the facility was 20 minutes, split evenly between time waiting and total time spent with providers. The differences by type of TB were marginal. Those with DR-TB or unknown type of TB reported spending a couple more minutes waiting to talk to their provider (data not shown).

Supervision of the Providers

When the providers were asked about supervision, 387 (89%) had received a programmatic supervision visit from someone in an upper-level office, and 278 providers reported that the visit had occurred in the past three months. These supervision visits were most often made by staff from the DOH regional office or the LGU provincial or city health office. For more than 70 percent of the supervision visits, the main activities conducted during the visits were assessment of pharmacy/drug inventory and assessment of data (e.g., completeness, quality, and/or timely reporting). Only 30 percent of the providers reported that supervision activities covered discussion of the performance/accomplishment of the facility based on the TB service data or included completion of a supervision checklist during the visit (data not shown).

Providers' Suggestions for Improved Quality of TB Services

TB service providers were asked about the three most important things that could be done to improve their ability to provide high-quality TB care to their patients. More than half of the providers suggested giving training to staff. Slightly fewer than one-third of the providers suggested improvements in health facility infrastructure. Approximately 20 percent suggested adding equipment, such as a GeneXpert machine or an X-ray machine; adding TB-related supplies, such as masks; and providing additional staff. Other suggestions were to improve case management and to ensure that there were sufficient anti-TB medicines for patients (data not shown).

Private Hospitals

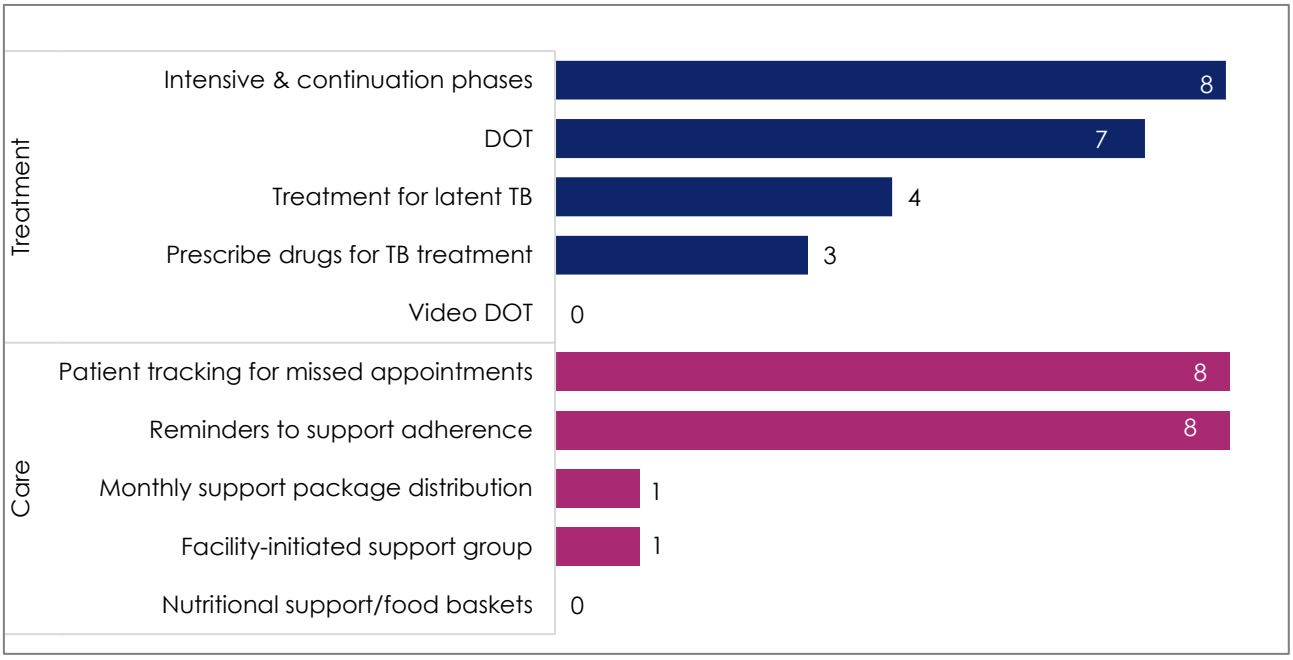
Among the facilities sampled for this assessment, eight were private hospitals. Although they are not representative of the private healthcare sector as a whole, the analysis of selected structural indicators provides some insight, albeit limited, on the private sector.

All eight private hospitals offered TB diagnostic services (Figure 10). They all had an on-site laboratory; however, only half of them offered DST for first-line drugs, and three hospitals offered DST for second-line drugs.

All private hospitals offered treatment at the facility irrespective of whether patients were in the intensive or continuation phases of TB. However, only half offered TB preventive therapy, and slightly more than one-third prescribed drugs for TB treatment. Most facilities provided DOT, but none provided video DOT.

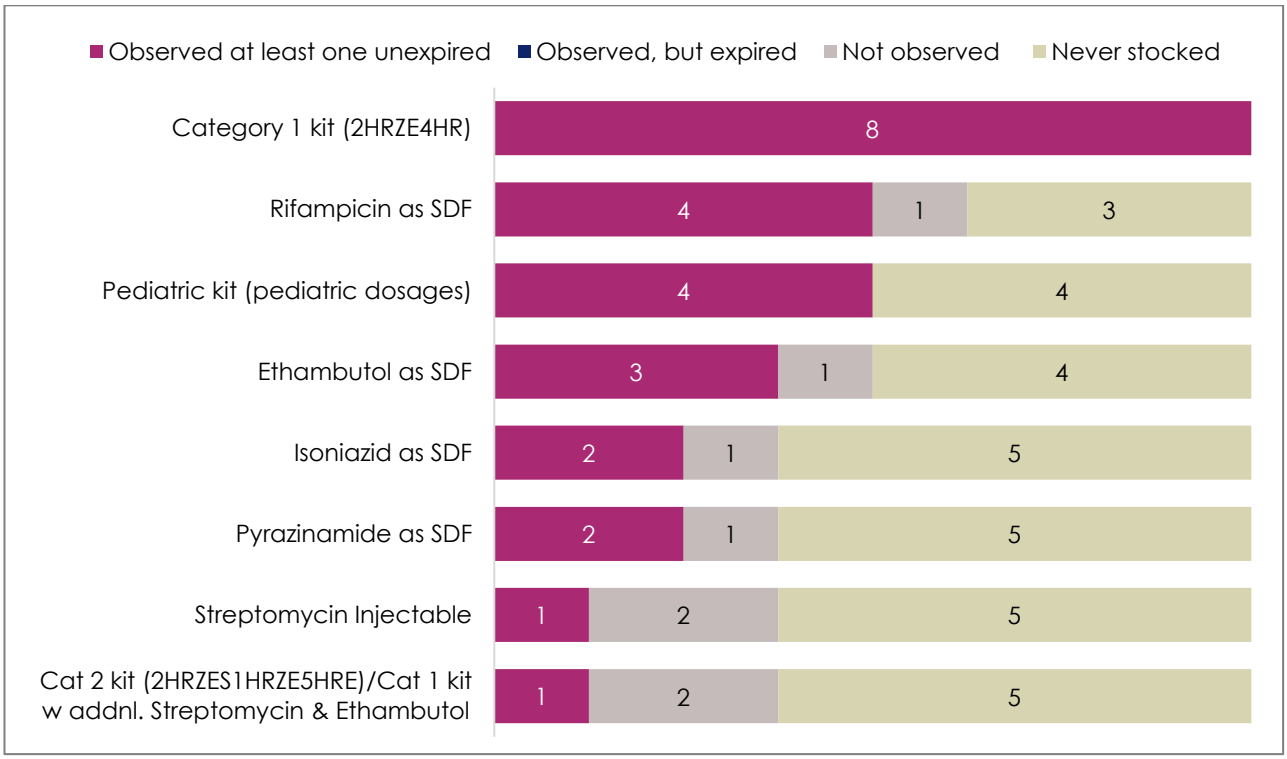
The private hospitals also emphasized patient tracking for missed appointments and sending reminders to support adherence. Support groups, nutritional support, and monthly support package distribution were uncommon.

Figure 10. Services provided by private hospitals in the past 12 months (n=8)



As Figure 11 shows, the Category 1 kit was observed at all private hospitals. In half of the private hospitals, the data collectors observed rifampicin and the pediatric kit. Fewer hospitals had the other drugs listed. Streptomycin and the Category 2 kit were observed in only one of the eight private hospitals. Overall, few private hospitals were observed to have expired drugs. On the other hand, the number of drugs not observed or never stocked was higher. In more than half of the private hospitals, all the specified drugs, except for rifampicin and the Category 1 kit, were either not observed or not stocked.

Figure 11. Anti-TB drug availability at private hospitals (n=8)



Process Indicators

Per the assessment framework, the process indicators capture the interaction between service providers and patients during the caregiving process. In combination with the structural factors associated with the health system, they help determine the health outcomes of TB patients. In this section, we present the findings on the process of delivering TB care and treatment by measuring patient-provider interaction and communication, the level of TB knowledge and awareness among TB patients, barriers to TB care, stigma encountered, affordability, and overall patient satisfaction with the services they received.

TB Case Management

To better understand TB case management practices, providers participating in the study were asked about the techniques they used to help establish trust and rapport with their patients and the topics they covered with patients during their initial diagnostic assessment for TB. All responses were unprompted (i.e., they were not read any answers).

