



THESIS TITLE

Evaluating Tuberculosis Preventive Treatment (TPT) Outcomes, Perspectives and Implementation Barriers: A Mixed-Methods Study in BRAC Covered Areas under the Badda TB Diagnostic Center in Dhaka, Bangladesh

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A thesis submitted to the BRAC James P. Grant School of Public Health in partial fulfilment of the requirements for the degree of
Master of Public Health

BRAC James P. Grant School of Public Health
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Declaration

I, Zin Min Tun, hereby declare that this thesis entitled "Evaluating Tuberculosis Preventive Treatment (TPT) Outcomes, Perspectives and Implementation Barriers: A Mixed-Methods Study in BRAC Covered Areas under the Badda TB Diagnostic Center in Dhaka, Bangladesh" is an original work submitted in partial fulfilment of the requirements for the degree of Master of Public Health (MPH) at the James P. Grant School of Public Health (JPGSPH), BRAC University, Dhaka, Bangladesh.

I further affirm that this thesis has not been submitted before, in whole or in part, for any other degree or examination at this or any other university or institution.

All sources used in this thesis have been properly acknowledged and cited. Any assistance received has been stated in the acknowledgements.

I have also added a separate declaration on usage of GenAI at the end of this thesis.



Zin Min Tun

Date: 2nd June 2026 (Tuesday)

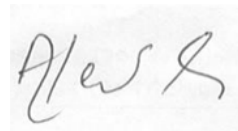
Approval

The thesis/project titled “Evaluating Tuberculosis Preventive Treatment (TPT) Outcomes, Perspectives and Implementation Barriers: A Mixed-Methods Study in BRAC Covered Areas under the Badda TB Diagnostic Center in Dhaka, Bangladesh” submitted by

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Ethics Statement

Participant confidentiality is maintained firmly by the study investigators and team members. The study protocol, documents, data and all other information generated from the study are held in strict confidence. Study documents including data collection templates and consent forms are stored in secure facilities only accessible to study investigators and in a password-protected computer. All participants were assigned a unique study identification (ID) number. Study data are stored in a password-protected computer with restricted access only to study investigators. All the study investigators have completed up-to-date research ethics trainings.

The principles of informed consent in the Declaration of Helsinki (2024) edition¹ were implemented before any study-related procedures were carried out. Written or verbal informed consent was obtained from the study participants. Study procedures proceeded only after obtaining informed consent from the study participant. Ethical approval for this study was obtained from the Institutional Review Board (IRB) of James P. Grant School of Public Health (JPGSPH), BRAC University (IRB Protocol No. MPH-2025-020). Only de-identified data was used for analysis and will be maintained as per JPGSPH IRB's policy.

¹ [Declaration of Helsinki \(2024 Edition\)](#)

Abstract

Background and objectives: Tuberculosis (TB), a major global health problem, with Bangladesh occupying for 3.6% of the world's TB burden. While active case finding is common, scaling up Tuberculosis Preventive Treatment (TPT) is essential to eliminate the reservoir of potential cases. Currently, there is a significant gap in TPT coverage in Bangladesh, with only 32% of eligible household contacts starting treatment as of 2024. This study aimed to evaluate leakages in the TPT care cascade, compare the effectiveness of weekly (3HP) versus daily (3HR) treatment regimens and identify the barriers to successful implementation in urban Dhaka.

Methods: A mixed-methods study was carried out at the Badda TB Diagnostic Center, analyzing data from five branch offices in Dhaka between January 2024 and December 2025. The quantitative component used a census of 3,341 household contacts to track the TPT care cascade and a matched-pair cohort of 278 participants to compare treatment completion. The qualitative component involved 12 in-depth and key informant interviews with household contacts of TB patients and healthcare providers to explore behavioral and systemic challenges. Quantitative (bivariate and regression analysis using Stata 17.0) and qualitative (thematic analysis using ATLAS.ti 6.1) data analysis were performed to explore TPT cascade of care, attrition and treatment completion.

Results: The study found that while 89% of identified household contacts underwent investigation, only 70% of those declared eligible actually initiated TPT. A major demographic gap was identified: adults (15 years and above) were more likely to register for treatment than children under 15 (aOR = 9.2, 95% CI = 7.5–11, $p < 0.001$). Regarding treatment success, both the weekly 3HP and daily 3HR regimens achieved an identical completion rate of 97.12%. Qualitative findings highlighted barriers such as social stigma (fear of lost marriage or business prospects), the misconception that healthy people do not need medicine and systemic issues like medicine stock-outs and high staff workloads.

Conclusion: The TPT programme shows high success once treatment starts, but a critical leakage exists between being declared eligible and actually registered for preventive treatment. To meet national targets, the programme should prioritize paediatric registration, ensure stable medicine buffer stocks and utilize visual counseling tools with dedicated counsellors to address community misconceptions and lack of awareness.

Keywords: Tuberculosis, Tuberculosis Preventive Treatment, Treatment Outcomes, Care Cascade, 3HP, 3HR, Implementation Barriers, Bangladesh.

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List of Acronyms

Acronyms	Full Form
3HP	3-month regimen of weekly Isoniazid and Rifapentine
3HR	3-month regimen of daily Isoniazid and Rifampicin
6H/9H	6 to 9 months regimen of daily Isoniazid
CFIR	Consolidated Framework for Implementation Research
CHW	Community Health Worker
CI	Contact Investigation
DS-TB	Drug-Susceptible Tuberculosis
HHC	Household Contact
IDI	In-depth Interview
IEC	Information, Education and Communication
IRB	Institutional Review Board
JPGSPH	James P. Grant School of Public Health
KII	Key Informant Interview
LTBI	Latent Tuberculosis Bacterial Infection
MPH	Master of Public Health
NTP	National Tuberculosis Control Programme
TB	Tuberculosis
TDC	TB Diagnostic Center
TPT	Tuberculosis Preventive Treatment
UID	Unique ID
WHO	World Health Organization

Chapter 1: Introduction

1.1 Background and Rationale

Tuberculosis (TB) remains one of the world's most important infectious disease burden, causing illness in more than 10 million people and resulting in around 1 million deaths per annum (World Health Organization, 2025). Bangladesh is accounting for approximately 3.6% of the global TB burden and standing among the top eight high-burden nations (World Health Organization, 2025). While global and national efforts have historically attentive on the find, treat and cure model for active TB disease, the WHO End TB Strategy highlights to reduce 90% of TB incidence by 2035 and it cannot be achieved through active case finding alone. It requires aggressive scaling of Tuberculosis Preventive Treatment (TPT) to eliminate the reservoir of potential cases (National Tuberculosis Control Programme, 2024).

TPT is a critical intervention intended to treat Latent TB Infection (LTBI), a condition in which an individual is infected with *Mycobacterium tuberculosis* but the bacteria remain inactive and asymptomatic (Carranza et al., 2020). A person with LTBI serve as a silent reservoir, without any intervention, approximately 5 to 10% of them will change active transmissible TB within their lifetime, with the risk being significantly higher among children and immunocompromised individuals like people living with human immunodeficiency virus (HIV) (Kiazyk & Ball, 2017). TPT, a course of one or more antibiotics, gives to prevent the progression from inactive to active TB case (National Tuberculosis Control Programme, 2024).

Previously, TPT relied on 6 to 9 months of daily Isoniazid (6H/9H) also known as Isoniazid Preventive Therapy (IPT). However, long durations directed to poor adherence and outcome. To address this, the NTP in Bangladesh has introduced shortened rifamycin-based regimens:

- 3HP: A 3-month weekly regimen of Isoniazid and Rifapentine (12 doses expected)
- 3HR: A 3-month daily regimen of Isoniazid and Rifampicin (84 doses expected)

While both are clinically effective, the 3HP regimen is hypothesized to offer better completion rates due to its significantly lower pill burden and weekly dosing schedule (T. Roy et al., 2023). However, there is limited article in the Bangladesh urban context to confirm whether 3HP outperforms 3HR in terms of tolerability and real-world adherence.

The effectiveness of TPT is measured through the care cascade a chronological journey involving:

1. Household contacts identification
2. Screening symptoms for active TB
3. Conducting tests for LTBI (where applicable) or clinical assessment of eligibility to preventive treatment
4. Initiation of the treatment course
5. Adherence and completion of the regimen

Globally, this cascade shows significant leakage at every step, only 25% of household contacts are successfully covered (World Health Organization, 2025). In Bangladesh, the situation is quite similar. Recent 2024 data indicates that while identification of household contact was improving, only 32% of household contacts were initiated on TPT (BRAC Health Programme, 2025) and this is pretty below the national target of 90% coverage by 2027.

BRAC, principal recipient of Global Fund for TB in Bangladesh, is also the largest implementing partner of NTP, not only by the geographical coverage but also operational scales, delivering TB services across the country. Being one of the most populated cities globally, Dhaka's overcrowded population, slums and huge internal migration makes disruption of health care services of the TB programme (National Tuberculosis Control Programme, 2023). BRAC is delivering TB related services with 6 TB diagnostic centers through 37 branch offices throughout Dhaka under the Dhaka Urban Programme, facing programme challenges alongside with the often-documented patients factors of social and economics challenges though operational challenges like supply chain, diagnostic algorithm and staff workload issues are infrequently documented (Id et al., 2022).

By conducting a programme data review (both cross sectional approach and retrospective cohort studies) at the Badda TB Diagnostic Center, this research will bridge a critical evidence gap. It will provide a direct comparison of 3HP vs. 3HR outcomes to determine which regimen is most viable for urban implementation while examining the leakage throughout the TPT care cascade. Additionally, by exploring the perceptions of both household contacts and healthcare providers, the study will identify the root causes of cascade leakage. The findings will provide data-driven

recommendations to help the BRAC Health Programme optimize delivery models, reduce leakage and eventually move closer to the goal of a TB-free Bangladesh.

1.2 Problem Statement

Despite the global consensus on the importance of Tuberculosis Preventive Treatment (TPT), the prevention arm of the National TB Control Programme (NTP) in Bangladesh faces a critical and persistent care cascade leakage (Pantha et al., 2022). This leakage occurs at multiple levels, many household contacts of bacteriologically confirmed pulmonary TB patients are never identified, of those reached, a significant portion is not screened and among those initiated on treatment, adherence or completion remains a major obstacle (Pantha et al., 2022). This systemic failure is most evident in the fact that only 51% of eligible children under five, a high-priority group receive TPT, falling drastically short of the 90% target set by the WHO End TB Strategy (Rahman et al., 2024).

