



USAID
FROM THE AMERICAN PEOPLE



PHOTO: USAID

REPORT

TUBERCULOSIS PRIVATE SECTOR

ENGAGEMENT STUDY

December 2022

This report is made possible by the support of the American People through United States Agency for International Development (USAID). The content of this report is the sole responsibility of Social Impact, Inc. for USAID/Vietnam under USAID Learns and does not necessarily reflect the views of USAID or the United States Government.

ABSTRACT

This research aimed to understand the engagement of the private health sector in the fight against tuberculosis (TB) in Vietnam. It followed a mixed-methods approach utilizing secondary data from the National TB Program (NTP)'s Vietnam TB Information Management Electronic System, supplemented by primary data collection. Primary data collection consisted of a survey of 850 health providers and 271 TB patients, together with a set of interviews with 68 key informants in Hai Phong and An Giang. These two provinces are among the areas with the highest TB cases in the north and south of Vietnam, respectively. Survey data indicated poor private engagement regarding services provision, guidelines compliance, and connection to the NTP. Despite this, patients reported a slightly higher satisfaction level with TB-related services provided by public health facilities. The qualitative component further identified several determinants of the poor private engagement in TB control and management, including chronic under-investment in human resources and infrastructure for TB, consideration of financial gain among private providers, ineffective management of the public-private mix (PPM) program, poor awareness of TB, and individual and system-level stigma against TB. Despite the secondary data on the number of patients treated in Hai Phong and An Giang, the limited data availability made it difficult to draw a meaningful conclusion regarding how representative these statistics were within the TB epidemic context in Vietnam. Nevertheless, these results highlight the need to strengthen PPM systematically through building management and human capacity at the local level, enhancing in-service TB training, optimizing the reporting mechanism, simplifying administrative procedures, and promoting TB communication for the public.

REPORT

TUBERCULOSIS PRIVATE SECTOR ENGAGEMENT STUDY

USAID Learns

Contracted under 72044019C00003

Prepared for:

Le Tong Giang, Contracting Officer's Representative
United States Agency for International Development/Vietnam
15/F, Tung Shing Square
2 Ngo Quyen Street
Hoan Kiem District
Hanoi, Vietnam

Prepared by:

USAID Learns
Social Impact, Inc.
Level 6, BIDV Tower
194 Tran Quang Khai Street
Hoan Kiem District
Hanoi, Vietnam

CONTENTS

- Abstract..... i**
- Contents..... iii**
- List of Tables and Figures..... iv**
- Acronyms..... v**
- Executive Summary vi**
 - Background and Purpose..... vi
 - Methods..... vii
 - Findings and Conclusions vii
 - Recommendations..... ix
- Introduction I**
 - Background..... I
 - Purpose and Audience 2
 - Research Questions..... 3
- Research Methods 4**
 - Overview..... 4
 - Research Design 4
 - Limitations..... 10
- Findings and Conclusions..... II**
- Recommendations 37**
 - Recommendations for NTP.....37
 - Recommendations for USAID.....40
- Annex I: Full Listing of Persons Interviewed 41**
- Annex II: Data Collection Tools 44**
- Annex III: Interview Status and Refusal Reasons in Hai Phong 104**
- Annex IV: Perception of Healthcare Workers on the Level of Compliance with TB Control Guidelines..... 108**
- Annex V: The Estimated Number of People with Presumptive TB Symptoms Per Month Visiting Health Facilities in the 5 Selected Districts in An Giang and Hai Phong..... 111**

LIST OF TABLES AND FIGURES

Table 1: Sampling Frame of Health Facilities in Hai Phong	5
Table 2: Sampling Frame of Health Facilities in An Giang.....	6
Table 3: Sample Size Based on the Planned Sampling Approach (Two Districts).....	6
Table 4: Actual Sample Size Based on the Adjusted Sampling Approach (Three Districts).....	7
Table 5: Qualitative Sampling Plan.....	7
Table 6: Number of Interviewed Qualitative Sample.....	8
Table 7: The Number of Surveys Targeted and Completed by Categories of Participants	9
Table 8: Total Official-Recorded Number of TB Patients Being Treated in Hai Phong and An Giang in 2021	12
Table 9: Number and Proportion of Health Facilities Having a Connection with the NTP Network in 5 Selected Districts in Hai Phong.....	16
Table 10: List of NTP Health Facilities in VITIMES Data in Hai Phong.....	16
Table 11: List of NTP Health Facilities in VITIMES Data in An Giang	17
Table 12: Challenges of NTP Guidelines Adherence and their Relevant Services	21
Table 13: Reporting Status of Health Facilities at Hai Phong.....	26
Table 14: Reporting Status of Health Facilities at An Giang.....	26
Table 15: Common Non-Standard Practices in Reporting TB Data.....	27
Table 16: Level of Satisfaction (10-Point Scale) of TB Patients with Medical Services at Public and Private Facilities.....	30
Table 17: TB Patients' Experiences in Public Facilities in Hai Phong.....	31
Table 18: TB Patients' Experiences in Private Facilities in Hai Phong.....	34
Figure 1: Proportion of Facilities Provided TB-Related Services in Hai Phong.....	13
Figure 2: Proportion of Facilities Provided TB-Related Services in An Giang	13
Figure 3: Self-Ranked Average Score of Level of Compliance on TB Diagnosis, Referral, and Treatment by Health Facilities in Hai Phong.....	20
Figure 4: Reported Challenges and Barriers to Reporting TB Data.....	28

ACRONYMS

AE	Adverse Event
AFB	Acid-fast Bacilli
CDC	Center for Disease Control and Prevention
CHC	Community Health Center
CT	Computerized Tomography
DEPOCEN	Development and Policies Research Center
DHC	District Health Center
DOH	Department of Health
HCW	Health Care Worker
HIS	Hospital Information System
HIV	Human Immunodeficiency Virus
IDI	In-depth Interview
IGRA	Interferon-Gamma Release Assays
KI	Key Informant
KII	Key Informant Interview
MOH	Ministry of Health
MRI	Magnetic resonance imaging
MTB	Mycobacterium Tuberculosis
NTP	National Tuberculosis Control Program
PCPS	Proper Care through PPM Strengthening & Support
pNTP	Provincial National Tuberculosis Control Program
PPM	Public-Private Mix
RIF	Resistance to Rifampicin
RQ	Research Question
TB	Tuberculosis
USAID	United States Agency for International Development
USD	United States Dollars
VITIMES	Vietnam TB Information Management Electronic System
VND	Vietnamese Dong
WHO	World Health Organization

EXECUTIVE SUMMARY

BACKGROUND AND PURPOSE

Vietnam is one of 20 countries with the highest tuberculosis (TB) burdens.¹ The country has a large and expanding private healthcare sector, especially among small and medium private clinics and polyclinics. Approximately 50 percent of TB patients seek initial care in private health facilities before arriving in the public health system for TB treatment.² Given the limited TB services provision in the private healthcare sector, this may indicate potential delay in TB screening, diagnosis, and treatment, resulting in missing TB cases. To address this misalignment between the public and private healthcare systems, public-private mix (PPM) for TB care and prevention was introduced by the World Health Organization (WHO) in the 1990s. PPM refers to partnering with relevant health care providers in both public and private sectors to work with National Tuberculosis Control Programs (NTPs) to undertake one or more tasks related to delivering high-quality TB care.³ In 2013, Circular No. 02/2013/TT-BYT was issued, setting the foundation for collaboration between public and private health facilities in TB management in Vietnam. However, the annual reports on Vietnam's NTP's activities in 2020 and 2021 suggested that the potential PPM coordination activities with private providers remained limited.^{4, 5} In addition, most PPM models are implemented through externally funded projects by international non-governmental organizations working in Vietnam, such as Friends for International Tuberculosis Relief, Resource Group for Education and Advocacy for Community Health, and Program for Appropriate Technology in Health, raising concerns about the sustainability of PPM in the country.

The United States Agency for International Development (USAID)/Vietnam requested USAID Learns to conduct a study of TB private sector engagement. The purpose of the study was to provide an independent and in-depth review of the overall PPM programs at the local level, examine compliance with NTP guidelines and TB reporting requirements, and analyze how satisfied TB patients were with their experiences at public and private health facilities.

The study was guided by six research questions (RQs):

- **RQ 1:** What is the estimated number of TB patients (and percent) being treated for TB-related services?
- **RQ 2:** What are all identifiable service providers known to offer TB-related services?
- **RQ 3:** What is the estimated number of service providers that have and have not connected to the NTP?
- **RQ 4:** To what extent are the NTP guidelines met by private and public service providers (NTP and non-NTP)?
- **RQ 5:** To what extent do the service providers contribute to government reporting requirements and seem to meet required reporting standards?
- **RQ 6:** How satisfied are the experiences of TB patients regarding TB healthcare services offered by the private and public health service providers (NTP and non-NTP)?

¹ WHO. Global Tuberculosis Report 2021. Geneva: World Health Organization; 2021.

² Oanh, T.T.M.; Phương, H.T.; Phương, N.K.; Tuấn, K.A.; Thủy, N.T.; Mai, V.L.; My, Đ.T. Current Situation Assessment and Recommended Solutions to Strengthen Public Private Partnership in Health Sector; Health Strategy and Policy Institute: Hà Nội, Vietnam, 2011.

³ Uplekar, M. (2016). Public-private mix for tuberculosis care and prevention. What progress? What prospects? *The International Journal of Tuberculosis and Lung Disease*, 20(11), 1424-1429.

⁴ Chương trình chống Lao quốc gia (2020), Báo Cáo Hoạt Động Chương Trình Chống Lao, 2020, Hà Nội

⁵ Chương trình chống Lao quốc gia (2021), Báo Cáo Hoạt Động Chương Trình Chống Lao, 2021, Hà Nội

The key audiences for the study are USAID/Vietnam, USAID's implementing partners (IPs), the Ministry of Health (MOH), and the NTP. This study aims to support evidence-based decision-making on critical leverage points to prioritize the implementation of the PPM program and bolster USAID's future programming.

METHODS

The study employed a mixed-methods approach to obtain reliable data that were pertinent to each RQ:

- Surveyed 850 healthcare providers and 271 TB patients
- Interviewed 68 key informants (KIs)
- Held a validation meeting with the NTP, An Giang Department of Health (DOH), An Giang Center for Disease Control and Prevention (CDC), and USAID/Vietnam to validate initial findings collected from An Giang after Phase I

Applying a systematic approach, the research tools were developed based on the principles of Circular No. 02/2013/TT-BYT regarding collaboration between public and private health facilities in TB management, the updated NTP guidelines, and WHO's health system framework.

FINDINGS AND CONCLUSIONS

RQ 1: What is the estimated number of TB patients being treated in the study areas for TB-related services?

In 2021, 3,540 and 1,604 TB cases were recorded in the Vietnam TB Information Management Electronic System to have received treatment in An Giang and Hai Phong, respectively. However, it was difficult to draw a meaningful conclusion regarding how substantial these numbers were within the TB epidemic context in Vietnam. The available data limit our ability to tabulate prevalence rate in the area of the survey (district) and make an informed comparison with provincial and national prevalence rates.

RQ 2: What are all identifiable service providers offering TB-related services?

The study results showed that private providers strictly provided services at the beginning of the TB care cascade (i.e., screening, referral). The responsibility of TB patient treatment and management fell primarily onto public health facilities. Over 80 percent of Hai Phong and An Giang hospitals provided screening services. In Hai Phong and An Giang, 98.4 percent and 64.6 percent of the surveyed private clinics provided screening and referral services, respectively. Meanwhile, both provinces' TB treatment and management services were primarily supplied by public health facilities, with over 90 percent of surveyed Community Health Centers (CHCs) and 57 to 72 percent of surveyed hospitals/health centers providing these services.

The drivers of limited TB-related services provision were a high turnover rate among healthcare workers (HCWs) within TB facilities at all levels. This primarily occurred at public facilities and sometimes caused these facilities to operate at a deficit of TB-trained HCWs. Poor revenues from TB-related services provision seemed to be the biggest concern among healthcare providers, whether from public or private facilities. Market-driven service provision ensured TB-related service delivery remained less profitable than other services; as a result, it disincentivized health facilities from providing TB-related services. In the context of limited TB-related human capacity and minimal profit-margin, referral was a favored practice at health facilities, as described by the KIs. Local authorities' insufficient control over TB-related services provision often resulted in TB-related services operating without legal recognition. It is uncertain about how these services of unknown quality can contribute to TB screening, diagnosis, treatment, and management in localities.

RQ 3: What is the estimated number of service providers that have and have not connected to the NTP?

The data indicated that larger facilities were more likely they were connected to NTP, while smaller facilities (predominantly private providers) remain unconnected. More than 70 percent of public hospitals and health centers were connected with the NTP network in An Giang and Hai Phong, but almost all private health facilities were not connected to the network.

One driver of limited connection to the NTP, according to qualitative data, was the health providers' forecast for limited revenue, together with TB-related stigma, the complicated legal system, and bureaucracy. Another driver was the ineffective management mechanism between NTP and other health facilities. Lower commitment among local authorities resulted in the poor linkage of non-NTP public and private health facilities to TB programs at the local level. Even though the connection to the provincial NTP had been established, it may not function as described in the regulations.

RQ 4: To what extent are the NTP guidelines met by private and public service providers (NTP and non-NTP)?

In the survey, no type of health facility reached a maximum score of full compliance with the NTP guidelines for providing TB diagnosis, referral, and treatment services. All facilities reported a below-average self-reported level of compliance in referral services (average score ≤ 2), while they were more confident with diagnosis and testing, indicated by an above-average score (average score ≥ 2). Among large-scale facilities, including hospitals/health centers and private polyclinics, compliance with treatment guidelines were low (average score were: 1.45-1.83).

KIs revealed different challenges and barriers for both public and private health providers to adhere to the guidelines. The shortage of TB staff including un/undertrained staff and insufficient infrastructure were the most mentioned issues. KIs also emphasized that the ineffective governance and financing of the PPM program, including poor interdepartmental coordination, would prevent health providers from following the guidelines.

RQ 5: To what extent do the service providers contribute to government reporting requirements and seem to meet required reporting standards?

Survey data showed that the practice of reporting presumptive and confirmed TB cases was poor among private health facilities, including private pharmacies and clinics, but better among public facilities. CHCs were an exception within the public sector and demonstrated low reporting rates. This may reflect the decreasing community demand for initial care services provided by CHCs.

The surveyed public hospitals/health centers reported a relatively high percentage of recording and reporting TB cases to the NTP, with 100 percent and 71.4 percent of cases reported in Hai Phong and An Giang, respectively. In contrast, 61.8 percent (Hai Phong) and 64 percent (An Giang) of private providers did not report TB data to the NTP. Furthermore, HCW participants engaged in non-standard reporting practices, such as using unsecured reporting methods or entirely relying on referral forms, potentially contributing to the under-reporting of TB data.

Various difficulties faced by both public and private health providers in reporting TB data were identified by the qualitative data. Insufficient infrastructure was a salient problem, including but not limited to technology and internet access. The poor coordination mechanisms between reporting levels and entities, along with one-way communication and separate reporting requests, also created many reporting challenges for health facilities.

RQ 6: How satisfied are the experiences of TB patients regarding TB healthcare services offered by the private and public health service providers (NTP and non-NTP)?

The quantitative and qualitative data indicated that patients experienced services from both public and private health facilities as they sought TB care. Although on average there was a high level of satisfaction with TB-related services provided by public and private providers (rated greater than eight out of ten), patients reported a marginally more elevated level of satisfaction towards experience in public facilities. This minimal difference seemed to stem from the different expectations set for diverse types of providers. Public facilities were more likely to be expected to deliver well in aspects related to TB treatment's efficacy, patients counseling and support, and cost, while patients attending private facilities expected more in terms of service quality (professional and caring attitude, fast and good quality of care, and good infrastructure).

RECOMMENDATIONS

For the NTP:

Recommendation 1: Tackle the bottlenecks within the NTP network to improve coordination effectiveness and internal capacity.

The NTP should build internal capacity by advocating for the improvement of the working environment for TB staff, such as placing TB-human workforces on the health development plans of MOH. This will set a foundation for implementing an effective PPM program. Investing in capacity development through resuming comprehensive in-service training programs for the TB workforce while strengthening provincial NTP's management capacity after COVID-19-related interruptions would also aid these efforts. NTP should further resume and reinvigorate TB communication programs to raise public awareness and destigmatize TB to maximize the NTP network's coordination and PPM's effectiveness.

Recommendation 2: Improve communication and collaboration effectiveness between NTP and private health providers.

There is a need to lift the administrative burden associated with the process of forming working relationships with NTP while forming suitable approaches for each type of health facility to allow for the most effective collaboration for PPM. A mechanism should also be in place to facilitate two-way communication between NTP and health facilities to prevent an erosion of the established connections of the PPM program. For the sake of an effective PPM program, NTP should harmonize reporting forms to match the recording format of that used by private providers, at the same time consolidating and diversifying channels so this TB data can be reported. Regular upgrades to the VITIMES database as well as sufficient resources for its operation are additionally needed for a non-disruptive reporting process.

Recommendation 3: Advocate high level decision-making to address structural challenges in the health system.

NTP should bring the issues regarding TB staff shortage and high turnover rate to MOH's and DOH's attention and advocate for inter-level conversation to address these problems. Building inter-departmental involvement of DOH in engaging with private providers through a close collaboration between NTP and DOH is also needed. Furthermore, NTP should, together with DOHs across provinces, advocate for engaging MOH in encouraging Social Health Insurance to adjust the health insurance policy to improve the patients' access to TB-related services by including the TB diagnosis costs. At the same time, local NTP can help DOH and MOH manage unofficial services through a collaborative approach with pathways towards compliance with the national standards.

For USAID:

Recommendation 4: Continue to provide access to resources for NTP to strengthen technical capacity from management to grassroot levels in terms of human resources and infrastructure.

Recommendation 5: Prioritize funding allocation to support NTP in developing effective working and collaboration mechanisms between NTP and private health facilities to address the current major gaps in PPM and sustain it in the long term.

Recommendation 6: Additional funding targeting research and M&E activities should be allocated to increase the quality of the TB data reporting system utilizing the advantages of available digital technologies.

Recommendation 7: Providing technical and political support for provincial key stakeholders to develop and execute PPM action plan that bridges the gaps between the current regulations and implementation in practice.

INTRODUCTION

BACKGROUND

Tuberculosis (TB) is one of the leading causes of mortality globally, accounting for 1.45 million deaths annually.⁶ With the End TB Strategy set up by the World Health Organization (WHO), the global community has committed to eradicating the TB epidemic by 2030.⁷ However, the Coronavirus Disease 2019 (COVID-19) pandemic threatened progress toward this goal.⁸ In addition, in some resource-poor settings, many patients seek TB care and treatment from providers that are not affiliated with a national TB program.⁹ TB care provision in the private healthcare sector remains unstandardized and poorly regulated, which may lead to delays in diagnosis and treatment, improper case management, increased risk of developing drug resistance, disease transmission, and catastrophic health expenditure.^{10, 11} In order to utilize the respective strength of private health care providers in finding "missing TB patients,"¹² while recognizing the National Tuberculosis Control Programs' (NTPs) central role in advancing TB care and control, the WHO introduced a novel public-private mix (PPM) approach in some developing countries during the late 1990s. PPM for TB care and prevention refers to partnering with all relevant health care providers in both public and private sectors to work with NTPs to undertake, depending on their capacity and skills, one or more tasks related to delivering high-quality TB care.¹³

Vietnam is among the 20 countries with highest TB burdens.¹⁴ The country has a large and increasingly expanding private health care sector, especially among small and medium private clinics and polyclinics. Approximately 50 percent of TB patients are estimated to seek initial care in private health facilities before arriving in the public health system.¹⁵ As the Law of Medical Examination and Treatment (2011) allowed private health facilities to continue to expand rapidly (248 private hospitals with 21,048 specialized clinics and over 15,475 beds by 2020), concern arises as previous studies from Vietnam have reported mismanagement in diagnosis and treatment of TB in the private health sector.^{16, 17, 18} These findings underline the importance of engaging private health care providers in TB care and prevention in

⁶ WHO. Global Tuberculosis Report 2021. Geneva: World Health Organization; 2021.

⁷ World Health Organization. The End TB Strategy. Available online: <https://www.who.int/tb/strategy/end-tb/en/>

⁸ Jeremiah, C., Petersen, E., Nantanda, R., Mungai, B. N., Migliori, G. B., Amanullah, F., ... & Zumla, A. (2022). The WHO Global Tuberculosis 2021 Report—not so good news and turning the tide back to End TB. *International Journal of Infectious Diseases*.

⁹ Pardeshi G, Deluca A, Agarwal S, Kishore J (2018). Tuberculosis patients not covered by treatment in public health services: findings from India's National Family Health Survey 2015-16. *Trop Med Int Health*, 23(8), 886-895. doi: 10.1111/tmi.13086

¹⁰ Sulis, G., & Pai, M. (2017). Missing tuberculosis patients in the private sector: Business as usual will not deliver results. *Public Health Action*, 7(2), 80.

¹¹ Hanson, C., Osberg, M., Brown, J., Durham, G., & Chin, D. P. (2017). Finding the missing patients with tuberculosis: lessons learned from patient-pathway analyses in 5 countries. *The Journal of infectious diseases*, 216(suppl_7), S686-S695.

¹² Sulis, G., & Pai, M. (2017). Missing tuberculosis patients in the private sector: Business as usual will not deliver results. *Public Health Action*, 7(2), 80.

¹³ Uplekar, M. (2016). Public-private mix for tuberculosis care and prevention. What progress? What prospects?. *The International Journal of Tuberculosis and Lung Disease*, 20(11), 1424-1429.

¹⁴ WHO. Global Tuberculosis Report 2021. Geneva: World Health Organization; 2021.

¹⁵ Oanh, T.T.M.; Phuong, H.T.; Phuong, N.K.; Tuan, K.A.; Thuy, N.T.; Mai, V.L.; My, D.T. Current Situation Assessment and Recommended Solutions to Strengthen Public Private Partnership in Health Sector; Health Strategy and Policy Institute: Ha Noi, Vietnam, 2011.

¹⁶ Lönnroth, K., Thuong L, M., Lambregts, K., Quy H, T., & Diwan V, K. (2003). Private tuberculosis care provision associated with poor treatment outcome: comparative study of a semi-private lung clinic and the NTP in two urban districts in Ho Chi Minh City, Vietnam. *The International Journal of Tuberculosis and Lung Disease*, 7(2), 165-171.

¹⁷ Lönnroth, K., Lambregts, K., Nhien, D. T. T., Quy, H. T., & Diwan, V. K. (2000). Private pharmacies and tuberculosis control: a survey of case detection skills and reported anti-tuberculosis drug dispensing in private pharmacies in Ho Chi Minh City, Vietnam. *The international journal of tuberculosis and lung disease*, 4(11), 1052-1059.

¹⁸ Zawahir, S., Le, H., Nguyen, T. A., Beardsley, J., Duc, A. D., Bernays, S., ... & Fox, G. (2021). Standardised patient study to assess tuberculosis case detection within the private pharmacy sector in Vietnam. *BMJ global health*, 6(10), e006475.

Vietnam. To this end, since 2001, Vietnam's NTP¹⁹ has implemented several PPM models to engage private health providers.

The PPM approach implemented in Vietnam has evolved over the last two decades. An early private sector approach was piloted in 2002, but at that time private sector entities were not ready to engage with the NTP. In 2005, the NTP piloted PPM models on a small scale in provinces such as Thanh Hoa and Thai Binh but mainly focused on the referral system. A standardized manual for private entities was developed in 2007 and was subsequently distributed nationwide. The PPM model was then upgraded to include more specialized services for diagnosis and treatment. In 2013, Circular No. 02/2013/TT-BYT was issued, setting the foundation for collaboration between public and private health facilities in TB management (containing four models: (1) referral of presumptive TB; (2) diagnosis of TB and referral; (3) treatment; and (4) diagnostic and treatment). In recent years, more innovative PPM models were conceptualized to capitalize on the available digital technology.²⁰ For instance, PPM model five focuses on detecting latent TB using advanced technologies in X-ray screening and confirmatory expert diagnosis, and has been implemented in many provinces across Vietnam. There is a sense that the scale of implementation and the number of cases receiving services from the private sector has increased, but there are no data to back up these assumptions.

However, the annual reports on Vietnam's NTP's activities in 2020 and 2021 suggested that the potential PPM coordination activities with private providers remained limited.^{21, 22} Most PPM models are implemented through externally funded projects by international non-government organizations working in Vietnam, such as Friends for International Tuberculosis Relief, Resource Group for Education and Advocacy for Community Health, and Program for Appropriate Technology in Health, raising concerns about the sustainability of PPM. In addition, there has been limited research evaluating private sector engagement in NTP to inform future PPM program activities by NTP and donors. A 2003 study conducted in Ho Chi Minh City also showed negative outcomes for private sector services regarding TB.^{23, 24} Additional studies reference the private sector, but no studies have been dedicated to the private sector and understanding its current role in diagnosis, treatment, and referral for TB in Vietnam.

PURPOSE AND AUDIENCE

This study aims to illuminate the scope and quality of private sector engagement in TB in diagnosis, treatment, and referral. The results of this study are expected to provide international partners and NTP with crucial information to build on private sector involvement and reallocate resources to meet specific needs within Vietnam.

Over the long-term, the NTP hopes to use the study results to improve private sector interventions, which will provide better patient services by helping NTP to link with private sector providers and support them to provide improved diagnosis, referral, and treatment services.

¹⁹ Vietnam's NTP was established in 1986.

²⁰ Thu, T. D., Kumar, A. M., Ramaswamy, G., Htun, T., Le Van, H., Vo, L. N. Q., ... & Viet, N. N. (2020). An innovative public-private mix model for improving tuberculosis care in Vietnam: How well are we doing?. *Tropical medicine and infectious disease*, 5(1), 1-13.

²¹ Chương trình chống Lao quốc gia (2020), Báo Cáo Hoạt Động Chương Trình Chống Lao, 2020, Hà Nội

²² Chương trình chống Lao quốc gia (2021), Báo Cáo Hoạt Động Chương Trình Chống Lao, 2021, Hà Nội

²³ Lönnroth, K., Karlsson, M., Lan, N. T. N., Buu, T. N., & Dieu, T. T. N. (2003). Referring TB suspects from private pharmacies to the National Tuberculosis Programme: experiences from two districts in Ho Chi Minh City, Vietnam. *the International Journal of Tuberculosis and Lung Disease*, 7(12), 1147-1153.

²⁴ Quy, H. T., Lönnroth, K., Lan, N. T. N., & Buu, T. N. (2003). Treatment results among tuberculosis patients treated by private lung specialists involved in a public-private mix project in Vietnam. *The International Journal of Tuberculosis and Lung Disease*, 7(12), 1139-1146.

RESEARCH QUESTIONS

This study addressed the following Research Questions (RQ), with specific attention to different types of health facilities providing TB services:²⁵

Question #1: Based on the research, specify the estimated number of TB patients (and percent) being treated in selected areas of Vietnam for TB-related services, disaggregated by:

- Location (Province)
- Type of provider: a) Private; b) Public non-NTP, c) Public NTP
- Type of service: a) referral, b) diagnosis, and c) treatment

Question #2: Based on the research, specify all identifiable service providers in the study areas known to offer TB-related services, disaggregated by:

1. Location (Province)
2. Type of provider: a) Private; b) Public non-NTP, c) Public NTP
3. Type of service: a) referral, b) diagnosis and c) treatment

Question #3: Provide an estimated number of service providers in study areas that have and have not connected to the NTP disaggregated by:

- Location (Province)
- Type of provider: a) Private; b) Public non-NTP, c) Public NTP
- Other key characteristics (if applicable)

Question #4: Examine the extent to which NTP guidelines might be met by the private sector and public sector service providers (NTP and non-NTP). The analysis should be disaggregated by a) Referrals, b) Diagnosis, c) Treatment, and d) Offering insight into the main identified barriers in study areas.