When working to establish rapport and trust with patients, most providers (90%) indicated that they made sure that they communicated clearly with their patients (Table 15). More than half of the providers reported that they clearly explained procedures to the patients as they were being done and they treated their patients with dignity and respect. Interestingly, only 23 percent of the providers said that they suggested behavior changes respectfully. More than one-quarter of the providers used other techniques, such as inquiring about their patient's lives and advising on lifestyle changes, being cordial and gentle but firm, explaining benefits and side effects, providing other health education, etc.

When asked about topics covered with patients during the initial diagnostic assessment, most of the providers interviewed said that they discussed knowledge of TB (76%) and previous medical/psychosocial history (64%) with their patients. Fewer than half mentioned discussing attitudes and beliefs about TB with their patients (45%) and the patients' ability to follow their TB treatment plan (41%). Very few discussed resources for support or barriers to treatment (Table 15).

Table 15. Provider practices for TB case management (unprompted)

Techniques used by providers to establish rapport and trust with patients (n=435)	
Communicate clearly	90%
Treat the patient with dignity and respect	60%
Explain the procedure as it is being done to the patient	59%
Listen carefully to the patient	49%
Be flexible in meeting the patient's needs	43%
Recognize and address the patient's fears about the illness	36%
Suggest behavior changes respectfully	23%
Have an open mind about the patient's cultural beliefs	22%
Other	28%
Topics providers covered with patients during the initial diagnostic patient assessment (n=412)*	
Knowledge of TB	76%
Patient's previous medical/psychosocial history	64%
Attitudes and beliefs about TB	45%
Ability to follow the TB treatment plan	41%
Resources (e.g., family, other social support, finances)	16%
Potential barriers to treatment	11%
Other	14%

*Questions were asked of the providers who worked in a diagnostic facility.

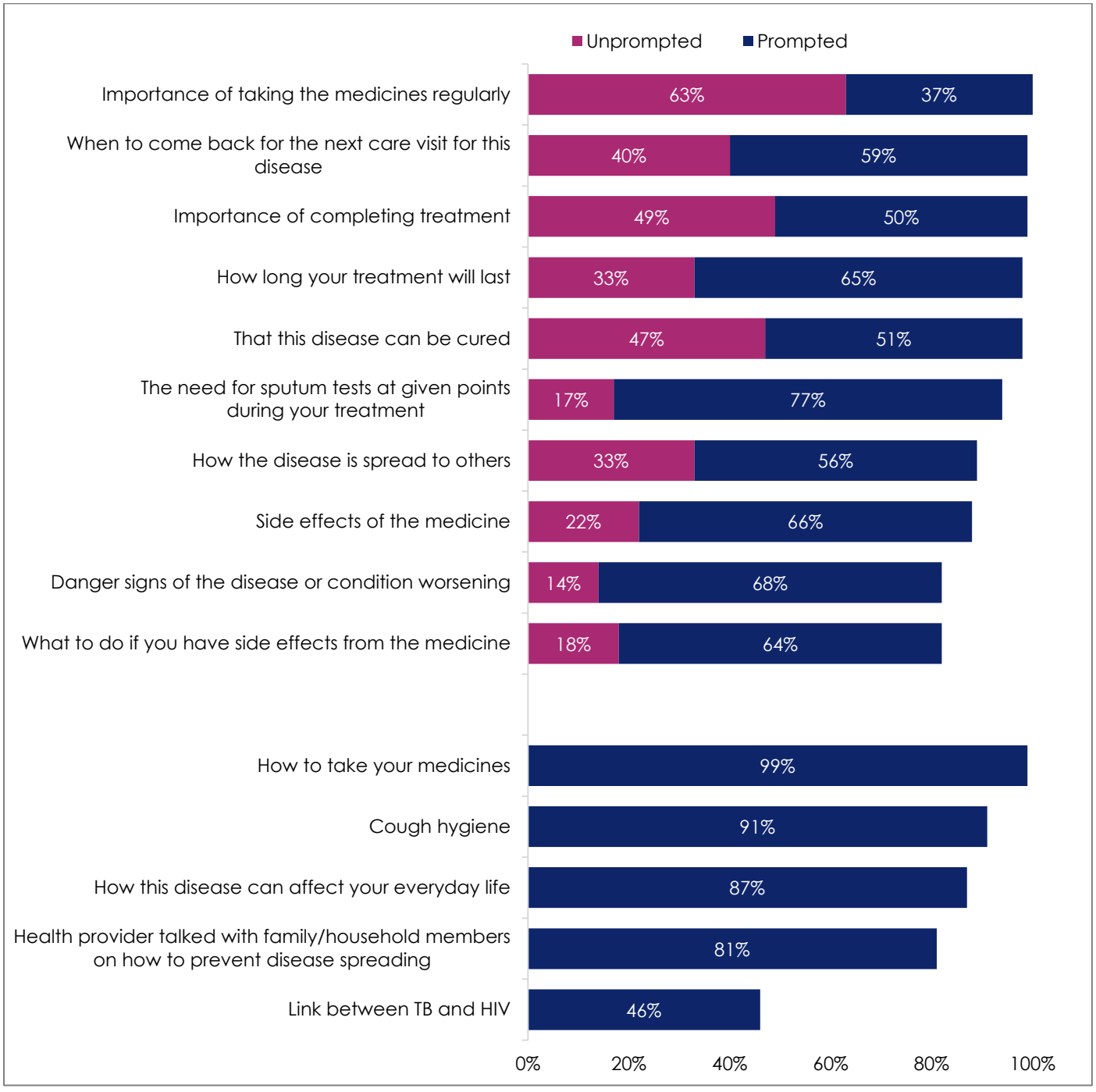
To get an idea about how much time was spent in patient-provider interactions, the patients were asked about the total time that they had spent with all their providers (e.g., health provider, lab, pharmacist) during their visit on the day of data collection. On average, they spent 11 minutes with their providers. When disaggregated by facility type, patients at hospitals and RHUs averaged 10 minutes with their providers and patients at health centers averaged 13 minutes.

Patient Counseling

Both patients and providers reported on the type of TB counseling provided to DS-TB patients. Providers were asked, "What types of information or topics are discussed with DS-TB patients during diagnosis and treatment visits?" Their responses were recorded unprompted. Patients were asked, "During your visits to this health facility, what information about this disease was shared with you by the health workers?" Their responses were also recorded. However, after they finished giving unprompted responses, they were asked/prompted for each statement that was not mentioned.

The patients' reports on the information shared by providers are given in Figure 12. Prompted responses from patients were 85 percent or higher on how they should take their medicines, cough hygiene, and how the disease could affect their everyday life. Unprompted responses from patients on several topics, such as side effects from the anti-TB medicines and what to do if they experienced any side effects, danger signs of the disease, and the need for sputum tests at given times, were quite low. However, when they were prompted, a high percentage of the patients reported that the providers had discussed these topics.

Figure 12. DS-TB patients' reports on the information shared with them by providers (n=428)



Providers were also asked about the types of information or topics they discussed with DS-TB patients during diagnosis and treatment visits. Three-fourths of the providers responded that they provided counseling on TB and TB treatment, including the duration of treatment and dosage, and the importance of taking medications regularly for the full course of treatment. However, they discussed other topics less frequently, such as possible side effects of anti-TB medication (49%) and what to do if a patient experiences side effects (33%) (data not shown).

Although 46 percent of the patients said they were told about the link between TB and HIV (Figure 12), only one-third of the patients were told how to prevent HIV infection (32%) and were counseled to take an HIV test (34%). Information about TB/HIV coinfection was discussed by only six percent of the providers interviewed (data not shown).

Other topics discussed by providers with DS-TB patients during counseling are listed in Table 16. Fewer than one-quarter of the providers mentioned discussing test results with their patients and what the results meant. Approximately one-fifth discussed options available for treatment support and only 15 percent of the providers told patients what to do if they ran out of their medicines.

Table 16. Additional information discussed by providers during DS-TB patient counseling

Additional Topics Discussed	Unprompted
Test results	22%
Options available for treatment support (e.g., DOT)	19%
What the test results mean	16%
What to do if the patient runs out of their medicines	15%
Information about what to do if signs and symptoms of immune reconstitution inflammatory syndrome become evident	9%
Information about what to do if the patient experiences TB/HIV drug interactions	3%