While Dhaka is well known for its high-density population, slum area and unanticipated migration pattern from rural areas form challenges for sufficiency of routine healthcare services and needs innovative model to meet with requirement of the diverse community (Teibo et al., 2024). Although BRAC Dhaka Urban Programme is providing TB related healthcare services to this population, there is very limited evidence about the leakage throughout the TPT care cascade (BRAC Health Programme, 2025).

Although there are some evidences studied on treatment completion status of weekly regimen of TPT (3HP) at the Dhaka, very limited comparative analysis of 3HP (weekly) and 3HR (daily) in a local context is existed (T. Roy et al., 2023). Again, majority of the existing studies look at either patients' side and perceptions of healthcare providers are rarely documented and for the better understanding of the treatment completion status, it is important to identify the complete picture of both sides (Id et al., 2022).

Without identifying whether these leakages are driven by systemic failures (such as diagnostic delays or supply issues) or patient-level factors (such as side effects or economic constraints), interventions remain broad. This research purposes to address these gaps by providing a comparative analysis of treatment outcomes and a comprehensive exploration of both patient and provider-perceived barriers, eventually informing stronger urban TPT delivery strategies.

1.3 Research Questions

1. What is the proportion of household contacts (HHCs) of bacteriologically confirmed pulmonary TB patients who were successfully reached, screened and initiated on TPT at Badda TB Diagnostic Center (2024 - 2025) and which socio-demographic factors are significantly associated with TPT registration?
2. How does the TPT completion rate differ between household contacts prescribe weekly TPT regimens (exposed cohort) versus those on a standard daily regimen (comparison cohort) at Badda TB Diagnostic Center between 2024 and 2025?
3. What the primary patient-level and health system-level barriers influencing TPT screening, initiation and completion and what evidence-based interventions do stakeholders suggest to optimize TPT coverage?

1.4 Study Objectives

1.4.1 Overall Objective

- To evaluate the TPT cascade of care, compare the treatment outcomes between weekly and daily regimens and identify implementation barriers at the Badda TB Diagnostic Center (2024 – 2025) to optimize urban TPT delivery strategies in Dhaka, Bangladesh

1.4.2 Specific Objectives

The specific objectives of this study are:

1. To map the TPT cascade of care and identify points of attrition among household contacts of bacteriologically confirmed pulmonary TB patients and to determine the socio-demographic predictors of TPT registration and initiation
2. To compare treatment completion rates between HHCs on weekly TPT regimens (exposed cohort) and those on daily regimens (comparison cohort)
3. To identify patient-level and system-level barriers that hinder the effective implementation of TPT screening and initiation
4. To explore perceptives of healthcare providers regarding the operational challenges and potential facilitators for improving TPT delivery

5. To develop actionable recommendations for enhancing TPT coverage and adherence in urban settings, including regimen-specific strategies for weekly and daily protocols

1.5 Structure of the Thesis

This thesis is structured into six chapters with appendices. Chapter 1 delivers the introduction, background and objectives of the study. Chapter 2 mentions an inclusive review of existing literature and underlying conceptual framework. Chapter 3 details the research methodology of this study. Chapter 4 is the results or findings section of the study. Chapter 5 express a discussion of the results in contrast to the existing literature and evidence. The final conclusion, key recommendations, strengths and limitations of the study are mentioned in the chapter 6.

Chapter 2: Literature Review

2.1 Overview of Evidence

Global evidence

Tuberculosis (TB), one of the most important public health problem and infectious diseases, according to Global TB Report 2025 (World Health Organization, 2025), there were nearly 11 million TB cases and more than 1.2 million deaths from that disease globally around 131 cases per 100,000 population of incidence. Although it was focused on treatment of ongoing infectious cases previously and the World Health Organization (WHO) shifted to test, treat and prevent strategy and recognized the Tuberculosis Preventive Treatment (TPT) as one of the main pillar to attain the 90% reduction of TB incident rate by 2035 according to WHO END TB strategy (Floyd et al., 2018). Although it aims to reach 90% TPT coverage of household contacts by 2027, only 25% is achieved by 2025 because of many barriers throughout the TPT care cascade (Suseendar et al., 2024).

Regional and local evidence

Regionally, South-East Asian region constitutes nearly half of the global TB burden while Bangladesh at the eight place with nearly 4% of global TB cases with the incident rate of more than 220 TB cases per 100,000 population (Kumar et al., 2024). Some barriers such as limited diagnostic tools to exclude active TB, high workload of staff and unclear protocol for TPT initiation are already documented regionally (Getahun et al., 2015) and because of these reasons, progress of TPT implementation activities are lagged behind the national targets although the countries in the South-East Asian region are prioritized TPT implementation (Giridharan et al., 2024).

Despite national target set for 90% coverage by 2027, recent data stated that only 32% of household contacts of bacteriologically confirmed pulmonary TB cases are covered by TPT (BRAC Health Programme, 2025) though National Tuberculosis Control Programme (NTP) of Bangladesh organized implementation for TPT (National Tuberculosis Control Programme, 2023). Furthermore, unique epidemiological nature of Dhaka Urban situation hindered operation of the TPT implementation activities (Akash et al., 2018). Consequently, children under 5, one of the high priority targeted group, only 51% are covered by TPT and it is pretty below the national target of 90% (Rahman et al., 2024).

Recent peer-reviewed research has focused on the effectiveness of shortened regimens to overcome adherence barriers (Mahajan et al., 2023). In Bangladesh, community-based studies of the 12-dose weekly 3HP regimen (Isoniazid and Rifapentine) have demonstrated high success, with completion rates reaching up to 97% (Rahman et al., 2024). Alternatively, evidence for the 3-month daily 3HR regimen (Isoniazid and Rifampicin) shows a lower completion rate, estimated at approximately 85% (Ihesie et al., 2024). While both are superior to older treatments like Isoniazid Preventive Treatment (IPT), there remains a lack of head-to-head scientific analysis of local data in Dhaka to determine if the weekly dosing of 3HP provides a significant advantage in tolerability and compliance.

A synthesis of literature identifies three primary levels of barriers to TPT success:

- Patient and caregiver level: Common themes include distress of side effects, social stigma due to TB, the perceived long duration of treatment, and economic constraints such as lost wages and transportation costs
- Provider level: Healthcare workers often face low levels of acceptance for TPT, high workloads, and significant challenges in accurately ruling out active TB in primary care settings
- Systemic level: Evidence points to frequent turnover of managerial staff, supply chain disruptions for specific TPT medicines, and limited diagnostic facilities as critical bottlenecks

2.2 Conceptual Framework

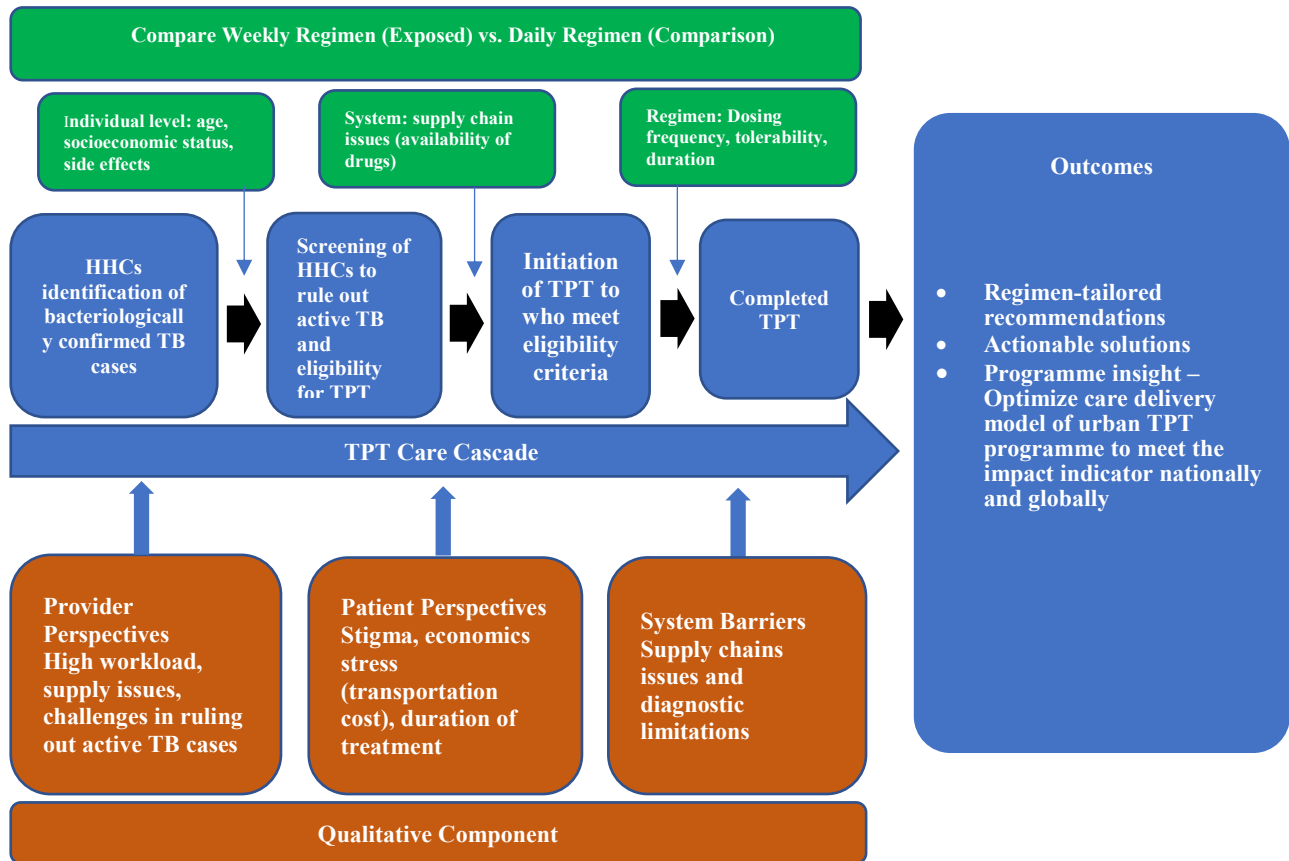


Figure 1. Conceptual Framework

Chapter 3: Methodology

3.1 Study Design

This research utilized a convergent mixed-methods design, which integrated both quantitative and qualitative data collection. This approach allowed for a comprehensive understanding of the points of attrition within the TPT cascade of care while simultaneously exploring the underlying behavioural and systemic reasons for these gaps. The quantitative component followed a cross-sectional analysis by utilizing records of all household contacts identified during the study period to evaluate the TPT cascade of care and factors associated with TPT registration and a retrospective cohort design by comparing treatment completion rates between household contacts initiated on weekly (3HP) versus daily (3HR) regimens while the qualitative component employed descriptive design utilizing in-depth interviews (IDIs) and key informant interviews (KIIs).