Question #4.I: What are the challenges and barriers that prevent the service providers from complying with the NTP guidelines?

Question #5: Assess the extent to which service providers contribute to government reporting requirements and seem to meet required reporting standards. The analysis should be disaggregated by a) Private, b) Public non-NTP, and c) Public NTP service providers in study areas.

Question #5.I: What are the challenges and barriers that prevent the service providers from complying with the reporting guidelines?

Question #6: What is the level of satisfaction among TB patients regarding TB healthcare services offered by the private sector and public sector service providers (NTP and non-NTP)? The analysis should be disaggregated by a) Private/Public Sector and b) Study area.

²⁵ **NTP public health facilities:** Publicly-run health facilities connected to NTP in different capacity, including all central/provincial hospitals, district health centers, Commune health centers centers (CHCs), and any other public health units, described in the MoH's Decision 2357/QĐ-BYT.

NTP private health facilities: private health facilities are eligible to provide TB diagnosis, referral and treatment formally participate in NTP network, acting as an extension of NTP, that are approved by provincial departments of health as described in the MoH's Circular 02/2013/TT-BYT

Non-NTP public health facilities: Any publicly-run facilities are not formally connected to NTP, as listed in the MoH's Decision 2357/QĐ-BYT

Non-NTP private health facilities: Any private facilities are not formally connected to NTP, as listed in the as described in the MoH's Circular 02/2013/TT-BYT and Decision 2357/QĐ-BYT

RESEARCH METHODS

OVERVIEW

The study used a mixed-method approach to answer the research questions. The qualitative component focused on how individuals understand, interpret, and rationalize their own experiences in engaging with providing or receiving TB-related services. Quantitative components included analyzing a secondary dataset extracted from the VITIMES and analyzing primary data collected through surveys. Learning from the experience in data collection in An Giang, the study team subsequently made improvements to the quantitative tools, developing a survey form for TB patients, customizing surveys for each type of health facility, and quantifying some questions from the Key Informant Interview (KII) questionnaire. These modifications were meant to increase the quality of the collected data and data analysis.

Following a systematic approach, the research tools, including survey questionnaires and in-depth interview guides, were developed based on the principles of Circular No. 02/2013/TT-BYT. This circular regarded collaboration among public and private health facilities in TB management, the updated NTP guidelines on diagnosis, treatment and management; and WHO's health system framework with different blocks (human resources, finance, health information, medical equipment and medicine, governance/management, and service provision).

Due to COVID-19, the study was broken into two phases. After completing the first phase of the study in An Giang Province, USAID/Vietnam Learns organized a validation meeting with NTP, An Giang DOH and Center for Disease Control and Prevention (CDCs), and USAID to validate the preliminary findings resulted from the data collected in An Giang. Based on feedback from NTP and the local authorities and together with lessons learned from this phase, the research team made a number of adjustments in the research tools to improve collected data quality.

RESEARCH DESIGN

STUDY SETTING

Initially, three study sites with highest TB caseloads at the national level were initially planned for data collection to reflect the geographical variation between the north and the south, including An Giang, Ho Chi Minh, and Ha Noi. However, as the study team completed in-depth interviews and surveys in An Giang around the beginning of 2020, the COVID-19 pandemic unfolded. As a result, data collection was paused until mid-2022 due to COVID-19 restrictions and their impact on the healthcare system, specifically NTP. By the time field data collection was resumed, Ha Noi and Ho Chi Minh were still experiencing relatively high COVID-19 cases, which delayed obtaining official approval for fieldwork at both sites. In consultation with NTP and USAID, the study team eventually completed data collection in the province of Hai Phong, which lasted from late June to mid-July 2022.

STUDY POPULATION

The study population included public and private health facilities of different scales²⁶ and TB patients at the study sites. Facilities targeted for the study included:

- NTP public health facilities: general hospitals, health centers, commune health centers
- Non-NTP public health facilities: general hospitals, polyclinics
- Private medical facilities:

²⁶ Scale is defined by either type or administrative level of operation specified by MoH, in which small facilities include CHCs, private clinics run by one or two physicians and private pharmacies, while large facilities include private polyclinics, district and provincial health centers, and hospitals.

- Pharmacies/Drug stores

In addition to gathering data on health facilities, the study also collected data from TB patients. TB patients were defined as those who were or are treated in the study area.

SAMPLING

QUANTITATIVE COMPONENT

Health facility survey

In the scope of this study, a health facility was defined as any hospital, clinic, and pharmacy, both public or private, registered to provide health care services in An Giang and Hai Phong. A TB service-related health facility (or TB service provider) was a medical facility that provided any TB screening, referral, diagnosis, and treatment services.

In each province, the study team selected five districts based on the following factors:

- Having the highest number of TB reported cases (these five districts accounted for 40.0 percent and 56.6 percent of all reported cases in An Giang and Hai Phong, respectively)
- Geographical representativeness (including urban and rural areas)
- The sampling frame was based on the list of the public clinics, health centers, and hospitals at all levels; and the registered list of private health facilities which was managed by the DOH in five selected districts. Specialized clinics or hospitals (such as oncology hospitals or maternal health clinics), both public and private, were removed from the initial lists because they might not be strongly relevant to TB. In Hai Phong, the study team only included specialized private clinics providing pediatrics, respiratory, and otolaryngology services

The study team included all health facilities and pharmacies in five selected districts in two provinces that met the criteria of the final sampling frames, as shown in Table 1 and Table 2.

Table 1: Sampling Frame of Health Facilities in Hai Phong

District	Private specialized clinics	Private polyclinics	Hospitals/H ealth centers	CHCs	Pharmacies	Total
Le Chan	24	8	2	15	44	260
Thuy Nguyen	22	4	2	36	38	235
Hong Bang	28	2	3	8	15	56
Ngo Quyen	28	3	4	11	28	74
An Duong	8	0	3	6	19	36
Total	110	17	14	76	144	361

Table 2: Sampling Frame of Health Facilities in An Giang

District	Private specialized clinics	Private polyclinics	Hospitals/Health centers	CHCs	Pharmacies	Total
Long Xuyen	244	6	6	13	87	356
Chau Doc	68	3	3	7	28	109
Tan Chau	46	4	1	14	24	89
Phu Tan	54	0	1	17	41	113
Tri Ton	45	0	1	14	20	80
Total	457	13	12	65	200	747

TB-patient survey

The study targeted one urban and one rural district with the highest number of TB patients in Hai Phong, using the list of TB patients provided by the Hai Phong Tuberculosis and Lung Disease Hospital. The sample size was 224 TB patients for two selected districts with 95 percent confidence interval and five percentage point margin of error. In order to ensure that the sample would reflect the proportion of males and females in the population, the study team stratified the sample size by gender based on the proportion of TB patients by gender in two districts.

Table 3: Sample Size Based on the Planned Sampling Approach (Two Districts)

District	No. of TB patients	Proportion of TB patients by gender		Stratified sample size by gender		Sample size
		Male	Female	Male	Female	
Le Chan	388	260 (67%)	128 (33%)	84	41	125
Thuy Nguyen	309	224 (72%)	85 (28%)	72	27	99
Total TB patients	697	484 (69%)	213 (31%)	156	68	224

Recruiting TB patients faced challenges, as a significant proportion of the contact information provided for patients was incorrect. Many TB patients died after the COVID-19 pandemic or declared that they did not have TB due to a fear of stigma. Consequently, the study team could not reach this target sample size within the two districts (Table 3). The team decided to expand their sampling frame to Ngo Quyen district after a few days in the field. The new sample size increased to 243 TB patients for three districts (Table 4).

Table 4: Actual Sample Size Based on the Adjusted Sampling Approach (Three Districts)

District	Total no of TB patients in the district	Proportion of TB patients by gender		Stratified sample size by gender		Sample size
		Male	Female	Male	Female	
Le Chan	388	260 (67%)	128 (33%)	69	34	103
Thuy Nguyen	309	224 (72%)	85 (28%)	59	23	82
Ngo Quyen	221	152 (69%)	69 (31%)	40	18	59
Total TB patients	918	636	282	168	75	243

QUALITATIVE COMPONENT

This study adopted a purposeful sampling strategy. First, the study team defined a set of characteristics of interest for healthcare providers and TB patients in line with research questions and sampled accordingly to maximize diversity (Table 5).

Table 5: Qualitative Sampling Plan

	Hai Phong	An Giang	Total
NTP staff	9	9	18
Hospital/Clinic managers	8	6	14
Direct Service Providers	12	25	37
Patients	12	14	26
TOTAL	41	54	95

For staff working within NTP, the study team mainly diversified by TB public care system (provincial, district, and commune levels). Non-NTP healthcare providers were sampled with attention to functional roles within the facilities of different types of health facilities (defined by private/public status, scale, and scope of operation). The sample of patients was balanced by age, gender, and socioeconomic background, as well as service experience at private and public health facilities.

Health providers were recruited through a quantitative data survey. NTP staff helped recruit healthcare workers in TB units at the local CHCs or district health center (DHC). For non-NTP healthcare providers, local NTP staff provided the official list of healthcare providers operating in the study site with detailed information on the type of services and contact information from which the research team sampled potential participants, including replacement options based on predefined characteristics of interest. The list was then shared with field enumerators. Enumerators introduced and invited the target subject to participate in the in-depth interview after a corresponding successful survey. In other cases, representatives of health facilities were approached first for recruitment of medical staff within the facilities.

TB patients were recruited through local healthcare workers at CHC and DHC. The research team worked with informed local healthcare workers about the subject's characteristics of interest. Local healthcare then chose potential participants from the existing pool of patients attending care at their

facility's appropriate participants. They informed the patients about the study before the interview day via phone. If patients showed interest, healthcare workers invited them to healthcare facilities at a time convenient for them. Details of interviewed qualitative samples are presented in Table 6.

Table 6: Number of Interviewed Qualitative Sample

	Hai Phong	An Giang	Total
NTP Staff	6	6	12
Hospital/Clinic Managers	6	5	11
Direct Service Providers	8	15	23
Patients	8	14	22
TOTAL	28	40	68*

*The number of interviewed KIs was lower than the planned sample size because data collection was stopped when the information reached saturation.

DATA COLLECTION

QUANTITATIVE COMPONENT

Primary data collection: Health facility and TB patient survey

In Hai Phong, the study team updated the survey instruments of health facilities and developed a survey form for TB patients. Questions were revised or added in the health facility survey compared with the survey in An Giang, capturing information about the connection to NTP, level of compliance with TB diagnosis, treatment and management guidelines, challenges for complying with TB guidelines, and challenges for reporting TB cases.

The study team contracted with the Development and Policies Research Center (DEPOCEN) to conduct primary data collection. DEPOCEN developed the electronic version using the Open Data Kit based on the questionnaire design. Enumerators, under the supervision of the research team and DEPOCEN, filled out the electronic survey on tablets. In Hai Phong, during data collection high-frequency checks were performed daily to detect anomalous data points.

In An Giang, the data were collected using self-administered paper questionnaires for health facilities. The An Giang DOH informed health facilities of the survey. The data collection was divided into two periods, January 4 through January 12, 2020, and January 25 through February 2, 2020. Commune health collaborators, who were trained by the research team and the provincial CDC, distributed the questionnaires to the selected health facilities. The health facilities were requested to fill out the questionnaires within five days. After five days, the commune health collaborators collected the filled questionnaires and then sent them to the focal point at CDC in a sealed envelope. No survey was conducted for TB patients. Total survey sample characteristics are visible in Table 7.

Table 7: The Number of Surveys Targeted and Completed by Categories of Participants

Categories of participant	Private clinics n(%)	Private polyclinics n(%)	Hospitals/ Health centers n(%)	CH Cs n(%)	Pharmacy n(%)	TB patients n(%)
Hai Phong						
Sample Target	110	17	14	76	144	243
Interviewed	76 (69.1)	12 (70.6)	11 (78.6)	75 (98.7)	136 (94.4)	271 ¹ (112)
An Giang						
Sample Target	457	13	12	65	200	NA*
Interviewed	300 (65.6)	7 (53.8)	7 (58.3)	64 (98.5)	162 (81.0)	NA*

¹The interviewed TB patients included the inpatients at Hai Phong Lung Hospital.

*NA – Not applicable

Secondary Data - VITIMES

The study team had access to data exported from the VITIMES—the NTP data system on the registry of TB patients detected and treated nationwide within the NTP network.

QUALITATIVE COMPONENT

In-depth interviews were conducted by Vietnamese researchers with previous experience conducting qualitative interviews. However, interviewers did not have established relationships with participants before study commencement.

Interviews were conducted in-person at health facilities or at other private and safe settings, such as the participant’s house. Interviewers followed up with the interviewees via phone call in case of incomplete interviews. The interview batch in An Giang was recorded via field notes and in Hai Phong via audio recordings where participants’ consent had been given.

Interviewers used a topic guide covering critical areas of investigation (see Annex II) to conduct interviews. The topic guide was continuously refined and developed throughout the data collection period in An Giang and Hai Phong, as part the iterative of analysis process, whereby initial analyses were based on systematic debriefing discussions. Interviews lasted from 30 to 90 minutes.

Detailed notes were written up as soon as feasible, usually within the day of the interview, and uploaded to the privacy-secured data portal managed by Social Impact, Inc. Data collection continued until thematic saturation (i.e., new data had become broadly repetitive of previously collected data regarding the key themes), which was determined through regular analytical meetings throughout the data collection period. All audio recordings of interviews were then transcribed and randomly checked by

research staff for quality insurance. All personal information of the interviewees was de-identified in the transcripts.

DATA ANALYSIS

QUANTITATIVE COMPONENT

The research team used Stata 17 for data cleaning and analysis. Descriptive statistical analysis was performed for health facilities and TB patients.

QUALITATIVE COMPONENT

The study team developed the initial thematic coding framework based on extensive systematic debriefings and detailed written interview summaries. Each team member then selected a subset of transcripts to apply the coding framework. All transcripts were coded in Dedoose, in which codes and memos were organized and charted. Themes were then developed by looking at relationships between codes and excerpts before being reviewed and discussed with all study team members.

LIMITATIONS

The study had several limitations. Both quantitative and qualitative components used self-reported instruments for data collection. Social desirability bias may have caused respondents to give answers based on what they assumed would sound good instead of the truth. Other cognitive biases include telescoping and selective memory. To address these concerns, the study team trained the selected enumerators to spot and solve potential problems during their contact with study subjects. The study team also conducted extensive cognitive interviews to adjust and modify the questionnaires to improve contextual appropriateness and minimize any ambiguity associated with the questions for respondents.

Second, learning from experience in An Giang, the study team upgraded the tools to improve the data quality, which included customizing surveys for each health facility. The team developed a survey form for TB patients and added one to two questions to the health facility surveys. Therefore, some data collected in Hai Phong were not present in the An Giang dataset, which is specified in detail for each question.

Lastly, data collection faced challenges approaching TB patients, especially those from the hard-to-reach group and private health providers. To meet the target sample size in the quantitative component, the team had to adapt by changing the sampling approach during the data collection period in Hai Phong. In addition, during daily team briefing sessions, enumerators provided feedback to the qualitative team so that interviewers could later capture the insights from participants that could potentially explain the difficulties with recruitment.

FINDINGS AND CONCLUSIONS

QUESTION #1: SPECIFY THE ESTIMATED NUMBER OF TB PATIENTS (AND PERCENT) BEING TREATED IN SELECTED AREAS OF VIETNAM FOR TB-RELATED SERVICES.

FINDINGS

Currently, there are no comprehensive sources that record the full number and percentage of TB cases being treated in Vietnam in public and private health facilities. While VITIMES data track the number of TB patients treated in NTP health facilities (including NTP public and private providers in PPM models 3, 4, and 5), they do not include TB patients treated at non-NTP public and private health facilities. There were also significant challenges that prevented the study team from estimating the number of total cases or patients treated at non-NTP facilities, such as a lack of TB patient prevalence survey. The study team could not answer either whether a 'large' number of TB cases were treated, or the percentage of TB patients being treated at public and private health facilities. Although the study team surveyed health providers regarding a number of presumptive cases while visiting facilities, the data may be unreliable. Health providers surveyed might underestimate the number of TB cases treated as the qualitative component indicated that 'unofficial' TB treatment services were available and operating without NTP's supervision, sometimes even illegally (see detail in RQ 2).

Therefore, apart from presenting the number of TB patients treated in NTP facilities, this study cannot provide an accurate estimate of the total number of TB patients being treated in the two studied provinces. To identify the TB prevalence in the provinces, a separate study with more appropriate methods should be designed to tackle the above-mentioned limitations.

According to VITIMES data in 2021, 3,540 TB patients were officially recorded as being treated in An Giang and 1,604 in Hai Phong within the NTP facilities. The number of TB patients was 2.2 times higher in An Giang than Hai Phong for 2021, consistent with the trend captured in past years as An Giang is among the provinces with the highest TB cases in Vietnam.²⁷ This pattern may be attributed to contextual factors in An Giang, such as lack of infrastructure for lung diseases (no provincial lung hospital, NTP network), shortage of staff, high prevalence of comorbidities (e.g., HIV), and differences in socio-economics.²⁸ While this was out of the scope of this study, this report highlights the need for further research examining causes behind the variation in prevalence rate among provinces.

According to VITIMES data, 100 percent of patients in An Giang and almost 80 percent of patients in Hai Phong were being treated in public health facilities linked with the NTP network, as shown in Table 8. The absence of data on TB patients being treated at NTP private facilities in An Giang in 2021 suggests that the PPM program in An Giang may have encountered contextual problems (for instance, the impact of the COVID-19 pandemic on the health system and TB management) or systematic problems (such as human resource, data management, and monitoring and surveillance) thereby delaying recording of TB cases to the VITIMES system. In Hai Phong, the number of TB patients being treated at private health facilities was recorded and reported to VITIMES through a PPM project named Proper Care through PPM Strengthening and Support (coded as PCPS2 in VITIMES).

²⁷ An Giang is the most populous province with over 2.1 million people and is home to a sizable number of people from Vietnam's ethnic minorities. In terms of TB burden, the province is on the top third of Vietnam's multidrug-resistant tuberculosis (MDR-TB).

²⁸ Bonell, A., Contamin, L., Thai, P.Q. et al. Does sunlight drive seasonality of TB in Vietnam? A retrospective environmental ecological study of tuberculosis seasonality in Vietnam from 2010 to 2015. *BMC Infect Dis* 20, 184 (2020). <https://doi.org/10.1186/s12879-020-4908-0>

Table 8: Total Official-Recorded Number of TB Patients Being Treated in Hai Phong and An Giang in 2021

	An Giang	Hai Phong
NTP	3,540	1,604
NTP Public ¹	3,540 (100%)	1,275 (79.5%)
NTP Private ¹	0 (0%)	329 (20.5%) (The figure is reported under PCPS2 - a PPM project)

¹Source: VITIMES (2021).

CONCLUSION

Based on VITIMES data, the officially recorded number of TB-patients being treated at NTP health facilities in An Giang and Hai Phong were 3,540 and 1,604, respectively. There are many challenges to obtaining the number of TB patients being treated at non-NTP public and private health facilities such as a lack of official reported data, absence of a comprehensive TB surveillance study, and potential for reporting bias among interviewed facilities. Thus, it is difficult to accurately estimate the total number of TB cases and percentage of TB patients receiving treatment services in Hai Phong and An Giang.

QUESTION #2: BASED ON THE RESEARCH, SPECIFY ALL IDENTIFIABLE SERVICE PROVIDERS IN THE STUDY AREAS KNOWN TO OFFER TB-RELATED SERVICES

FINDINGS

The study team identified patterns of TB-related services provision in both study sites using data from surveys and VITIMES. The figures below indicate that private providers strictly provide services at the beginning of the TB care cascade (screening, referral), and the responsibility for TB patient treatment and management heavily falls onto public health facilities. Pharmacies also contributed to treating TB symptoms (21.3 percent in Hai Phong and 37.8 percent in An Giang). The proportion of public and private health facilities providing screening and treatment services reflected their regulated service delivery capacity.

The data showed that both public and private facilities were involved in delivering TB-related services. Figure 1 and Figure 2 show that over 80 percent of hospitals in Hai Phong and An Giang provided screening services. Of surveyed private clinics, 98.4 percent and 64.6 percent provide screening and referral services in Hai Phong and An Giang, respectively. Meanwhile, both provinces' TB treatment and management services were primarily provided by public health facilities, with over 90 percent of surveyed CHCs and 50 to 72 percent of surveyed hospitals/health centers providing treatment.

Figure 1: Proportion of Facilities Provided TB-Related Services in Hai Phong

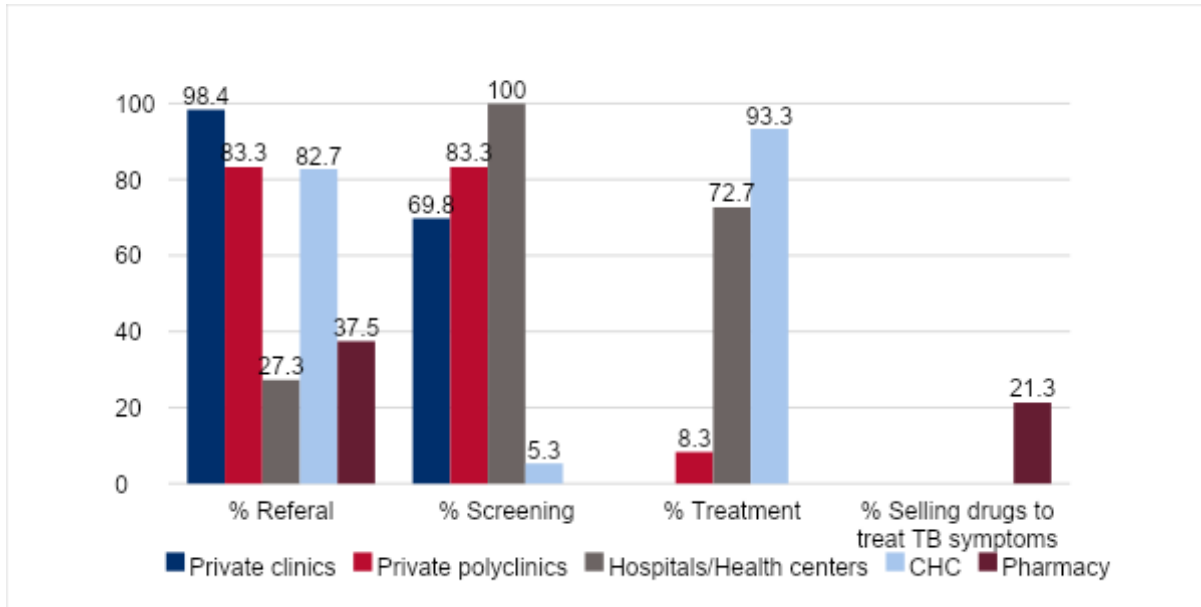
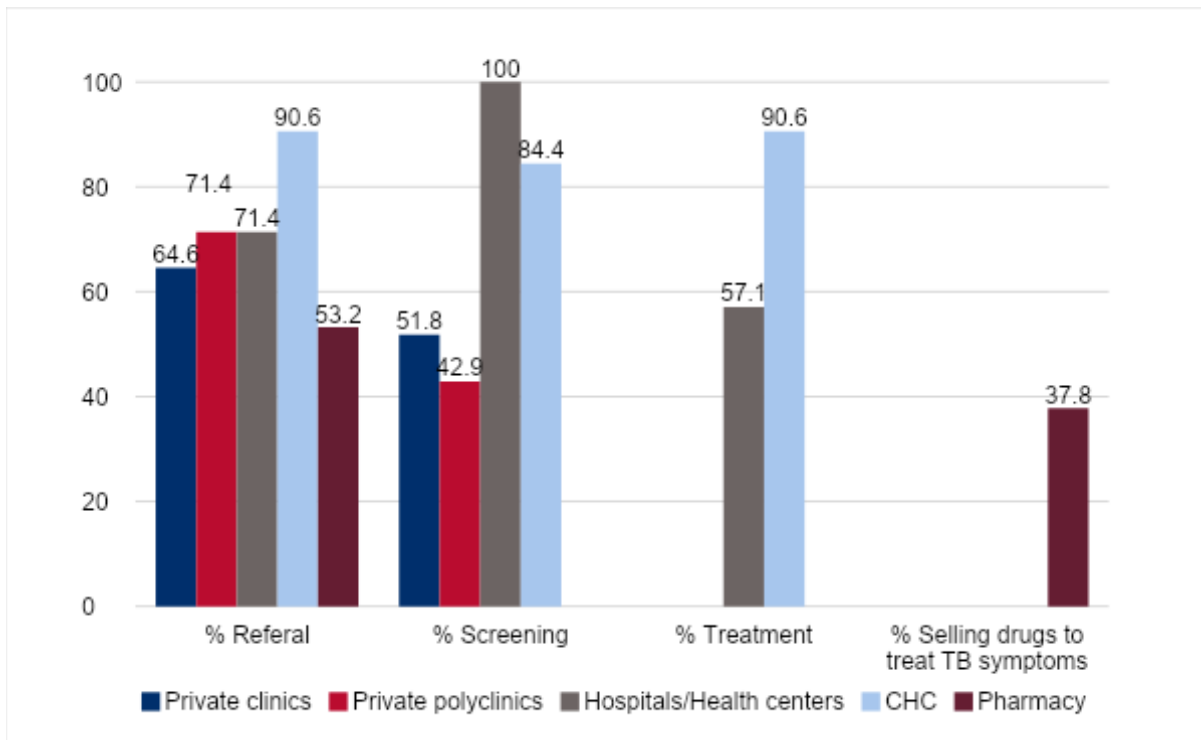


Figure 2: Proportion of Facilities Provided TB-Related Services in An Giang



The insights from in-depth interviews (IDIs) described potential drivers of the limited TB-related services provision, which seemed to shape the above pattern in service provision.

Drivers of limited TB-related services provision

Deficit of TB-trained healthcare workers (HCWs) at all levels, especially at CHCs and DHCs

Across the public health system, a high turnover rate among HCWs within TB facilities at all levels was observed, sometimes causing CHCs and District Health Centers (DHCs) to operate with a deficit of TB-trained HCWs. Few CHCs had dedicated staff for TB programs, so HCWs at CHCs had to work on multiple population health programs (vaccination, geriatrics care, etc.), with limited time dedicated to TB. This could be attributed to the existing underinvestment in the TB care workforce, which many HCWs interpreted as a system-level stigma against the TB sector.

“We have very high staff turnover. When a doctor is transferred or leaves elsewhere, new ones hardly know anything about TB. The public sector is dying of brain drains. We spend time and effort training doctors, and when they become mature enough, outside providers come and lure them away.”

(A non-NTP public manager)

Market-driven health service provision resulting in TB-related service delivery being less profitable than other services

Some interviewees in management positions indicated that TB was a disease of poverty and thus ranked low on the services list. Since TB patients have received free treatment through the state budget and health insurance fund, providing TB-related services at non-NTP public health facilities as well as at private health facilities was considered financially ineffective.