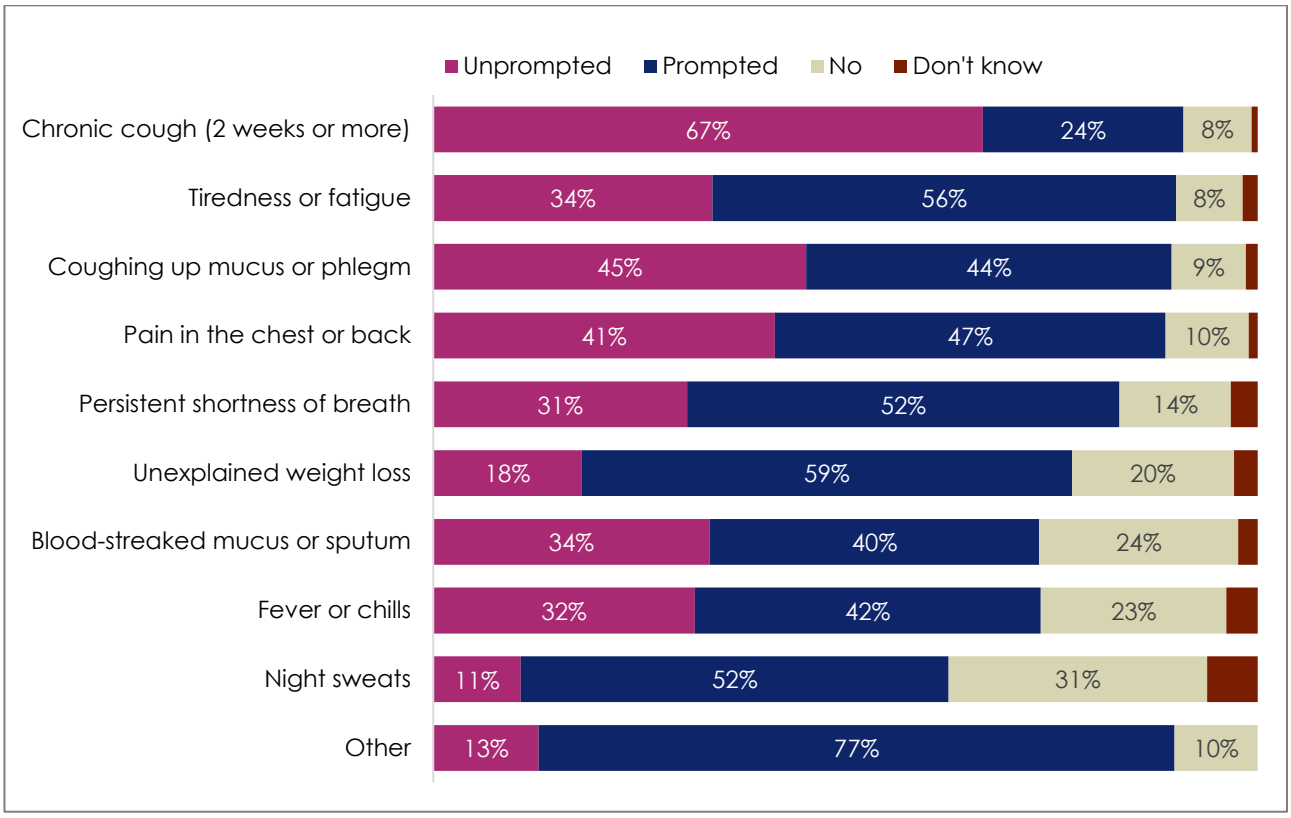
Patients' Knowledge about TB

TB patients provided unprompted and prompted responses to several sets of questions about their knowledge of the disease to get a sense of the effectiveness of their interactions with providers.

TB Symptoms

The first set of questions was on their knowledge of symptoms of a person with TB. As Figure 13 shows, the top three responses that patients gave unprompted were chronic cough (67%), coughing up mucus or phlegm (45%), and pain in the chest or back (41%). Patients responded positively to several other symptoms when prompted. More than 90 percent of the respondents agreed with the above-mentioned symptoms, in addition to tiredness or fatigue. At least 20 percent of the patients reported that unexplained weight loss, fever or chills, blood streaked mucus or sputum, and night sweats were not symptoms of TB.

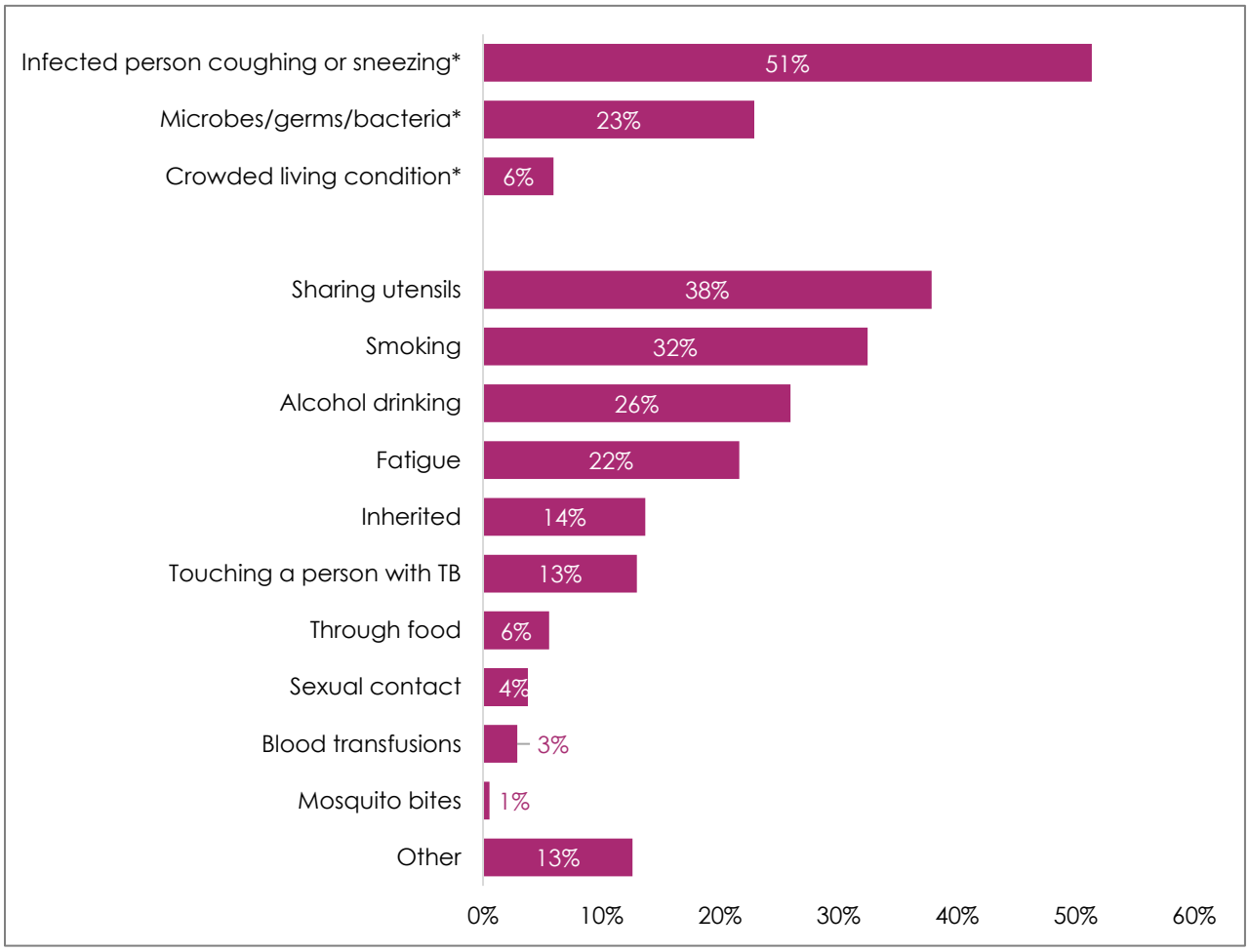
Figure 13. Patients' knowledge of TB symptoms (n=555)



Cause, Modes of Transmission, and Risks Factors of TB

An unprompted question asked patients about what causes TB or spreads it from one person to another (Figure 14). The most popular response, "infected person coughing or sneezing," was reported by half of the respondents (51%), whereas only six percent said crowded living condition. Approximately one-quarter of the patients (23%) correctly mentioned microbes, germs, or bacteria as the cause. There were several misconceptions about the cause and modes of transmission of TB that were mentioned by the patients, with "sharing utensils" being the most frequently mentioned (38%).

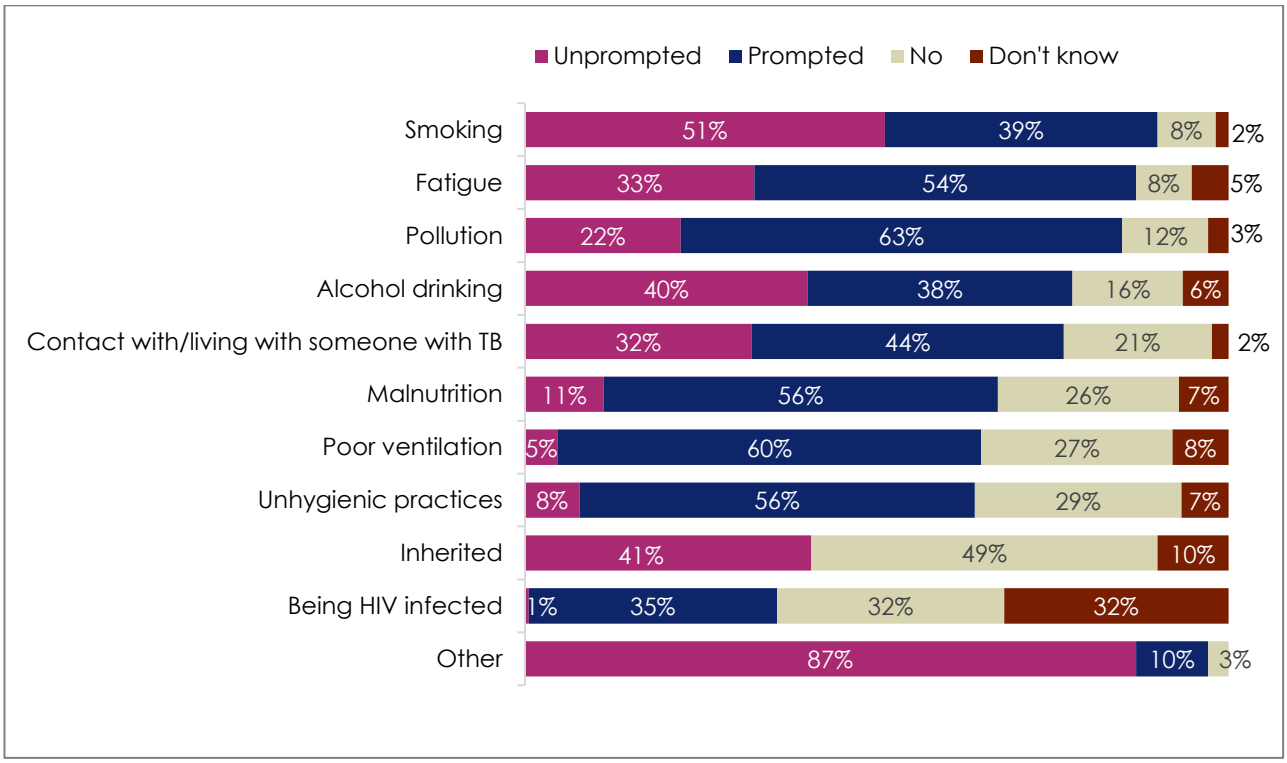
Figure 14. Patients' knowledge of the cause/modes of transmission of TB (n=555)



* Correct unprompted responses.