3.2 Study Area and Setting

The BRAC Dhaka Urban Programme, which operates a network of 6 TB Diagnostic Centers comprising of 37 branch offices across Dhaka to cover the high urban TB burden. This programme employs a decentralized, community-based approach for managing Drug-Susceptible Tuberculosis (DS-TB). TB case identification is driven by Community Health Workers (CHWs) through active household case finding and referrals from public/private hospital outpatient departments to BRAC Centers for clinical evaluation and sputum testing. This study was conducted at the Badda TB Diagnostic Center (TDC) under the BRAC Dhaka Urban Programme. While Badda TDC manages six branch offices, data were collected from five specific branch offices: Aftabnagar, Dokkhin Khan, Jogonnathpur, Kamarpara and Uttar Badda. The Uttarakhan branch office was excluded from study because of the unavailability of the required patient registers during the data collection period. The Badda TDC was purposely selected due to its geographic accessibility, the diversity of service users, ensuring the collection of rich and representative data.

3.3 Study Period

The quantitative component of the study utilized secondary programme data of a two-year period, from January 1, 2024, to December 31, 2025. This timeframe was selected to capture the number of

contacts throughout the TPT care cascade and a sample of household contacts initiated on both weekly (3HP) and daily (3HR) TPT regimens, ensuring sufficient time for treatment outcomes to be recorded in the related registers.

3.4 Study Population

The quantitative component of the study utilized retrospective programme data. The study population consisted household contacts of index TB cases (bacteriologically confirmed pulmonary tuberculosis (TB)) who were investigated, registered and initiated on TPT at the five selected branch offices of the Badda TB Diagnostic Center.

The qualitative component required to explore the behavioural and systemic factors influencing the TPT cascade of care through primary data collection. The qualitative study population included two groups of participants, household contacts of bacteriologically confirmed pulmonary TB patients, healthcare providers and management staff from the Badda TB Diagnostic Center (field organizers, medical officer and district manager).

3.4.1 Inclusion and Exclusion Criteria

Quantitative component

TPT care cascade

Included any household contact of an index TB case identified between January 2024 and December 2025 across the five specified branch offices, regardless of age.

Cohort study

Inclusion Criteria:

1. Household contacts aged 15 years and above
2. Registered at one of the five specified branch offices (Aftabnagar, Dokkhin Khan, Jogonnathpur, Kamarpara and Uttar Badda) during the study period (January 2024 to December 2025)

3. Initiated on either the weekly 3HP (Isoniazid and Rifapentine) or daily 3HR (Isoniazid and Rifampicin) TPT regimens

Exclusion Criteria:

1. Individuals with incomplete or missing records regarding the specific TPT regimen type
2. Individuals with missing essential demographic data (age or sex)
3. Individuals for whom final TPT treatment outcomes (completion or non-completion) were not recorded in the registers

Cohort definitions

- Exposed cohort: Household contacts (≥ 15 years) initiated on the weekly 3HP regimen (Isoniazid and Rifapentine)
- Comparison cohort: Household contacts (≥ 15 years) initiated on the daily 3HR regimen (Isoniazid and Rifampicin)

Qualitative component

Inclusion criteria:

- For household contacts:
 1. Individuals aged 15 years and above
 2. Of bacteriologically confirmed pulmonary TB cases who either did not initiate TPT after being identified or failed to complete the prescribed TPT course
- For healthcare providers
 1. Staff members currently employed at the BRAC Badda TB Diagnostic Center involved in the TPT care cascade

Exclusion criteria:

1. Household contacts who were unable to communicate clearly or provide informed consent for the interview
2. Healthcare providers under six months of experience in the urban TB programme, as they may not have had enough experience to the implementation barriers being studied
3. Participants who were unavailable for interview during the active data collection period

3.5 Sample Size Calculation

Quantitative component

TPT cascade of care

There was no formal sample size calculation for this phase as the inclusion of the entire eligible population ensures maximum statistical power and precision for the bivariate analysis of registration factors (age, sex, and branch office location).

Cohort study

The sample size was calculated to attain 90% statistical power at a 5% significance level. Based on a hypothesized TPT completion rate of 97% for 3HP (Rahman et al., 2024) and 85% for 3HR (Ihesie et al., 2024), a minimum analytical sample of 230 participants (115 pairs) was required. To account for a potential 10% data attrition rate due to incomplete records, the target was set at 256. Ultimately, the study included all eligible records from the study period to maximize precision, resulting in a total sample of 278 participants (139 each for exposed and comparison cohort). Sample size was considered by using the formula of comparison for two proportions in a matched-pair cohort of $n = [(Z\alpha/2 + Z\beta)^2 * [p_1(1-p_1) + p_2(1-p_2)]] / (p_1 - p_2)^2$.

Qualitative component

Qualitative sample of 12 participants, consisting of four in-depth interviews (IDIs) with household contacts of TB patients who didn't initiate or complete TPT and eight key informant interviews (KIIs) with healthcare providers was determined sufficient to achieve data saturation by capturing a comprehensive range of patient-level, systemic and operational perspectives across the TPT cascade of care.

3.6 Sampling Technique

Quantitative component

TPT care cascade

A census method was employed, including the total population of all household contacts recorded across the five Badda TDC branch offices from January 2024 to December 2025.

Cohort study

A census method was used for the exposed (3HP) cohort, including all eligible participants identified during the study period. For the comparison (3HR) cohort, a 1:1 matched sampling approach was applied. Participants were matched based on age group (+/- 5 years) and sex. To ensure feasibility, a next-best-match protocol was followed, where the researcher skimmed registers chronologically to identify the nearest matching 3HR patient for each identified 3HP case.

Qualitative component

A purposive quota sampling technique was carried out to secure a comprehensive picture of perspectives from both service users and providers. This method allowed for selection of participants who could provide specific insights into the TPT care cascade.

The sampling was stratified into three categories to achieve a target of 12 interviews:

- In-depth interviews (IDIs): Four IDIs were conducted with household contacts aged 15 years and above who had either not initiated TPT or had failed to complete the treatment course. This group was selected to capture the experiences and patient-level barriers to adherence.
- Key informant interviews (KIIs) with management staff: Two KIIs were conducted with the district manager and the medical officer of the Badda TB Diagnostic Center to understand systemic and implementation challenges.
- Key informant interviews (KIIs) with field staff: Six KIIs were conducted with field organizers of the branch offices. As the key field personnel responsible for TPT care cascade such as contact investigation, referral to physician, medicine disbursement and follow up, they provided essential data on operation and community-level responses.

3.7 Variables

3.7.1 Dependent Variable(s)

Quantitative component

The primary dependent (outcome) variables for the quantitative component were TPT registration and treatment completion status. These were categorical binary variables defined as follows:

- TPT registration status (for cascade analysis): A binary variable (registered vs. not registered) used to identify factors affecting the start of treatment
- TPT completion status (for cohort analysis): A binary variable (completed vs. not completed)

Qualitative component

The central phenomenon of interest explored in the qualitative component was the TPT care cascade leakage. This included the experiences of household contacts and healthcare providers regarding the barriers to TPT initiation and the challenges of treatment adherence. The study focused on understanding the socio-behavioral and systemic reasons why certain contacts dropped out of the cascade between identification and completion.

3.7.2 Independent Variables

Quantitative component

The independent variables included the primary exposure of interest and several potential confounders extracted from the programme registers as follow.

- Primary exposure variable: TPT regimen type, categorized as weekly 3HP (Isoniazid and Rifapentine) or daily 3HR (Isoniazid and Rifampicin) for treatment completion status
- Socio-demographic
 - o Age: recorded in years
 - o Sex: categorized as male or female.
- Health system
 - o Branch office location: The specific site of registration (Aftabnagar, Dokkhin Khan, Jogonnathpur, Kamarpara, or Uttar Badda).
- Social factor
 - o Relationship to index case: The social link between the contact and the pulmonary TB patient (e.g., parent, spouse, child, sibling, or other household members).

Qualitative component

The qualitative inquiry was directed by the five domains of the Consolidated Framework for Implementation Research (CFIR) (Damschroder et al., 2009), which served as the main areas of exploration during the IDIs and KIIs:

- Intervention characteristics: Perceived complexity, side effects and the relative advantage of weekly versus daily treatment regimens
- Outer setting: External factors including social stigma, contacts migration pattern and economic constraints (e.g., transportation costs and lost wages)
- Inner setting: Structural factors within the Badda TB Diagnostic Center, such as staff workload, supply chain reliability for TPT drugs and internal communication protocols
- Characteristics of individuals: Knowledge, beliefs and self-efficacy of both the household contacts and the healthcare providers regarding TB prevention
- Process: The operational execution of the cascade, including the effectiveness of contact investigation, referral systems and follow-up procedures

3.7.3 Operational Definitions

Latent TB Infection (LTBI), a condition where a person is infected with *Mycobacterium tuberculosis* but with no symptoms and infection remain inactive.

Bacteriologically confirmed pulmonary TB is the TB diagnosed in a biological specimen by smear microscopy, culture or a WHO-approved rapid diagnostic test.

TB preventive treatment (TPT), a course of one or more antibiotics, given to prevent progression of latent (inactive) to active TB disease.

Index TB case is the initially identified person of any age with new or recurrent TB in a household.

Household contact is a person who shared the same household with the index person.

Contact investigation is a systematic identification or previously undiagnosed TB disease and infection among the household contacts of index person.

Eligible for TPT means all the household contacts of index TB case after investigation and screening for active TB disease and physician or medical officer declared eligible for TPT.

3HP is the weekly dose regimen of Isoniazid (H) and Rifapentine(P) for 3-month duration of TB preventive treatment (TPT).