“Tuberculosis is not a disease that brings high income. Therefore, there are no health facilities interested in providing TB-related services. If the services cannot feed the facilities, it is a waste.”

(A public-health facility manager)

“Some medical specializations, such as cosmetic surgery or dermatology, can earn a lot of money. Internal medicine [including TB] is the worst, the poorest medical specialization.”

(A private clinic doctor)

Managers of small private clinics (mainly chief doctors) reported that their main goal was to care for common diseases and health conditions in the local community while earning extra income. They also argued that the provision of TB services would scare patients away because of the fear of infection, resulting in income loss.

For larger private facilities with potential capacity for expanding TB services, providers admitted that the obstacle to providing TB services was the motivation for profit behind running a private clinic/hospital. Decisions around service provision, including TB, were considered based on return on investment. Since TB had historically been a disease concentrated among the poor, they perceived TB services as unprofitable. They believe more ethical care options for TB patients should be delivered via NTP.

“To provide more TB services in this hospital, the services provided need to align with the interest of the investors. It needs to reap a return on investment. Of course, it does not mean profit is above all, and we need to consider TB services with the hospital's financial picture. If the services contribute to the reputation of the hospital, then investors may consider it. Otherwise, it is difficult for the hospital to provide further TB services.”

(A private-health facility manager)

Referral as an optimal practice within the limited TB-related service provision

The most common service non-NTP health facilities provided was TB screening, and only a handful of PPM providers extended service to diagnosis. In the absence of treatment services, most providers reported referring patients to other service providers. Appropriate referrals of TB cases depend on

correct screening. Doctors at non-NTP public and private healthcare facilities said they had a relatively high clinical confidence in identifying TB symptoms.

Local authorities with limited control of TB-related services provision

As shared by the interviewed TB patients and health workers, some private health facilities are providing "hidden"²⁹ or informal TB care and treatment services. This service delivery lacks the inspection and supervision of the provincial NTP and/or local authorities. The use of hidden services often occur before patients seek medical care from the official health facility. Some TB patients sought healthcare services from doctors after an ineffective self-medication session and find it challenging to know the qualifications of doctors or healthcare facilities and the quality of service at these facilities. This practice is more common in rural areas, where people often seek care from doctors who are currently working at public health facilities or who have retired and may not be licensed by the Department of Health. Many patients who use this type of informal service report that they have been prescribed medication to treat TB symptoms for a long time. This can further delay the TB diagnosis and treatment. Moreover, private health facilities often do not report their TB treatment activities as required by regulations due to a lack of legitimacy in clinic operations.

CONCLUSION

Private facilities mainly provide screening and referral services, with the burden of treatment services falling onto public health facilities. There is a noticeable proportion of pharmacies treating TB symptoms. Health providers among non-NTP public and private facilities attributed their limited TB-related services to the unprofitability of TB service delivery, especially at private health facilities. Meanwhile, limited control of local authorities over TB services provision allowed some unofficial services to operate without treatment quality assurance of NTP.

QUESTION #3: PROVIDE AN ESTIMATED NUMBER OF SERVICE PROVIDERS IN STUDY AREAS THAT HAVE AND HAVE NOT CONNECTED TO THE NTP

FINDINGS

Hai Phong

Based on the survey data from the five selected districts, the study team identified the proportion of health facilities connected or not connected to the NTP network. The data show that larger facilities are more likely to be connected to NTP, while smaller facilities (predominantly private providers) remain unconnected. In the five selected districts, Table 9 shows:

- **NTP public health facilities:** From survey data, there were eight hospitals/health centers and 75 surveyed CHCs formally connected with the NTP network (signing Memorandum of Understanding).
- **Non-NTP public health facilities:** In the study area, three out of eleven hospitals (27.3 percent) are not linked with the NTP network: Transportation Hospital, Police Hospital, and Navy Medical Institute. These hospitals only provide screening and referral services to TB-suspected patients.
- **NTP Private health facilities:** Seventy-six private specialized clinics and 12 private polyclinics were interviewed. Of these, six (7.9 percent) and four (33.3 percent) are linked with the NTP network, respectively.
- **Non-NTP Private health facilities:** More than 90 percent of private specialized clinics, two-thirds of private polyclinics, and all pharmacies have no connection with the NTP network.

²⁹ "Hidden" services include non-registered health services provided without approval from local authorities.

Table 9: Number and Proportion of Health Facilities Having a Connection with the NTP Network in 5 Selected Districts in Hai Phong

Connection status	Private pharmacies (%)	Private clinics n (%)	Private polyclinics n (%)	Hospitals/ Health centers n (%)	CHCs n (%)
Connected to NTP	0 (0.0)	6 (7.9)	4 (33.3)	8 (72.7)	75 (100.0)
Not connected to NTP	136 (100.0)	70 (92.1)	8 (66.7)	3 (27.3)	0 (0.0)

The findings were consistent with VITIMES data in Hai Phong, as shown in Table 10. The VITIMES data demonstrate that 14 out of the 15 NTP health facilities in Hai Phong were public health facilities and accounted for 80 percent of the total number of official-recorded TB patients in 2021. However, only one Project Proper Care through PPM Strengthening & Support (PCPS 2) facility listed and provided TB treatment services for about 20 percent of TB patients recorded in VITIMES data in Hai Phong.

Table 10: List of NTP Health Facilities in VITIMES Data in Hai Phong

No.	Health facility name	No. of TB patients	Percent
1	Hong Bang DHC	67	4.18
2	Le Chan DHC	181	11.28
3	Ngo Quyen DHC	138	8.6
4	Do Son DHC	35	2.18
5	An Lao DHC	107	6.67
6	Kien Thuy DHC	62	3.87
7	Thuy Nguyen DHC	216	13.47
8	An Duong DHC	114	7.11
9	Tien Lang DHC	64	3.99
10	Vinh Bao DHC	72	4.49
11	Cat Hai DHC	18	1.12
12	Hai Phong Lung Hospital	143	8.92
13	Hai An DHC	46	2.87
14	Duong Kinh DHC	12	0.75
15	PCPS 2 - HP Project	329	20.51
	Total	1,604	100

An Giang

The initial surveys in An Giang did not include the questions on the connection between the surveyed health facilities and NTP, which were added to the survey questionnaire in Hai Phong. Therefore, data cannot be tabulated to compare to Hai Phong. However, based on consultation with An Giang CDC and DOH about the connection of public and private health facilities with the NTP network, a similar pattern of connection with NTP was reported in which public health facilities were more likely to connect with NTP, and to the date, no private health providers connected:

- **NTP public health facilities:** Besides all CHCs, there were 16 public health facilities (including An Giang CDC, three regional hospitals, one prison, and 11 DHCs) linked to the NTP network and provided TB-related services in An Giang.
- **Non-NTP public health facilities:** Four specialized hospitals (Cardiovascular hospital, Maternal and Children Hospital, Traditional Medicine Hospital, and the Eye and Ears, Nose, and Throat-Odonto and Stomatology Hospital) linked with NTP and provided referral services only.
- **NTP private health facilities:** No private health facilities are formally linked to NTP under the official cooperative agreement with CDC An Giang.
- **Non-NTP private health facilities:** There was no official number of private health facilities where TB services were provided.

The findings (shown in Table 11) were consistent with the VITIMES data in Hai Phong. All TB patients were being treated and managed at public facilities, including 11 DHCs and one prison.

Table 11: List of NTP Health Facilities in VITIMES Data in An Giang

No.	Facility name	# TB patients	Percent
1	Long Xuyen City health center	518	14.63
2	Chau Doc City health center	192	5.42
3	An Phu DHC	271	7.66
4	Tan Chau DHC	250	7.06
5	Phu Tan DHC	348	9.83
6	Tinh Bien DHC	184	5.2
7	Tri Ton DHC	189	5.34
8	Chau Phu DHC	398	11.24
9	Cho Moi DHC	516	14.58
10	Chau Thanh DHC	246	6.95
11	Kon Ray DHC	418	11.81
12	Dinh Thanh prison	10	0.28
	Total	3540	100

Reasons for lack of connection with NTP

Limited financial benefits

The most frequently mentioned reason for a lack of link to the NTP was the minimal benefits of connecting. HCWs were not interested in a relationship with the NTP. This perspective was more common among private health facilities where profits were prioritized. These respondents mentioned TB as a “poor disease” [bệnh nghèo] that typically tended to spread among disadvantaged groups from whom the facility would earn minimal income. Accordingly, they remained indifferent to the linkage to the NTP.

“However, TB specialization is worse than the worst, poorer than the poor [laugh aloud]. The name “TB” evokes a fierce sense of poor, so no health facilities want that connection [to the NTP].”

(A private-clinic doctor)

Sustainability for the PPM program to date relied on external funding. While past PPM programs established formal partnerships with a number of private providers, there has been an observed erosion of the NTP network. This stems from international funding cuts. The respondents believed that the PPM was conducted in a tight relationship with the relevant projects funded by international bodies. The PPM program was likely interrupted as the projects ended and funding ran out.

“If I remember correctly, our province started implementing the PPM in 2005, even before Circular No. 2 [of the Vietnam Ministry of Health (MOH)], which was adopted in 2013. In 2005, a project funded by an international funder initiated the PPM idea in our province. Unfortunately, the PPM activities were interrupted when the funding ended. Without international funding, [at that time] we’re unable to maintain the PPM activities.”

(A provincial NTP representative)

Ineffective management mechanism between NTP and other health facilities

The ineffective management mechanism between the provincial NTP (pNTP) and other health facilities also contributed to a lack of linkage with the pNTP. pNTP staff believed that the pNTP had limited power and influence on private health providers because of the lesser commitment and priority from local authorities toward TB. pNTP’s duties specialize in TB care and treatment. Without strong support from DOH and district health offices, pNTP had difficulty engaging with private health facilities.

Moreover, poor monitoring and supervision of PPM programs to sustain the collaboration after its establishment contributed to minimal relationships between pNTP and private health facilities. The limited follow-up poses a challenge for NTP’s effort to develop relationships with private health facilities.

“It’s challenging to connect to private health facilities and pharmacies. They barely have any relevant activities in common with the NTP or our province’s anti-TB program. So it’s hard for us to get in touch. Those who have already established the connection might, then, neglect us. They don’t respond to us at all.”

(A provincial NTP representative)

“The PPM program in our province is still loose. We [the NTP] have sent them [private health facilities] all the guidelines on referral, diagnosis, and treatment, but they don’t follow them. They act for a performative sake, not complying with the guidelines.”

(A district NTP representative)

Some private health facilities indicated their participation in the NTP network yet adopted passive roles in providing services. For example, all crucial medical decisions regarding prescribing treatment regimens could only be made by the NTP’s local units, leaving other facilities following NTP’s orders passively. Due to this, many facilities showed minimal enthusiasm about connecting with the NTP. This passive

role may explain their lesser compliance with the NTP guidelines. It also reflects inefficient and insufficient management of the PPM program, leading to private health providers misunderstanding the nature of the PPM program and their involvement or connection.

Legal and administrative procedures burdens prevent connection to the NTP network on behalf of public and private health facilities

In the context of the difficulties above (insufficient human resources, limited monetary benefits or revenue, and TB-related stigma) the complicated legal procedures and bureaucracy further inhibit public and private health facilities from collaborating with the NTP network. Public and private health facilities shared concerns about the legal and administrative burden if they decided to connect to the NTP.

“Even public hospitals like us are afraid of the connection to the NTP, let alone private health facilities. Why? Well, we just want to avoid any further burden created by the connection, such as filing the paperwork or monthly reports.”

(A public hospital manager)

CONCLUSION

Large-scale public health facilities were more likely to be connected to NTP, while smaller private facilities often remained unconnected. Non-NTP health facilities, especially private ones, were not interested in linkage to the NTP because they forecasted few benefits, legal constraints, additional administrative burden, and ineffective management mechanisms. For those connected to the NTP, the issues of the unstable PPM program diminished the value of the connection.

QUESTION #4: EXAMINE THE EXTENT TO WHICH NTP GUIDELINES MIGHT BE MET BY PRIVATE SECTOR AND PUBLIC SECTOR SERVICE PROVIDERS (NTP AND NON-NTP).

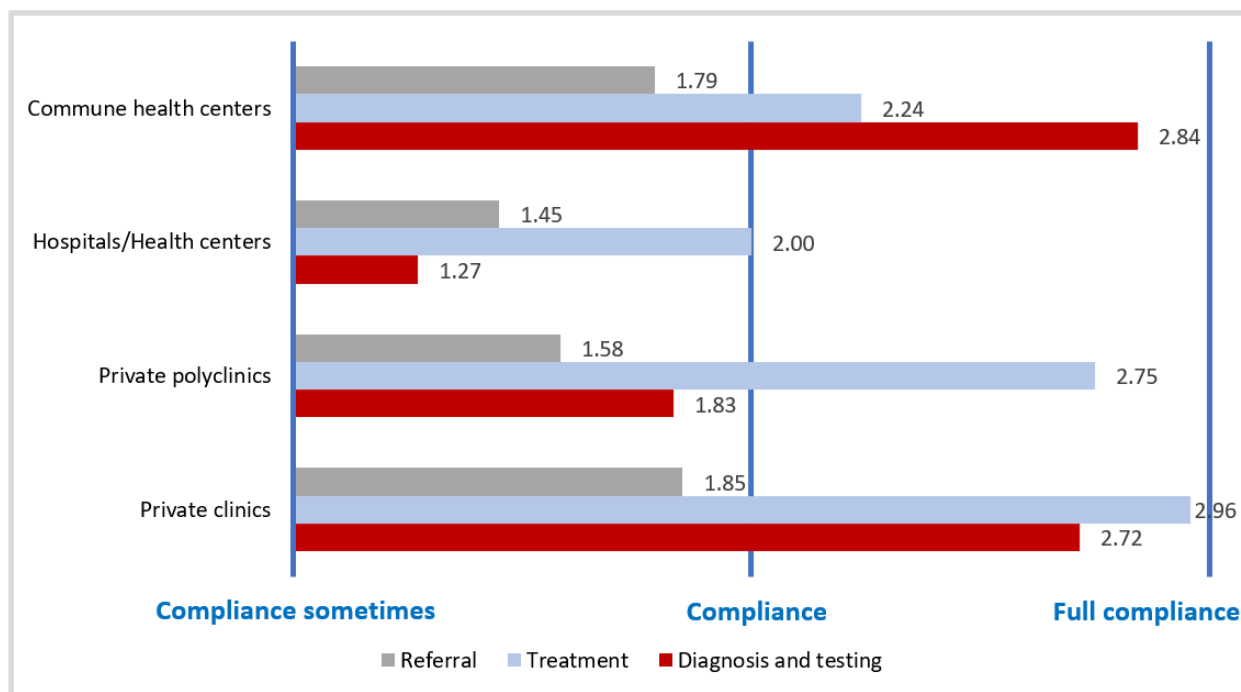
FINDINGS

Hai Phong

Interviewees were asked to self-rate the level of compliance with NTP guidelines at their health facilities on a scale of zero to three (“No compliance,” “Compliance sometimes,” “Compliance,” and “Full compliance”). Based on survey data (see Figure 3), no type of health facility reached the maximum score of full compliance. In addition, all types of health facilities reported below-average compliance in referral services (≤ 2), while reported above-average scores (≥ 2) in diagnosis and testing. Among large-scale facilities, including hospitals/health centers and private polyclinics, the level of compliance with treatment guidelines was low (1.45-1.83). At the grassroots level, as CHCs were tasked to support patients as part of treatment management, CHCs’ HCWs seemed to report reasonable compliance with treatment guidelines (2.84).

Respondents of private clinics self-rated their compliance with treatment guidelines quite highly (2.96 out of 3). This self-reported result was questionable given that qualitative data indicated that most private clinics did not provide treatment services, and many operated without legal recognition (e.g., registration, license) to provide TB treatment services. The topic's sensitive nature and the limitation of face-to-face survey enumeration could explain these results. Another contributing factor could be that private clinics mostly referred presumptive TB patients to NTP, as shown in RQ 1; they may interpret such action as in line with NTP guidelines, thus reporting full compliance.

Figure 3: Self-Ranked Average Score of Level of Compliance on TB Diagnosis, Referral, and Treatment by Health Facilities in Hai Phong



An Giang

In the absence of quantitative data evaluating compliance in An Giang, the study team triangulated the findings from Hai Phong with qualitative data in An Giang. Consistent with findings in Hai Phong, no health providers reported full compliance with NTP guidelines. Public health facilities generally complied with treatment, screening and diagnosis, referral, and patient management services guidelines. The qualitative results showed that public facilities linked with the NTP network tended to outperform non-NTP facilities. Private health facilities reported average compliance with NTP referral and confirmatory diagnosis guidelines. Similar skepticism regarding treatment compliance in Hai Phong was also found in An Giang. While private providers reported applying treatment protocol and prescriptions as instructed by the TB program, the actual practices were unverifiable.

QUESTION #4.1. WHAT ARE THE CHALLENGES AND BARRIERS THAT PREVENT THE SERVICE PROVIDERS FROM COMPLYING WITH NTP GUIDELINES?

FINDINGS

Drawing from IDIs with HCWs, four main challenges were identified: workforce, diagnostic capacity, resources for patient support, and governance and financing of the PPM program. Each challenge is composed of several barriers for health providers in public and private sectors adhering to NTP guidelines for providing different services (Table 12). The barriers under each challenge are detailed below.

Table 12: Challenges of NTP Guidelines Adherence and their Relevant Services

Challenges to the NTP guidelines adherence	Services of relevance		
	Screening/Referrals	Diagnosis	Treatment/Patient Management
	Model 1		
	Model 2		
			Model 3
		Model 4	
Workforces challenges	X	X	X
Diagnostics capacity	-	X	-
Under-resources for patients' support	-	-	X
Ineffective governance and financing	X	X	X

Workforces Challenges

Health providers frequently mentioned human resources as the primary ongoing challenge to ensuring public and private health providers adhere to NTP guidelines. Issues reported on the workforce could be further classified by quantity (breadth) and quality (depth).

Shortage of human resources for the TB sector (breadth)

The lack of interest in TB among health professionals poses a significant challenge for NTP’s effort to promulgate guidelines to the broader healthcare system. The impact of a shortage of HCWs for TB was observed starkly with those working in the public sector. HCWs interviewed at CHCs described how their TB facilities were severely understaffed, leading to HCWs that were also responsible for multiple population health programs, leaving limited time dedicated to TB.

“As a chief doctor at this CHC, other staff and I have responsibilities for many health programs, so I have very little time for TB.”

(A commune health worker)

At non-NTP facilities, HCWs explained how TB as a specialized field did not appeal to younger healthcare professionals. Many health professionals blamed poor employment prospects associated with the field of TB. TB healthcare workers, primarily in the public sector, were reputed to be underpaid. The benefits of this specialization were perceived to be disproportionate to the work burden and the risk of exposure to infectious disease.

“There is a poor professional future with TB, and the work related to TB is heavy too, so I did not choose to study infectious disease in general, and TB in particular, during medical school. The benefit for HCWs working in the TB sector is also very poor, so very few medical students indeed choose to study TB.”

(A non-NTP public doctor)

Un-lunder-trained HCWs for TB (depth)

HCWs interviewed shared a consensus that training was critical for NTP guideline adherence. Many health care providers frequently warned that the lack of training was a barrier to ensuring that the NTP guidelines were followed. However, the guidelines did not reach as many HCWs within the health system as needed. HCWs blamed NTP's lack of training activities. There was a lack of targeting or tailoring of the NTP guideline training for specific needs of health providers based on the clinical context in which they operate. The IDI results show that HCW at the grassroots level have poor knowledge about TB management in their community, leading to poor practice in service delivery. While the NTP guidelines describe clearly how CHCs should perform TB management, such as providing drug dispensing, treatment follow-up to TB patients, and home visits, one KI who worked at CHC misunderstood his/her TB management-related responsibilities.

Honestly, I know we are responsible for management of TB patients, but I myself as a head of the CHC did not have enough training on TB. At the same time, we have to manage so many other population health programs. Before we had an assistant helping with TB, but still she was not trained, now she quit. For all those reasons, the higher level (district level) manages everything... "

(A commune health worker)

Many doctors at facilities unconnected with the NTP network reported not receiving even basic TB screening training. Radiologists working in non-NTP facilities had yet to receive training to read TB chest X-rays. They resorted to their knowledge from past medical training, sometimes from decades ago. Others accessed TB information via internet search. This may contribute to the problem that frontline HCWs are often unable to identify typical TB symptoms and consequently miss TB cases correctly.

"I have not yet participated in any training on TB. However, information is now widely available online, so we use it."

(A non-NTP private doctor)

Training was not continuous for those who received it from NTP, primarily in public and PPM facilities. In addition, there has been a lack of refresher training since 2019 mainly due to COVID-19. NTP staff indicated that there had been a lack of funding for training activities for a wider audience beyond NTP's current reach.

"Previously, we still have funding for [Continuous Medical Education]. However, recently, we ran out of funding to roll out TB training for private providers in NTP networks."

(A provincial NTP representative)

Some private providers also suggested updates and diversification were needed regarding the TB training. However, multiple health facility managers complained that general training content has become repetitive and redundant, rather than tailored to their specialized needs. For example, one pediatrician running a private clinic indicated the need for training on pediatrician TB because her patients were children.

"Any document or training by NTP, first, needs to specify what tuberculosis in children is like. The second is what we as pedestrians do at the clinic level, where to send anything beyond the clinic."

(A non-NTP private doctor)

Diagnosics Capacity

While resources were essential for TB (biomedical) diagnostic activities, TB diagnostics capacity remained insufficient among most facilities unlinked with NTP. The insight from laboratory technicians in major non-NTP public and private health hospitals suggested a severe shortage of infrastructure, machines, and chemicals threatened their ability to perform diagnostic tests.

Interviewed health providers relied heavily on medical image analysis and patients' self-reported medical history to screen for TB. However, biochemical diagnoses are required to verify the presence of TB bacteria. Most of interviewed lab technicians indicated that the low diagnostic capacity impeded their ability to perform some of the most common diagnostics. The infrastructure of their facilities was not designed for TB or infectious diseases in general, which directly constrained practice in collecting diagnostic samples. Diagnostic equipment and medical tools were underinvested in many health facilities un-connected to NTP. Many facilities operate Acid-fast Bacilli (AFB) smear tests—the most common TB microscopic test—without a proper lab cabinet, sample collection tools, and chemicals. They reported having no proper tools required for sputum induction. It was observed that the process of sputum collection, if there was one, was not guided by NTP guidelines.

“We don't have a separate area for sputum collection here. I just tell the patient to go to an open place where there is sunlight to breathe deeply and spit out sputum. We do that whenever a patient is available at the facility. We only require the patient to spit on the petri dish, not the tube required by NTP...”

(A non-NTP public lab technician)

Meanwhile, a small number of large-scale private and public facilities participating in the PPM network in Hai Phong reported better TB diagnostics practices in line with the NTP guidelines. Proper diagnosis was available in these facilities because it was a service for which they could charge fees and improve their professional image to clients.

Under-Resource and Understaffing for Patients' Management

TB treatment frequently induces *side effects* that can lead to adverse events (Aes) that, if not fully addressed, can negatively affect the patient's adherence to treatment. In addition to side effects, low socio-economic status and unhealthy behaviors (alcohol consumption, smoking, etc.) can worsen TB patients' health conditions. TB patients also often desire not to disclose their status due to potential stigma; thus, it is difficult to maintain regular contact. These problems may hinder patients' ability to adhere to TB treatment. Due to these circumstances, local health workers at CHCs with close proximity to patients were tasked by NTP to provide patients clinical and social support as part of the patient management process. Yet health workers interviewed mentioned multiple challenges related to TB patients when providing treatment, particularly when it might deviate their practice from the guidelines. This insight was captured through interviews with HCWs in Hai Phong and IDIs in An Giang.

Health staff, especially doctors who have not been intensively trained at district health centers and CHCs, were not confident in handling complex cases. While NTP had guidelines for AE management, in An Giang, interviewed NTP staff indicated that significant numbers of cases with adverse drug reactions were not properly handled, especially at the commune/ward level where resources (especially human resources) are limited. NTP staff did not have the resources to assess patients' adherence to treatment by following NTP's AEs management guidelines and increasingly resorted to patient's self-reporting. Lack of adherence to AEs management guidelines might be worse among non-NTP private providers, especially if they provide unofficial services and have limited access to NTP training.

Social support for patients to ensure treatment adherence could be delivered at commune level, but recently has become increasingly limited. Health staff at CHCs used to be able to make unnotified patient home visits to check if patients followed the treatment prescription and guidance and link them to available social support. At interview time, staff could no longer carry out activities to support TB patients during treatment as they had become increasingly under-resourced and under-staffed.

“In the past, we managed TB patients at this commune health center. If we seemed to lose contact with them, I could go directly to their house nearby to find them. We used to have HCWs and funding for those patient support activities, for example, we were paid for gas to come to their house. But now we don’t have funding for treatment support any more, and a higher level manages everything...”

(A commune health worker)

These issues resulted in patients accessing “better” care at a higher level and the absence of TB patient management activities at some CHCs. Patient management, despite being the main function of CHCs, was increasingly shouldered by DHCs. The situation in non-NTP facilities and unofficial services remains unknown.

Ineffective governance and financing PPM program

High-level NTP staff indicated that PPM was the primary mechanism through which NTP aimed to ensure health providers outside NTP adhere to NTP guidelines. They suggested that while the current legal environment was sufficient for engagement with health providers, there were remaining system-level challenges implementing the PPM program that limits the NTP's partner adherence to the guidelines

Barriers to programmatic reach

Forming and maintaining formal partnerships with additional health providers and was a severe challenge for underfunded and understaffed NTP. This created problems of reach and effectiveness associated with PPM as a mechanism to enforce the NTP guidelines.

NTP in both provinces reported that past PPM initiatives and projects, primarily short-term and externally funded, did engage different types of private health facilities. Buy-in was limited and it was difficult to establish a formal relationship with private providers. Moreover, the more engaged partners in the network were primarily formal and large-scale institutions under the effective control of the health office within the provincial health department. This implies that the NTP only disseminated the guidelines to a small subset of health providers within the system and could not reach a large segment of the private sector that functions as the first point of care for communities.

“When Decision No. 1314 was issued, we invited non-NTP providers, both public and private providers, to update the guidelines, but they did not come. Most of those who came were already connected to the NTP network.”

(A provincial NTP representative)

While TB treatment should be approved and monitored by NTP, weak enforcement of regulations regarding private health providers may still allow unofficial TB treatment services to exist. This unofficial treatment has no quality standards (in terms of practitioner’s qualifications, the standard of operating procedures, etc.).

Difficulty sustaining partnerships

When partnerships were formed, NTP lacked the resources to sustain them. For example, district HCWs reported that the previous PPM programs did reach out to smaller health providers, such as general small-scale clinics and pharmacies. Despite this outreach, NTP staff indicated that these facilities were difficult to engage with due to the conflicting nature of public and private interests embedded in operating models. The HCWs at the local TB units further described how formed relationships needed resources to sustain, which were unavailable to NTP. The under-investment in TB programs might further erode existing relationships.

“PPM program in the past sent a form for establishing formal relationships to private pharmacies and clinics in the district, but there were rarely any cases referred to the district TB unit.”