Questions were also asked about what makes a person more at risk of developing TB. Unprompted responses were recorded first followed by prompted responses (Figure 15). One-third to one-half of the patients correctly identified the following risk factors unprompted: smoking, alcohol drinking, fatigue, and contact/living with someone with TB. Once the patients were prompted, pollution was added to the previous four risk factors as being identified by more than 75 percent of the patients. Equal proportions of respondents (32% each) either said being infected with HIV was not a risk factor or they did not know. Curiously, 41 percent of the patients thought that TB could be inherited.

Figure 15. Patients' knowledge of TB risk factors (n=555)

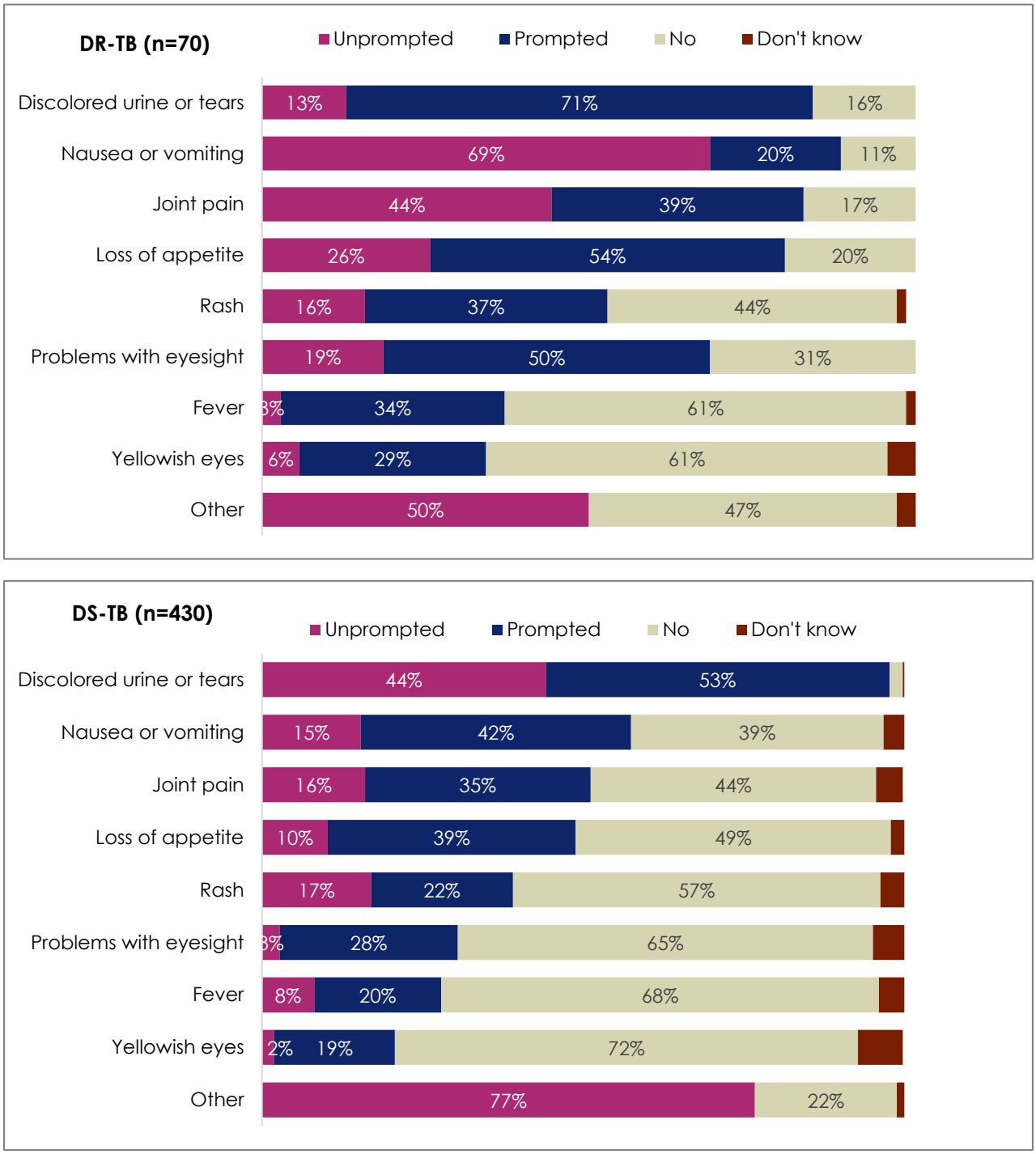


Note: Unprompted and prompted responses could not be distinguished for "inherited" and "other," so the responses for each were combined and reported as prompted.

Anti-TB Drug Side Effects

TB patients were asked to give unprompted and prompted responses to questions about possible side effects that they may experience using or taking anti-TB drugs, which were stratified by the patient's TB diagnosis (Figure 16). Several differences were apparent between DS-TB and DR-TB patients. Discolored urine or tears was reported the most by DS-TB patients, whereas nausea or vomiting was the side effect most reported by DR-TB patients. Generally, DR-TB patients identified more side effects than did DS-TB patients.

Figure 16. Patients' knowledge of anti-TB drug side effects



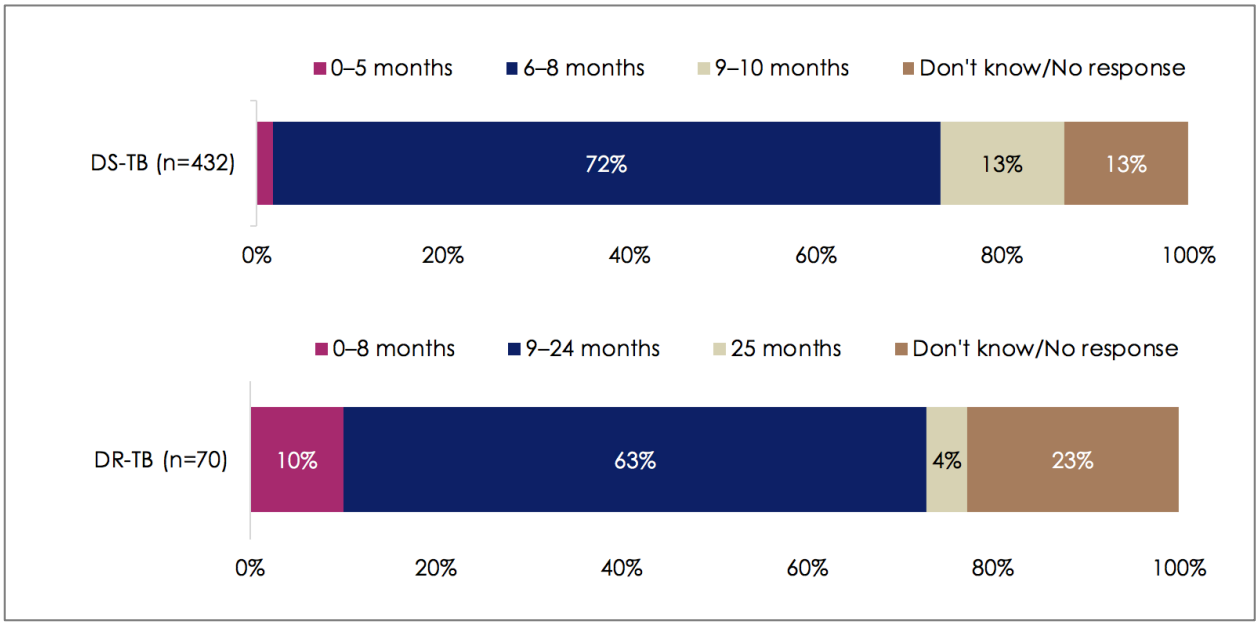
Duration of TB Treatment

The last knowledge questions asked patients whether their disease could be cured and what the usual time or typical period was for treating DS-TB and DR-TB. Almost all TB patients, irrespective of the type of TB they had, reported that their disease could be cured. As to the treatment duration, according to the NTP, the expected time for DS-TB treatment is six months for new cases and eight months for retreatment. Treatment time for DR-TB ranges from nine to 24 months, but is generally expected to last about 20 months.

Figure 17 presents information on the DS-TB patients' reports of the usual time for DS-TB treatment and the DR-TB patients' reports of the usual time for DR-TB treatment. Overall, 72 percent of the 432 DS-TB patients reported that the usual time to treat DS-TB was six to eight months, most of whom reported the duration to be six months. Sixty-three percent of the 70 DR-TB patients reported that the usual time to treat DR-TB was nine to 24 months.

Unlike most other questions, not all TB patients responded to this question. Among DS-TB patients, the non-response rate for the usual time for DS-TB treatment was 13 percent. Among DR-TB patients, the non-response rate for the time of treatment of DR-TB was 23 percent.

Figure 17. TB patients' knowledge of the usual duration of treatment, by TB diagnosis



Barriers to TB Care

It is critical to ensure that all TB patients have easy access to the care they need. The assessment addressed barriers to care as reported by the patients. Overall, the patients did not find it challenging to access their health facility for the care they needed. More than 90 percent reported that their health facility was easy to get to from where they lived, irrespective of whether they lived in an urban or rural area or accessed a rural or urban facility. Approximately 90 percent of the patients could get to their health facility within 30 minutes, and 60 percent within 20 minutes (data not shown).