3HR is the daily dose regimen of Isoniazid (H) and Rifampicin (R) for 3-month duration of TB preventive treatment (TPT).

3.8 Data Collection Tools and Process

3.8.1 Data Collection Tools

Quantitative component

The structured excel sheet template for secondary data collection was developed in English language and required data were collected from the relevant programme records and registers at the selected five branch offices of Badda TDC. Data collection and entry process were conducted by the study investigator and field research assistant.

Qualitative component

To explore the complex barriers within the TPT care cascade, the study applied semi-structured interview guidelines for both in-depth interviews (IDIs) and key informant interviews (KIIs), structured around the five domains of the Consolidated Framework for Implementation Research (CFIR). The IDI guideline for household contacts focused on household contact-level experiences, including their understanding of TB prevention, perceived treatment complexity and external socioeconomic constraints such as social stigma and transportation costs. On the contrary, the KII guidelines for healthcare providers including district manager, medical officer and field organizers were designed to capture systemic and operational challenges, such as staff workload, supply chain reliability, diagnostic limitations for ruling out active TB and the impact of urban migration on treatment follow-up. All tools were designed to provide actionable solutions and applied until data saturation was achieved.

3.8.2 Training

One-day study orientation and training of field research assistants was conducted in-person on 5th March 2026 at the BRAC University, Badda Campus. The training covered both quantitative and qualitative data collection as well as research ethics. Study investigators participated as facilitators, practices and testing guidelines were also conducted during the training. Based on the feedback obtained from the study team members during the training, relevant adjustments were made to the qualitative guidelines.

3.8.3 Data Collection Process

The data collection for the study was conducted from 8th March to 16th April 2026. Both the study investigator and field research assistant visited all the selected branch offices under Badda TDC for data collection purpose.

Quantitative data collection process

The study investigator and field research assistant carried out secondary data collection from the Contact Investigation (CI) and TPT registers of selected branch offices under Badda TDC according to predefined data collection criteria through structured excel sheet template. Queries about the data and registers were being solved and checked through consultation with relevant field organizers and personnel from Gulshan Regional Office of BRAC Dhaka Urban TB programme.

Qualitative data collection process

Four IDIs with household contacts of TB patients and six KIIs with field organizers were conducted by field research assistant either in-person or through telephone depending on the feasibility of the participant availability. While two KIIs with district manager and medical officer were conducted in-person by the study investigator. Total of 12 interviews were conducted until data saturation was achieved with no new themes or insights emerging from subsequent interviews.

3.9 Data Management and Quality Assurance

Data checks, including validation and range checks were added to the structured excel sheet template. Random checks were also done during data collection. At the end of each data day, the

data entry sheets were checked by study investigator. After that, study investigator checked the data for duplicated IDs, missing data and errors with Stata software (version 17.0). For qualitative data, same-day discussion among the study team with the study investigator and field research assistant was performed. Transcripts were written by the trained transcript writers immediately after the data collection. The quality of transcripts was validated and randomly checked with the audio recordings by the study investigators. If any errors or deviation from the verbatim occurs, the transcripts were re-written and the quality check was re-attempted.

All data were kept confidential by the study team and accessible only by the study investigators. Data were labeled with the UID (Unique ID) numbers and no respondent's name or other identifiable information were linked. Data were stored in a password-protected secured laptop. All the relevant hard copy documents such as informed consent forms are kept in a secure cabinet with lock.

3.10 Data Analysis

Quantitative component

TPT care cascade & registration analysis: Proportions were calculated for each step of the TPT cascade. To identify factors associated with attrition at the registration stage, bivariate analysis using Fisher Exact and Pearson's Chi-square tests were performed to relate registration rates across age, sex and branch office locations. For TPT completion analysis, modified Poisson regression with robust variance was used to observe the association between regimen type and completion, while adjusting for potential confounders such as socioeconomic status and relationship to the index case. All statistical analyses were performed using Stata software (Version 17.0).

Qualitative component

For qualitative data, the thematic analysis approach was applied. The codebook was developed by a hybrid inductive-deductive coding approach, utilizing the Consolidated Framework for Implementation Research (CFIR). Coding was done by using the Atlas.ti qualitative analysis software (version 6.1 ATLAS.ti Scientific Software Development GmbH, Berlin) and the outputs were generated according to the thematic codes. Firstly, all the recordings were transcribed into Bengali language and then translated to English language. Data analysis was conducted in the English.

3.11 Ethical Considerations

Ethical approval was obtained from the Institutional Review Board (IRB) at James P Grant School of Public Health (JPGSPH), BRAC University. For quantitative part, all data were anonymized by removing personal identifiers before analysis to ensure confidentiality. For qualitative interviews, participants were explained about study objectives and ensured of anonymity and confidentiality. For in-person interview, a written informed consent was taken and for telephone interview, a verbal informed consent was taken. Only after obtaining consent from the participant, interview was audio recorded. For analysis, only depersonalized data was used and maintained according to JPGSPH IRB's policy.

Chapter 4: Results

4.1 Quantitative Findings

4.1.1 Performance of the TPT Care Cascade

Table 1. Performance of the TPT care cascade: Badda TB Diagnostic Center (2024–2025)

Cascade step	2024 (n) (%)	2025 (n) (%)	Total (n) (%)	Z-score	p-value
No. of pulmonary bacteria confirmed cases	659	688	1,347	-	-
Household members identified	1,644 (100)	1,697 (100)	3,341 (100)	-	-
Contact investigation completed	1,534 (93)	1,451 (86)	2,985 (89)	7.31	< 0.001 ^{1*}
Eligible for TPT (physician declared)	1,414 (92)	1,317 (91)	2,731 (92)	1.38	0.167 ¹
Registered/initiated on TPT	1,021 (72)	899 (68)	1,920 (70)	2.25	0.024 ^{1*}

¹ Two-proportion Z-test, *Statistically significant ($p < 0.05$).

The performance of the Tuberculosis Preventive Treatment (TPT) care cascade at the Badda TB Diagnostic Center (TDC) was evaluated from 2024 to 2025. The Badda TDC identified a total of 3,341 household members linked to 1,347 bacteriologically confirmed pulmonary TB cases.

The care cascade demonstrates a progressive decline in patient retention at each step and a comparative analysis using the Two-proportion Z test was performed at relevant steps to evaluate the changes in TPT care cascade performance between 2024 and 2025.

- Household member identification: As of 2024, 1,644 household contacts of 659 pulmonary bacterial confirmed TB cases were identified and the rate of household contact identification is steady with 1697 in 2025.
- Contact investigation: In 2024, 93% (n=1,534) of identified HHCs underwent contact investigation. However, this rate decreased in 2025, dropping to 86% (n=1,451). The overall

completion rate across the two years of investigations was 89% with a highly significant difference observed between the two years ($Z = 7.31, p < 0.001$).

- TPT eligibility: Among those who completed the investigation process, eligibility to TPT remained stable and high, averaging 92% across the two years ($n=2,731$) and there was no statistically significant difference in the proportion of contacts declared eligible for TPT between the two years ($Z = 1.38, p = 0.167$).
- TPT initiation: The most significant leak in the care cascade occurred at the final stage of registration and initiation. A significant decline was observed in TPT initiation among those declared eligible, the registration and initiation rate decreased from 72% in 2024 to 68% in 2025 ($Z = 2.25, p = 0.024$), representing a cumulative initiation rate of 70%.

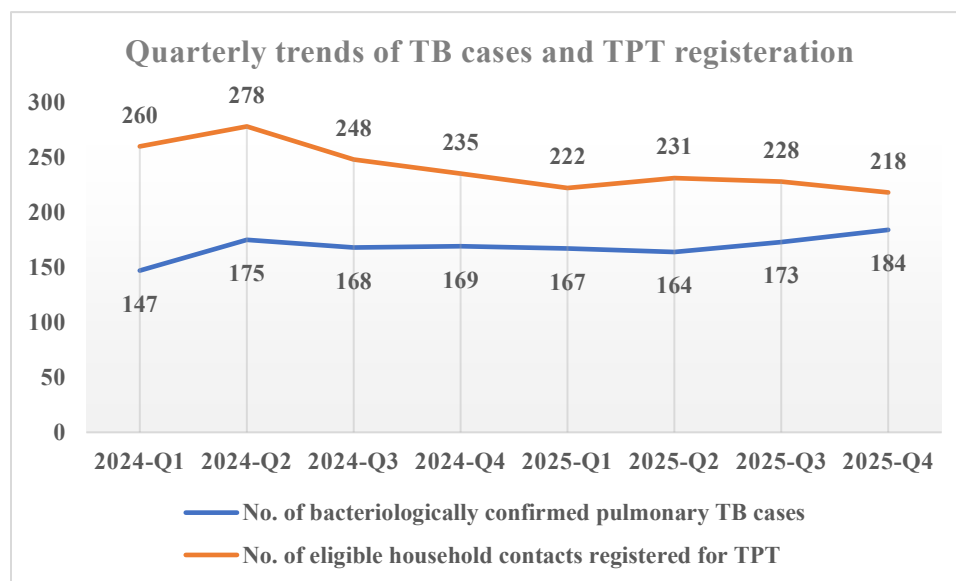


Figure 2. Quarterly trends in TB cases and TPT registration

The quarterly trend analysis illustrates the relationship between the volume of bacteriologically confirmed pulmonary TB cases and the subsequent registration of eligible households for TPT. Throughout 2024 and 2025, the number of confirmed TB cases remained relatively stable, ranging between 147 and 184 per quarter. However, TPT registrations showed a gradual downward course after a peak in 2024-Q2 (278 registrations), reaching a period low of 218 in 2025-Q4. This suggests that while the case detection rate for active TB is holding steady, the rate of enrolling their eligible household contacts into preventive treatment has slightly diminished over time.