(A district NTP representative)

Poor inter-departmental coordination

Beyond NTP, PPM success was also conditioned on coordination with other departments within the provincial health department. From the viewpoints of HCWs, private providers were likely under the control of the private medical practice management office. However, this department, according to provincial NTP leaders, gave little attention to the local roll-out of the PPM program. This contributed to the ineffectiveness the NTP experienced in implementing the PPM program to realign medical practices outside of NTP control with the NTP guidelines.

“The reality, we face so many barriers. There is a lack of drastic measures from government entities to support us in expanding PPM. Some functional departments within the provincial DOH, for example, the department of medical practice management, which manages private providers’ practicing licenses, may not be in a close relationship with NTP yet. Therefore, the NTP may not have enough support from them to expand PPM.”

(A provincial NTP representative)

CONCLUSION

In both provinces, none of the health provider types self-reported the maximum score of full compliance and most health facilities reported average compliance. However, private clinics and CHCs which mainly provided referral and screening services reported suspiciously high compliance for treatment, while other types of providers reported below-average to average level of compliance for all aspects of TB care. The average compliance among providers was driven by the deficit in capacity for TB services related to workforces, diagnosis, and resources for supporting TB patients' health conditions and shaping their behaviors in dealing with adverse clinical effects of treatment.

QUESTION #5: ASSESS THE EXTENT TO WHICH SERVICE PROVIDERS CONTRIBUTE TO GOVERNMENT REPORTING REQUIREMENTS AND SEEM TO MEET REQUIRED REPORTING STANDARDS.

FINDINGS

Hai Phong

Reporting of TB cases was poor among private health facilities, including private pharmacies and clinics, and better among public facilities except for CHCs (see Table 13). One hundred percent of surveyed public hospitals/health centers reported recording and reporting TB cases to NTP. In private health facilities, over 50 percent of private pharmacies did not report TB or presumptive TB cases to NTP, while 61.8 percent of private clinics and 33.3 percent of polyclinics did not report TB or presumptive TB cases. There was also a small number of private facilities that had previously reported cases but stopped

reporting. Even though all CHCs were a part of NTP, only one-quarter of them were recording and reporting case numbers. It was common practice for TB patients to bypass CHCs and seek care at DHCs or Hai Phong Lung hospital for TB-related services, resulting in a reversed reporting process between levels within public NTP facilities. In the survey data, 40 out of 75 CHCs (53.3 percent) reported that they did not have patients visiting. Private health facilities had limited engagement in recording and reporting.

Table 13: Reporting Status of Health Facilities at Hai Phong

Reporting status	Private pharmacies (n = 136)	Private clinics (n =76)	Private polyclinics (n = 12)	Hospitals/Health centers (n = 11)	CHCs (n =75)
Yes, there is recording.	6 (4.4)	5 (6.6)	1 (8.3)	0 (0.0)	1 (1.33)
Yes, there is recording and reporting	43 (31.6)	19 (25.0)	4 (33.3)	11 (100.0)	19 (25.33)
There was recording and reporting previously, but not now	12 (8.8)	2 (2.63)	2 (16.7)	0 (0.0)	4 (5.3)
No recording or reporting at all.	71 (52.2)	47 (61.8)	4 (33.3)	0 (0.0)	49 (65.3)
Don't know	4 (2.9)	3 (3.95)	1 (8.3)	0 (0.0)	3 (4.0)

An Giang

A similar pattern of reporting by type of providers in Hai Phong also could be found in An Giang (see Table 14). However, there was a more significant trend of non-reporting among private facilities in which 64 to 85 percent of private providers did not report TB and presumptive TB cases.

Table 14: Reporting Status of Health Facilities at An Giang

Reporting status	Private pharmacies (n = 162)	Private clinics (n = 300)	Private polyclinics (n = 7)	Hospitals/Health centers (n =7)	CHCs (n =64)
Yes, there is reporting	15 (9.3)	53 (17.7)	0 (0.0)	5 (71.4)	27 (42.2)
There was reporting previously, but not now	6 (3.7)	40 (13.3)	0 (0.0)	0 (0.0)	7 (10.9)
Never	124 (76.5)	192 (64.0)	6 (85.7)	1 (14.3)	28 (43.8)
No answer	17 (10.5)	22 (7.3)	1 (14.3)	1 (14.3)	1 (1.6)

Non-standard practices in reporting TB data

Regarding TB data reporting, IDIs data revealed some non-standard practices which were likely common among HCW participants and their co-workers (Table 15).

Table 15: Common Non-Standard Practices in Reporting TB Data

Referral as reporting	No reporting	Unsecured reporting	Unrecorded information
The facilities and/or health care workers relied on referral forms (mandated by the national health insurance scheme) as the sole document for reporting to NTP.	The facilities and/or health care workers did not report TB data to any person or institution.	The facilities and/or health care workers reported TB data using unsecured methods, such as the Zalo application or mobile texts, which might risk the data’s confidentiality and validity.	The facilities and/or health care workers did not record the TB data because they provided the patients with unofficial TB-related services. Reporting the data might expose their ‘hidden’ services.
<p>“We don’t have a formal procedure to refer TB-suspected patients to Hospital X [A TB-specialized hospital]. If they have health insurance, we use the referral form mandated by the health insurance scheme to refer them to the hospital. When they don’t have health insurance, we verbally refer them to the hospital, using no form.”</p> <p>(A public-hospital manager)</p>	<p>“Our clinic doesn’t record data of TB-suspected cases. If we think a patient might have TB, we’ll write “TB-suspected” on a small piece of paper and give it to the patient. The patient must keep it for further use. We don’t keep it or record the information.”</p> <p>(A private-clinic doctor)</p>	<p>“In terms of reporting TB data, I’ve created a Zalo [a popular messaging app in Vietnam] group where I gather all the focal points of health facilities in the province. They report TB data to me in the group, and I also send them updated information on TB through the group.”</p> <p>(A provincial NTP representative)</p>	<p>“In our province, many doctors working for the TB department at the public medical units provide the TB patients with TB treatment at home.”</p> <p>(A commune health worker)</p>

QUESTION #5.1: WHAT ARE THE CHALLENGES AND BARRIERS THAT PREVENT THE SERVICE PROVIDERS FROM COMPLYING TO THE REPORTING GUIDELINES?

FINDINGS

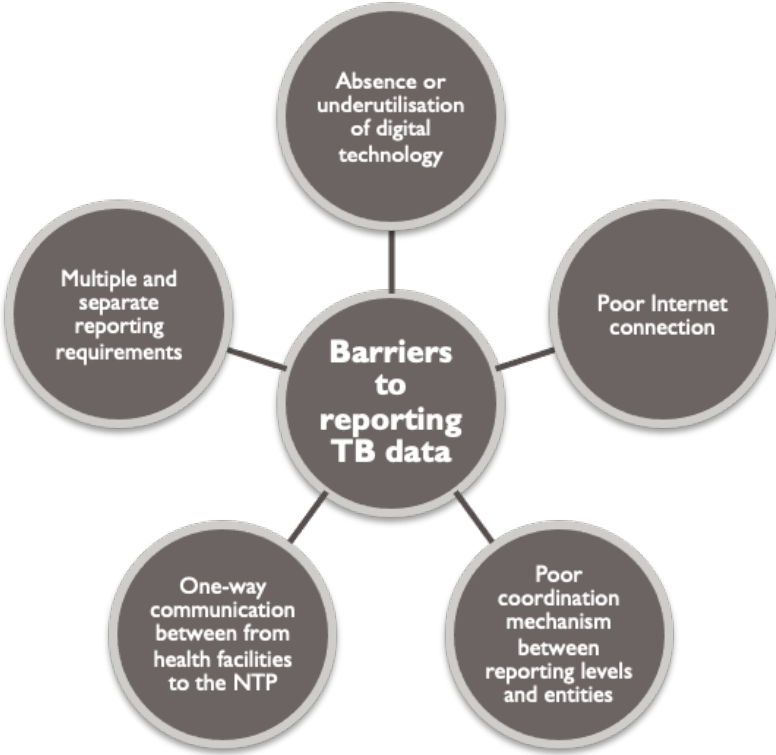
Accounts of health providers from IDIs described five barriers and challenges in reporting TB data (Figure 4). First, there was **an absence of or underutilization of digital technology among the facilities**, which required them to resort to manual reporting of TB cases. Technological difficulties tended to inconvenience public medical units and small private health clinics more than large-scale private clinics and hospitals. Representatives of public health facilities and small private health clinics said they mostly used paper recording and reporting forms.

“We record data of TB-suspected cases in a paper-based notebook instead of using digital forms or computer-based methods. Recording the data using digital forms or computer-based methods is much better than using a

paper-based notebook. However, if we need to report the data somewhere else, we must open the notebook and summarize the data manually. It's very inconvenient, to be honest.”

(A public-hospital doctor)

Figure 4: Reported Challenges and Barriers to Reporting TB Data



Second, a **poor internet connection** at health facilities sometimes prevented HCWs from accessing the reporting system for data entry using VITIMES or caused VITIMES’s data to be inaccurate. Some key informants (KIs) complained about the instability of VITIMES, which requires a strong internet connection for the data entering process. Without a strong connected, the system often recorded data incorrectly. Therefore, HCWs had to use a paper-based notebook parallel to VITIMES to back up the data. Despite their efforts, VITIMES’s data was sometimes still dissimilar to paper-based data.

“I’ve witnessed many times by which the NTP upgrades the VITIMES. However, it still works unstably, bringing about unmatched data compared to our paper-based notebook’s data. The input data will be incorrect if the internet connection is weak. So, we don’t use VITIMES data to follow up and monitor the patient’s treatment. We rely on our paper-based data.”

(A district NTP representative)

The third barrier to reporting TB data was the **poor coordination mechanism between reporting levels and entities**. Respondents reported no procedure to detect duplicated data during data entering among different units. Consequently, some chose to update the data in their paper-based notebook only. The action might affect the accuracy of VITIMES data.

“A TB patient may have duplicated data in the VITIMES. For example, we refer a TB-suspected patient to Hospital X [a TB-specialized hospital] and record the patient’s information in the VITIMES immediately according to real-time. However, Hospital X usually doesn’t record the patient’s information in real time. They

may input the patient's information to the VITIMES later, creating a duplicated version of the patient's data in the VITIMES though it's just one patient."

(A district NTP representative)

Fourth, health providers reported that their report of TB data resulted in **one-way communication from health facilities to NTP**. The KIs who referred presumptive TB cases to NTP's health facilities complained that they received no response from the NTP for confirmation or follow-up on the patients. The NTP staff admitted this gap. The one-way communication seemed to demotivate health providers from recording and reporting TB data to the NTP because they felt unappreciated for their efforts. Later on, instead of referring TB presumptive cases formally to the NTP's health facilities, they only refer them verbally to the NTP's health facilities in the local area.

"When the NTP doesn't respond to me about my referred TB-suspected patients, I completely don't know whether my referral is helpful or not. If the NTP gets back to me, I can learn from my wrong referral cases to enhance my diagnosis capability or feel motivated and respected if it's the right referral. Currently, I get no response from them [the NTP], and I feel less and less enthusiastic about referring the patients to them. I should stop doing that"

(A private-clinic doctor)

The fifth barrier to reporting TB data was **multiple and separate reporting requirements**. Healthcare providers were often tired of separate requirements for reporting TB data for the health facilities connected to the NTP. They might have to record the TB data in their health facilities' paper-based notebook while inputting the same data to VITIMES. Additionally, they had to update and keep the data on multi-drug-resistant tuberculosis in another program named eTB instead of in VITIMES. Data of other diseases were recorded separately in the HIS (Hospital Information System) software because HIS was not connected to VITIMES. In general, multiple and separate reporting requirements tended to generate more burden for the health facilities which had connected to the NTP in reporting TB data. On the other hand, healthcare providers from the facilities that were not connected to the NTP often complained about a lack of reporting form for TB data. They did not know how to record and report TB data sufficiently.

"We have to enter general TB data into the VITIMES while entering drug-resistant TB data into another platform named eTB. At the same time, we must write about 15-20 TB-related reports each month, such as TB among children, latent TB, TB among people living with HIV [human immunodeficiency virus], TB screening, and Xpert testing results. What's more, the VITIMES isn't linked to HIS. So, we have to enter the TB data into HIS again. The Ministry of Health requires different reporting forms compared to the NTP."

(A district NTP representative)

CONCLUSION

Reporting of TB cases was poor among private health facilities, including private pharmacies and clinics, and better among public facilities except for CHCs. Reporting providers engaged in non-standard reporting practices that potentially contributed to the under-reporting of TB and suspect cases. In addition, health facilities face many difficulties reporting TB data without sufficient technology and stable internet connections. Poor coordination mechanisms between reporting levels and entities, along with one-way communication and separate reporting requests, also created many reporting challenges for health facilities.

QUESTION #6: WHAT IS THE LEVEL OF SATISFACTION AMONG TB PATIENTS REGARDING TB HEALTHCARE SERVICES OFFERED BY THE PRIVATE SECTOR AND PUBLIC SECTOR SERVICE PROVIDERS?

FINDINGS

As presented in RQs 1 and 2, public health facilities provide most TB services. While this seems to limit the feasibility of conducting an analytical comparison of patients' satisfaction with services by public and private providers, our qualitative data indicated that patients experienced services from both private and public health facilities as they sought TB care.

Informed of this, the study team conducted in-depth interviews with 22 TB patients in An Giang and Hai Phong and surveyed 271 TB patients in Hai Phong on their level of satisfaction regarding the services they received. Given that there was no comparable dataset for quantitative comparison between study sites and between public and private health providers in An Giang, the study team analyzed Hai Phong and An Giang data separately and triangulated the findings from both sites for comparative insights.

High patients' satisfaction (by types of providers)

In Hai Phong, nearly all surveyed 271 patients experienced services from public health facilities, and 89 had also experienced services other than treatment from private providers. These respondents were asked to rate their satisfaction with TB services on a scale of 1 to 10. The mean reported satisfaction scores of 8.25 and 8.61 for private and public health facilities, respectively, reflect a high level of satisfaction among patients for TB-related services experienced at both types of facilities.

Table 16: Level of Satisfaction (10-Point Scale) of TB Patients with Medical Services at Public and Private Facilities

Type of facility	1	2	3	4	5	6	7	8	9	10	Mean score
Private facility (n = 89)	0 (0%)	0 (0%)	1 (1.1%)	1 (1.1%)	3 (3.4%)	4 (4.5%)	13 (14.6%)	25 (28.1%)	23 (25.8%)	19 (21.3%)	8.25
Public facility (n = 270)	1 (0.4%)	0 (0%)	0 (0%)	1 (0.4%)	10 (3.7%)	7 (2.6%)	24 (8.9%)	71 (26.3%)	68 (25.%)	88 (32.6%)	8.61

In An Giang, despite the absence of quantitative survey data, interview patients expressed satisfaction with the diagnostic, treatment, and counseling services provided by the TB program. In addition, participants who had visited private clinics before receiving treatment at NTP facilities reported a high level of satisfaction even if they were not correctly diagnosed with TB. These qualitative findings align well with the above quantitative assessment in Hai Phong.

However, further investigation suggested that the same aspects of care did not drive the relatively similar scores between public and private facilities. The complex pathway to care described above indicates that TB patients often received services from multiple healthcare providers for different reasons. Thus, the marginal difference in satisfaction reported between various health providers along patients' pathways to TB care suggests that participants valued public and private health providers for different reasons as they had different expectations for each type of health provider. This aligns with

findings from studies that suggested that the extent to which patients' expectations were met influenced the outcome in terms of satisfaction.^{30, 31, 32}

Public health facilities

Table 17 demonstrates the experiences of TB patients at public health facilities in Hai Phong based on survey data

- About 88 percent of the TB patients were satisfied with the doctors' and staffs' professional and caring attitudes.
- About 70 percent of patients did not have any complaints about the public health facilities, while 14 percent said the infrastructure was not good.
- About 49 percent of the TB patients had no suggestions or recommendations for improvement. However, 16 percent of the patients said the infrastructure needed to be improved, 11 percent wanted the staff to be more caring and attentive to the patients, and 11 percent wanted the facility to maintain and enhance the staff's profession and quality of care.

Table 17: TB Patients' Experiences in Public Facilities in Hai Phong

	Public facility (n = 270)
Most satisfying things	
Professional and caring attitude	238 (88.2)
No comment/No answer	16 (5.93)
Clean and good infrastructure	12 (4.44)
All good	6 (2.22)
Fast and good quality of care	6 (2.2)
Simple procedure	2 (0.74)
Cheaper	2 (0.74)
Good medical equipment	1 (0.4)
Least satisfying things	
No comment	188 (69.66)
Not good infrastructure	39 (14.4)
Bad attitude	17 (6.3)
Unprofessional staff	13 (4.8)
Not good medical equipment	9 (3.3)
Lack of options for drugs or consult to use a supplement or many drugs	7 (2.6)
Long waiting time	5 (1.85)
Complex procedures	3 (1.1)
Suggestions for improvement	
No comment	133 (49.3)
Improve infrastructure	43 (15.9)

³⁰ Korsch, B. M., Gozzi, E. K., & Francis, V. (1968). Gaps in doctor-patient communication: I. Doctor-patient interaction and patient satisfaction. *Pediatrics*, 42(5), 855-871.

³¹ Hsieh, M. O., & Kagle, J. D. (1991). Understanding patient satisfaction and dissatisfaction with health care. *Health & Social Work*, 16(4), 281-290.

³² Williams, S., Weinman, J., Dale, J., & Newman, S. (1995). Patient expectations: what do primary care patients want from the GP and how far does meeting expectations affect patient satisfaction?. *Family practice*, 12(2), 193-201.

	Public facility (n = 270)
Staff should have an open and considerate attitude and provide a clear explanation	31 (11.5)
Maintain and Improve staff's profession and quality of care	30 (11.1)
Improve medical equipment and quality of drug	24 (8.9)
Make procedures simpler	11 (4.1)
Reasonable price or reduced price	5 (1.85)
Only perform the necessary test and reduce unnecessary stay	3 (1.1)

Efficacious treatment

Treatment outcomes can be a good proxy for treatment satisfaction among patients receiving publicly provided services. This can be explained by previous findings in RQ 2, as TB treatments were mainly delivered at public health facilities, mostly NTP-affiliated, while the only private treatment services were informally available outside of NTP control. A high level of satisfaction was often observed among those who reported experiencing the efficacy of the prescribed treatment. This set public providers apart from private providers, which may explain the 0.35-point difference between satisfaction in public and private facilities.

Participants in IDIs discussed their progress extensively during the treatment. A considerable subset of patients in An Giang and Hai Phong reported seeking care at several private clinics but did not receive TB confirmatory results until they got to the public TB specialized facilities. When they were receiving TB treatment, they highly valued the service that helped improve their severe condition and symptoms. Those with successful treatment were more likely to report positive feedback of their treatment facilities which were dominantly public facilities.

“I found the treatment very effective, so I give public services 10 points out of 10. The doctors were very good at detecting TB and treating it. Of course, this effective treatment is the most important factor, but if public health facilities can improve other aspects, it would attract more patients.”

(TB patient, female, 65, Hai Phong)

Good healthcare workers' counseling and support

Aspects related to HCWs' care at public health facilities were the most common factor that was reported to influence patients' satisfaction, especially how patients often evaluate treatment experience based on how much counseling and support they received from HCWs. In Hai Phong's survey, 88.2 percent of respondents were most satisfied with the professional and caring attitude of doctors and staff at public health facilities. Meanwhile, among patients who had visited private facilities before receiving their treatment at public facilities (89 out of 270 respondents), only 66.3 percent indicated they were satisfied with HCWs' professional and caring attitudes in private settings.

Further details from IDIs suggested that HCWs often provide good counseling and support in both clinical and social terms, which were critical for patients to persist through lengthy treatment and side effects of the TB drugs. Participants in An Giang especially valued HCWs effort to counsel their family members on TB prevention.

“HCWs here [public health facilities] are caring for me. The support from the staff is very good. I am happy with that a lot. I used to think that public hospitals were the least enthusiastic towards patients in the past, but I realized that was not the case when I received TB treatment here.”

(TB patient, 27, male, Hai Phong)

Affordable treatment

Cost also affected how patients evaluated their experiences with the services. Participants mentioned during IDIs that free-of-charge treatment contributed to their high satisfaction with public health providers. Most of the patients interviewed did not have to pay for treatment medication, which would cost them as much as 2-3 million Vietnamese Dong (VND) (United States Dollar [USD] 83.71-125.55) per month at a private clinic. As TB disproportionately impact the poor population, these respondents often expressed their appreciation for the coverage of direct treatment costs NTP provided.

However, other indirect costs associated with TB treatment created extra burdens for some patients. This may have decreased patients' overall satisfaction with the services. One typical additional cost influencing patients' treatment experiences was travel costs to healthcare facilities. In An Giang, most of the TB treatment was delivered at CHCs rather than at higher-level TB facilities (e.g., district and provincial hospitals), this cost was cut down for many patients. In addition, to counter the side effects of TB drugs, patients were prescribed supplements or symptoms medication as part of AE (drug reaction) management. This required some patients to pay out-of-pocket amounts depending on the side effects.

“Yes, taking more liver tonic for six months is necessary. But I had to pay for it myself. I have paid around 500 - 600 [thousand VND (USD 20.93-25.11)] a month, which is expensive given my situation.”

(TB patient, 65, female, Hai Phong)

Beyond treatment, the direct cost associated with diagnosis was a particularly prominent concern of patients. Social health insurance did not cover X-rays and clinical tests upon follow-up visits two months after treatment initiation, nor did externally funded programs or projects. NTP staff in An Giang and Hai Phong both worried that the health insurance scheme did not cover diagnosis, which made many patients avoid taking a diagnostic test for TB despite being ordered to by a TB doctor. In addition, the prices of diagnostic tests was sometimes exceptionally high if performed in private facilities. These facilities sometimes provided elaborate and sometimes unnecessary tests with advanced machines.

“Many patients did not have money to pay for TB diagnostics tests; and when they were on TB treatment, they also did not have money for liver kidney tests which are required for adverse event management.”

(TB doctor, An Giang)

Private Health Facilities

Survey data in Hai Phong indicated that about a third of patients experienced private services, mostly for screening and diagnosis services, on their pathway to TB treatment at public facilities. In An Giang, some patients who participated in IDIs reported that they had visited private health facilities but did not receive a confirmative diagnosis until they visited Pham Ngoc Thach Hospital (Ho Chi Minh City). They were subsequently confirmed to have TB and prescribed and transferred to the program in An Giang' NTP.

Table 18 illustrates the experiences of TB patients at private health facilities in Hai Phong based on survey data.

- The most satisfying aspect for TB patients was the professional and caring attitude of doctors (66 percent). About 20 percent of respondents gave credit to fast and good quality of care, while more than 10 percent were impressed with clean and good infrastructure.

- About 75 percent of TB patients had nothing to complain about at private health facilities, while 16 percent of them were disappointed with the low quality of care and eight percent said the price was too high at such health facilities.
- More than 73 percent of TB patients who had experience at private health facilities did not provide any suggestions or recommendations for improvement, while 22 percent of them wanted the facilities to maintain and improve the professionalism of staff and the quality of care.

Table 18: TB Patients' Experiences in Private Facilities in Hai Phong

	Private facility (n = 89)
Most satisfying things	
Professional and caring attitude	59 (66.3)
Fast and good quality of care	19 (21.4)
Clean and good infrastructure	9 (10.11)
No comment/No answer	6 (6.74)
All good	3 (3.4)
Convenient location	1 (1.12)
Least satisfying things	
No comment	67 (75.3)
Low quality of care	14 (15.7)
Expensive	7 (7.87)
Not good medical equipment	2 (2.25)
Suggestions for improvement	
No comment	65 (73.03)
Maintain and Improve staff's profession and quality of care	19 (21.4)
Improve infrastructure	5 (5.6)
Improve medical equipment and quality of drug	4 (4.5)
Reasonable price or reduced price	3 (3.37)
Make procedures simpler	1 (1.12)

Low expectations for medical services

Given that private providers had limited engagement in the provision of treatment services, patients tended to base their satisfaction with private providers' services on different criteria compared to public services. Patients did not have high expectations regarding the efficacy of medical services (providing accurate screening, diagnosis, and effective treatment) at private facilities. Indeed, most of the interviewed patients in both An Giang and Hai Phong expressed their satisfaction with visiting private clinics and services of private healthcare facilities, even if they are not correctly diagnosed due to the perception that TB is a complex disease.

"I only visit the private clinic if I have a mild or not-so-serious condition. They do well with those simple ones. For more complex diseases, they would not be able to do anything. TB is a difficult disease, so we need to go directly to a public hospital or the specialized ones for lung."

(TB patient, male, 58, Hai Phong)

Valued quality of care

The overall high level of satisfaction with private services, despite being marginally less than that of public services, seems to be mainly driven by the perceived good quality of care. Overall, patients in

both An Giang and Hai Phong expected very high quality of care at private facilities regardless of the accuracy and efficacy of given medical services (screening, diagnosis, and sometimes symptom treatment). When asked about their evaluation of private services they received, more than 70 percent of TB patients in Hai Phong did not respond or had no recommendations for improvement. Twenty percent of them wanted the facilities to maintain fast and convenient services as well as good infrastructure and clean facilities, which contrasted with 15 percent of public facility patients who complained about the quality of these facilities. Private health providers quantitatively scored better in aspects related to the quality of care such as fast and good services (mentioned by 20 percent of respondents) and clean and good infrastructure (mentioned by 12 percent of respondents).

“The quality of service was very good at the private hospital I went to. The surficial things were better than public facilities. I chose to go there initially because I knew I would not need to wait for a long time. But I know their doctors were not as good as public doctors.”

(TB patient, female, 65, Hai Phong)

Most of the interviewed patients who visited private clinics in An Giang shared similar patterns regarding what shaped their high satisfaction. Patients choose to seek care at private clinics and hospitals without high expectations of medical effectiveness unless the clinic was run by trusted doctors working in major public healthcare facilities, but with high expectations regarding the care quality. Patients reported that they were satisfied with private services mainly due to their less burdensome administrative procedures and/or the high level of confidentiality.

Why Patients Visit Multiple Health Providers: Complex Pathway to TB Care

Patients' TB care seeking among TB patients in Hai Phong and An Giang was not straightforward. Patients often experienced different services from both public and private health providers. Within this process, the rationales for choosing the first healthcare facility highly depended on patients' awareness of TB. In addition, human-related factors concerning HCWs and social networks shaped the type of facilities where patients would receive TB treatment.

Lack of TB-related awareness among TB patients

Many patients who experienced an initial TB symptom episode reported self-medicating with medication bought from private pharmacies. Their perception of the severity of symptoms, which were easily confused with mild respiratory diseases, drove this behavior. This indicated a deficit in the understanding of TB in the community, as typical symptoms of TB were not known to many people.

“At that time, I knew nothing about TB because I didn't have the disease, and I didn't find out what it was. When I experienced TB symptoms, I thought it was related to my tonsillitis, so I went to a private hospital, hospital Z, but they only gave me some medicine. They didn't suspect tuberculosis at all.”

(TB patient, female, 65, Hai Phong)

However, in some instances, the stigma associated with TB could still delay diagnosis and treatment despite patients' awareness of the disease.

“At that point, I knew it was TB as I started to cough up blood, but I hid it. I hid it from my wife and children. I avoided visiting medical clinic until the condition got even worst.”