As to the type of transportation used, because of proximity, slightly more than 20 percent of the patients walked to the facility and approximately 40 percent used a non-motorized vehicle, like a bicycle or tricycle. Another 30 percent used a motorized vehicle, such as a car, taxi, bus, or other transportation service (data not shown).

Almost all patients found that medicines were always available and clinic hours were convenient. Fewer than 10 percent reported being turned away from receiving care during official working hours at the health facility that they attended. They were well instructed on how to take their medicines; 70 percent were given written instructions on how to take the medicines that they needed. There was little difference based on their TB diagnosis (data not shown).

Affordability of TB Care

The financial barriers to care are presented in Table 17. Affordability was measured in terms of financial factors that limited the patients' ability to come to a health facility and the need for them to pay for healthcare services. All patients reported on whether they were able to come to the facility and whether they had to pay to see a provider. Those who received other services, such as sputum tests, blood tests, or X-rays, were asked whether they had to pay for those services.

Of the patients interviewed, 11 percent reported that cost (e.g., transportation) affected their ability to come to the health facility. Cost was a concern for 17 percent of the DR-TB patients compared with eight percent of the DS-TB patients (data not shown). Although patients received free medicines, 30 percent paid for blood tests and 64 percent paid for X-rays (Table 17). Seventeen percent said that they had to pay to see the provider and a smaller number (9%) paid for sputum tests. Typically, DS-TB patients were more likely to pay for these health services compared with DR-TB patients, especially in the case of payment for X-rays (71% compared with 26%) (data not shown).

Table 17. Affordability of TB services

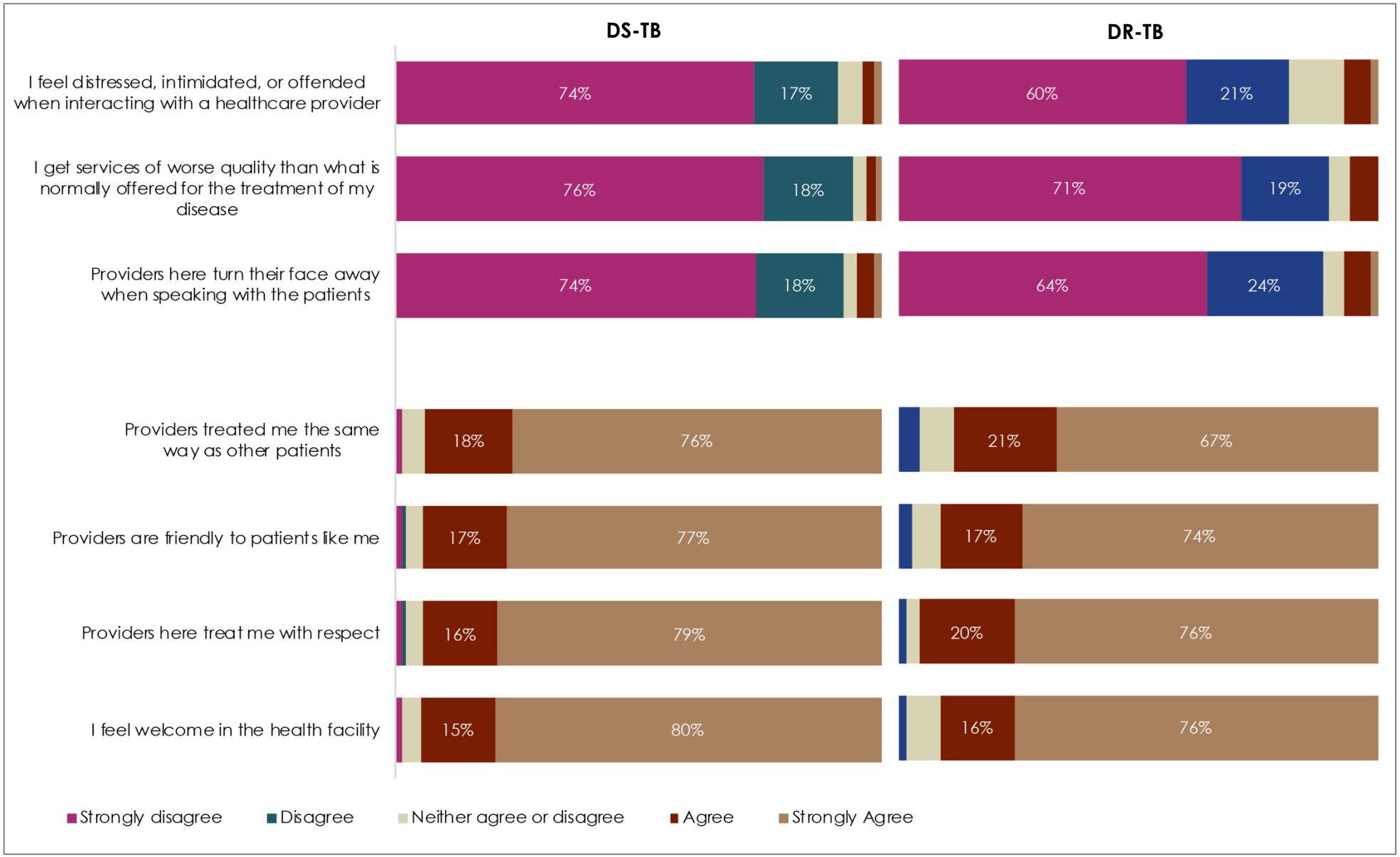
Paid for X rays (n=353)*	227	64%
Paid for blood tests (n=312)*	95	30%
Paid to see the provider (n=550)	96	17%
Unable to come to the health facility because of the cost (e.g., transportation) (n=546)	61	11%
Paid for sputum tests (n=341)*	29	9%

*Limited to those patients who received the specific services.

Stigma/Discrimination

The assessment captured information on stigma/discrimination faced by the TB patients at their health facility. Some of the questions were stated positively and others negatively. The findings are presented in Figure 18. Although the results were stratified by the patients' TB diagnosis, only minor differences were found between the groups. Overall, 88 percent to 96 percent of the patients agreed or strongly agreed with the positive statements about how the providers treated them at the facility. On the other hand, DR-TB patients were slightly less likely to strongly disagree with the negative statements, especially about their interactions with the healthcare providers. Note that the assessment did not cover stigma faced by patients at the community level.

Figure 18. Stigma faced by patients (n=551



Patient Satisfaction

On a scale of one to five, the TB patients were asked how satisfied they were with the care they had received at the facility, where one was very dissatisfied and five was very satisfied. Overall, the patients responded with a very high level of satisfaction, with little difference by TB diagnosis or type of health facility attended. Ninety-six percent of the TB patients reported that they were very satisfied (70%) or satisfied (26%) with the services they had received (data not shown). Although the assessment did not probe into the specific reasons for their responses about satisfaction, the sections of the patient interview can be further analyzed to provide insight on the reasons for their satisfaction.

Patients were also asked whether there was anything they would like to see changed at their facility to improve the quality of care that they had received. The main response from the patients was their interest in a renovated or enhanced facility. Some other suggestions were better stocking of essential medicines and adding TB health staff (data not shown).

Private Hospitals

As mentioned previously, only eight private hospitals were assessed. The 22 patients interviewed at these hospitals are not representative of all patients who receive TB care in the private healthcare sector. Nevertheless, an analysis of selected process indicators provides some insight, albeit limited, on TB care provided in the private sector.

Patterns of knowledge of TB symptoms among those who were treated at a private hospital were somewhat similar to that of all TB patients sampled. The four main symptoms reported by patients at private hospitals were coughing up mucus or phlegm, chronic cough, blood streaked mucus or sputum, and tiredness or fatigue. When prompted for responses, more than 18 patients at the private hospitals mentioned other symptoms, such as pain in the chest or back and night sweats (data not shown).

Patients were also asked about the cause of TB and the modes of transmission. Fourteen patients responded unprompted that an infected person coughing or sneezing was a cause/mode of transmission of TB. Very few mentioned microbes/germs/bacteria, and none mentioned crowded living conditions (data not shown).

The four main TB risk factors that were reported unprompted by private hospital patients were contact with/living with someone with TB, smoking, fatigue, and pollution. However, on prompting, 16 or more patients at the private hospitals reported smoking, fatigue, contact with/living with someone with TB, poor ventilation, and inheritance as risk factors. As with the larger sample of patients, in general, knowledge of anti-TB drug side effects was not consistently high. The main response to anti-TB drug side effects was discolored urine or tears, which was an unprompted response by half of the patients interviewed at the eight private hospitals (data not shown).