Table 2. Significance of changes in contact investigation and TPT initiation by the branch office

Branch Office	Indicator	2024 % (n/N)	2025 % (n/N)	Z-score	p-value
Aftabnagar	Contact investigation	94 (306/325)	88 (312/353)	2.58	0.010 ^{1*}
	TPT initiated	74 (206/278)	67 (183/275)	1.98	0.048 ^{1*}
Dokkhin Khan	Contact investigation	92 (290/317)	84 (265/315)	2.87	0.004 ^{1*}
	TPT initiated	70 (187/266)	70 (155/222)	0.12	0.904 ¹
Jogonnathpur	Contact investigation	96 (319/333)	93 (288/309)	1.48	0.138 ¹
	TPT initiated	69 (200/292)	67 (176/262)	0.32	0.749 ¹
Kamarpara	Contact investigation	89 (301/338)	83 (274/332)	2.45	0.014 ^{1*}
	TPT initiated	72 (200/276)	72 (174/242)	0.14	0.888 ¹
Uttar Badda	Contact investigation	93 (310/331)	86 (333/388)	3.42	< 0.001 ^{1*}
	TPT initiated	76 (228/301)	65 (211/324)	2.87	0.004 ^{1*}

¹ Two-proportion Z-test, *Statistically significant ($p < 0.05$).

For contact investigation, four out of five branches, Uttar Badda ($p < 0.001$), Dokkhin Khan ($p = 0.004$), Aftabnagar ($p = 0.010$), and Kamarpara ($p = 0.014$) showed a statistically significant decline in completion rates. Jogonnathpur was the only branch to maintain a statistically stable investigation rate ($p = 0.138$).

Regarding TPT initiation, the decline was less widespread but remained critical in specific branch offices. Uttar Badda experienced a significant drop from 76% to 65% ($p = 0.004$), and Aftabnagar decreased from 74% to 67% ($p = 0.048$). The remaining three branches (Dokkhin Khan, Jogonnathpur, and Kamarpara) showed no statistically significant change in treatment initiation rates.

4.1.2 Branch-wise Variation in Registration Status of TPT-eligible Household Contacts

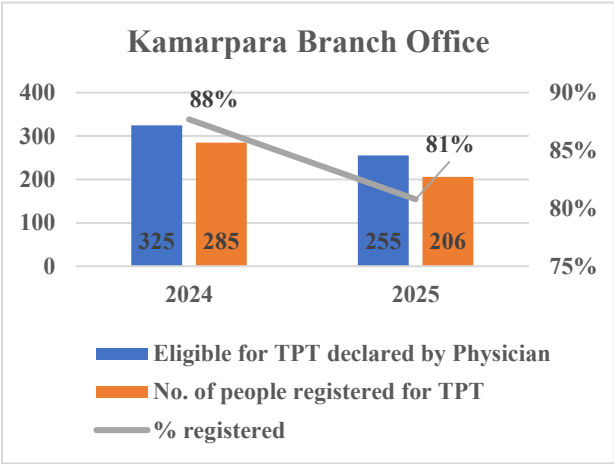


Figure 3. TPT eligibility and registration coverage at Kamarpara Branch Office

The Dokkhin Khan branch maintained a consistent volume of eligible candidates, with 269 in 2024 and 266 in 2025. However, the registration rate showed a minor decline from 78% to 76%. This relative stability indicates a consistent operational capacity for contact tracing and enrolment, though it still reflects the broader downward trend observed across the TDC.

Kamarpara showed the highest overall efficiency in treatment initiation among the five branches, despite a year-over-year decline. In 2024, the branch achieved an 88% registration rate (285 out of 325 eligible). By 2025, although the volume of eligible candidates decreased to 255, the registration rate also fell to 81%. Despite this drop, Kamarpara remains a top-performing site among the branch offices.

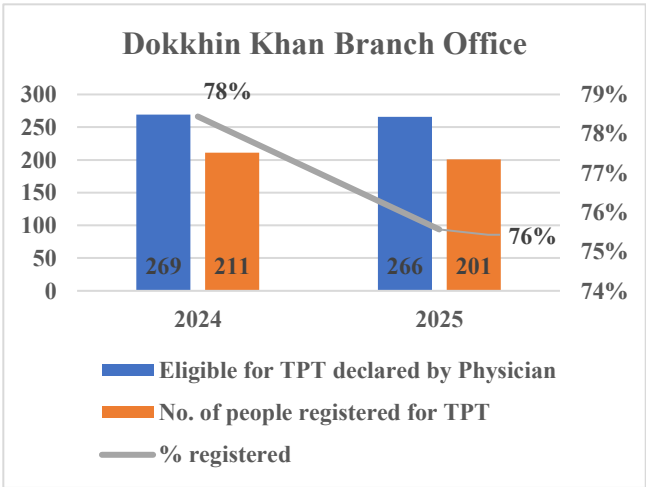


Figure 4. TPT eligibility and registration coverage at Dokkhin Khan Branch Office

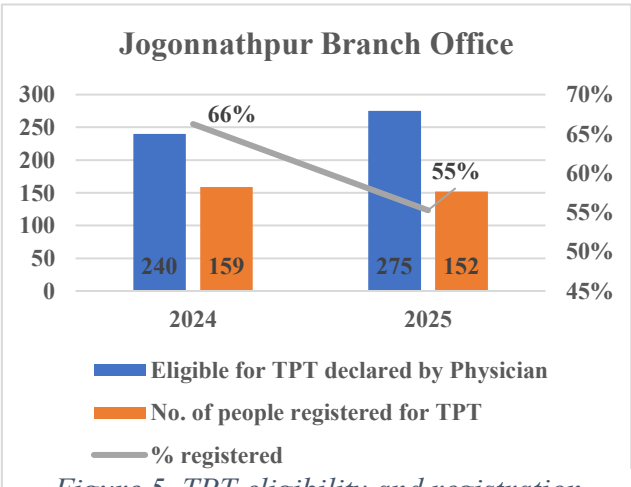


Figure 5. TPT eligibility and registration coverage at Jogonnathpur Branch Office

Jogonnathpur experienced a significant challenge in treatment uptake. While the number of eligible individuals increased from 240 to 275 between 2024 and 2025, the actual number of registrations fell from 159 to 152. This resulted in a significant 11% drop in registration, falling from 66% to 55%, indicating a widening gap between treatment eligibility and initiation.

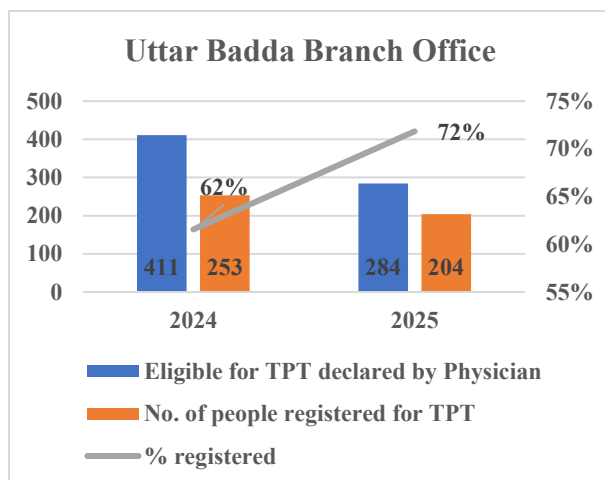


Figure 6. TPT eligibility and registration coverage at Uttar Badda Branch Office

Aftabnagar showed a sharp decline in registration performance. Despite an increase in eligible candidates from 169 in 2024 to 237 in 2025, the registration rate dropped from 67% to 57%. This reverse association between the number of eligible individuals and the percentage registered suggests that the branch's capacity to enroll household contacts may not be scaling effectively with the increase in identified eligible ones.

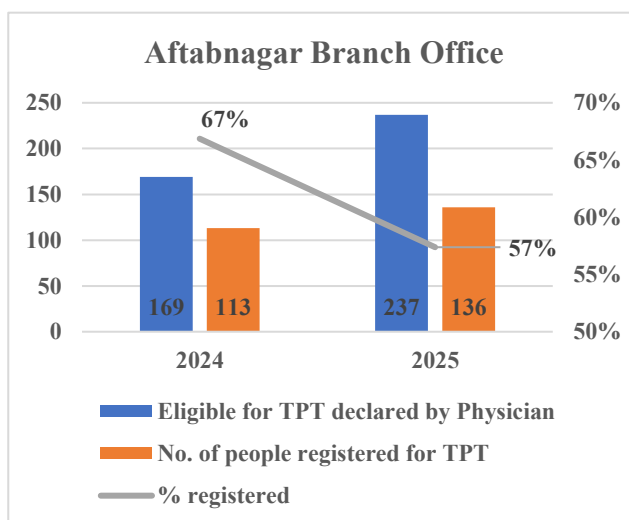


Figure 7. TPT eligibility and registration coverage at Aftabnagar Branch Office

4.1.3 Determinants of TPT Registration among Household Contacts of TB Patients

Table 3. Socio-demographic characteristics of TPT-eligible household contacts

Characteristics	Register (n = 1920) n (%)	Not registered (n = 811) n (%)	Total (N = 2731) N (%)	p-value
Age (years), median (IQR)	28 (19 – 40)	14 (7 – 30)	25 (15 – 40)	< 0.001 ^{2*}
Age group				< 0.001 ^{3*}
< 5 years	24 (1)	85 (10)	109 (4)	
5 - 14 years	195 (10)	330 (41)	525 (19)	
15 - 59 years	1,671 (87)	368 (45)	2,039 (75)	
≥ 60 years	30 (2)	28 (4)	58 (2)	
Sex				0.365 ³
Male	861 (45)	379 (47)	1,240 (45)	
Female	1,059 (55)	432 (53)	1,491 (55)	
Branch office				< 0.001 ^{3*}
Uttar Badda	457 (24)	238 (29)	695 (25)	
Kamarpara	491 (26)	89 (11)	580 (21)	
Dokkhin Khan	412 (21)	123 (15)	535 (20)	
Jogonnathpur	311 (16)	204 (25)	515 (19)	
Aftabnagar	249 (13)	157 (20)	406 (15)	
Year				0.024 ^{3*}
2024	1,021 (53)	393 (49)	1,414 (52)	
2025	899 (47)	418 (51)	1,317 (48)	

²Wilcoxon rank-sum test, ³Pearson's Chi-square test, *Statistically significant ($p < 0.05$).

Socio-demographic characteristics of TPT-eligible household contacts

A total of 2,731 household contacts were identified, among them 1,920 (70%) registered for Tuberculosis Preventive Treatment (TPT) and 811 (30%) did not. Statistical analysis revealed significant demographic and programmatic differences between the two groups.