(TB patient, male, 70, Hai Phong)

Patients' affordability toward health services

Choice of initial healthcare facility was highly moderated by affordability. TB patients with financial stability were more likely to seek initial care from private facilities due to the good patient services, such as short waiting times and friendly and supportive facility staff. Patients from disadvantaged backgrounds factored the cost into their consideration of health providers. They tended to seek initial care from designated health facilities required by national healthcare insurance, commonly public hospitals.

“When I had TB symptoms, I had to go to the [public health facility's name] because my health insurance required it. If I have money, my decision should not be strictly based on national health insurance requirements.”

(TB patient, female, 38, Hai Phong)

TB professionals' performance

When patients reached any healthcare facility, healthcare workers played a critical role in patients' next steps to TB care. HCWs without training in TB were more likely to miss the typical signs of TB. Many patients reported that instead of being referred to NTP, they were retained by non-TB doctors to receive medication for their symptoms. Un-/under-trained medical practitioners with TB could miss TB cases given the complex pathological manifestations of the disease, potentially delaying TB diagnostics.

“That, I mean at the [private health facility's name] hospital I went to, they said they didn't know, the doctors there were so bad, that private hospital did not know that I had TB.”

(TB patient, female, 58, Hai Phong)

TB patients' social network

Social networks were found to partially facilitate TB care seeking. Patients with fewer obstacles seeking TB screening and diagnosis reported that community members (friends, relatives, and neighbors) who previously had experience with TB and HCWs living in the communities had recommended to them which TB facilities to visit for manifested symptoms. Former TB patients or those who previously had experience caring for TB patients were more likely to encourage anyone with typical TB symptoms to seek care directly at a dedicated TB clinic and hospital.

“I took my medication from the private pharmacy, but it did not help. My relative told me to go to the Lung hospital, she had a lung disease before and told me that I might have something similar, so I did.”

(TB patient, male, 58, Hai Phong)

CONCLUSION

Although most patients surveyed or interviewed were treated at public facilities, many had experienced both services from private and public health facilities during their complex pathway to TB care. Although on average, patients reported a high level of satisfaction with TB services, patients reported a marginally higher level of satisfaction with public providers. This minimal difference seemed to stem from a difference in the expectation set for different types of providers in which public health facilities were valued for aspects related to TB treatment's efficacy, patients consultation and support, and cost. Meanwhile, patients expect more regarding health staffs' attitude and fast and good service delivery compared to private providers.

RECOMMENDATIONS

Drawing on the findings, the study team recommends the following measures to improve the effectiveness of PPM in Vietnam. The recommendations attempt to address the existing shortcomings of PPM comprehensively at different levels, aligned with institutional capacity and available resources of different stakeholders.

RECOMMENDATIONS FOR NTP

RECOMMENDATION 1: TACKLE THE BOTTLENECKS WITHIN THE NTP NETWORK TO IMPROVE COORDINATION EFFECTIVENESS AND INTERNAL CAPACITY.

The data showed that problems confined to the NTP system were likely linked to internal capacity and coordination mechanisms between NTP and health providers. Recommendations for the NTP, therefore, focus on how to reinforce their competence while strengthening the current coordination procedure.

Building internal capacity by advocating for the improvement of the working environment for TB staff and investing in capacity development

Since human resources for TB surfaced as a major barrier to the effective implementation of PPM, the NTP should *advocate for political and financial commitment to place TB-human workforces on the human resource development plans* of the MOH. TB has been widely perceived as a disease more prevalent among poor populations, and thus less likely to bring healthcare providers good revenues. TB, as a medical specialization, has been unable to attract and retain HCWs which worsens the shortage of TB staff. The NTP should advocate national policy to create a supportive environment for these staff, such as ensuring a decent wage for those working in TB. This commitment could help ameliorate the association of TB with poverty and the low incomes for its associated workforce, leading to higher motivation for staff.

The NTP should also *resume comprehensive in-service training programs to strengthen the TB professional capacity*. COVID-19 halted all in-service training programs for TB staff nationally for the last two years. Consequently, all HCW respondents reported a lack of professional enhancement and training. As COVID-19 situation in Vietnam abates, the NTP should promote running in-service training programs regarding TB as soon as possible to help the staff update their professional knowledge. This recommendation is even more crucial among the newly assigned TB staff who began working in the field during the pandemic and encountered a variety of barriers in networking and learning from their colleagues. HCWs in the study complained about the unhelpful outdated training content and desired more specific knowledge, such as treatment of TB among pediatric patients. Thus, the NTP should also consider redesigning the training programs' content and structure to keep it updated and adapt better to medical staff's needs. Furthermore, the NTP should expand the training programs to medical staff working at non-NTP health facilities to support this workforce in treating TB. Most of the non-NTP HCWs in the study received no TB-related training which might lead them to miss TB cases. Basic or introductory training in TB (in the form of online or self-study) can strengthen their contribution to anti-TB activities without an "official" connection to the NTP with courses for continuing medical education credits tailored to different type physicians such as pediatricians and radiologists.

Strengthening provincial NTP's management capacity is an urgent need to sustain the PPM program in localities. The study team found significant evidence of performative collaboration from health providers with the NTP, indicating the PPM program has eroded. The central NTP should take further action to

help the NTP at the provincial level to strengthen their management capacity. As DOH has a close relationship with all health providers in the local area, support from the central to provincial NTP in advancing the collaboration with DOH may help engaging private health providers in the PPM program.

Within limited TB services provision in the private health sector, TB misdiagnosis and delayed treatment were partially driven by patients and health providers being ill-informed about TB and its clinical management practices. To address this, NTP should *resume and reinvigorate TB communication programs* to raise public awareness of TB symptoms and actively shape TB care-seeking behaviors at the individual, group, and community levels. Public health literacy programs should be tailored to *raise public awareness of TB symptoms*, and at the same time, *improve care-seeking behaviors*. This would ensure TB symptoms can be correctly detected earlier and at the right point of care, reducing the time to treatment. In addition, TB-related stigma continues to be a major barrier impeding patients from seeking care at NTP-affiliated facilities. Thus, the content of *public awareness campaigns* also needs to be designed sensitively to TB-related stigma. Accurate information as well as creative methods of communication should be utilized to *destigmatize TB* in communities.

IMPROVE COMMUNICATION AND COLLABORATION EFFECTIVENESS BETWEEN NTP AND PRIVATE HEALTH PROVIDERS

Poor private sector engagement in TB care and control can be attributed to the *absence of effective mechanisms for NTP to work closely with private providers*. The lack of a mechanism for developing and maintaining private providers' participation in TB programs contributed to many private providers remaining unconnected to NTP. These providers often faced obstacles referring to and reporting TB cases. This was *a missed opportunity* because the willingness and advantages of private providers were underutilized; and the formed connections with providers, while limited in terms of quantity, did not last beyond the PPM project period.

The NTP should seek to *lift the administrative burden* associated with the process of forming working relationships with NTP. Legal and administrative procedures related to TB services should be simplified and streamlined to reduce private providers' fear of working with NTP. NTP should thoroughly review TB-related legal and administrative procedures (regarding TB referral, diagnosis, treatment, management and reporting requirements). A *targeted approach in forming collaboration* can be taken for different providers based on their types, scale of operation, and interests. For example, small to medium private providers who are less capable of treatment may be more apprehensive about commitment to NTP, making any formal procedures such as signing memoranda of understanding less successful. Thus, the mechanism for engagement should focus on different aspects that speak to their capacity and interest compared to larger facilities.

Once partnership is formed, a mechanism also should be in place to facilitate *two-way communication* between NTP and health facilities. This is essential for maintaining relationships that enable other PPM-related tasks including training, referral, and reporting. There was an observed lack of *responsiveness* from NTP which dampened the effectiveness and sustainability of PPM. NTP, therefore, should establish a channel such as a point of contact, a hotline, or a social media platform through which NTP could disseminate information and respond to private providers. This would help ensure long-lasting mutual working relationships and meaningful engagement of all providers.

The reporting and referral system is one communication channel by which NTP communicates with facilities. Yet the current TB reporting system, while it exists, remains suboptimal in design (mostly managed manually) and created reporting discrepancies in reporting and referring. It failed to sufficiently capture data in a timely fashion on presumptive and confirmatory TB cases from all providers, especially among small to medium private providers who attempted and failed to report TB cases. This area has

the most potential for improvement. NTP should *prioritize harmonizing reporting forms* to match the recording format of that used by private providers, at the same time *consolidating and diversifying channels* so this data can be reported. This system also needs to be responsive to providers, for example, feeding back confirmation and follow up once presumptive cases are reported and referred. This can be achieved through further utilization of digital technologies. To ensure the stability and smoothness of the reporting process, *VITIMES* database as an entry point of reporting data also *needs periodic upgrades*, as well as *sufficient resources for its operation*.

RECOMMENDATION 2: ADVOCATE HIGH LEVEL DECISION-MAKING TO ADDRESS STRUCTURAL CHALLENGES IN THE HEALTH SYSTEM.

The NTP cannot work in isolation to solve current gaps in the PPM program; structural barriers beyond their control need to be addressed within high-level decision-making circles. NTP, therefore, needs to remain persistent and proactive in advocating with MOH and DOH for needed changes to improve effectiveness of PPM.

Human resource challenges in TB, and the health system at large, cannot be resolved without the involvement of MOH. NTP should highlight issues regarding TB staff shortage and high turnover rate to MOH and DOH and advocate for inter-level conversation to address the same. While short-term solutions addressing the issue of training and coordination for transition between old and new staff can be beneficial, these fixes should not deflect attention from the root causes of staff shortages and turnover, namely, poor wages and benefits for HCWs. NTP should strategically use the problems of human resources within the PPM program as specific cases through which the current impact of and proposed changes to health policies in Vietnam healthcare can be negotiated with higher-level decision makers.

Inter-departmental involvement of DOH in engaging with private providers is necessary for NTP to successfully implement PPM. NTP should work closely with DOH, through the legal basis set by the MOH, to determine how to best approach engagement with private providers given the context of specific provinces and districts.

Reducing the cost associated with TB care for patients using TB services from NTP and non-NTP providers remains important given that TB disproportionately impacts those with low socioeconomic status. This study's participants voiced concerns regarding uncovered diagnosis costs. A direct and sustainable solution would extend health insurance to cover diagnosis costs that currently are not covered. NTP, together with DOHs across provinces, should advocate for the collective effort to engage MOH in lobbying Social Health Insurance to adjust the health insurance policy to improve the patients' access to TB diagnosis and treatment.

MOH is among the institutional bodies with authority to ensure the enforcement of regulations regarding medical practice. Their determinations affect how local (provincial, district, and commune) NTP control “unofficial” services. The presence of private providers providing TB-related services without legal recognition was concerning. Thus, a close collaboration between the NTP, DOH, and MOH would be imperative to identify who and where the providers of these “unofficial” services are in given localities, and the best approach to addressing them.

RECOMMENDATIONS FOR USAID

RECOMMENDATION 3: CONTINUE TO PROVIDE ACCESS TO RESOURCES FOR NTP TO STRENGTHEN TECHNICAL CAPACITY FROM MANAGEMENT TO GRASSROOT LEVELS IN TERMS OF HUMAN RESOURCES AND INFRASTRUCTURE.

Given USAID's unique position and capacity, the agency can play a key role in promoting PPM by addressing the above-mentioned suggestions. USAID can provide strategic investment in interventions that target identified areas for improvement mentioned above. USAID also can continue to provide access to resources for NTP to strengthen technical capacity from management to grassroots levels in terms of human resources and infrastructure.

RECOMMENDATION 4: PRIORITIZE FUNDING ALLOCATION TO SUPPORT NTP IN DEVELOPING EFFECTIVE WORKING AND COLLABORATION MECHANISMS BETWEEN NTP AND PRIVATE HEALTH FACILITIES.

Supporting NTP to build an effective mechanism to work with private health providers can be a productive and cost-effective direction for investment. USAID should prioritize funding allocation to support NTP in developing effective working and collaboration mechanisms between NTP and private health facilities to address the current major gaps in PPM and sustain it in the longer term.

RECOMMENDATION 5: ADDITIONAL FUNDING TARGETING RESEARCH AND M&E ACTIVITIES SHOULD BE ALLOCATED TO INCREASE THE QUALITY OF THE TB DATA REPORTING SYSTEM.

The need for evidence and data quality to inform the effectiveness of PPM is paramount. USAID should plan for additional funding targeting research and M&E activities that further the evidence base informing the implementation of effective PPM programs at the local and national level. Specific attention should be paid to how to increase the quality of the TB data reporting system through utilizing the advantages of available digital technologies.

RECOMMENDATION 6: PROVIDING TECHNICAL AND POLITICAL SUPPORT FOR PROVINCIAL KEY STAKEHOLDERS TO DEVELOP AND EXECUTE PPM ACTION PLAN.

Beyond resources provision, USAID is well-positioned to catalyze a *diplomatic environment* in which *policies* needed for strengthening the PPM program can be discussed and implemented. USAID should strategically support PPM-related stakeholders at the local and national level to continue to stimulate the policy discussion related to PPM. USAID should focus on providing technical and political support for provincial key stakeholders to develop and execute a PPM action plan that bridges the gaps between the current regulations and implementation in practice.

ANNEX I: FULL LISTING OF PERSONS INTERVIEWED

Characteristics	Outpatient & Inpatient sample (N = 271) N (%)	Outpatient sample (N = 214) N(%)	Inpatient sample (N =57) N(%)
Age group			
< 30 years old	42 (15.5)	31 (14.5)	11 (19.3)
30– 49 years old	72 (26.6)	50 (23.4)	22 (38.6)
50– 64 years old	94 (34.7)	77 (36.0)	17 (29.8)
>65 years old	63 (23.3)	56 (26.2)	7 (12.3)
Gender			
Male	182 (67.2)	146 (68.2)	36 (63.2)
Female	89 (32.8)	68 (31.8)	21 (36.8)
Living area			
Urban	113 (41.7)	77 (36.0)	36 (63.2)
Rural	158 (58.3)	137 (64.0)	21 (36.8)
Marital status			
Married	220 (81.2)	173 (80.8)	47 (82.5)
Unmarried	39 (14.4)	31 (95.3)	8 (14.0)
Other (Divorced/Separated/Widowed)	12 (4.4)	10 (4.7)	2 (3.5)
Education			
Not finished primary school	18 (6.6)	16 (7.5)	2 (3.5)
Graduated from primary school	46 (17.0)	40 (18.7)	6 (10.5)
Graduated from lower secondary school	104 (38.4)	83 (38.8)	21 (36.8)
Graduated from upper secondary school	69 (25.5)	52 (24.3)	17 (29.8)
Graduated from junior college	13 (4.8)	10 (4.7)	3 (5.3)
Having a higher education degree	21 (7.8)	13 (6.1)	8 (14.0)
Occupation			
Student	16 (5.9)	13 (6.1)	3 (5.3)
Government official	8 (3.0)	3 (1.4)	5 (8.8)
Private sector employee	28 (10.3)	18 (8.4)	10 (17.5)
Small trader/Seasonal worker	24 (8.7)	18 (8.4)	6 (10.5)
Farmer	31 (11.4)	24 (11.2)	7 (12.3)
Unskilled laborer	42 (15.5)	33 (15.4)	9 (15.8)
Retired	41 (15.1)	34 (15.9)	7 (12.3)
Unemployed	51 (18.8)	49 (22.9)	2 (3.5)
Freelance work	30 (11.1)	22 (10.3)	8 (14.0)
Income			
Smaller than 2 million VND	121 (44.7)	108 (50.5)	13 (22.8)
2 – 5.6 million VND	75 (27.7)	62 (29.0)	13 (22.8)
5.7 – 9 million VND	41 (15.1)	24 (11.2)	17 (29.8)
Greater than 9.1 million VND	34 (12.6)	20 (9.4)	14 (24.6)

Characteristics	Outpatient & Inpatient sample (N = 271) N (%)	Outpatient sample (N = 214) N(%)	Inpatient sample (N =57) N(%)
Distance to nearest health facility			
Below 1 km	122 (45.0)	101 (47.2)	21 (36.8)
1 km – 5 km	145 (53.5)	110 (51.4)	35 (61.4)
5 -10 km	4 (1.5)	3 (1.4)	1 (1.8)
Closed contact with TB patients			
Yes	128 (47.2)	99 (46.3)	29 (50.9)
No	37 (13.7)	36 (16.8)	1 (1.8)
DK/DR	106 (39.1)	79 (36.9)	27 (47.4)
Have tested for TB			
Yes	172 (63.5)	140 (65.4)	32 (56.1)
No	99 (36.5)	74 (34.6)	25 (43.9)
First medical facility you went to			
Private clinic	28 (10.3)	22 (10.3)	6 (10.5)
Private hospital	59 (21.8)	37 (17.3)	22 (38.6)
CHC	6 (2.2)	4 (1.9)	2 (3.5)
Provincial hospital	85 (31.4)	72 (33.6)	13 (22.8)
District hospital/Health center	79 (29.2)	65 (30.4)	14 (24.6)
Other (specify, not including pharmacy)	14 (5.2)	14 (6.5)	NA

Characteristics of the qualitative participants

Type of respondents and their Characteristics	Location		Total
	Hai Phong	An Giang	
<i>(1) TB patients</i>	8	14	22
Male	4	10	14
Age			
18 - 29	3	1	4
30 - 49	2	6	8
≥ 50	3	7	10
Residence			
Rural	5	4	9
Urban	3	10	13
Educational completion			
Did not go to school	1	3	4
Primary school	1	5	6
Secondary school	3	2	5
High school	3	2	5
College and higher	0	2	2
Occupational status			
Informal jobs	5	10	15

Type of respondents and their Characteristics	Location		Total
	Hai Phong	An Giang	
Formal/contracted jobs	3	4	7
Marital status			
Single	3	3	6
Married	2	8	10
Divorced/separated	1	0	1
Widowed	2	3	5
<i>(2) NTP staff</i>	6	6	12
Provincial level	2	2	4
District level	2	3	5
Commune level	2	1	3
<i>(3) Health facility managers</i>	6	5	11
Non-NTP public facilities	2	0	2
NTP public facilities	0	2	2
Private facilities	4	3	7
<i>(4) Doctors</i>	5	8	13
Non-NTP public facilities	2	1	3
Private facilities	3	7	10
<i>(5) Laboratory technicians</i>	3	7	10
Non-NTP public facilities	2	2	4
NTP public facilities	0	1	1
Private facilities	1	4	5
Total	28	40	68

ANNEX II: DATA COLLECTION TOOLS

QUANTITATIVE TOOLS

HAI PHONG

PRIVATE CLINICS

Question 1: What is the average number of patients who come to use services in your practice per day or per month? *(If the participant does not know the answer, enumerator should ask the receptionist/administration officer of the clinic. If there is still no answer, write -99)*

Current (2022):patients/day orpatients/month

Question 2: Among the patients who come to the practice per day or per month, how many (approximately) have one or more symptoms such as persistent cough (for over two weeks), loss of weight, poor appetite, fatigue, mild fever in the afternoon, night sweats, or chest pain/shortness of breath? *If there is NONE, write 0; if there is no answer, write -99)*

Current:patients/day orpatients/month

(If the answer is -99 or 0 à move to question 3)

Question 3: Regarding the patients with the symptoms mentioned above, do you suspect they have TB?

- 1. Yes
- 0. No à Go to question 6 (if you choose NO)

Question 4: If yes, why do you think these people might have TB?

[READ ALL RESPONSE OPTIONS AND SELECT ALL THAT APPLY]

- 1. The patient has typical symptoms of tuberculosis
- 2. The patient has a history of TB treatment
- 3. The patient has a chest X-ray and/or diagnostic test results
- 4. After other diseases are excluded
- 5. The patient requests an examination
- 6. The patient has been in contact with TB patients
- 7. Other reason (please specify): _____

Question 5: What do you usually do next when you suspect that a patient has TB?

[READ ALL RESPONSE OPTIONS AND SELECT ALL THAT APPLY]

- 1. Perform clinical examination
- 2. Provide counseling and order chest X-ray
- 3. Provide counseling and order other para-clinical tests (*specify the types of test*

_____)

- Computerized Tomography (CT) scanner (1)
- Magnetic resonance imaging (MRI) (2)
- Mantoux (3)
- Sputum induction (4)
- Mycobacterium tuberculosis (MTB) DNA and resistance to rifampicin (RIF) (5)
- AFB sputum test (6)
- Interferon-Gamma Release Assays (IGRA) (7)
- Other para-clinical test (specify)..... (8)

Question 6: If NO, what will you do if you meet a patient with the symptoms mentioned above?

[CHOOSE MULTIPLE ANSWERS]

- 1. Treat the symptoms
- 2. Order diagnostic imaging tests
- 3. Order other para-clinical tests (*specify the types of test* _____)
- 4. Refer the patient to another health facility (*specify the facility receiving the patient:*
 - Hai Phong Lung Hospital (1)
 - Anti-TB unit at district health center (2)
 - Health commune (3)
 - Other (specify):..... (4)

_____)

Question 7: When receiving TB cases and TB suspects, does the facility record and report them to the management agency?

[CHOOSE ONE ANSWER]

- 1. Yes, there is a recording.
- 2. Yes, there is recording and reporting (*Specify the agency receiving the reports_____*
_____)
- 3. There was recording and reporting previously, but not now (*Specify the agency once receiving the reports_____*
_____)
- 4. No recording or reporting at all.
- 0. Don't know

Question 8: Below are some reasons for NOT recording and reporting TB cases and TB suspects. Please circle ONE appropriate option.

Note: if the participant answers “don’t know”, the enumerator should ask “Does “don’t know” mean you disagree with this reason X?” to get the information. Because the questions are very important, the enumerator should try their best to obtain meaningful answer instead of “don’t know”

	Level of agreement with the reasons for not recording and reporting TB cases and TB suspects					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
1. I am not aware that I have to record and report TB cases and TB suspects	0	1	2	3	4	5
2. I am not aware that I have to record and report TB cases and TB suspects to a TB management agency	0	1	2	3	4	5
3. The recording and reporting of TB cases and TB suspects is time-consuming	0	1	2	3	4	5
4. The procedures for recording and reporting TB cases and TB suspects are complicated	0	1	2	3	4	5
5. I am not provided with patient referral, necessary recording, and reporting forms.	0	1	2	3	4	5
6. The patients do not want the facility to disclose their personal information	0	1	2	3	4	5

	Level of agreement with the reasons for not recording and reporting TB cases and TB suspects					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
7. State management agencies can use the reported data to manage the facility	0	1	2	3	4	5
8. Other health facilities can access the reported data and gain competitive advantages	0	1	2	3	4	5
9. The facility has not participated in the national anti-TB network.	0	1	2	3	4	5
Other (Specify)	0	1	2	3	4	5

Question 9: Do you know about the Guidelines on TB diagnosis, treatment, and prevention (issued under Decision 1314/QD-BYT in 2020)?

1. Yes, Go to **Question 11**

0. No

Question 10: What resources do you refer to regarding the diagnosis and treatment of TB patients?

Specify the reference documents: _____

Question 11: How do you score the compliance of your facility with the Guidelines on TB diagnosis, treatment, and prevention. For each type of service, please select one appropriate answer.

The level of compliance is divided into 5 levels from No compliance at all (score 1), No compliance (score 2), Compliance sometimes (score 3); Compliance (score 4), Full compliance (score 5). Regarding the diagnosis and testing at your facility, how do you score the compliance of your facility? Regarding treatment at your facility, how do you score the compliance of your facility? Regarding referral at your facility, how do you score the compliance of your facility?

	Don't know	No compliance at all	No compliance	Compliance sometimes	Compliance	Full compliance	No service
1. Diagnosis and testing	0	1	2	3	4	5	6
2. Treatment	0	1	2	3	4	6	6
3. Referral	0	1	2	3	4	5	6

Question 12: Below are some of the challenges health facilities face that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention. Please circle ONE appropriate option.

Note: if the participant answers “don’t know”, the enumerator should ask “Does “don’t know” mean you disagree with this reason X?” to get the information. Because the questions are very important, the enumerator should try their best to obtain meaningful answers instead of “don’t know”.

	Level of agreement with challenges health facilities face that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention					
	<u>Don't know</u>	Totally disagree	Disagree	Neutral	Agree	Totally agree
1. Infrastructure and equipment are not good enough to meet the needs for TB diagnosis and treatment	<u>0</u>	1	2	3	4	5
2. Equipment does not meet the needs for TB diagnosis and treatment.	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
3. Shortage of staff	<u>0</u>	1	2	3	4	5
4. Health workers have not been trained in TB diagnosis/treatment knowledge and skills	<u>0</u>	1	2	3	4	5
5. Lack of funding for training activities	<u>0</u>	1	2	3	4	5
6. Lack of information on TB diagnosis and treatment training programs	<u>0</u>	1	2	3	4	5
7. Lack of collaboration with registered TB diagnosis/treatment facilities	<u>0</u>	1	2	3	4	5
8. Discrimination and stigma of health workers towards TB patients and TB suspect	<u>0</u>	1	2	3	4	5
9. Lack/no access to TB drugs	<u>0</u>	1	2	3	4	5
10. Lack of management tools (treatment	<u>0</u>	1	2	3	4	5

	Level of agreement with challenges health facilities face that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
records, VITIMES, eTB-manager,...) to monitor the treatment process of TB patients						
11. Other (specify)	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>

Question 13: Below are some of the difficulties faced by PATIENTS that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention. Please circle ONE appropriate option.

Note: if the participant answers “don’t know”, the enumerator should ask “Does “don’t know” mean you disagree with this reason X?” to get the information. Because the questions are very important, the enumerator should try their best to obtain meaningful answers instead of “don’t know”.

	Level of agreement with the reasons for NOT reporting TB cases and TB suspects					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
Patients come from other provinces.	<u>0</u>	1	2	3	4	5
Patients do not participate in pre-treatment counseling	<u>0</u>	1	2	3	4	5
Patients do not comply with the treatment regimens and instructions of doctors	<u>0</u>	1	2	3	4	5
Patients do not have anyone to support their treatment	<u>0</u>	1	2	3	4	5
Patients experience adverse reactions during treatment.	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Patients are malnourished or the elderly	<u>0</u>	1	2	3	4	5
Patients have co-morbidities	<u>0</u>	1	2	3	4	5
The patient maintain an unhealthy lifestyle (e.g., smoking, drinking, having unprotected sex, not taking drugs even though they are available)	<u>0</u>	1	2	3	4	5

Other (specify)	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
-----------------	----------	----------	----------	----------	----------	----------

Question 14: Have you ever attended a TB diagnosis, treatment, and management training course?

1. Yes, the most recent training was in the year of; Training duration:days à Go to

Question 15

2. Never à End of interview

Question 15: You attended that training course because...

[Select all that apply]

- 1. You were invited by a TB program/project.
- 2. You registered for the training by yourself
- 3. You were sent by your workplace
- 4. You attended it as part of your training/education program
- 5. Other (specify)

This survey aims to explore the challenges and barriers health facilities face in participation in the TB management program. If you are willing to share more information, please write your phone number here _____.

Thank you very much for answering the questions.

POLYCLINICS

Question 1: What is the average number of patients who come to use services in your polyclinic per day or per month? *(If the participant does not know the answer, enumerator should ask the receptionist/administration officer of the clinic. If there is stil no answer, write -99)*

- Current (2022):patients/day or patients/month

Question 2: Among the patients who come to the clinic, how many (approximately) have one or more symptoms such as persistent cough (for over two weeks), loss of weight, poor appetite, fatigue, mild fever in the afternoon, night sweats, or chest pain/shortness of breath? ? *If there is NONE, write 0; if there is no answer, write -99)*

- Current :patients/day orpatients/month

If the answer is -99 or 0, move to question 3)

Question 3: Regarding the patients with the symptoms mentioned above, do you suspect they have TB?