Outcome Indicators

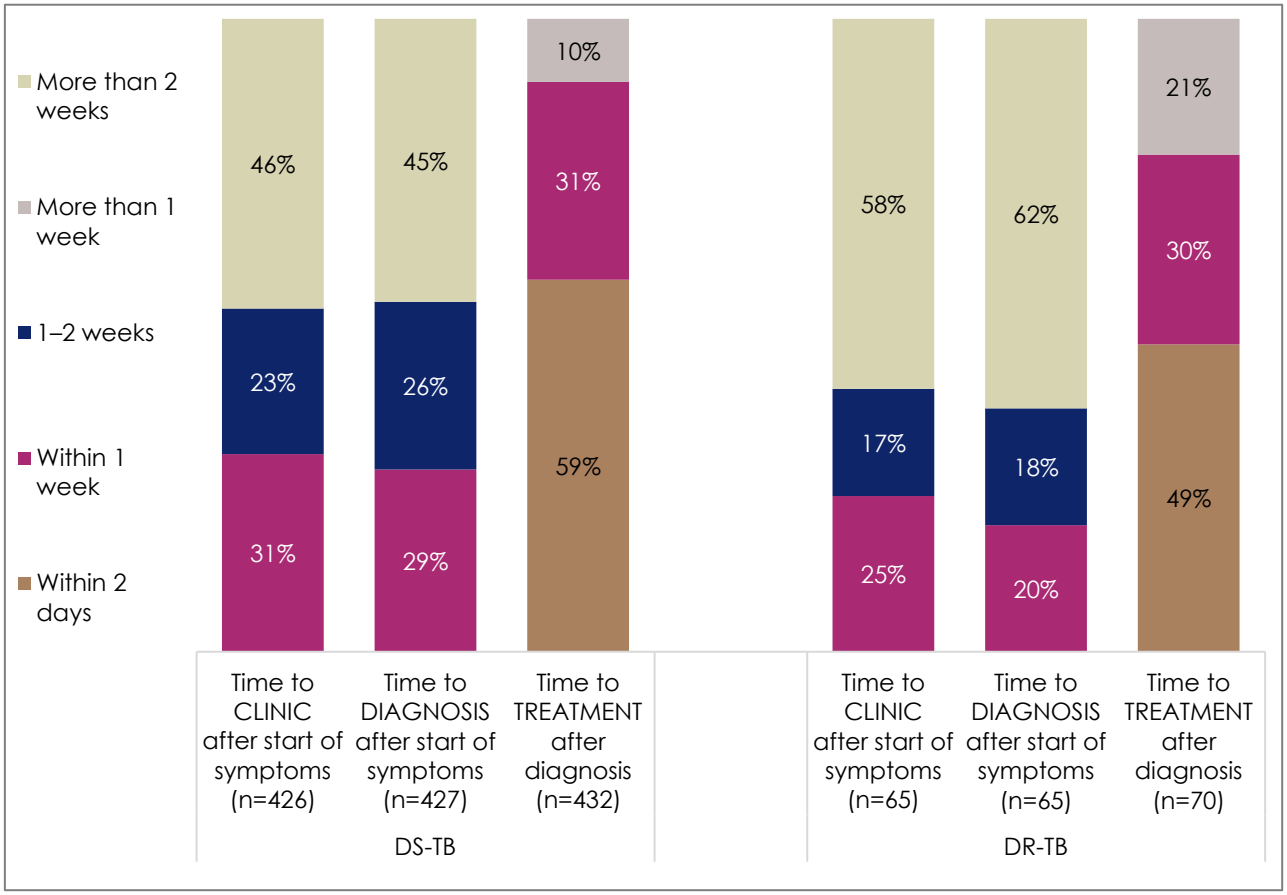
Although the structural and process indicators determine the quality of TB services provided to TB patients, the outcome indicators show the results of the quality of these services for TB patients. This section presents information on the TB cascade of care and the TB outcome indicators. The TB outcome indicators are based on information taken from the TB registers.

TB Cascade of Care

The TB cascade of care is a representation of the path that a TB patient must navigate, from screening and diagnosis to treatment. It offers an easy way to show how patients move along the TB care continuum and at which point losses occur. These findings can then be linked with programmatic efforts to understand when and how TB diagnosis and treatment should be initiated and completed (Naidoo, et al., 2017).

To better understand the cascade of care for TB, the patients were asked about the timing of events for seeking care, diagnosis of TB, and treatment initiation (Figure 19). The results were split between patients diagnosed with DS-TB and those with DR-TB to reveal any differences. In both groups of patients, the matched findings between when patients sought care and when they were diagnosed indicated that the patients were likely diagnosed with TB very soon after seeking care at the facility. However, the DR-TB patients waited longer after the start of symptoms to visit a clinic: approximately 60 percent waited more than two weeks whereas fewer than half of DS-TB patients waited more than two weeks. Patient reported time to treatment following TB diagnosis was shorter than that reported for seeking care and receiving a diagnosis. Again, it took DR-TB patients longer to start treatment after diagnosis than it did for DS-TB patients. For example, 21 percent of DR-TB patients started treatment more than one week after diagnosis compared with 10 percent of DS-TB patients.

Figure 19. TB cascade of care, by TB diagnosis



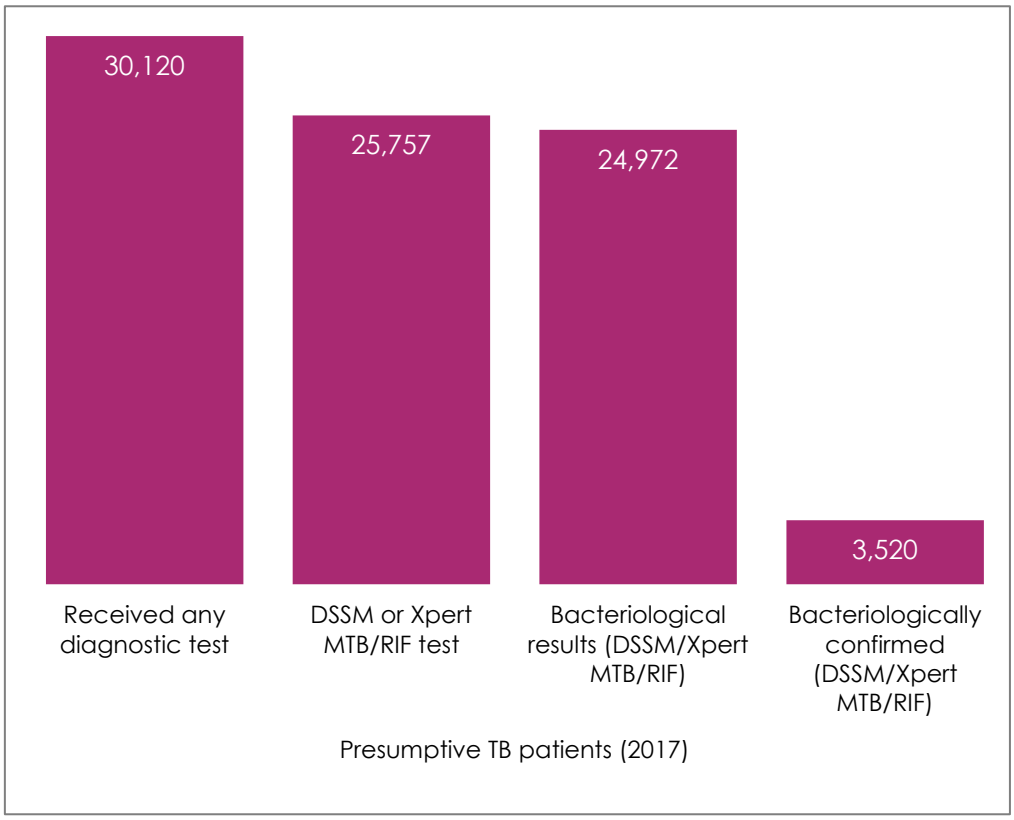
Patients were also asked about how long they had undergone treatment. Almost all DS-TB patients interviewed had been on treatment for fewer than six months, 47 percent for fewer than three months, and 51 percent for three to six months. As expected, DR-TB patients had been undergoing treatment for a longer period. A little more than one-quarter (29%) had been on treatment for fewer than three months, another one-quarter (27%) for three to six months, and 20 percent for seven to 12 months. Almost one-quarter of the DR-TB patients had been on treatment for more than 12 months (data not shown).

TB Service Outcomes

Diagnosis

To obtain information on diagnosis outcomes, reviews of the registers were conducted at the diagnostic facilities. Records from 2017 were abstracted from either the presumptive TB master lists or hospital TB referral logbooks at 147 of the sampled facilities, as shown in Figure 20. From this group, 30,120 patients with presumptive TB received some type of diagnostic test and 25,757 requested either DSSM or GeneXpert. Approximately 25,000 patients received bacteriological results and 14 percent of those patients were bacteriologically confirmed to have TB.