Household contacts who registered were significantly older, with a median age of 28 years (IQR: 19 - 40), whereas those who did not register were significantly younger, with a median age of 14 years (IQR: 7–30; $p < 0.001$). This age difference is further highlighted by the age group distribution, 87% of the registered group were adults aged 15-59 years, while more than half (51%) of those who did not register were children and adolescents under the age of 15 ($p < 0.001$). On the other hand, sex was not a significant factor in registration status ($p = 0.365$). Females comprised the majority of both the registered (55%) and non-registered (53%) cohorts.

Significant geographic variation was observed across the five branch offices ($p < 0.001$). The Kamarpara office demonstrated the highest relative success in registration, accounting for 26% of the registered contacts but only 11% of the non-registered group. Conversely, the Jogonnathpur and Aftabnagar branch offices had higher proportions of contacts who did not register compared to their registered population. Additionally, a slight but statistically significant difference was observed regarding the year of identification ($p = 0.024$), with a higher percentage of contacts registering in 2024 (53%) than in 2025 (47%).

Table 4. Factors associated with TPT registration among TPT-eligible household contacts of TB patients

Potential Risk Factors	Total (N=2,731) n (%)	Registered (n=1,920) n (%)	Unadjusted OR (95% CI)	P-value	Adjusted OR (95% CI)	P-value
Age group						
< 15 years	634 (23)	219 (11)	1.0 (Ref)		1.0 (Ref)	
≥ 15 years	2,097 (77)	1,701 (89)	8.1 (6.7,9.9)	< 0.001	9.2 (7.5,11.3)	< 0.001*
Sex						
Male	1,240 (45)	861 (45)	1.0 (Ref)		1.0 (Ref)	
Female	1,491 (55)	1,059 (55)	1.1 (0.9,1.3)	0.365	1.0 (0.9,1.2)	0.824
Year						
2024	1,414 (52)	1,021 (53)	1.0 (Ref)		1.0 (Ref)	

2025	1,317 (48)	899 (47)	0.8 (0.7,0.9)	0.024	0.7 (0.6,0.9)	< 0.001*
Branch office						
Jogonnathpur	515 (19)	311 (16)	1.0 (Ref)		1.0 (Ref)	
Kamarpara	580 (21)	491 (26)	3.6 (2.7,4.8)	< 0.001	3.6 (2.6,4.9)	< 0.001*
Dokkhin Khan	535 (20)	412 (21)	2.2 (1.7,2.9)	< 0.001	1.9 (1.4,2.6)	< 0.001*
Aftabnagar	406 (15)	249 (13)	1.0 (0.8,1.4)	0.771	0.8 (0.6,1.0)	0.060
Uttar Badda	695 (25)	457 (24)	1.26 (0.9,1.6)	0.055	1.08 (0.8,1.4)	0.569

*Statistically significant ($p < 0.05$).

Factors associated with TPT registration

The bivariate and multivariate logistic regression analyses identified multiple independent predictors of TPT registration among household contacts. Age was the strongest determinant of registration; individuals aged 15 years and older were more likely to be registered compared to those under 15 years in both the unadjusted (OR 8.1; 95% CI: 6.7, 9.9) and adjusted models (aOR 9.2; 95% CI: 7.5, 11; $p < 0.001$).

Temporal and institutional factors also significantly influenced registration outcomes. Contacts identified in 2025 were significantly less likely to be registered compared to those in 2024 after adjusting for other factors (aOR 0.7; 95% CI: 0.6, 0.9; $p < 0.001$). Regarding branch offices, household contacts registered in Kamarpara (aOR 3.6; 95% CI: 2.9, 4.9; $p < 0.001$) and Dokkhin Khan (aOR 1.9; 95% CI: 1.4, 2.6; $p < 0.001$) branch offices were 3.5 and 1.6 times more expected to be registered for TPT compared to the reference branch (Jogonnathpur).

In contrast, sex was not a significant predictor of TPT registration in either the unadjusted or adjusted analysis ($p = 0.824$). Similarly, although Uttar Badda showed a slight positive association in the bivariate analysis, however, this is not significant in the multivariate model ($p = 0.569$).

4.1.4 Treatment Completion Rates: 3HP Vs 3HR Regimens

Table 5. Baseline characteristics of study participants who initiated TPT

Characteristic	3HR daily (n=139) n (%)	3HP weekly (n=139) n (%)	Total (N=278) N (%)	p-value
Age (years), median (IQR)	28 (19 – 43)	29 (20 – 42)	29 (20 – 42)	0.480 ²
Sex				1.000 ⁴
Male	53 (38)	53 (38)	106 (38)	
Female	86 (62)	86 (62)	172 (62)	
Relation to index				0.349 ⁴
TB case				
Child	40 (29)	34 (24)	74 (27)	
Spouse	30 (22)	36 (26)	66 (24)	
Parent	26 (19)	36 (26)	62 (22)	
Sibling	27 (19)	18 (13)	45 (16)	
Other HH Member	16 (11)	15 (11)	31 (11)	
Branch office				1.000 ⁴
Jogonnathpur	69 (50)	69 (50)	138 (50)	
Kamarpara	30 (21)	30 (21)	60 (21)	
Dokkhin Khan	26 (19)	26 (19)	52 (19)	
Aftabnagar	8 (6)	8 (6)	16 (6)	
Uttar Badda	6 (4)	6 (4)	12 (4)	

²Wilcoxon rank-sum test, ⁴Fisher's exact test

The study population of participants who initiated TPT comprised 278 participants, equally distributed between the 3HR daily regimen (n=139) and the 3HP weekly regimen (n=139). The overall median age of the cohort was 29 years (IQR: 20 - 42). A Wilcoxon rank-sum test confirmed there was no statistically significant difference in age distribution between the two treatment arms (p = 0.480).

The demographic and recruitment characteristics were perfectly balanced across the groups:

- Sex: Females represented nearly two-third of participants in both the exposed and comparison groups (62% each).
- Branch office distribution: The distribution across the five branch offices was perfectly balanced between the two regimens. Half of the total participants (50%) were recruited from the Jogonnathpur branch, followed by Kamarpara (21%) and Dokkhin Khan (19%). Aftabnagar and Uttar Badda branches contributed 6% and 4% of the study population, respectively. Fisher's exact test confirmed that the recruitment site distribution did not differ between the 3HR and 3HP groups ($p = 1.000$).
- Relationship to index TB case: While the 3HR group had a higher proportion of children (29%) compared to the 3HP group (24%), these variations were not statistically significant ($p = 0.349$).

Statistical analysis using Fisher's exact test for categorical variables (sex, relationship to index TB case, and branch office) confirmed that these baseline characteristics were well-balanced ($p > 0.05$), ensuring they will not act as confounders in the outcome analysis.

Overall treatment completion within the study population was exceptionally high, with both treatment arms achieving an identical completion rate of 97.12% (135 out of 139 participants in each arm). To formally evaluate the effect of the regimen type on adherence, a Poisson regression analysis was executed, as shown in Table 6.

Table 6. Unadjusted and adjusted risk ratios for TPT treatment completion (3HP and 3HR)

Variable	Unadjusted RR (95% CI)	<i>p</i> -value	Adjusted RR (95% CI)	<i>p</i> -value
TPT regimen				
3HR (daily)	1.0 (Ref)	-	1.0 (Ref)	-
3HP (weekly)	1.0 (0.9 – 1.0)	1.000	1.0 (0.9 – 1.0)	0.865
Age				
15 – 29 years	-	-	1.0 (Ref)	-
> 29 years	-	-	1.0 (0.9 – 1.0)	0.628
Sex				

Male	-	-	1.0 (Ref)	-
Female	-	-	0.9 (0.9 – 1.0)	0.166
Relation to index TB case				
Parent	-	-	1.0 (Ref)	-
Spouse	-	-	0.9 (0.9 – 1.1)	0.642
Child	-	-	1.0 (0.9 – 1.1)	0.188
Sibling	-	-	1.0 (0.9 – 1.1)	0.776
Other HH member	-	-	0.9 (0.9 – 1.1)	0.934
Branch office				
Aftabnagar	-	-	1.0 (Ref)	-
Kamarpara	-	-	1.0 (0.9 – 1.1)	0.744
Dokkhin Khan	-	-	1.0 (0.9 – 1.1)	0.145
Jogonnathpur	-	-	0.9 (0.9 – 1.0)	0.073
Uttar Badda	-	-	1.0 (0.9 – 1.1)	0.132

Poisson regression with standard errors was carried out to relate the factors associated with TPT completion and to estimate risk ratios (RR), as the high frequency of the outcome (97%) would lead to overestimation if odds ratios were used. Both unadjusted and adjusted models demonstrated that the choice of regimen weekly 3HP versus daily 3HR was not a significant predictor of treatment success. The adjusted risk ratio (aRR) for the weekly 3HP regimen was 1.0 (95% CI: 0.9 – 1.0; $p = 0.865$), confirming clinical equivalence in adherence between the two treatment arms.

After adjusting for demographic and programmatic factors, no variables remained significantly associated with completion rates ($p > 0.05$ for all categories):

- Demographics: Neither age group (aRR: 1.0 for > 29 years; $p = 0.628$) nor sex (aRR: 0.9 for females; $p = 0.166$) significantly influenced the likelihood of completing treatment.
- Relation to index TB case: The relationship to the index case did not impact completion, with all categories including spouses, children, and siblings showing comparable outcomes to the reference group.

- Branch office locations: Variations across the five branch offices were minimal. While participants at the Jogonnathpur branch showed a slightly lower probability of completion (aRR: 0.9; 95% CI: 0.9 – 1.0), however, no statistically significant ($p = 0.073$).

These findings indicate that TPT completion remained consistently high regardless of the specific regimen type or participant characteristics, supporting the non-inferiority of the weekly 3HP regimen in this setting.

4.2 Qualitative Findings by Domains of Consolidated Framework for Implementation Research

4.2.1 Background Characteristics of Qualitative Study Participants

The qualitative study involved two groups of participants to provide a comprehensive view of the TPT care cascade: household contacts of TB patients and staff from the BRAC TB Dhaka Urban Programme and branch offices. The household contacts of 4 IDI participants consisted of individuals aged 21 to 45 including garment workers and housewives with educational levels ranging from no formal schooling to secondary education (SSC). In parallel, KII participants comprised eight participants including six field organizers, one medical officer, and one district manager who all held graduate or post-graduate degrees and had between 2 and 6 years of working experience in the TB programme. This combination of community and service provider perspectives allowed for a robust analysis of the programme's implementation across different socioeconomic and operational levels.