- 1. Yes
- 0. No → Go to **question 6** (if you choose NO)

Question 4: If yes, why do you think these people might have TB?

[READ RESPONSE OPTIONS AND SELECT ALL THAT APPLY]

- 1. The patient has typical symptoms of tuberculosis
- 2. The patient has a history of TB treatment
- 3. The patient has a chest X-ray and/or diagnostic test results
- 4. After other diseases are excluded
- 5. The patient requests an examination
- 6. The patient has been in contact with TB patients
- 7. Other reason (please specify): _____

Question 5: What do you usually do next when you suspect that a patient has TB?

[READ RESPONSE OPTIONS AND SELECT ALL THAT APPLY]

- 1. Perform clinical examination
- 2. Provide counseling and order chest X-ray
- 3. Provide counseling and order other para-clinical tests (*specify the types of test:*
 - CT scanner (1)
 - MRI (2)
 - Mantoux (3)
 - Sputum induction (4)
 - Xpert MTB/RIF (5)

- AFB sputum test (6)
- IGRA (7)
- Other para-clinical test (specify).....(8)

- 4. Prescribe TB medications
- 5. Provide counseling and refer the patient to a TB treatment facility (at commune/ward, district, province/city level)
- 6. Provide counseling and refer the patient to the health facility where his/her health insurance benefits are registered
- 7. Other (Specify) _____

Once finished, go on to **Question 7**.

Question 6: If NO, what will you do if you meet a patient with the symptoms mentioned above?

[READ ALL RESPONSE OPTIONS AND CHOOSE MULTIPLE ANSWERS]

- 1. Treat the symptoms
- 2. Order imaging tests
- 3. Order other para-clinical tests (*specify the types of test* _____)
- 4. Refer the patient to another health facility (*specify the facility receiving the patient:*
 - Hai Phong Lung Hospital (1)
 - Anti-TB unit at district health center (2)
 - Health commune (3)
 - Other (specify):..... (4)

Question 7: When receiving TB cases and TB suspects, does the facility record and report them to the management agency?

[CHOOSE ONE ANSWER]

- 1. Yes, there is a recording.
- 2. Yes, there is recording and reporting (*Specify the agency receiving the reports*_____

_____)

- 3. There was recording and reporting previously, but not now (*Specify the agency receiving the reports* _____
_____)
- 4. No recording or reporting at all.
- 0. Don't know

Question 8: Below are some reasons for NOT recording and reporting TB cases and TB suspects. Please circle ONE appropriate option.

	Level of agreement					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
3. I am not aware that I have to record and report TB cases and TB suspects	0	1	2	3	4	5
4. I am not aware that I have to record and report TB cases and TB suspects to a TB management agency	0	1	2	3	4	5
5. The recording and reporting of TB cases and TB suspects is time-consuming	0	1	2	3	4	5
6. The procedures for recording and reporting TB cases and TB suspects are complicated	0	1	2	3	4	5
7. I am not provided with patient referral, necessary recording, and reporting forms.	0	1	2	3	4	5

8. The patients do not want the facility to disclose their personal information	0	1	2	3	4	5
9. State management agencies can use the reported data to manage the facility	0	1	2	3	4	5
10. Other health facilities can access the reported data and gain competitive advantages	0	1	2	3	4	5
11. The facility has not participated in the national anti-TB network.	0	1	2	3	4	5
12. Other (Specify)	0	1	2	3	4	5

Question 9: Do you know about the Guidelines on TB diagnosis, treatment, and prevention (issued under Decision 1314/QD-BYT in 2020)?

1. Yes → Go to **Question 11**

0. No

Question 10: What resources do you refer to regarding the diagnosis and treatment of TB patients?

Specify the reference documents:

Question 11: How do you score the compliance of your polyclinic with the Guidelines on TB diagnosis, treatment, and prevention at your facility . Choose **ONE** appropriate answer for each type of service.

The level of compliance is divided into 5 levels from No compliance at all (score 1), No compliance (score 2), Compliance sometimes (score 3); Compliance (score 4), Full compliance (score 5). Regarding the diagnosis and testing at your facility, how do you score the compliance of your facility? Regarding treatment at your facility, how do you score the compliance of your facility? Regarding referral at your facility, how do you score the compliance of your facility?

	Level of compliance						
	Don't know	No compliance at all	No compliance	Compliance sometimes	Compliance	Full compliance	No service
1. Diagnosis and testing	0	1	2	3	4	5	6
2. Treatment	0	1	2	3	4	5	6
3. Referral	0	1	2	3	4	5	6

Question 12: Below are some of the challenges health facilities face that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention. Please circle ONE appropriate option.

Note: if the participant answers “don’t know”, the enumerator should ask “Does “don’t know” mean you disagree with this reason X?” to get the information. Because the questions are very important, the enumerator should try their best to obtain meaningful answers instead of “don’t know”.

	Level of agreement with challenges health facilities face that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
1. Infrastructure and equipment are not good enough to meet the needs for TB diagnosis and treatment	0	1	2	3	4	5
2. Equipment does not meet the needs for TB diagnosis and treatment.	0	1	2	3	4	5
3. Shortage of staff	0	1	2	3	4	5
4. Health workers have not been trained in TB diagnosis/treatment knowledge and skills.	0	1	2	3	4	5
5. Lack of funding for training activities	0	1	2	3	4	5

	Level of agreement with challenges health facilities face that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention					
6. Lack of information on TB diagnosis and treatment training programs	0	1	2	3	4	5
7. Lack of collaboration with registered TB diagnosis/treatment facilities	0	1	2	3	4	5
8. Discrimination and stigma of health workers towards TB patients and TB suspect	0	1	2	3	4	5
9. Lack/no access to TB drugs	0	1	2	3	4	5
10. Lack of management tools (treatment records, VITIMES, eTB-manager,...) to monitor the treatment process of TB patients	0	1	2	3	4	5
11. Other (Specify)	0	1	2	3	4	5

Question 13: Below are some of the difficulties faced by PATIENTS that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention. Please circle ONE appropriate option.

Note: if the participant answers “don’t know”, the enumerator should ask “Does “don’t know” mean you disagree with this reason X?” to get the information. Because the questions are very important, the enumerator should try their best to obtain meaningful answers instead of “don’t know”.

	Level of agreement with challenges health facilities face that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
1. Infrastructure and equipment are not good enough to meet the needs for TB diagnosis and treatment	0	1	2	3	4	5
2. Equipment does not meet the needs for TB diagnosis and treatment.	0	1	2	3	4	5
3. Shortage of staff	0	1	2	3	4	5
4. Health workers have not been trained in TB	0	1	2	3	4	5

	Level of agreement with challenges health facilities face that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
diagnosis/treatment knowledge and skills.						
5. Lack of funding for training activities	0	1	2	3	4	5
6. Lack of information on TB diagnosis and treatment training programs	0	1	2	3	4	5
7. Lack of collaboration with registered TB diagnosis/treatment facilities	0	1	2	3	4	5
8. Discrimination and stigma of health workers towards TB patients and TB suspect	0	1	2	3	4	5
9. Lack/no access to TB drugs	0	1	2	3	4	5
10. Lack of management tools (treatment records, VITIMES, eTB-manager,...) to monitor the treatment process of TB patients	0	1	2	3	4	5
11. Other (Specify)	0	1	2	3	4	5

Question 14: Have you ever attended a TB diagnosis, treatment, and management training course?

1. Yes, the most recent training was in the year of; Training duration:days à Go to

Question 15

2. Never à End of interview.

Question 15: You attended that training course because...

[Select all that apply)

1. You were invited by a TB program/project.
2. You registered for the training by yourself

- 3. You were sent by your workplace
- 4. You attended it as part of your training/education program
- 5. Other (specify)

This survey aims to explore the challenges and barriers health facilities face in participation in the TB management program. If you are willing to share more information, please write your phone number here _____.

Thank you very much for answering the questions.

HOSPITALS AND HEALTH CENTERS

Question 1: Among the patients who come to the facility, how many (approximately) have one or more symptoms such as persistent cough (for over two weeks), loss of weight, poor appetite, fatigue, mild fever in the afternoon, night sweats, or chest pain/shortness of breath? *If there is NONE, write 0; if there is no answer, write -99)*

Current (2022): patients/day or.....patients/month

Question 2: Regarding the patients with the symptoms mentioned above, do you suspect they have TB?

- 1. Yes à Go to question 4
- 0. No à Go to question 6

Question 3: If No, what will you do if you meet a patient with the symptoms mentioned above?

[YOU CAN CHOOSE MULTIPLE ANSWERS]

- Treat the symptoms
- Order imaging tests
- Order other para-clinical tests (*specify the types of test _____*)
- Refer the patient to another health facility (*specify the facility receiving the patient:*

Question 4: If Yes, why do you think these people might have TB?

[READ RESPONSE OPTIONS AND SELECT ALL THAT APPLIES]

- 1. The patient has typical symptoms of tuberculosis

- 2. The patient has a history of TB treatment
- 3. The patient has a chest X-ray and/or diagnostic test results
- 4. After other diseases are excluded
- 5. The patient requests an examination
- 6. The patient has been in contact with TB patients
- 7. Other reason (please specify): _____

Question 5: When you suspect a patient has TB, what types of para-clinical tests do you usually order?

Type of para-clinical test	Order of test	Place where the test is performed
1. Chest X-ray	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 0. No	1. At the hospital 2. At other facilities, specify:
2. CT scanner	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 0. No	1. At the hospital 2. At other facilities, specify:
3. MRI	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 0. No	1. At the hospital 2. At other facilities, specify:
4. Sputum test	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 0. No	1. At the hospital 2. At other facilities, specify:
5. Culture	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 0. No	1. At the hospital 2. At other facilities, specify:
6. Xpert MTB/RIF test	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 0. No	1. At the hospital 2. At other facilities, specify:
7. Other (specify)		1. At the hospital 2. At other facilities, specify:

Question 6: Do TB patients receive treatment at your hospital/health center?

- 1. Yes
- 0. No, the patients are referred to other health facilities

Question 7: When receiving TB cases and TB suspects, does the facility record and report them to the management agency?

[CHOOSE ONE ANSWER]

- 1. Yes, there is a recording.
- 2. Yes, there is recording and reporting (*Specify the agency receiving the reports*)
- 3. There was recording and reporting previously, but not now (*Specify the agency once*)

receiving the reports)

4. No recording or reporting at all.

0. Don't know

Question 8: Below are some reasons for NOT reporting TB cases and TB suspects. Please circle ONE appropriate option.

	Level of agreement					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
1. I am not aware that I have to record and report TB cases and TB suspects	0	1	2	3	4	5
2. I am not aware that I have to record and report TB cases and TB suspects to a TB management agency	0	1	2	3	4	5
3. The recording and reporting of TB cases and TB suspects is time-consuming	0	1	2	3	4	5
4. The procedures for recording and reporting TB cases and TB suspects are complicated	0	1	2	3	4	5
5. I am not provided with patient	0	1	2	3	4	5

	Level of agreement					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
referral, necessary recording, and reporting forms.						
6. The patients do not want the facility to disclose their personal information	0	1	2	3	4	5
7. State management agencies can use the reported data to manage the facility	0	1	2	3	4	5
8. Other health facilities can access the reported data and gain competitive advantages	0	1	2	3	4	5
9. The facility has not participated in the national anti-TB network.	0	1	2	3	4	5
10. Other (Specify)	0	1	2	3	4	5

Question 9: Do you know about the Guidelines on TB diagnosis, treatment, and prevention (issued under Decision 1314/QD-BYT in 2020)?

1. Yes => Go to **Question 11**

0. No

Question 10: What resources do you refer to regarding the diagnosis and treatment of TB patients?

Specify the reference documents: _____

Question 11: How do you score the compliance of your hospital/health center with the Guidelines on TB diagnosis, treatment, and prevention? Choose ONE appropriate answer for each type of service.

The level of compliance is divided into 5 levels from No compliance at all (score 1), No compliance (score 2), Compliance sometimes (score 3); Compliance (score 4), Full compliance (score 5). Regarding the diagnosis and testing, how do you score the compliance of your hospital/health center? Regarding treatment, how do you score the compliance of your hospital/health center? Regarding referral, how do you score the compliance of your hospital/health center?

Type of service	Level of compliance						
	Don't know	No compliance at all	No compliance	Compliance sometimes	Compliance	Full compliance	No service
1. Diagnosis and testing	0	1	2	3	4	5	6
2. Treatment	0	1	2	3	4	5	6
3. Referral	0	1	2	3	4	5	6

Question 12: Below are some statements about the challenges health facilities face that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention. Please circle ONE appropriate option.

Note: if the participant answers “don’t know”, the enumerator should ask “Does “don’t know” mean you disagree with this reason X?” to get the information. Because the questions are very important, the enumerator should try their best to obtain meaningful answers instead of “don’t know”.

	Level of agreement					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
1. Infrastructure is not good enough to meet the needs for TB diagnosis and treatment	0	1	2	3	4	5
2. Equipment does not meet the needs for TB diagnosis and treatment.	0	1	2	3	4	5
3. Shortage of staff	0	1	2	3	4	5
4. Health workers have not been trained in TB	0	1	2	3	4	5

	Level of agreement					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
diagnosis/treatment knowledge and skills						
5. Lack of funding for training activities	0	1	2	3	4	5
6. Lack of information on TB diagnosis and treatment training programs	0	1	2	3	4	5
7. Lack of collaboration with registered TB diagnosis/treatment facilities	0	1	2	3	4	5
8. Discrimination and stigma of health workers towards TB patients and TB suspect	0	1	2	3	4	5
9. Lack/no access to TB drugs	0	1	2	3	4	5
10. Lack of management tools (treatment records, VITIMES, eTB-manager,...) to monitor the treatment process of TB patients	0	1	2	3	4	5
11. Other (Specify)	0	1	2	3	4	5

Question 13: Below are some statements about the difficulties faced by PATIENTS that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention. Please circle ONE appropriate option.

Note: if the participant answers “don’t know”, the enumerator should ask “Does “don’t know” mean you disagree with this reason X?” to get the information. Because the questions are very important, the enumerator should try their best to obtain meaningful answers instead of “don’t know”.

	Level of agreement with the reasons for NOT reporting TB cases and TB suspects					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
1. Patients come from other provinces.	0	1	2	3	4	5
2. Patients do not participate in pre-treatment counseling	0	1	2	3	4	5

	Level of agreement with the reasons for NOT reporting TB cases and TB suspects					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
3. Patients do not comply with the treatment regimens and instructions of doctors	0	1	2	3	4	5
4. Patients do not have anyone to support their treatment	0	1	2	3	4	5
5. Patients experience adverse reactions during treatment	0	1	2	3	4	5
6. Patients are malnourished or the elderly	0	1	2	3	4	5
7. Patients have co-morbidities	0	1	2	3	4	5
8. The patient maintain an unhealthy lifestyle (e.g., <i>smoking, drinking, having unprotected sex, not taking drugs even though they are available</i>)	0	1	2	3	4	5
9. Other (Specify)	0	1	2	3	4	5

Question 14: Have you or your colleagues ever attended a TB diagnosis, treatment, and management training course?

1. Yes, the most recent training was in the year of; Training duration:days

2. Never à End of interview

Question 15: You attended that training course because...

[Select all that apply]

1. You were invited by TB program/project

2. You registered for the training by yourself.

3. You were sent by your workplace.

4. You attended it as part of your training/education program

5. Other (*Specify*)

This survey aims to explore the challenges and barriers health facilities face in participation in the TB management program. If you are willing to share more information, please write your phone number here _____.

Thank you very much for answering the questions.

COMMUNE HEALTH CENTER

Question 1: What is the average number of patients who come to use services in your commune/ward health station per day or per month? *(If the participant does not know the answer, enumerator should ask the receptionist/administration officer. If there is still no answer, write -99. If there is no patients, write 0)*

Current (2022):patients/day or patients/month

Question 2: Among the patients who come to the facility, how many (approximately) have one or more symptoms such as persistent cough (for over two weeks), loss of weight, poor appetite, fatigue, mild fever in the afternoon, night sweats, or chest pain/shortness of breath? *(Please ask the health station officer to check with the records. If there is none, write 0. If there is no answer, write -99)*

Current (2022): patients/day or.....patients/month

Question 3: Regarding patients with these aforementioned symptoms, do you suspect they have TB?

- 1. Yes
- 0. No → Go to question 6 (if you choose NO)

Question 4: If Yes, why do you think these people might have TB?

[READ RESPONSE OPTIONS AND SELECT ALL THAT APPLY]

- 1. The patient has typical symptoms of tuberculosis
- 2. The patient has a history of TB treatment
- 3. The patient has a chest X-ray and/or diagnostic test results
- 4. After other diseases are excluded
- 5. The patient requests an examination
- 6. The patient has been in contact with TB patients
- 7. Other reason (please specify): _____

Question 5: What will you do when you suspect that a patient has TB?

- 1. Collect and send sputum for testing
- 2. Refer the patient to an upper-level health facility for diagnosis and treatment

If applicable, how many patients were referred in 2019 [] 2020 [] 2021 []? (If the answer is “Don’t remember”, write -99)

Question 6: How many TB management cases do you have in your commune? (If the health station officer suggests checking the records, you can ask for their help. If there is no answer, write -99)

Number of patients in 2019 [] 2020 [] 2021 []

Question 7: Does the facility record and report TB cases and TB received by private health facilities in the locality?

[READ RESPONSE OPTIONS AND CHOOSE ONE ANSWER]

- 1. Yes, there is recording. Estimated number of TB suspects in 2019 [] 2020 [] 2021 []
- 2. Yes, there is recording and reporting (Specify the agency receiving the reports).
Estimated number of TB suspects in 2019 [] 2020 [] 2021 []
- 3. There was recording and reporting previously, but not now (Specify the agency previously receiving the reports). Estimated number of TB suspects in 2019 [] 2020 [] 2021 []
- 4. No recording or reporting at all.
- 0. Don’t know

Question 8: Below are some statements on the reasons for NOT reporting TB cases and TB suspects of private health facilities in the locality. Please circle ONE appropriate option.

	Level of agreement					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
1. They are not aware that they have to record and report TB cases and TB suspects	0	1	2	3	4	5
2. They are not aware that they have to record and report TB cases and TB suspects to a TB management agency	0	1	2	3	4	5

3. The recording and reporting of TB cases and TB suspects is time-consuming	0	1	2	3	4	5
4. The procedures for recording and reporting TB cases and TB suspects are complicated	0	1	2	3	4	5
5. I am not provided with patient referral, necessary recording, and reporting forms.	0	1	2	3	4	5
6. The patients do not want private facilities to disclose their personal information	0	1	2	3	4	5
7. State management agencies can use the reported data to manage the facility	0	1	2	3	4	5
8. Other health facilities can access the reported data and gain competitive advantages	0	1	2	3	4	5
9. The facility has not participated in the national anti-TB network.	0	1	2	3	4	5
10. Other (Specify)	0	1	2	3	4	5

Question 9: Do you know about the Guidelines on TB diagnosis, treatment and prevention (issued under Decision 1314/QD-BYT in 2020)?

1. Yes → Go to **Question 11**

0. No

Question 10: What resources do you refer to regarding the diagnosis and treatment of TB patients?

Specify the reference documents: _____

Question 11: How do you score the compliance of your facility with the Guidelines on TB diagnosis, treatment, and prevention? Choose ONE appropriate answer.

The level of compliance is divided into 5 levels: No compliance at all (score 1), No compliance (score 2), Compliance sometimes (score 3); Compliance (score 4), Full compliance (score 5). Regarding the diagnosis, testing, and treatment at your facility, how do you score the compliance of your facility?

Type of service	Level of compliance						
	Not aware of the guidelines/don't follow the guidelines	No compliance at all	No compliance	Compliance sometimes	Compliance	Full compliance	No service
1. Collecting	0	1	2	3	4	5	6

sputum culture							
2. Managing TB cases	0	1	2	3	4	5	6
3. Referral	0	1	2	3	4	5	6

Question 12: Below are some of the challenges commune/ward health stations face that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention. Please circle ONE appropriate option.

	Level of agreement					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
1. Infrastructure and equipment are not good enough to meet the needs for TB management and treatment	0	1	2	3	4	5
2. Equipment does not meet the needs for TB diagnosis and treatment.	0	1	2	3	4	5
3. Shortage of staff	0	1	2	3	4	5
4. Health workers have not been trained in TB management/treatment knowledge and skills	0	1	2	3	4	5
5. Lack of funding for training activities	0	1	2	3	4	5
6. Lack of information on TB diagnosis and treatment training programs	0	1	2	3	4	5
7. Lack of collaboration with registered TB diagnosis/treatment facilities	0	1	2	3	4	5
8. Discrimination and stigma of health workers towards TB patients and TB suspect	0	1	2	3	4	5
9. Lack/no access to TB drugs	0	1	2	3	4	5
10. Lack of management tools (treatment records, VITIMES, eTB-manager,...) to monitor the treatment process of TB patients	0	1	2	3	4	5
11. Other (Specify)	0	1	2	3	4	5

Question 13: Below are some statements about the difficulties faced by PATIENTS that affect their compliance with the Guidelines on TB diagnosis, treatment, and prevention. Please circle ONE appropriate option.

Note: if the participant answers “don’t know”, the enumerator should ask “Does “don’t know” mean you disagree with this reason X?” to get the information. Because the questions are very important, the enumerator should try their best to obtain meaningful answers instead of “don’t know”.

	Level of agreement with the reasons for NOT reporting TB cases and TB suspects					
	Don't know	Totally disagree	Disagree	Neutral	Agree	Totally agree
1. Patients come from other provinces	0	1	2	3	4	5
2. Patients do not participate in pre-treatment counseling	0	1	2	3	4	5
3. Patients do not comply with the treatment regimens and instructions of doctors	0	1	2	3	4	5
4. Patients do not have anyone to support their treatment	0	1	2	3	4	5
5. Patients experience adverse reactions during treatment	0	1	2	3	4	5
6. Patients are malnourished or the elderly	0	1	2	3	4	5
7. Patients have co-morbidities	0	1	2	3	4	5
8. Patients maintain an unhealthy lifestyle (e.g., <i>smoking, drinking, having unprotected sex, not taking drugs even though they are available</i>)	0	1	2	3	4	5
9. Other (Specify)	0	1	2	3	4	5

Question 14: Have you or your colleagues ever attended a TB diagnosis, treatment, and management training course?

- 1. Yes, the most recent training was in the year of; Training duration:days
- 2. Never → End of interview

Question 15: You attended that training course because...

[SELECT ALL THAT APPLY]

- 1. You were invited by a TB program/project.

- 2. You registered for the training by yourself.
- 3. You were sent by your workplace
- 4. You attended as part of your training/education program
- 5. Other (Specify)

This survey aims to explore the challenges and barriers health facilities face in participation in the TB management program. If you are willing to share more information, please write your phone number here _____.

Thank you very much for answering the questions.

PHARMACY

Question 1: How often do you meet customers who come to buy TB medicine?

- 1. Regularly
- 2. Occasionally
- 3. Rarely
- 4. Never Move to **question 4**

Question 2: How often do you meet customers who come to buy TB medicine as prescribed by the doctor in public health facilities(with prescription)?

- 1. Regularly
- 2. Occasionally
- 3. Rarely
- 4. Never
- 99. Don't know/Don't remember

Question 3: How often do you meet customers who come to buy TB medicines as prescribed by doctors in private clinics?

- 1. Regularly
- 2. Occasionally

- 3. Rarely
- 4. Never
- 99. Don't know/Don't remember

Question 4: Among the customers coming to your pharmacy, do you see any with one or more symptoms such as persistent cough (for over two weeks), loss of weight, poor appetite, fatigue, mild fever in the afternoon, night sweats, or chest pain/shortness of breath? (If there is no customers, write 0. If the answer is “Don't know/Don't remember”, write -99)

Current (2022) : customers/day orcustomers/month

Question 5: What do you do when you see a new customer with these symptoms? ("A new customer with these symptoms is defined as any customers, regular or not, who have come to your pharmacy FOR THE FIRST TIME as they or their acquaintances developed these symptoms. They might have the symptoms recently or for some time, however, it was the first time they came to your pharmacy as they or their acquaintances had these symptoms.

[READ RESPONSE OPTIONS AND SELECT ALL THAT APPLY]

- 1. Provide counseling and sell drugs to treat the symptoms.
- 2. Advise the customer to visit a TB treatment facility (for example: polyclinics/general hospitals, otorhinolaryngology clinics/hospitals...)
- 3. Refer the customer to a TB treatment facility (at commune/ward, district level) or to the facility where his/her health insurance benefits are registered
- 4. Other (Specify) _____

(For any answer in Question 5, if the answer for 4 is 0 or -99 → move to question 9)

Question 6: How often do you have customers who return to your pharmacy regularly because of one or more of the symptoms mentioned above with no improvements?

- 1. Regularly
- 2. Occasionally
- 3. Rarely

4. Never

-99. Don't know/Don't remember

Question 7: Do you suspect such a customer has TB?

1. Yes

0. No → Go to question 9 (if you choose NO)

Question 8: If Yes, why do you think such a customer might have TB?

[READ RESPONSE OPTIONS AND SELECT ALL THAT APPLY]

1. The customer has typical symptoms of tuberculosis

2. The customer has a history of TB treatment

3. The customer has chest X-ray and/or diagnostic test results

4. After other diseases are excluded

5. The customer has been in contact with TB patients

6. Other reason (please specify): _____

Question 9: What do you do when a regular customer returns because one or more of the above symptoms does not improve??

[YOU CAN CHOOSE MULTIPLE ANSWERS]

1. Provide counseling and sell drugs to treat the symptoms.

2. Advise the customer to visit a TB treatment facility (for example: polyclinics/general hospitals, otorhinolaryngology clinics/hospitals,...)

3. Refer the customer to a TB treatment facility (at commune/ward, district level) or to the facility where his/her health insurance benefits are registered

4. Other (Specify) _____

Question 10: When seeing such a customer, do you report to the management agency?

[CHOOSE ONE ANSWER]

1. Yes, there is recording. Estimated number of TB suspects in 2019 [___] 2020 [___] 2021 [___]

[]

- 2. Yes, there is recording and reporting (*Specify the agency receiving the reports*).
- 3. There was recording and reporting previously, but not now (*Specify the agency once receiving the reports*).
- 4. No recording or reporting at all.
- 99. Don't know

Question 11: Below are some reasons for NOT reporting TB cases and TB suspects. Please circle ONE appropriate option.

		Level of agreement				
		Totally disagree	Disagree	Neutral	Agree	Totally agree
1. I am not aware that I have to record and report TB cases and TB suspects	0	1	2	3	4	5
2. I do not know to whom I have to record and report TB cases and TB suspects.	0	1	2	3	4	5
3. The recording and reporting of TB cases and TB suspects is time-consuming	0	1	2	3	4	5
4. The procedures for recording and reporting TB cases and TB suspects are complicated	0	1	2	3	4	5
5. I am not provided	0	1	2	3	4	5

		Level of agreement				
		Totally disagree	Disagree	Neutral	Agree	Totally agree
with patient referral, necessary recording and reporting forms.						
6. The patients do not want the pharmacy to disclose their personal information	0	1	2	3	4	5
7. State management agencies can use the reported data to manage the facility	0	1	2	3	4	5
8. Other health facilities can access the reported data and gain competitive advantages	0	1	2	3	4	5
9. The pharmacy has joined national anti-TB network.	0	1	2	3	4	5
10. Other (Specify)	0	1	2	3	4	5

Question 12: Have you ever attended a training course on TB diagnosis, treatment, and management?