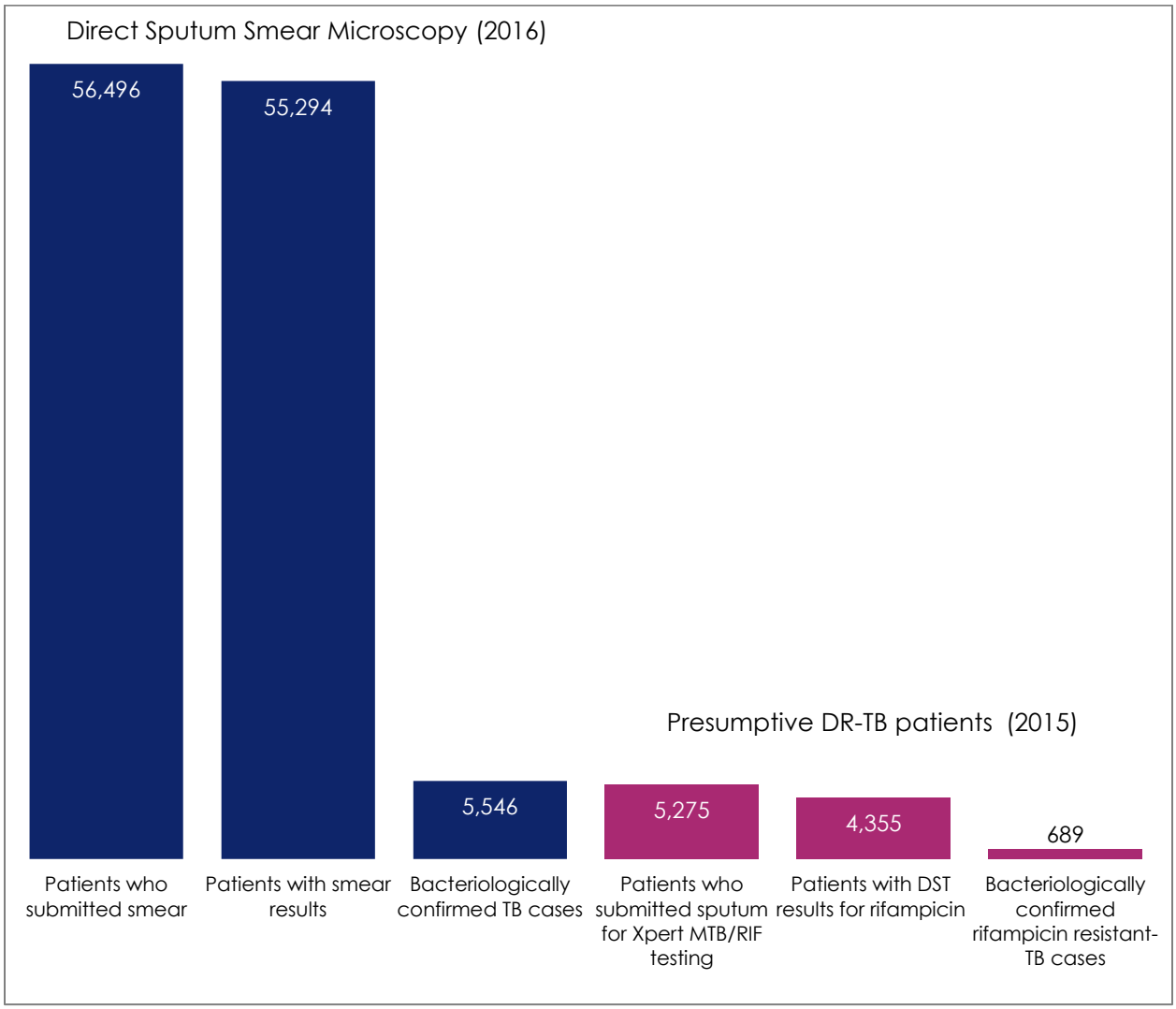
Figure 20. Diagnostic outcomes for presumptive TB patients registered in either the presumptive TB master list or the hospital TB referral logbook (n=147 facilities)



Another source of diagnostic outcomes was the NTP laboratory register at facilities that had an on-site lab (Figure 21). DSSM records from 2016 were reviewed; 56,496 patients were found who had submitted their sputum for testing. Results were recorded for almost all patients (98%), and of those, 10 percent were bacteriologically confirmed TB patients. Although 28 facilities reported doing Xpert MTB/RIF diagnosis on

site, only 17 facilities had valid 2015 data that could be abstracted from their NTP laboratory registers. On review, 5,275 presumptive DR-TB patients were found that had submitted sputum for Xpert MTB/RIF. Among those, 83 percent had DST results for rifampicin, and of those, 16 percent were bacteriologically confirmed to have rifampicin-resistant TB.

Figure 21. Diagnostic outcomes recorded in the NTP laboratory register for smear microscopy (n=164 facilities) and Xpert MTB/RIF (n=17 facilities)



Treatment

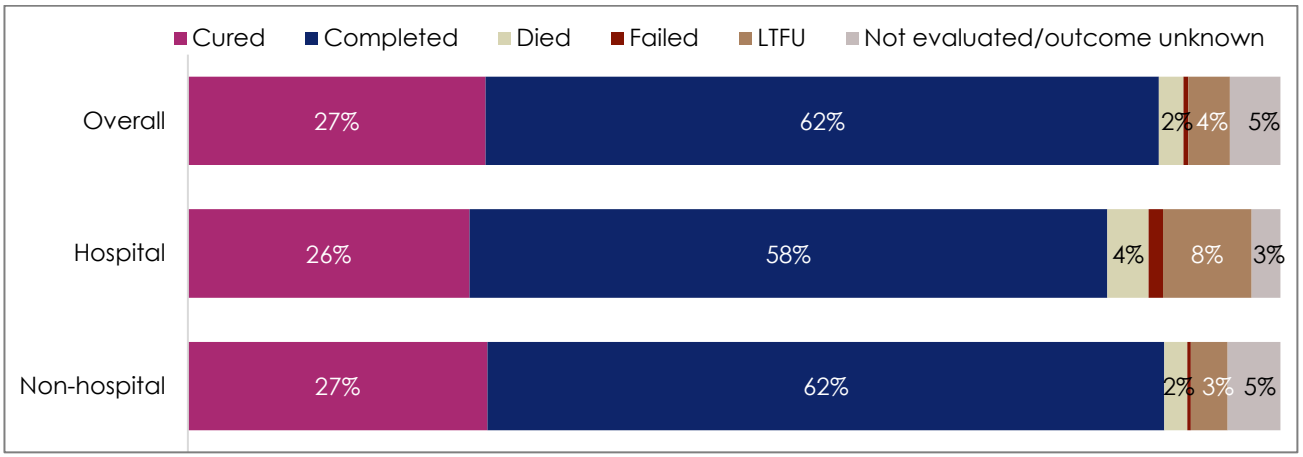
All bacteriologically confirmed and clinically diagnosed TB cases are assigned a treatment outcome using the definitions described in the DOH's *National Tuberculosis Control Program Manual of Procedures*, Fifth Edition (DOH, 2014). These definitions were adapted from those listed in the 2013 revision of the WHO's *Definitions and Reporting Framework for Tuberculosis* (WHO, 2013). The treatment outcomes identified in these guidelines are cured, treatment completed, treatment failed, died, lost to follow-up, and not evaluated (Appendix B).

Figure 22 displays the DS-TB treatment outcomes for patients who were either bacteriologically confirmed or clinically diagnosed with TB during the period January to December 2016; it includes both new and relapse cases. Data from the DS-TB register were reviewed at 188 treatment facilities: 25 hospitals and 163 nonhospitals. There were 22,073 patient records reviewed at the hospitals, accounting for 2,164 patients; the rest (19,909) were for patients at nonhospitals.

Overall, just over one-quarter (27%) of the DS-TB patients were cured, and an additional 62 percent had completed treatment. The rest of the patients had died (2%), were LTFU (4%), or did not have a known outcome (5%). When comparing facility type, successful outcomes were marginally higher at the nonhospital versus the hospital setting, 89 percent and 84 percent, respectively. Moreover, hospitals had higher rates of patient deaths (4%) and LTFU (8%).

Since valid 2015 data in the DR-TB registers were available at only seven facilities, no analysis of the DR-TB treatment outcomes was done.

Figure 22. DS-TB treatment outcomes for 2016: new and relapse cases (n=188 facilities)



DISCUSSION

This section highlights the challenges and limitations faced by the assessment both for data collection and the interpretation of the findings.

Challenges

A few challenges were encountered during data collection that led to changes in the sample. First, East Avenue Medical Center was in the original sample of facilities. However, because of the high cost of the ethics review, an alternate facility was randomly chosen from the same list. Second, one facility refused to participate in the study, even after securing the necessary approvals from regional and provincial health offices. Third, there were facilities in the sample that were not operational DOTS facilities. One of the facilities was a QA laboratory, and another had not been operational for a few years. Last, the rainy season and the security situation posed safety and security risks for the data collectors to travel to certain areas. These challenges were addressed by choosing alternate facilities from the sampling list or by adjusting the schedule so that the more remote facilities were accessed first, in the early part of the rainy season.

Another set of challenges led to several changes in the data collection schedule. Some changes were because of lapses in communication between the regional or city TB coordinators and the health facilities. For example, a few facilities were not informed of the visit by the regional offices. To verify the legality of the visit, regional coordinators instructed the data collectors to ask the facility to call the regional office. Second, unique coordination processes were encountered in some LGUs where the department memorandum and endorsement letter from the region were not sufficient. Clearance was obtained by submitting the study protocols to the research officer. Moreover, mandatory courtesy visits were made to the district health offices that managed the health facilities in the sample. Because of the long process of obtaining clearance, the data collection schedule was extended in this area. Third, for facilities in jails, additional clearances were required for interviewing TB patients. Fortunately, the city health office facilitated these interviews. For army hospitals, inpatient interviews required additional clearance. Only outpatients were interviewed in these cases. Overall, these challenges did not have implications for the quality of data collected or the results of the assessment.

Limitations

This study has several limitations because of its design and the study protocols, which should be considered when interpreting the findings.

First, the study protocol stated that only patients who came to a facility were to be interviewed. This was done to remove the bias created when providers recruit patients. It meant that there was no community-level data collection of patients. In the context of the Philippines, this protocol could be a significant source of selection bias because there are patients who do not go to health facilities daily to get their medicines anymore. Various scenarios were encountered in the field. For example, some patients only visit the facility for consultations or during monitoring of their sputum. In other cases, patients do not go to health facilities anymore to pick up their medicines, because they live far away from the facility. Instead, providers do home visits to areas that they cover. The implication is the selection bias that arises because not all TB patients—

especially those patients who do not go to the facility anymore—were given the same chance of being interviewed.

Another implication of the protocol was that it was difficult to reach the quota of patient interviews per facility. In some instances, treatment partners collect the medicines to pass to patients. More important, DS-TB patients do not go to health facilities on a daily basis. This greatly reduced the number of patients who visited daily, even for facilities with a high caseload. Revisits were made in an attempt to reach the quota per facility. However, in some areas, the quota could not be reached.