4.2.2 Characteristic of Individuals

Knowledge of the community

Participants' knowledge of tuberculosis (TB) revealed a mix of traditional hygiene misconceptions and awareness of medical advancements. While some household contact respondents still associated transmission primarily with sharing domestic items like plates and mugs, there is a prominent shift in perception from viewing TB as an incurable to a curable disease that effective treatments are now readily available. Despite this, some participants still expressed a fundamental lack of awareness and understanding regarding the TB and TPT as well.

"Before, I thought that if someone had this disease, maybe they couldn't be saved, medicines were not available. Now I see that medicines are available and it is free of costs"

(IDI-1)

Misconception of the community

The most significant misconception about Tuberculosis Preventive Treatment (TPT) is the belief that medication is unnecessary for asymptomatic or healthy individuals. This is reinforced by a fear of long-term antibiotic use and potential side effects often compared to adverse reactions from the other vaccines. Household contacts stated that not only do they not want but also, they don't want their children to take TPT medicine as it might hamper their daily activities of schooling and coaching because of the side effects of the medicine. Some informants revealed that even some private physicians and specialists remain doubtful of prescribing antibiotics to asymptomatic household contacts of active TB patients, which supports the community's reluctance to initiate or complete the TPT.

"Many times, the apa had told me to take the TPT medicine and then I said, apa I am fine, I am healthy, I have no problem, so I do not need it. And I said that when I get TB, I will take it, right now I do not need to take it." (IDI-3)

4.2.3 Intervention Characteristics

Treatment regimens

Informants expressed that the transition to shortened, weekly Tuberculosis Preventive Treatment (TPT) regimens is perceived as a significant programmatic improvement. Both healthcare providers and household contacts noted that the reduced pill burden of the weekly regimen (e.g., taking three pills once a week instead of daily) is highly convenient, leading to a lesser overall burden on the patients compared to traditional Isoniazid Preventive Therapy (IPT) before. Participants and providers expressed a distinct trade-off between the shortened 3HP (weekly) and 3HR (daily) regimens while 3HP is preferred for its less burden of drugs, however, medical officer mentioned that it is frequently associated with more common side effects like vertigo, vomiting, and anxiety, which can lead to treatment refusal.

"HP is ok this is less duration and weekly one dose, but complaints are more and side effects are more in comparatively to HR... After 2 to 3 doses, they felt very sick and sometimes refused to take this." (KII-7)

4.2.4 Outer Setting

Social stigma in the community

Participants expressed deep concern over the social consequences of a TB diagnosis, such as the potential collapse of marriage for adolescent girls. Economically, business owners like shopkeepers feared that public knowledge of their TB status would lead to a loss of customers. To mitigate these risks, field organizer revealed that many patients claimed absolute confidentiality from neighbors and colleagues, often preferring to take their medication privately and they usually hide their status of taking medication from the community.

"Especially if an adolescent girl is a patient, then parents sometimes think that if people around know that the girl has TB, she will not be able to get married." (KII-4)

Barriers in an urban setting

The Dhaka urban environment presents a dual impact on programme implementation activities. High population density is viewed by medical officer and field staff as a strategic advantage of allowing them to reach and screen many individuals within a single location efficiently. However, participants mentioned challenges such as high internal migration where families frequently change residences and slum dwellers are away for work during the day, creating significant hurdles for consistent contact investigation and follow-up.

"But I think this is an advantage to find out the people at a time, at a place. This is an advantage for our workers. Because so many people are working at a time at a place. We can reach more people at a time." (KII-7)

Access to centers

Physical distance and the economic situation of urban people limit access to diagnostic centers. The time required to travel long distances for screening directly conflicts with the working hours of low-

income people. Field organizers revealed that workers are highly reluctant to attend clinic or center appointments because missing a single day of work results in an immediate salary deduction.

"We talk to them. After requesting many times, they agreed to go. They take one day off. If garment workers take a day off, their salary is deducted, so they do not want to go." (KII-1)

Support mechanisms

Field organizers mentioned that support mechanisms are essential for mitigating the financial and logistical barriers faced by vulnerable populations. Family support shows as reminders for weekly doses. Informants revealed that social support is targeted toward the economically disadvantaged people, for travel reimbursements of diagnostic procedures and this is critical for ensuring that patients can attend clinical screenings and evaluations without suffering a personal financial deficit.

"First of all, you have already seen the type of patients we mainly work with. Naturally, there is always a financial issue. We do provide social support. We tell them that if they do an X-ray, we will cover the transportation cost." (KII-5)

4.2.5 Inner Setting

Available resources and supply chain

Field organizers revealed that the limited supply of Tuberculosis Preventive Treatment (TPT) medications, especially 3-month daily Isoniazid-Rifampicin (HR) regimens, presents a barrier to programme implementation. Respondents noted that quarterly medicine requests are undersupplied compared to actual needs and shortages in diagnostic consumables like GeneXpert cartridges and X-ray films in the TDC. These stock-outs lead to operational delays where patients are needed to wait for the upcoming quarter to begin their treatment. Critically, the failure to provide full monthly doses requires patients to make multiple visits to the branch offices, which hampers patient trust and leads to treatment discontinuation.

"When that medicine finishes, the patient has to come to my office and collect it... Then the patient comes once, comes twice, but the third time they do not want to come. They say... you cannot provide the medicine. In this case, many patients stop taking the medicine." (KII-2)

Center environment

The physical infrastructure of the BRAC Tuberculosis Diagnostic Centers (TDC) and branch offices was recognized by all household contacts as facilities that were cleaned, well-decorated and offering an efficient workflow with minimal waiting times. Providers also felt the layout provided sufficient privacy for sensitive clinical consultations.

"The environment was very good. Clean and tidy. No smell, dirt, or garbage at all." (IDI-1)

Reporting

District manager revealed that current reporting protocols cause a double burden on staff with a high administrative workload as they have to maintain physical paper registers while simultaneously re-entering the same data into electronic systems, such as the e-TB Manager. While the data captured is considered comprehensive and sufficient for tracking the TPT care cascade, the redundancy of these parallel systems is viewed as a significant time-consuming process directed by national guidelines.

"Entering data into paper forms and then re-entering it into the software is time-consuming. Personally, I... This is like a double burden for us, this is not our rule... this is NTP things." (KII-8)

Staffing needs and aids

Field organizers mentioned that field implementation requires improvements in both human resources and educational materials. Respondents also highlighted the need for a more budget and field organizers to handle the workload of home visits. Furthermore, staff requested picture-based counseling tools (such as flip charts), noting that visual aids would be much more effective than text-heavy materials for educating community members to secure their participation.

"Not everyone reads the writing... The picture quickly goes into the brain that these problems exist. If that is given, it would be good for us. But we do not have such things." (KII-2)

Incentive structure

Field organizers revealed that there is no financial incentive regarding TPT administration. Unlike active TB cases, TPT is not administered through the community-based DOTS (Directly Observed

Treatment, Short-course) network, leaving patients to manage their own medication and the whole process is managed by field organizers.

"In the case of TPT, no incentive is given. And TPT is not administered through sebikas either. Most of the time, the patient takes it by themselves." (KII-6)

4.2.6 Process

Current TPT strategy

District manager mentioned that the implementation strategy relies on a strict adherence to National Tuberculosis Control Programme (NTP) guidelines, focused on contact investigation (CI) conducted via door-to-door home visits within 7 days of identifying an index case. The findings also highlight the role of gender in adherence, with women often assuming the responsible person role within the family to ensure all members take their doses together. Furthermore, programme protocols have evolved from telephone-based follow-ups to mandatory physical home visits to ensure treatment compliance of TPT recipients. Success in the field is largely related to the use of community health workers, whose local trust facilitates mobilization and counseling. Strategies to improve TPT uptake include transitioning to shortened 3HP regimens (weekly for 3 months), providing reimbursement for diagnostic travel costs, and establishing robust Public-Private Partnerships (PPP) networks.

"We follow the NTP's prescribed TPT care cascade precisely... if the X-ray is normal and the contact is asymptomatic, we pivot to prevention. We encourage them to start 3HP"

(KII-8)

Strength of programme activities

District manager and medical officer expressed that main strengths of the TB programme are its deep community integration and the Public-Private Partnerships (PPP) model as it can connect the gap between different levels of health infrastructure and community outreach by allowing expanded reach to community including private sector and removing financial barriers to take the healthcare services. The ability of field workers to conduct contact investigations (CI) within 7 days at the household level is highly effective for identifying eligible TPT candidates. Additionally, participants expressed high satisfaction with the proactive, personalized follow-up from field organizers and support of free-of-charge testing, diagnostic centers, and mobile X-ray vans deployed in slum areas.

"The Public-Private Partnership (PPM) model allows us to work with graduate practitioners, medical colleges, and six specialized diagnostic centers. We even have mobile vans with X-ray and GeneXpert capabilities for slum areas." (KII-8)

Bottlenecks of the system

Medical officer expressed that the diagnostic and clinical referral pathways are stuck in logistical and structural delays. The lack of a definitive diagnostic tool for TPT complicates decision-making, and the application of verbal screening algorithms mostly via telephone remains inconsistent. Informants mentioned that they have to struggle with an empty house in urban slums where daily wage workers are unavailable during the day, while middle- and high-class households refuse entry due to security concerns. Moreover, prescriptions from external providers frequently fail to adhere to national guidelines, forcing patients into an annoying cycle of returning for corrected paperwork.

"Everybody knows the situation like in the slums, everybody is not present at home, they are working like housemaids, rickshaw pullers... people are not allowed to enter their households, security issues, how to overcome is very difficult." (KII-7)

Patient dropout

Respondents mentioned that patient attrition is common at two stages of initial clinical referral and the early phase of treatment. Economically disadvantaged or elderly or clinically complicated contacts often refuse referrals to distant public hospitals due to travel costs and waiting times. District manager expressed that among those who do initiate treatment with 3HP regimen specifically complained about side effects like extreme weakness, dizziness, and vomiting during the first 2 to 3 weeks causes to abandon the medication completely.