- 1. Yes, the most recent training was in the year of; Training duration:days
- 2. Never → End of interview

Question 13: You attended that training course because...

- 1. You were invited by an anti-TB program/project.

- 2. You registered for the training by yourself.
- 3. You were sent by your workplace
- 4. You attended it as part of your training/education program
- 5. Other (Specify)

This survey aims to explore the challenges and barriers health facilities face in participation in the TB management program. If you are willing to share more information, please write your phone number here _____.

Thank you very much for answering the questions.

TB PATIENTS

No	Question	Answer
Part A: General information		
Note: Please circle only ONE appropriate answer for each question.		
A1	Year of birth (according to the solar calendar)
A2	Sex	1. Male 2. Female 3. Other (specify).....
A3	Area of residence	1. Urban 2. Rural
A4	Level of education	1. I did not go to school/haven't finished primary school. 2. Graduated from primary school 3. Graduated from lower secondary school 4. Graduated from upper secondary school 5. Graduated from junior college. 6. Having a higher education degree
A5	Marital status	1. Married. 2. Unmarried. 3. Other (Divorced/Separated/Widowed)
A6	Main occupation (i.e., the occupation that brings you the most income in the month)	1. Student 2. Government official 3. Private sector employee 4. Small trader/seasonal worker 5. Farmer 6. Unskilled laborer 7. Retired 8. Unemployed 9. Other
A7	Average monthly income in 2021 Average monthly income from all sources	1. < 2 million VND 2. 2 – 5.6 million VND 3. 5,7 – 9 million VND 4. > 9.1 million VND

No	Question	Answer
A8	Distance from your house to the nearest health facility	<ol style="list-style-type: none"> 1. <1 km 2. 1 - 5 km 3. 5 - 10 km 4. > 10 km
A9	<p>Which of the following diseases do you have/are you suffering from?</p> <p>(Read ALL response option and select all that apply)</p>	<ol style="list-style-type: none"> 1. HIV 2. Hepatitis 3. Hypertension 4. Diabetes 5. Ex-TB patients 6. Not belonging to any of the above groups
A10	Have you been in close contact with a TB patient before being diagnosed with TB?	<ol style="list-style-type: none"> 1. Yes 2. No -99. Don't know/Don't remember
A11	Have you been consulted for TB screening?	<ol style="list-style-type: none"> 1. Yes 0. No
Part B: Experience regarding choosing a health facility		
B1	<p>What signs made you realize you have a health problem?</p> <p>(Select ALL that apply)</p>	<ol style="list-style-type: none"> 1. Cough for more than two weeks. 2. Loss of weight, poor appetite, fatigue. 3. Mild fever in the afternoon. 4. Night sweats. 5. Chest pain, shortness of breath. 6. Other (Specify)..... 7. No symptoms/Through a medical checkup
B2	<p>How long did the following symptoms last before you decided to see a doctor?</p> <p>Cough for more than two weeks (1)</p> <p>Loss of weight, poor appetite, fatigue (2)</p> <p>Mild fever in the afternoon (3)</p> <p>Night sweats (4)</p> <p>Chest pain, shortness of breath (5)</p> <p>Other (Specify).....(6)</p>	<p><i>Specify the number of days or weeks</i></p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
B3	<p>What did you do when you had the above-symptoms?</p> <p>(Circle ONE appropriate answer)</p>	<ol style="list-style-type: none"> 1. Did nothing/self-medication → Estimate the time you did nothing/self-medication(months or days) 2. I went to a health facility
B4	<p>Which health facility did you go to first when deciding to get yourself treated?</p> <p>(Circle ONE appropriate answer)</p>	<ol style="list-style-type: none"> 1. Clinic 2. Private hospital. 3. Commune/ward health station. 4. Provincial general/specialized hospital. 5. district health center/hospital 6. Other (Specify):.....
B5	<p>What are the reasons for you to choose that first health facility?</p> <p>Read all response options and select all that applies)</p>	<ol style="list-style-type: none"> 1. Convenient, close to where you live/work. 2. Health insurance will pay for medical examinations. 3. Flexible examination time 4. You don't have to wait long to be examined. 5. Friendly medical staff. 6. Green, clean and beautiful infrastructure.

No .	Question	Answer
		7. Good quality of medical services 8. Quality medicines. 9. Available support provided by a program/project 10. The clinic/health facility has good respiratory physician/TB unit 11. Other (Specify).....
B6	At which health facilities are you currently getting/did you get TB treatment? (Circle ONE appropriate answer)	1. Clinic 2. Private hospital. 3. Commune/ward health station. 4. Provincial/municipal general hospital. 5. District health center/hospital 6. Other (Specify):.....
B7	How do you know about the health facility at which you are getting/you got TB treatment? (Select ONE appropriate answer)	1. This facility is where my health insurance benefits are registered. → Move to CI 2. Another health facility referred me. → Move to CI 3. I heard about it on the media/internet. 4. It was recommended by friends/relatives. 5. It was recommended by a community health worker. 6. Myself/relative was previously treated at this facility. 7. Other (Specify).....
B8	Why do you choose the health facility you are being treated at? (Select all that apply)	1. Convenient, close to where you live/work. 2. Health insurance will pay for medical examinations. 3. Flexible examination time 4. You don't have to wait long to be examined. 5. Friendly medical staff. 6. Green, clean and beautiful infrastructure. 7. Good quality of medical services 8. Quality medicines. 9. Available social support provided by a program/project 10. The clinic/health facility has good respiratory physician/TB unit 11. Other (Specify).....

Part C. Experience regarding diagnosis and treatment services at the health facility		
C1	At the first health facility where you were diagnosed and treated, how did the health staff counsel and explain your health status? (Select ONE appropriate answer)	<ol style="list-style-type: none"> 1. No counseling or explanation 2. No explanation. I must ask, but the doctor didn't explain clearly. 3. No explanation. I must ask, and the doctor explained clearly. 4. He/she provide a clear explanation about my health status. 5. Other (Specify):.....
C2.1 (if B4=3)	At the first health facility where you were diagnosed and treated, how did the health staff inform and explain the reasons for sample collection? (Circle ONE appropriate answer)	<ol style="list-style-type: none"> 1. He/she provided a clear explanation about the tests. 2. He/she did not provide a clear explanation about the tests. 3. I don't remember.
C2.2 (If B4=1, 2, 4, 5, 6)	At the first health facility where you were diagnosed and treated, how did the health staff inform and explain the reasons for diagnostic tests (e.g: X-ray, sputum test, other tests,...)? (Select ONE appropriate answer)	<ol style="list-style-type: none"> 1. He/she provided a clear explanation about the tests. 2. He/she did not provide a clear explanation about the tests. 3. I don't remember.
C3	What advice did you get from medical staff at the first health facility before/during treatment? (Circle the appropriate answers)	<ol style="list-style-type: none"> 1. Get advice on scheduling follow-up appointments during TB treatment. 2. Full information of the drugs, treatment regimen and possible side effects. 3. Instructions on how to administer the drugs correctly, at the right dose, at the right time. 4. Who to contact when having adverse events 5. Consequences of non-adherence to or discontinuation of treatment. 6. Other (Specify).....
C4	Did the first health facility guarantee your privacy during the medical examination/re-examination/treatment? (Circle ONE appropriate answer)	<ol style="list-style-type: none"> 1. Privacy is not guaranteed. 2. Sometimes yes, sometimes no. 3. Yes, acceptable. 4. Privacy is guaranteed. 5. I don't notice/don't remember.
Move to section D if the patient has been diagnosed and treated at ONE health facility		
C5	At the current health facility, how do the health staff counsel and explain your health status?	<ol style="list-style-type: none"> 1. No counseling or explanation

Part C. Experience regarding diagnosis and treatment services at the health facility		
		2. No explanation. I must ask, but the doctor didn't explain clearly. 3. No explanation. I must ask, and the doctor explained clearly. 4. He/she provide a clear explanation about my health status. 5. Other (Specify):.....
C6	At the current health facility, , how does the health staff inform and explain the reasons for diagnostic tests (e.g: X-ray, sputum test, other tests,...)? (Select ONE appropriate answer)	1. He/she provided a clear explanation about the tests. 2. He/she did not provide a clear explanation about the tests. 3. I don't remember.
C7	What advice do you get from medical staff at the current health facility before treatment? (Circle the appropriate answers)	1. Get advice on scheduling follow-up appointments during TB treatment. 2. Full information of the drugs, treatment regimen and possible side effects. 3. Instructions on how to administer the drugs correctly, at the right dose, at the right time. 4. Who to contact when having adverse events 5. Consequences of non-adherence to or discontinuation of treatment. 6. Other (Specify).....
C8	Does the current health facility guarantee your privacy during the medical examination/re-examination/treatment? (Circle ONE appropriate answer)	1. Privacy is not guaranteed. 2. Sometimes yes, sometimes no. 3. Yes, acceptable. 4. Privacy is guaranteed. 5. I don't notice/don't remember.

Part D: General comments about the health facility

If B4 or/and B6 = 1 or 2, move to D2 (creating constraints for D6-D9)

If B4 or/and B5 = 3, 4, 5 move to D6

If B4 or/and B5 =6, move to D1

PRIVATE HEALTH FACILITY

D1. [Skip D1, move to D5 if you have never been receiving TB treatment at a private health facility] Please indicate your level of satisfaction with the medical services at a private health facility using the scale below? (Circle the appropriate score)

|_____|

Very unsatisfied 0 1 2 3 4 5 6 7 8 9 10 Very satisfied

D2. During your medical examination and treatment there, what makes you most satisfied?

D3. During your medical examination and treatment there, what makes you most unsatisfied?

D4. In your opinion, what should that private health facility do to meet patients' expectations better?

PUBLIC HEALTH FACILITY

D5. If you are currently medically examined/treated at a public health facility, please indicate your level of satisfaction with the medical services there, using the scale below? (Circle the appropriate score)

|_____|

Very unsatisfied 0 1 2 3 4 5 6 7 8 9 10 Very satisfied

D6. During your medical examination and treatment there, what makes you most satisfied?

D7. During your medical examination and treatment there, what makes you most unsatisfied?

D8. In your opinion, what should that public health facility do to meet patients' expectations better?

- Upon excluding other diseases
- They made examination request
- They live with family member/s who have tuberculosis
- Other reasons (specify):

Question 4: When doubting someone has tuberculosis, what would you do next?

- Refer to tuberculosis specialized facilities (commune/ward, district) or carry out examination as per health insurance
- Carry out clinical examination
- Prescribe chest X-ray
- Prescribe other subclinical tests
- Prescribe tuberculosis treatment
- Others (specify)

When done, go to **Question 6**

Question 5:

If not, in case of encountering patients with the above symptoms, what would you do?

[MULTIPLE CHOICES ARE ALLOWED]

- Treat the symptoms
- Prescribe subclinical tests
- Carry out imagery diagnosis
- Try to treat as tuberculosis
- Refer to other facilities (specify):
-

Question 6:

On recording cases of tuberculosis, doubtful or confirmed, do you and your facility report to the specialized facilities or district health center?

[ONLY ONE CHOICE IS ALLOWED]

- Currently yes (Specify)
- In the past yes, now no more
- Have never done

Question 7:

Have you ever participated in any training course on screening, diagnosing and treating tuberculosis?

- Yes
- No

Phone number of respondent: Thank you for your time!

PRIVATE POLYCLINICS

Question 1: Do you encounter patients coming for a visit because of any of the following symptoms:

Enduring cough (over 2 weeks) Yes No

Losing weight and appetite, feeling tired Yes No

Light fever towards afternoon time Yes No

Sweating at night time Yes No

Chest pain/shortage of breath Yes No

Average number of patients having any of these symptoms per month:.....

Question 2: Do you doubt they have tuberculosis?

- Yes
- No → Go to Question 5 (if the answer is NO)

Question 3: If yes, why do you think they have tuberculosis?

[MULTIPLE CHOICES ARE ALLOWED]

- They have clinical manifestations of tuberculosis
- They have tuberculosis records
- They've got test results and imagery diagnosis (doubtful)
- Upon excluding other diseases
- They made examination request
- They live with family member/s who have tuberculosis

Other reasons (specify):

Question 4: When doubting someone has tuberculosis, what would you do next?

- Refer to tuberculosis specialized facilities (commune/ward, district) or carry out examination as per health insurance
- Carry out clinical examination
- Prescribe chest X-ray
- Prescribe other subclinical tests
- Prescribe tuberculosis treatment
- Others (specify)

When done, go to **Question 6**

Question 5: If not, in case of encountering patients with the above symptoms, what would you do?

[MULTIPLE CHOICES ARE ALLOWED]

- Treat the symptoms
- Prescribe subclinical tests
- Carry out imagery diagnosis
- Try to treat as tuberculosis
- Refer to other facilities
(specify):.....

Question 6: On recording cases of tuberculosis, doubtful or confirmed, do you and your facility report to the specialized facilities or district health center?

[ONLY ONE CHOICE IS ALLOWED]

- Currently yes (Specify)
- In the past yes, now no more
- Have never done

Question 7: Does the clinic provide the following sub-clinic tests and imagery diagnosis?

Type of service	Availability	
Chest X-ray	<input type="checkbox"/> Yes	<input type="checkbox"/> No
CT Scanner	<input type="checkbox"/> Yes	<input type="checkbox"/> No
MRI	<input type="checkbox"/> Yes	<input type="checkbox"/> No
AFB	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Growing mycobacterium tuberculosis	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Expert MTB/RIF test	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Hain test	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Question 8:

Have you ever participated in any training course on screening, diagnosing and treating tuberculosis?

- Yes
- No

Phone number of respondent:.....

HOSPITALS

Question 1: Do you encounter patients coming for a visit because of any of the following symptoms:

Enduring cough (over 2 weeks) Yes No

Losing weight and appetite, feeling tired Yes No

Light fever towards afternoon time Yes No

Sweating at night time Yes No

Chest pain/shortage of breath Yes No

Average number of patients having any of these symptoms per month:.....

Question 2: Do you doubt they have tuberculosis?

- Yes → Go to **Question 4** (if the answer is YES)
- No

Question 3: If no, if you encounter patients with the above symptoms, what would you do?

[MULTIPLE CHOICES ARE ALLOWED]

- Treat the symptoms
- Prescribe subclinical tests
- Carry out imagery diagnosis
- Refer to other health facilities, specify.....

When done with **Question 3**, go to **Question 10**

Question 4: When doubting someone has tuberculosis, what would you do next?

- They have clinical manifestations of tuberculosis (enduring fever, cough, chest pain, feeling tired, losing weight, sweating at night time, etc.)
- They have tuberculosis records
- They've got test results and imagery diagnosis (doubtful)
- Upon excluding other diseases
- They made examination request
- They live with family member/s who have tuberculosis

Other reasons (specify):

Question 5: When doubting someone has tuberculosis, would you prescribe and carry out further tests and imagery diagnosis?

Chest X-ray	<input type="checkbox"/> Yes	<input type="checkbox"/> No
CT Scanner	<input type="checkbox"/> Yes	<input type="checkbox"/> No
MRI	<input type="checkbox"/> Yes	<input type="checkbox"/> No
AFB	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Growing mycobacterium tuberculosis	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Expert MTB/RIF test	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Hain test	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Question 6: Do the patients get diagnosed at the hospital?

[MULTIPLE CHOICES ARE ALLOWED]

- Yes, exclusive diagnosis (patient does not have tuberculosis)
- Yes, confirmative diagnosis (it is sure that patient has tuberculosis)
- Yes, suggestive diagnosis (it is suggested that patient has tuberculosis)

Question 7: Do the patients get treated at the hospital?

- Yes
- No → Go to **Question 8**

Question 8: What kind of treatment does the hospital have:

[MULTIPLE CHOICES ARE ALLOWED]

- In-patient → Number of patients per year: 2018:..... 2019:.....
- Out-patient (Including those sent back to own's commune/ward for management) → Number: 2018:..... 2019:.....

Question 9: Does the hospital sent patients to other healthcare facilities?

- Yes
- No

Question 10: On recording cases of tuberculosis, doubtful or confirmed, do you and your facility report to the specialized facilities or district health center?

[ONLY ONE CHOICE IS ALLOWED]

- Currently yes (Specify)
- In the past yes, now no more
- Have never done

Question 11: Has the hospital ever hosted or sent staff to participate in any training course on screening, diagnosing and treating tuberculosis?

Yes

No

Phone number of respondent:.....

COMMUNE HEALTH CENTERS

Question 1: Do you encounter patients coming for a visit because of any of the following symptoms:

Enduring cough (over 2 weeks) Yes No

Losing weight and appetite, feeling tired Yes No

Light fever towards afternoon time Yes No

Sweating at night time Yes No

Chest pain/shortage of breath Yes No

Average number of patients having any of these symptoms per month:.....

Question 2: Do you doubt they have tuberculosis?

Yes

No Move to **question 5** (If you choose NO)

Question 3: If yes, why do you think those persons might have tuberculosis?

[MULTIPLE CHOICES ARE ALLOWED]

They have clinical manifestations of tuberculosis (enduring fever, cough, chest pain, feeling tired, losing weight, sweating at night time, etc.)

They have tuberculosis records

They've got test results and imagery diagnosis (doubtful)

Upon excluding other diseases

They made examination request

They live with family member/s who have tuberculosis

Other reasons (specify):

Question 4: When doubting someone has tuberculosis, would you prescribe and carry out further tests and imagery diagnosis?

Chest X-ray	<input type="checkbox"/> Yes	<input type="checkbox"/> No
CT Scanner	<input type="checkbox"/> Yes	<input type="checkbox"/> No
MRI	<input type="checkbox"/> Yes	<input type="checkbox"/> No
AFB	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Growing mycobacterium tuberculosis	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Xpert MTB/RIF test	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Hain test	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Question 5: Do the patients get diagnosed for tuberculosis at the station?

[MULTIPLE CHOICES ARE ALLOWED]

- Yes, exclusive diagnosis (patient does not have tuberculosis)
- Yes, confirmative diagnosis (it is sure that patient has tuberculosis)
- Yes, suggestive diagnosis (it is suggested that patient has tuberculosis)

Question 6: Do the patients get treated at the station?

[SELECT ALL RELEVANT ANSWERS]

- Yes, initial stage treatment at the station until confirmed through diagnosis
Number of patients getting initial treatment at the station in: 2018.....2019.....
- Yes, post-attack stage and sent from higher level hospital
Number of patients getting initial treatment at the station in: 2018.....2019.....
- No treatment of tuberculosis is provided at the station
- There have been no tuberculosis patients

Question 7: Does the station refer patients doubted to have tuberculosis to higher level facilities?

- Yes, number of patients doubted to have tuberculosis referred to higher level facilities:
2018.....2019.....
- No

Question 8: Does the station record and report cases doubted to have tuberculosis from non-public local healthcare facilities?

- Yes, we do receive and report cases
- Yes, we do receive, used to report but now do not
- No, we have never received any cases →Go to **Question 10**

Question 9: If you receive cases, please provide the number of cases received from non-public healthcare facilities: 2018.....2019.....

Question 10: Has the station ever hosted or sent staff to participant in any training course on screening, diagnosing and treating tuberculosis?

- Yes
- No

Phone number of respondent:.....

PHARMACIES

Question 1: Do you encounter patients coming for a visit because of any of the following symptoms:

Enduring cough (over 2 weeks): Yes No

Losing weight and appetite, feeling tired Yes No

Light fever towards afternoon time Yes No

Sweating at night time Yes No

Chest pain/shortage of breath Yes No

Average number of persons having any of these symptoms per month:.....

Question 2: Does your pharmacy have old customers (getting treated with your pharmacy or other places with failure) having one or more of the above symptoms?

- Yes
- No
- Not known

Question 3: What would you normally do when encountering someone with such symptoms?

[MULTIPLE CHOICES ARE ALLOWED]

- Give advice and medicine for them to treat the symptoms
- Refer them to specialized facilities (commune/ward, district) or where their health insurance indicates
- Do nothing
- Others (specify):

Question 4: Do you doubt they have tuberculosis?

- Yes
- No →Go to **Question 6**(if the answer is NO)

Question 5: If yes, why do you think they might have tuberculosis?

[MULTIPLE CHOICES ARE ALLOWED]

- They have clinical manifestations of tuberculosis
- They have tuberculosis records
- They've got test results and imagery diagnosis (doubtful)
- They live with family member/s who have tuberculosis
- Other reasons (specify):

Question 6: When encountering the above cases, do you and your facility report to any authority (for instance: commune/ward health station)?

[ONLY ONE CHOICE IS ALLOWED]

- Yes, we do report cases (Specify.....)
- Yes, we used to report but now do not
- No, never

Question 7: Have you ever participated in any training course on screening, diagnosing and treating tuberculosis?

Yes

No

Phone number of respondent:..... Thank you for your time!

IN-DEPTH INTERVIEW

NTP STAFF

Question 1: In your opinion, what is the **role or significance** of the Guidelines on TB Diagnosis, Treatment, and Prevention in the prevention and control of TB at the central level/local level/health facilities? Why?

Prompt:

** The Guidelines standardize TB diagnosis, treatment, and prevention procedures. Give illustrative examples;*

** The Guidelines improve the capacity of public/private health facilities in TB diagnosis, treatment, and prevention. Give illustrative examples;*

** The Guidelines improve the effectiveness/success of treatment for TB patients. Give illustrative examples.*

Question 2: What are the **advantages or disadvantages** of implementing the Guidelines on TB Diagnosis, Treatment, and Prevention at the central level/local level/health facilities?

Prompt:

2.1. Personnel (quantity & quality; training in TB diagnosis, treatment, and management for health facilities, especially for the private sector; continuing training/retraining for private health facilities. Give an illustrative example). Any recommended solutions?

2.2. Finance (Guarantee of revenue (partially or fully)? Support from other financial sources/projects? Health insurance? Adequate remuneration for health workers? Limited affordability to non-treatment expenses of TB patients, Etc. Give illustrative examples). Any recommended solutions?

2.3. Facilities/equipment/Medications (degraded/overcrowded facilities? Outdated equipment, lack of funding for service/maintenance? Medications in excess/insufficiency, Etc., Give illustrative examples). Any recommended solutions?

2.4. Information/reporting system (How are the clinic's data managed (from input to output)? How is the capacity to manage medical information/data at hospitals/clinics? What are the difficulties in this process? Give illustrative examples). Any recommended solutions?

2.5. Policies/Regulations/Guidance of the Program/local government/health facilities (no longer relevant? Conflicting? Inflexible? Give illustrative examples). Any recommended solutions?

2.6. Service delivery process (It is difficult for patients to access diagnostic services due to the dependence on the availability of diagnostic tests at health facilities → delay in diagnosis, impact on the treatment follow-up and service quality; there are some obstacles from patients' side that affect their adherence to the treatment process, thereby affecting the effectiveness of medical services, e.g., stigma/self-stigmatization, hiding of medical conditions, poverty/unemployment, Lack of knowledge on health/tuberculosis, etc.). Any recommended solutions?

Note: Ask if health facilities have developed their TB diagnosis, treatment, and management procedures. If yes, get a copy for comparison.

Question 3: Given the difficulties mentioned above and shortcomings, how has the Program overcome them? Regarding the challenges beyond the control of the Program, what suggestions/recommendations do you have to the competent authorities (i.e., MOH, the NTP, Provincial DOH, District Office of Health, Etc.)?

*Prompt: * Enhance active TB detection; increase the coordination among programs/projects to improve the quality of diagnosis and treatment; include TB screening in the periodic health checkup package for workers; advocate for health insurance agencies to pay for TB diagnosis and treatment; Etc.*

Question 4: According to you, how is the level of compliance with the Guidelines on TB Diagnosis, Treatment, and Prevention by public health facilities inside and outside the NTP and private health facilities? Could you please provide some illustrative examples?

Prompt: Confirm with the interviewee the level of compliance: (1) Completely non-compliant; (2) Non-compliant; (3) Sometimes compliant; (4) Compliant; (5) Completely compliant.

Question 5: In your opinion, what motivates people to access TB diagnosis, treatment, and management services? What should be done to promote this access?

*Prompt: * What should health facilities do to promote access to TB diagnosis, treatment, and prevention services? (e.g., communication about available services on the mass media, flexible service delivery time, simple and easy-to-understand instructions on service delivery, friendly medical staff, etc.)*

*** What should the national/local NTP do to encourage private and public health facilities outside the programs to participate in the network of TB diagnosis, treatment, and management service providers.**

* What should the health sector in particular and local governments, in general, do to promote people's access to TB diagnosis, treatment, and prevention services? (Suggestions: provide more resources/equipment; deliver communication; expand the health insurance benefit package for TB patients, e.g., coverage of drugs for patients with adverse reactions, a complete package of treatment medications; simplify the process of health insurance payment for health facilities; encourage private health facilities to provide TB testing, diagnosis, and treatment services to create more resources and improve the efficiency of care for and treatment of TB patients, Etc.)

Question 6: TB case management has resulted from many factors, including TB patients themselves. In your opinion, what motivates TB patients to adhere to treatment?

Prompt:

* What should health facilities do to promote adherence among TB patients? (Full and timely counseling before, during, and after treatment; timely management of adverse reactions/events occurring to patients; Etc.)

* What should the health sector, in particular and local governments, in general, do to promote adherence to treatment among TB patients? (Suggestions: expand the health insurance benefit package for TB patients, e.g., coverage of drugs for patients with adverse reactions, full package of treatment medications, Etc.)

Thank you for your time as well as your valuable and helpful response.

HOSPITAL/CLINIC MANAGERS

Information about the health facility to be collected before the IDI (source: findings from the phase-I survey)

- Number of outpatient visits per day ____;
- Number of TB suspects in 2019 [____]; 2020 [____]; 2021 [____]
- Number of TB cases in 2019 [____]; 2020 [____]; 2021 [____]

Question 1: What types of TB-related services is your health facility providing?

I. The facility does not provide services or refer TB patients but does not regularly report such referrals to the NTP. If services are being provided, go to page 3.