Although the assessment covered six regions in the Philippines, the study was designed to provide national estimates only. Because of the sample size, valid regional estimates could not be obtained. Moreover, the assessment did not oversample for DR-TB. As a result, a more in-depth analysis of DR-TB was not possible.

KEY FINDINGS AND RECOMMENDATIONS

On completion of the assessment, MEASURE Evaluation and EpiMetrics organized a consultative meeting in Manila in September 2018 to share the preliminary findings with key stakeholders and to obtain stakeholders' feedback on those findings. This section presents key findings and recommendations based on the discussion at the consultative meeting. The suggested recommendations are categorized by the components of the TB Quality of Care Framework: structure, process, and outcomes.

Key Findings and Recommendations

- Almost one-third of the patients did not know their TB diagnosis or the phase of treatment they were in, suggesting the need for better patient education and provider counseling.
- There were considerable differences in the services desired and received by patients. The TB support services being provided at the facilities need to be reviewed and considered for expansion, possibly as part of the patient TB care package.

Structure

Resources and Staff Training

- The management of TB can be improved by expanding training for providers on strengthening provider-initiated counseling and training, IPC, etc.
- To maintain staffing levels, contracted providers who have been trained in TB care could be retained by giving them permanent positions at the facilities.
- The financing and management of RHUs/health centers are decentralized. Despite the TB law, LGU budgets do not have TB-specific appropriations. The TB program should allocate funds to ensure that free services, such as X-rays and blood tests, are available to TB patients, especially those with DS-TB.
- Providers could also be trained to recognize/recommend service provision that is affordable/free to patients.

Tools, Checklists, and Procedures

- At health facilities, tools that are developed for and disseminated to providers can ensure that they are giving essential information to patients so that patients have accurate knowledge of TB, its side effects, and the treatment process.
- The use of programmatic checklists during supervision visits and the provision of feedback to facilities and providers on a regular basis should be required.
- Other options for treatment support beyond SMS, text messages, etc. should be explored so that all patients can be reached and treated appropriately.
- Because not all patients experience TB-related symptoms, the use of X-rays for screening should be promoted in addition to their use for diagnosis, especially at RHUs.

Other

- Explore the feasibility of offering services to TB patients during evening or weekend hours.
- Providers often contact patients and send reminders by SMS using out-of-pocket funds. To ensure adherence support and less loss to follow-up, providers who contact patients by SMS should be reimbursed for these expenses.
- In several facilities, staff have been diagnosed with TB. It is critical that facilities follow IPC guidelines, including the use of personal protective equipment for patients and providers, when necessary.

Process

- Providers should reassure TB patients that their separation from other patients is to reduce the risk of infection rather than to further stigmatize them.

Outcomes

- The NTP should consider creating a dashboard in the integrated tuberculosis information system to monitor delays in the cascade of care. The dashboard could display data on the cascade of care from the start of symptoms through treatment outcomes.

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APPENDIX A. DATA COLLECTION AND DATA MANAGEMENT

Data Collection

EpiMetrics was responsible for the recruitment, training, and supervision of data collectors, and the collection of the data using SurveyCTO. Thirty-two data collectors formed eight data collection teams assigned to cover the six regions. Senior technical advisers from the MEASURE Evaluation team and EpiMetrics conducted training to equip the data collectors with the technical and administrative skills needed for the fieldwork. Technical training covered the data collection tools, informed consent, SurveyCTO, and basic knowledge of TB. Administrative training included coordination and finance protocols. A dry run of the fieldwork was done in selected TB DOTS centers in Marikina City. A significant observation made during the fieldwork was the direct translation of the English tools to the local language by the data collectors. To maintain the integrity of the original English questions and at the same time keep the interviews conversational, a conversational translation of the tools based on the language required in the six regions was conducted before the start of data collection. After tool finalization, data collectors pretested the revised and translated tools.

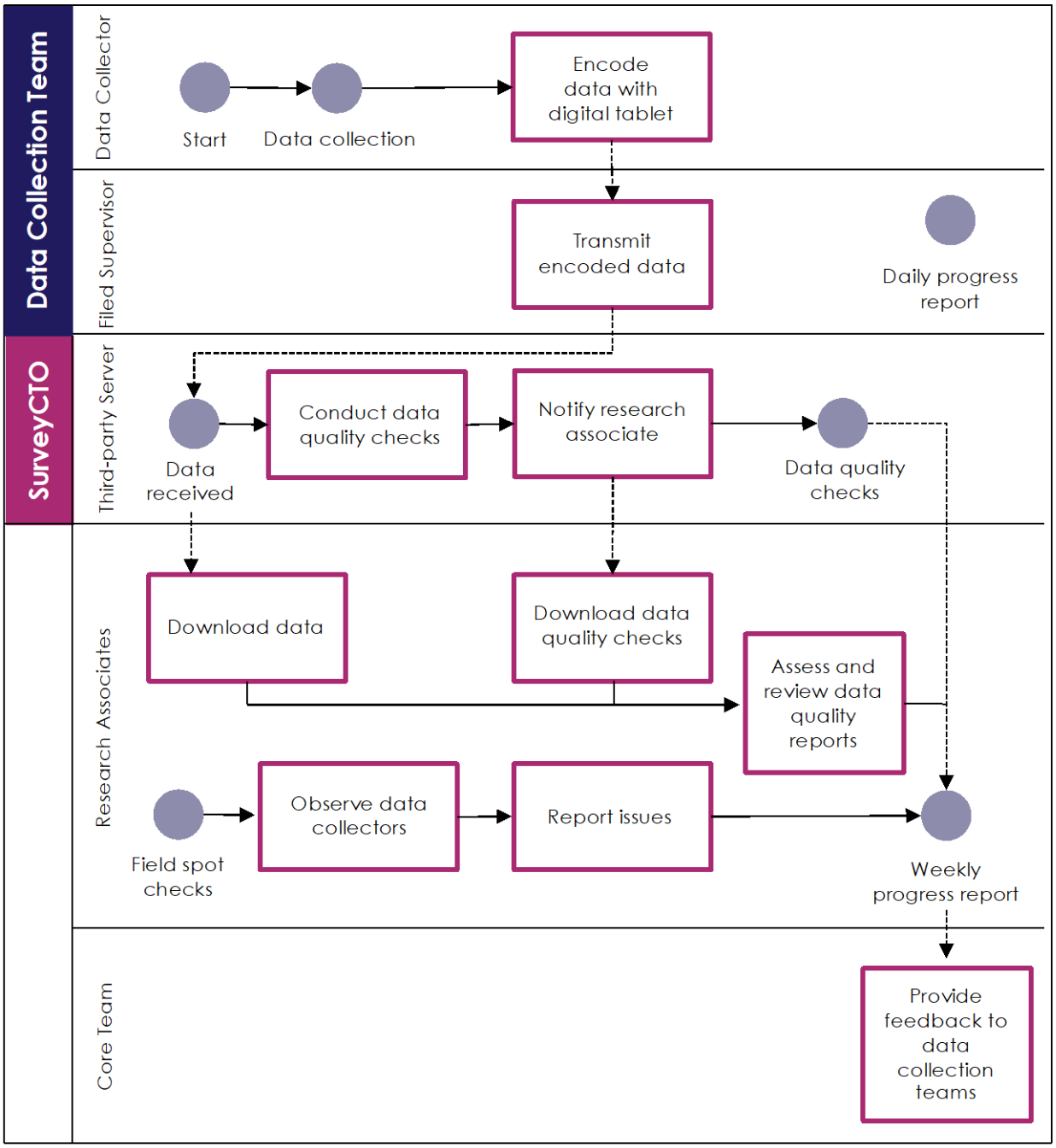
Data collection started the week after the training. Schedules were communicated to regional offices through a department memorandum issued by the DOH. Courtesy calls were done by the data collection teams to regional directors and regional NTP coordinators during the first day of data collection. A separate project briefing was done at each facility. Data collection lasted nine weeks between June and August 2018.

Once on site, facility information was entered in the electronic tool and the Philippines standard geographic code, a systematic classification and coding of areas in the Philippines, was tagged. Overall, data collection took place during one day at each facility. To avoid interruption in daily operations, the availability of the patients and the providers was considered. The informed consent form was read to each interviewee before signing.

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 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 dataset 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.

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. Then, they 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, but most of the time they were attributable to the lack of patients, facility refusals, and difficult weather conditions.

To ensure that the data collection protocol was followed and that good data quality were obtained, the research associates conducted spot checks during the data collection period. One spot check was done per data collection team. Each spot check lasted three to five days, depending on the need and travel time. During the spot checks, the implementation of protocols and the administration of tools were assessed. The research associates had a checklist to assess the implementation of protocols and observed the data collectors individually as they administered the tools. The spot checks were also a means through which the research associates could 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 data collection teams that needed more training to improve data quality were prioritized.

The WPR was the mechanism to update MEASURE Evaluation and the EpiMetrics team 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. An important section of the WPR was the challenges encountered in the field. This allowed MEASURE Evaluation to make necessary changes to the tool(s), and to clarify the protocols for certain questions to ensure clean data. Such changes included adjusting the data limits and skip logic.

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. Some issues were owing to the contexts of 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: 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.

Treatment completed: 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 are unavailable.

This group includes:

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

Treatment failed: A patient whose sputum smear or culture is positive at five (5) months 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.

Died: A patient who dies for any reason during the course of treatment.

Lost to follow-up: A patient whose treatment was interrupted for two (2) consecutive months or more.

Not evaluated: A patient for whom no treatment outcome is assigned. This includes cases transferred to another DOTS facility and whose treatment outcome is unknown.

Source: Adapted from the WHO's *Definitions and Reporting Framework for Tuberculosis* (WHO, 2013)

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