Suggestions:* Vietnam is one of the countries with a high TB burden globally and in the region. It is estimated that there are about 172,000 new TB cases every year; however, health facilities only detect and treat more than 100,000 patients, equivalent to 60 percent, which means that up to 40 percent of TB patients in the community are undetected or are detected but unreported. If the health facility does not provide any TB-related services, is it because there are some constraints like:

1. **Human resources:** there is a shortage of doctors eligible for such services (e.g., respiratory/tuberculosis doctors are unavailable or available but have not been trained by the NTP in TB treatment and management)?
2. **Finance:**
 - Is it because TB diagnosis and treatment are always free-of-charge under the NTP? Hence the revenue from this service is not attractive enough for hospitals/clinics to provide the services?
 - From February 15, 2022, private health facilities eligible for TB diagnosis/treatment and the conclusion of contract health insurance agencies will get reimbursed for TB diagnosis and treatment costs by the health insurance fund. Does your facility have a plan to deliver TB diagnosis or treatment service?
 - If YES, why (e.g., expansion of the facility's scope of operation, increase of the facility's revenue, etc.)?
 - If NO, why (e.g., the process of health insurance payment is complicated; the revenue generated from this kind of service is not attractive enough for the hospital/clinic to invest in service delivery, etc.)?
3. **Information:** *The requirements for recording and reporting TB cases are complicated and time-consuming; the system has not met the case management and reporting; Lack of full-time personnel for data management or personnel trained in case reporting/data management; etc.*
4. **Infrastructure and TB prevention/treatment medications:** *insufficient to meet the needs for on-site TB examination, diagnosis, and treatment; there is no drug to treat latent TB; no/insufficient drugs to treat active TB?*
5. **Management and operation of health facilities:** *Human resources, material facilities, information infrastructure, and equipment are insufficient to meet the requirements of TB diagnosis, treatment, and management services at the health facility, etc.*

6. **Medical service delivery:** *The health facility does not provide diagnostic tests, so it depends on other facilities, leading to prolonged diagnosis time; there are no TB diagnosis, treatment, and management services available; it is difficult to monitor and support patients with long term treatment, especially those coming from other localities; etc.*
7. In some countries with a high TB burden, like Vietnam, private health facilities have played an essential role in fighting TB towards ending it. According to you:
 - What motivates private health facilities to engage in TB prevention and control? (Finance? Central/local government's recognition? Expansion of the services provided by the health facility? The increased reputation of the hospital/clinic?)
 - What should management agencies encourage private health facilities to engage in TB prevention and control? What should the NTP do? (What policies are to be issued? How should the management mechanism be? etc.)
 - End interview with the health facility that does not provide any TB-related services or refer TB patients but does not regularly report such referrals to the NTP.

Question 1: What types of TB-related services is your health facility providing? (CONTINUED)

- Diagnosis
- Treatment
- Both

[Introduction: In March 2020, the MOH issued the Guidelines on TB diagnosis, treatment, and prevention (under Decision 1314/QĐ-BYT dated 24/3/2020). At the moment, after nearly two years of implementing the Guidelines, we would like to learn about the implementation of the Guidelines as well as challenges, difficulties, or obstacles faced by hospitals/clinics in TB prevention and control according to the Guidelines].

Question 2: What are the **advantages or disadvantages** during TB diagnosis, treatment, and management of the Guidelines mentioned above? How do they affect compliance with the provisions of Decision 1314?

Prompt:

2.1. **Personnel** (quantity & quality; training in TB diagnosis, treatment, and management for health facilities, especially for the private sector; continuing training/retraining for private health facilities. Give an illustrative example). Any recommended solutions?

2.2. **Finance** (Guarantee of revenue (partially or fully)? Support from other financial sources/projects? Health insurance? Adequate remuneration for health workers? Limited affordability to non-treatment expenses of TB patients, etc. Give illustrative examples). Any recommended solutions?

2.3. Facilities/equipment/Medications (degraded/overcrowded facilities? Outdated equipment, Lack of funding for service/maintenance? Medications in excess/insufficiency, etc., Give illustrative examples). Any recommended solutions?

2.4. Information/reporting system (How are the clinic's data managed (from input to output)? How is the capacity to manage medical information/data at hospitals/clinics? What are the difficulties in this process? Give illustrative examples). Any recommended solutions?

2.5. Policies/Regulations/Guidance of the Program/local government/health facilities (no longer relevant? Conflicting? Inflexible? Give illustrative examples). Any recommended solutions?

2.6. Service delivery process (It is difficult for patients to access diagnostic services due to the dependence on the availability of diagnostic tests at health facilities and delay in diagnosis, impact on the treatment follow-up and service quality; there are some obstacles from patients' side that affect their adherence to the treatment process, thereby affecting the effectiveness of medical services, e.g. stigma/self-stigmatization, hiding of medical conditions, poverty/unemployment, Lack of knowledge on health/tuberculosis, etc.). Any recommended solutions?

Note: Ask if the health facility has developed its TB diagnosis, treatment, and management. If yes, get a copy for comparison.

Question 3: Given the above-mentioned difficulties and shortcomings, how has the health facility overcome them? Regarding the challenges beyond the control of the health facility, what suggestions/recommendations do you have to the competent authorities (i.e., MOH, the NTP, Provincial DOH, District Office of Health, etc.)?

*Prompt: * Enhance active TB detection; increase the coordination among programs/projects to improve the quality of diagnosis and treatment; include TB screening in the periodic health checkup package for workers; advocate health insurance agencies to pay for TB diagnosis and treatment; etc.*

Question 4: According to you, what is the level of compliance with the Guidelines on TB Diagnosis, Treatment, and Prevention by the health facility? Could you please provide some illustrative examples?

Prompt: Confirm with the interviewee the level of compliance: (1) Completely non-compliant; (2) Non-compliant; (3) Sometimes compliant; (4) Compliant; (5) Completely compliant.

Question 5: In your opinion, what motivates or prevents people from accessing TB diagnosis, treatment, and management services? What should the health facility and relevant authorities do to promote this access?

*Prompt: * What should health facilities do to promote access to TB diagnosis, treatment, and prevention services? (e.g., communication about available services on the mass media, flexible service delivery time, simple and easy-to-understand instructions on service delivery, friendly medical staff, etc.)*

** What should the national/local NTP do to encourage private and public health facilities outside the agenda to participate in the network of TB diagnosis, treatment, and management service providers?*

** What should the health sector in particular and local governments, in general, do to promote people's access to TB diagnosis, treatment, and prevention services? (Suggestions: provide more resources/equipment; deliver communication; expand the health insurance benefit package for TB patients, e.g., coverage of drugs for patients with adverse reactions, full package of treatment medications; simplify the process of health insurance payment for health facilities; encourage private health facilities to provide TB testing, diagnosis, and treatment services to create more resources and improve the efficiency of care for and treatment of TB patients, etc.)*

Question 6: TB case management has resulted from many factors, including TB patients themselves. In your opinion, what motivates TB patients to adhere to treatment?

Prompt:

** What should health facilities do to promote adherence among TB patients? (Full and timely counseling before, during, and after treatment; timely management of adverse reactions/events occurring to patients; etc.)*

** What should the health sector, in particular and local governments, in general, do to promote adherence to treatment among TB patients? (Suggestions: expand the health insurance benefit package for TB patients, e.g., coverage of drugs for patients with adverse reactions, full package of treatment medications, etc.)*

Thank you for your time as well as your valuable and helpful response.

DIRECT SERVICE PROVIDERS

Question 1: Have you been trained in the Guidelines on TB Diagnosis, Treatment, and Prevention (issued under Decision 1314/2020) by the NTP?

Prompt:

- Did your organization send you to the training, or did you actively register for the training? And when was your most recent training? What were the training course contents (e.g., screening for TB suspects, diagnosis, treatment, management of treatment, infection prevention)?

- What do you think about the training course (What is helpful and not practical; what training contents are to be added/deleted (if any))?
- Like you, are the other medical staff at your department/hospital trained in the Guidelines?
- Has your health facility developed/issued a process for managing TB diagnosis and treatment activities? Is there any compliance monitoring by the staff or the facility with such a process? How often is the monitoring performed (if any)?

Question 2: How is the diagnosis and treatment of TB patients done at the facility, and what difficulties does the facility face in this process? (*Standard procedure: X-ray → Sputum smear → (+) Sensitive TB à GeneXpert test to rule out multidrug-resistant TB*)

Prompt:

Diagnosis

- What is the basis for diagnosing drug-susceptible TB (X-ray; Sputum smear; Genexpert; Sputum culture, Etc.)?
- What is the basis for diagnosing multidrug-resistant TB at your health facility? Antibiotic Susceptibility Test or GeneXpert test?
- Are diagnostic tests provided free of charge?

If your facility transfers or receives TB suspects, sputum samples, or TB patients:

- How does your facility collaborate with the TB diagnosis facility in the transference of TB suspects? What each facility faces difficulties/barriers (if any)?
 - Record information of the transferred persons in the facility's medical examination logbook.
- How does your facility collaborate with the TB diagnosis facility to collect and transfer sputum samples for TB diagnostic testing? What difficulties/barriers (if any) are faced by the sending facility (collection, transport, storage of sputum samples) and the receiving facility?
 - Difficulties in sputum sample collection: a separate area for sputum collection, availability of sputum tubes, specimen packaging (3 layers) and transport, etc.
 - Barriers in accessing testing services: availability of a list of accredited TB diagnosis facilities, costs of sample transport, contract with the testing facility, payment for testing service, Etc.
 - Difficulties in obtaining results from the testing facility
 - Difficulties in giving test results to the patient

- Note: Exploit more information about the type of service (transfer of patients or samples).
- What is the collaboration mechanism for receiving TB suspects, sputum samples, or TB patients by the facility? (e.g., receive transfer information, send feedback to the sending facility)

Registration for treatment

- Please provide some information about the registration for TB treatment at your health facility:
 - On average, how long does it take from diagnosis to treatment? (drug-susceptible TB, drug-resistant TB)
 - What do patients have to do when registering for treatment? (get additional tests, pre-treatment counseling, Etc.)
 - What should be done to manage the treatment of TB patients (record information in the facility's treatment registration logbook or TB patient management logbook; make patient cards, controlled treatment forms, Etc.)
 - What are the strengths and weaknesses of this process? Why?

TB treatment at the health facility

- What is the TB treatment principle at your facility (start treatment when there is bacteriological evidence or based on clinical diagnosis (not preferred) → Apply a multi-drug regimen as guided by the MOH in the intensive/continuation phase)?
- How do you directly monitor your TB patient's treatment? Describe the frequency of follow-up visits (drug-susceptible TB/drug-resistant TB), types of test ordered at each follow-up visit (e.g., sputum smear, Etc.), monitoring for adverse drug events? What are the challenges in patient follow-up?
- How do you provide counseling to patients before, during, and after treatment (counseling on drug use, possible adverse reactions, nutrition, prevention of infection in the family, etc.)? What are the advantages and disadvantages of the counseling process?
- How do you deal with adverse events? (Guide to self-management support; guide to contact with health staff)
- Regarding treatment drugs: the sources of the medicine (free-of-charge or bought by patients)? Do patients have to purchase additional medicines to support the treatment?
- During your follow-up of treatment, how are tests (if any) covered?
- How do you manage special patient groups (e.g., pregnant women, patients with liver or kidney disease/HIV/diabetes, Etc.)

Question 3: How are TB-related recording, archive, and reporting done in your health facility? Are there any difficulties and challenges that need to be addressed?

Prompt:

- How do you record and report TB cases? What register or form do you use? (e.g. *treatment registration logbook; TB patient management logbook; patient management software, VITIMES, etc.*)
 - The surveyor checks the TB patient management logbook to see if the recording is correct and complete.
- Are data on TB patients at your facility entered into VITIMES?
 - If yes, who is responsible for data entry? When are the data entered? Are there any difficulties in data entry? If yes, please specify.
 - If data are not entered, why?
- If your facility does not report on VITIMES, how are TB patient data (e.g., *number of patients, patient information, diagnosis results, treatment regimens, treatment start date, treatment results, reporting frequency*) reported to the NTP?
 - If you are responsible for preparing reports, what difficulties do you face? Any recommended solutions?
 - The surveyor is to ask the interviewee to provide a copy of the reporting form used by his/her facility (if possible).
- What do you think could be done to improve TB reporting to the NTP?
- If your facility does not report data to the NTP, please explain why. In your opinion, what should be done to facilitate your facility's reporting of TB patient data to the Program as required?

Question 4: About TB-related services that the facility has been providing, in your opinion, is there any difference in service delivery by public and private health facilities?

Prompt: *Quality, Safety, Timeliness, Accessibility, Availability, Cost, and Affordability.*

Question 5: What are the **advantages or disadvantages** of the implementation of the Guidelines on TB Diagnosis, Treatment, and Prevention at your health facility?

Prompt:

* *Personnel (quantity & expertise; training contents, duration, methods)*

* *Finance (revenue, operating expenses of the facility; health insurance for patients)*

** Infrastructure/equipment/medications;*

** Information/reporting system*

** Policies/Regulation/Guidance of NTP/local government/health facility*

Note: Ask if the health facility has developed its TB diagnosis, treatment, and management? If yes, get a copy for comparison.

Question 6: Given the difficulties mentioned above and shortcomings, how has the facility overcome them? Regarding the challenges beyond the facility's control, what suggestions/recommendations do you have to the competent authorities (i.e., MOH, the NTP, Provincial DOH, District Office of Health, Etc.)?

Question 7: According to you, how is the level of compliance with the Guidelines on TB Diagnosis, Treatment, and Prevention by public health facilities inside and outside the NTP and private health facilities? What should be done to promote compliance?

Prompt:

**Confirm with the interviewee the level of compliance: (1) Completely non-compliant; (2) Non-compliant; (3) Sometimes compliant; (4) Compliant; (5) Completely compliant.*

** What should health facilities/programs promote adherence to TB diagnosis, treatment, and prevention? (e.g., more training, equipment, availability of TB diagnosis and treatment services, etc.)*

** What should the national/local NTP do to encourage private and public health facilities outside the agenda to participate in the network to increase resources and the efficiency of TB diagnosis, treatment, and management work) .*

** What should the health sector promote the engagement and compliance of health facilities? (Prompt: provide more resources/equipment; deliver communication; expand the health insurance benefit package for TB patients, e.g., coverage of drugs for patients with adverse reactions, full package of treatment medications; simplify the process of health insurance payment for health facilities; rewards and penalties (if necessary), etc.)*

Question 8: TB case management has resulted from many factors, including TB patients themselves. In your opinion, what motivates TB patients to adhere to treatment?

Prompt:

* *What should health facilities do to promote adherence among TB patients? (Full and timely counseling before, during, and after treatment; timely management of adverse reactions/events occurring to patients; social support for disadvantaged groups (e.g., the poor); etc.)*

* *What should the health sector, in particular and local governments, in general, do to promote adherence to treatment among TB patients? (Prompt: expand the health insurance benefit package for TB patients, e.g., drugs coverage for patients with adverse reactions, full package of treatment medications, etc.)*

Thank you for your time as well as your valuable and helpful response.

TB PATIENTS

Question 1: Why did you decide to visit [name of the health facility] in the first place? What symptoms did you have (*suggestions: chest pain, cough, hemoptysis, loss of weight, shortness of breath, fatigue, fever*)? Any other reasons (*living with TB patient, being the elderly, the person with co-morbidities*)?

Question 2: When did the first symptoms appear, and how long did they last? What did you do when you had these symptoms (*visit a pharmacy, a commune health centers, a private clinic, a hospital in the province where the patient resided, or another area*)? Why did you choose that facility? (*nearby, convenient, good service quality, support by a project, recommended by community health workers, etc.*)

Question 3: What are the reasons for your choice and your experiences at the current health facility?

- Why don't you continue visiting the first facility? What are the reasons for choosing the current facility?
- At the current facility, do you have to take additional diagnostic tests? How long does it take you from diagnosis to treatment? Are you diagnosed with drug-susceptible TB or drug-resistant TB?
- How are you counseled by medical staff (before/during/after the treatment, full advice on drug use, nutrition, management of unwanted effects at home, etc.)?
- How well do you understand the drugs you are taking? (TB drugs, side effects, free-of-charge treatment drugs, payment for other medications (if any))?
- How do you feel when you have to take medicines every day under the supervision of a health worker or caregiver (supervisor 2)?
- How do you feel when you return to the health facility for a follow-up examination during the treatment?
- At the follow-up examination, does the doctor order additional test(s) for you, and do you know the name(s) of the test(s)? If YES, please say the name(s) of the test(s), and how are you explaining the test results?
- During treatment, are you transferred to another facility for diagnostic tests or other specialized treatment?

Question 4:

- How do you feel about the search for a TB treatment facility, service fees, attitude of medical staff, etc.?
- In general, how satisfied are you with your medical experiences at this facility on a 5-point scale, where 1 means the least satisfaction and 5 represents the most satisfaction?
- First of all, how would you rate your satisfaction on a 5-point scale regarding health services
- _____/5 points. Why do you have this rating?
- How would you rate your satisfaction on a 5-point scale regarding diagnostic tests?
- _____/5 points. Why do you have this rating?
- How would you rate your satisfaction on a 5-point scale regarding drug use and its counseling?
- _____/5 points. Why do you have this rating?
- How would you rate your satisfaction on a 5-point scale regarding the attitude of health staff?
- _____/5 points. Why do you have this rating?
- How would you rate your satisfaction on a 5-point scale
- regarding medical examination and treatment time?
- _____/5 points. Why do you have this rating?
- How would you rate your satisfaction on a 5-point scale regarding medical examination and treatment costs?
- _____/5 points. Why do you have this rating?
- Finally, how would you rate your satisfaction on a 5-point scale regarding material facilities?
- _____/5 points. Why do you have this rating?

Thank you for your time as well as your valuable and helpful response.

ANNEX III: INTERVIEW STATUS AND REFUSAL REASONS IN HAI PHONG

Data collection in Hai Phong was conducted from 27 June to 15 July in 5 selected districts. The survey interviews were performed by 7 enumerators from DEPOCEN under the supervision of 3 supervisors (1 from DEPOCEN and 2 from Learns) for health facilities and TB patients.

Table S1: Interview status of health facilities:

Interview status	Private clinics n(%)	Private polyclinics n(%)	Hospitals/Health centers n (%)	CHCs n (%)	Pharmacy n (%)	Total
Succeeded	76 (68.5)	12 (66.7)	11 (73.3)	75 (97.4)	136 (23.4)	310 (78.3)
Failed	35 (31.5)	6 (33.3)	4 (26.7)	2 (0.95)	29 (16.6)	75 (18.9)
Total	111 ¹	18 ²	15 ³	77 ⁴	175 ⁵	396

¹ Included 1 supplemental sample: a private Ear-Nose-Throat clinic

² Included 1 supplemental sample: Hai Phong International Hospital

³ Included 1 supplemental sample: Army Hospital no 7

⁴ Included 1 supplemental sample: CHC at Le Loi, Ngo Quyen

⁵ Included 31 supplemental sample

Table S2: Summary of the refusal reasons of health facilities

Refusal reasons		Private polyclinics n(%)	Hospitals/Health centers n(%)	CHCs n(%)	Pharmacy n(%)	Total
Health facility was too busy	2 (5.7)	NA	NA	2 (100)	NA	4
Wrong information	5 (14.3)	NA	NA	NA	9 (23.1)	14
Health facility closed down	17 (48.6)	2 (33.3)	NA	NA	9 (23.1)	25
Health facility did not cooperate	7 (20.0)	4 (66.7)	NA	NA	7 (17.9)	18

Refusal reasons	Private clinics n(%)	Private polyclinics n(%)	Hospitals/Health centers n(%)	CHCs n(%)	Pharmacy n(%)	Total
Health facility did not have the diagnosis and treatment function	NA	NA	2 (50)	NA	NA	2
Ineligible	NA	NA	NA)	NA	8 (20.5)	9
Health facility did not reveal the reason	NA	NA	2 (50)	NA	4 (10.3)	5
Health facility did not relate to TB/changed expertise	4 (11.4)	NA	NA	NA	2 (5.1)	6
Total	35	6	4	2	39	86

Table S3: Characteristics of TB patients by interview status

Interview status	Gender ¹		Age Mean (SD)	District ²				No of attempt* Mean (SD)	Sample ³		Total n(%)
	Female n (%)	Male n (%)		Le Chan n (%)	Thuy Nguyen n (%)	Ngo Quyen n (%)	Hai Phong Lung hospital n (%)		Official n (%)	Substitution n (%)	
Succeeded	86 (47.3)	184 (50.1)	50.8 (17.4)	59 (24.3)	133 (58.3)	22 (100)	57 (100)	1.5 (0.8)	228 (53.3)	43 (35.3)	271 (49.3)
The survey team could not contact the respondent	56 (30.8)	117 (31.9)	52.2 (18.2)	100 (41.2)	73 (32.0)	0 (0)	0 (0)	2.6 (1.4)	121 (28.3)	52 (42.6)	173 (31.5)
The health facility refused to participate	40 (22.0)	66 (18.0)	45.4 (17.1)	84 (34.6)	22 (9.7)	0 (0)	0 (0)	3.4 (1.4)	79 (18.5)	27 (22.1)	106 (19.3)
Total	182 (100)	183 (100)	50.2 (17.7)	243 (100)	228 (100)	22 (100)	57 (100)	2.2 (1.4)	428 (100)	122 (100)	550 ⁴ (100)

¹p-value > 0.05

²p-value < 0.05

³p-value > 0.05

⁴Included 250 supplemental sample

*No of attempt: min = 1; max =5

Table S4: Characteristics of TB patients by refusal reasons

No	Refusal reason	Gender ¹		Age Mean (SD)	District ²		No of attempt* Mean (SD)	Sample ³		Total n(%)
		Female n (%)	Male n (%)		Le Chan n (%)	Thuy Nguyen n (%)		Official n (%)	Substitution n (%)	
1	Wrong information	30 (31.3)	52 (28.4)	45.6 (17.7)	56 (30.4)	26 (27.4)	3.8 (0.8)	52 (26.0)	30 (38.0)	82 (29.4)
2	The respondent died	14 (14.6)	36 (19.7)	66.4 (10.6)	30 (16.3)	20 (21.1)	1.02 (0.1)	40 (20.0)	10 (12.7)	50 (17.9)
3	The respondent was too busy	22 (22.9)	23 (12.6)	39.5 (15.3)	26 (14.1)	19 (20.0)	3.8 (0.8)	34 (17.0)	11 (13.9)	45 (16.1)
4	The respondent did not relate to TB	11 (11.5)	22 (12.0)	49.0 (20.2)	25 (13.6)	8 (8.4)	2.1 (1.1)	26 (13.0)	7 (8.9)	33 (11.8)
5	The respondent had a severe health problem	9 (9.4)	18 (9.8)	55.3 (16.4)	14 (7.1)	13 (13.7)	1.5 (0.8)	16 (8.0)	11 (13.9)	27 (9.7)
6	The respondent did not cooperate	8 (8.3)	15 (8.2)	47.3 (12.8)	20 (10.9)	3 (3.2)	4.5 (0.6)	16 (8.0)	7 (8.9)	23 (8.2)
7	Respondent had stigma about TB	2 (2.1)	14 (7.7)	44.3 (15.6)	13 (7.1)	3 (3.2)	4.1 (0.6)	14 (7.0)	2 (2.5)	16 (5.7)
8	Other	0 (0)	3 (1.6)	34.3 (13.9)	0 (0)	3 (3.16)	1 (0)	2 (1.0)	1 (1.3)	3 (1.1)
	Total	96 (100)	183 (100)	49.6 (18.1)	184 (100)	95 (100)	2.9 (1.5)	200 (100)	79 (100)	279 (100)

¹p-value > 0.05

²p-value < 0.05

³p-value > 0.05

*No of attempt: min = 1; max =5

Overall, there is no significant difference in the interview status and refusal reasons between male and female TB patients ($p > 0.05$).

The average age of interviewed TB patients was 50.8 (SD: 17.4). TB patients who could not be contacted for the interview had average age [Mean: 52.2, SD: 18.2] higher than TB patients who refused to participate in the survey [Mean: 45.4, SD: 17.1] and the successfully interviewed group (Table S3). Specifically, the average age of TB patients with refusal reasons of **The respondent died** and **The respondent had severe health problems** was 66.4 (SD: 10.6) and 55.3 (SD: 16.4), higher than the other refusal reasons. TB patients refused for the reasons that **The respondent was too busy** and **The respondent did not cooperate**, were likely in the labor age, and had an average age lower of 39.5 (SD: 15.3) and 47.3 (SD: 12.8) (Table S4).

Table S3 indicated the difference in interview status between districts (p -value < 0.001). Specifically, the refusal rates in Le Chan and Thuy Nguyen districts were high, while in Ngo Quyen and Hai Phong Lung Hospital, the survey team successfully interviewed all accessible TB patients. No difference in the refusal reason was observed between Le Chan and Thuy Nguyen districts. About 50 percent of TB patients in these two districts died or had the wrong information.

Because TB patients were very hard to reach, the survey team attempted to contact TB patients several times by going to their addresses or asking for their phone numbers from medical stations. The average attempt of succeeded TB patients was 1.5 (SD: 0.8), while the refused ones had average of 3 attempts. Regarding respondents who had a stigma about TB, did not cooperate, or were too busy, the survey team attempted to access their maximum five times to invite them to participate.

ANNEX IV: PERCEPTION OF HEALTHCARE WORKERS ON THE LEVEL OF COMPLIANCE WITH TB CONTROL GUIDELINES

(DK = 0, No compliance = 0, Comply sometimes = 1, Compliance = 2, Full compliance = 3)

Private clinics

No	Compliance with TB control guidelines	Don't know	No compliance	Compliance sometimes	Compliance	Full compliance	Mean score
1	TB diagnosis and testing	2 (2.6)	1 (1.3)	4 (5.3)	10 (13.2)	59 (77.6)	2.72
2	TB treatment	2 (2.6)	0 (0)	0 (0)	3 (3.9)	71 (93.4)	2.96
3	TB referral	9 (11.8)	0 (0)	19 (25.0)	39 (51.3)	9 (11.8)	1.85

Private polyclinics

No	Compliance with TB control guidelines	Don't know	No compliance	Compliance sometimes	Compliance	Full compliance	Mean score
1	TB diagnosis and testing	0 (0)	2 (16.7)	2 (16.7)	4 (33.3)	4 (33.3)	1.83

2	TB treatment	0 (0)	0 (0)	1 (8.3)	1 (8.3)	10 (83.3)	2.75
3	TB referral	0 (0)	0 (0)	5 (41.7)	7 (58.3)	0 (0)	1.58

Hospitals/Health centers

No	Compliance with TB control guidelines	Don't know	No compliance	Compliance sometimes	Compliance	Full compliance	Mean score
1	TB diagnosis and testing	0 (0)	0 (0)	8 (72.7)	3 (27.3)	0 (0)	1.27
2	TB treatment	0 (0)	0 (0)	3 (27.3)	5 (45.5)	3 (27.3)	2.00
3	TB referral	0 (0)	0 (0)	6 (54.5)	5 (45.5)	0 (0)	1.45

Commune health centers

No	Compliance with TB control guidelines	Don't know	No compliance	Compliance sometimes	Compliance	Full compliance	Mean score
1	Collecting sputum culture	1 (1.3)	2 (2.7)	2 (2.7)	7 (9.3)	61 (81.3)	2.84

No	Compliance with TB control guidelines	Don't know	No compliance	Compliance sometimes	Compliance	Full compliance	Mean score
2	Managing TB cases	1 (1.3)	0 (0)	3 (4.0)	22 (29.3)	33 (44.0)	2.24
3	TB referral	2 (2.7)	0 (0)	2 (2.7)	28 (37.3)	14 (18.7)	1.79

ANNEX V: THE ESTIMATED NUMBER OF PEOPLE WITH PRESUMPTIVE TB SYMPTOMS PER MONTH VISITING HEALTH FACILITIES IN THE 5 SELECTED DISTRICTS IN AN GIANG AND HAI PHONG

Health facility	An Giang	Hai Phong
Private clinics	8,850 (32.2%)	2,227 (37.2%)
Private polyclinics	216 (0.007%)	2,145 (35.8%)
Hospitals/Health centers	1,500 (0.054%)	672 (11.2%)
Commune health centers	8,051 (29.3%)	120 (0.02%)
Pharmacy	8,853 (32.2%)	812 (13.5%)
Total	27,470	5,976

United States Agency for International Development

Hanoi, Vietnam