"Within the first 2 to 3 weeks of 3HP, some patients complain of weakness, vomiting, or dizziness. In many cases, these side effects lead them to stop the medication." (KII-8)

Suggestions for the programme

Medical officer suggested deploying dedicated counselors to relieve the administrative burden on doctors and field organizers as most of the patients who drop out of treatment are due to side effects of the treatment and improving the quality of counselling by field organizers or dedicated counsellors

would be an option to improve treatment adherence and outcomes of the TPT recipients. They also suggested mass public awareness campaigns devoted specifically to TPT similar to existing general TB campaigns to improve public awareness on TPT implementation and for localized longitudinal research to track the long-term success of TPT in the prevention of progression to active TB cases.

"we need dedicated counsellors for this if we have more on this, within this treatment side effects are more, they are hopeless and then in this situation, dedicated person or something will be effective." (KII-7)

Chapter 5: Discussion

5.1 Summary of Key Findings

This study aims to evaluate the Tuberculosis Preventive Treatment (TPT) care cascade, compare two TB preventive treatment regimens and identify the main implementation barriers of a TB programme in an urban setting. The most significant results linked to the study objectives are as follows.

Significant cascade of care attrition at registration was found, while the programme was highly successful at investigating household contacts (89% completion), a major drop-off occurred at the treatment initiation stage of eligible household contacts and only 70% of eligible contacts actually started the TB preventive treatment. Surprisingly, adults aged 15 and older were significantly more likely to register for preventive treatment than children under 15 years of age. Regarding TPT regimens, both the weekly (3HP) and daily (3HR) treatment regimens were highly successful and both groups achieved a completion rate of 97.12%, showing that they are equally effective. The biggest patient-level barriers were social stigma (fear of losing business or marriage prospects), lack of awareness about TPT and the widespread misconception that asymptomatic people do not need to take medicine like antibiotics. Healthcare providers identified several system-level challenges, most notably medicine stock-outs, limited availability of supplies, the double burden of parallel paper and digital reporting, management of complicated cases and the difficulty of tracking patients in a highly mobile urban population setting.

5.2 Discussion of Findings

The study reveals a strong capacity for contact investigation within the Badda TB Diagnostic Center, with 89% of identified household contacts successfully screened. This is a huge programmatic strength compared to global averages (World Health Organization, 2025). However, the treatment initiation rate of 70% among the eligible highlights a critical leakage point where patients refuse or delay starting treatment (Ihesie et al., 2024).

While 70% treatment initiation is lower than the National Strategic Plan target of 100% by 2026, it is still remarkably higher than both the global coverage of 25% and the national average of 32% in

Bangladesh reported in 2024 (BRAC Health Programme, 2025). This suggests that the BRAC Public-Private Partnerships (PPP) model and active community health worker involvement are highly effective as it can eliminate barriers to take preventive treatment through collaboration with public and private practitioners, deployment of mobile vans especially for slum areas, free of charge investigations and intensive home visits by field organizers for initiation of treatment (Shatil et al., 2019). This combination of free, decentralize and involvement of field organizers through local community bridge the gaps even though there is still area for enhancement (Sujan et al., 2026).

The most surprising findings was that adults (≥ 15 years) were nine times more likely to register for TPT than children under 15 years. This gap is particularly striking because national TB programmes in South Asia, including Bangladesh typically prioritize children under five years not children under 15 due to their vulnerability to TB infection and progression (National Tuberculosis Control Programme, 2024). The fact that TPT registration was lower even in the broader under-15 category (which includes the highest-priority under-five group) suggests that paediatric TPT delivery faces systemic barriers extending well beyond the youngest age stratum (Prabhakaran et al., 2025). This gap in paediatric registration may be driven by parents' fear of giving antibiotics to healthy children, or a lack of child-friendly medication formulations (Dinendraram et al., 2025).

A central objective was to compare the newer, weekly 3HP regimen with the traditional, daily 3HR regimen. The study found out that treatment completion rates were numerically identical with both regimens achieving a 97.12%. This finding coincides with previous community-based studies in Bangladesh by (Rahman et al., 2024), which also recorded a 97% success rate for the 3HP regimen. However, the 97% success rate for the daily 3HR regimen is much higher than previous international estimates, such as those by (Ihesie et al., 2024), which estimated 3HR completion at around 85%. The unusually high success of the daily regimen in this study likely reflects the intense, personalized follow-up provided by BRAC's field organizers, showing that a strong support system can overcome the burden of taking daily pills (Sujan et al., 2026).

The qualitative findings provide clear explanations for why 30% of eligible contacts refuse treatment. The primary barriers are a lack of awareness about the TPT and a misconception of community belief that a person without symptoms does not need medication. Because Latent TB

Infection (LTBI) is asymptomatic, convincing healthy individuals to tolerate potential side effects (like vertigo or vomiting) is difficult (Singh et al., 2017).

Furthermore, social stigma remains deeply rooted. The fear that a TB diagnosis could collapse an adolescent girl's marriage prospects or drive customers away from a local business forces many families to hide their status and refuse preventive treatment (Jahan et al., 2025). Economic constraints, such as garment workers losing a day's wages to attend clinic appointments, further complicate the treatment initiation process. These findings mirror broader South Asian contexts, confirming that out-of-pocket costs and stigma are primary drivers of TPT refusal (Suseendar et al., 2024).

Findings also point to several operational challenges that healthcare providers face when trying to close the cascade gap. One of the most commonly mentioned challenges was the interruption of medicine buffer stocks, particularly for the 3HR preventive regimen (Giridharan et al., 2024). When a family is ready to start treatment for a child, having overcome their initial hesitation and only to be told the medicine is not available at the moment and needed to wait for the upcoming month and it can be discouraging for them. This experience tends to erode trust in the programme and many families might not restart the process. Addressing these supply gaps may be as important as addressing patient fears (Zaidi, 2025).

Additionally, diagnostic and clinical referral pathways are hindered by logistical delays, inconsistent telephone-based verbal screening, and a lack of definitive LTBI diagnostic tools, all of which complicate clinical decision-making. Furthermore, prescriptions from external providers are incomplete and deviate from national protocols and guidelines occasionally, forcing patients into annoying cycles of returning for corrected paperwork. These fragmented, multi-visit pathways reflect findings from India, where patients made a median of three healthcare visits before diagnosis, with provider delays accounting for more than 10 days (Subbaraman et al., 2016).

Furthermore, the urban landscape of Dhaka creates unique logistical challenges. High internal migration and the fact that slum dwellers are often out working during the day make follow-up difficult. Providers also noted that current guidelines require a double burden of reporting entering data on paper and then again digitally into the e-TB Manager. These challenges are consistent with

findings by (Giridharan et al., 2024), which highlighted that high primary care workloads, limited diagnostic facilities, and supply chain disruptions hinder TPT implementation in Southeast Asia.

To address these barriers, field staff requested visual tools for community mobilization and counselling (e.g., picture-based flipcharts) for low-literacy household contacts and dedicated counsellors to reduce administrative burden and improve treatment initiation and outcomes. These suggestions are supported by evidence from India, where community health worker-led, visually aided counselling has been shown to significantly improve TB prevention knowledge and treatment uptake among household contacts (Rani et al., 2025). Establishing quality counselling by improving current scheme of counselling by field organizers or dedicated counsellors would improve treatment adherence and outcomes of the household contacts by their own decision making and perspectives as mentioned in (National Tuberculosis Control Programme, 2024) there is only sub-optimal counselling on TPT and limited counselling on side effects of TPT as well. So, programme should focus on scaling up of TPT as mentioned in intervention 3.3 of National Strategic Plan, community health workers on counselling and follow up of TPT as they are currently not involving.

5.3 Strengths of the Study

This study has several strengths that make its findings highly reliable and useful for public health practice.

- A major strength is the use of a mixed-methods design by combining quantitative with qualitative data; the study shows not only where patients drop out but also clearly explains why it is happening
- The study evaluated actual programme data and records from the branch offices under the Badda TB Diagnostic Center over a full two-year period (2024-2025) with application of a census method for the care cascade meaning the statistical findings are highly accurate and representative of the area
- When comparing the weekly (3HP) and daily (3HR) treatment regimens, the study matched participants by age group and sex which ensures that the high completion rates discovered (97%) were certainly due to the programme's effectiveness and not just differences in the types of population taking the treatment

- The qualitative findings were reported by the five domains of Consolidated Framework for Implementation Research (CFIR) and this approach secured to get a complete picture of the barriers, ranging from personal patient fears to high-level systemic supply issues

5.4 Limitations of the Study

While the study is robust, it has a few limitations which need to be careful when inferring the results.

- The quantitative component of the study relied on existing programme CI and TPT registers and electronic databases which means the accuracy of the data depends on how well the field staff originally filled out the records and registers. However, the study team applied data quality checks, including validation, identifying duplicates and excluding records that lacked an essential component of data
- The study was conducted in a single, dense urban area in Dhaka (Badda). Therefore, unique urban challenges like internal migration of people and slum dynamics influenced the findings and these results may not be directly appropriate to other rural areas in Bangladesh. Therefore, data are collected to ensure a broad and representative picture of the urban environment
- During the qualitative interviews, both household contacts and healthcare providers might have slightly altered their answers to sound more favorable, however, experienced interviewers were systematically trained and all participants were ensured strict confidentiality and anonymity to make people feel comfortable sharing their actual perceptions and experiences

5.5 Implications for Public Health Policy and Practice

The findings from this study propose practical, actionable steps to help Bangladesh meet the WHO End TB Strategy goal of 90% reduction in the TB incidence rate by 2035.

1. Policy level (national strategies)

- The most critical systemic issue is the lack of a buffer stock for TPT medicines from the National Programme and policy should shift to ensure diagnostic centers have reserve stocks so that patients do not face operational delays or partial doses
- According to the current national guideline, field staff are required to record data in physical registers and then enter the same data into the digital platform of e-TB Manager. Integrating this into a single digital system would radically reduce the workload of field staff, allowing them to spend more time on counselling

2. Programme level (practical implementation)

- Field staff need picture-based educational materials (like flipcharts) as the biggest community barrier is the misconception that asymptomatic people don't need medicine and visual aids are essential to effectively explain asymptomatic risk to people, especially with lower literacy levels
- Current public awareness campaigns focus on active TB and programme should launch specific, community-wide campaigns educating the public about preventive TB treatment to reduce social stigma and normalize taking preventive medicine for TB
- Continuing to provide travel reimbursements for diagnostic procedures is critical for ensuring low-income workers can attend clinical evaluations without financial deficit

Chapter 6: Conclusion and Recommendations

6.1 Conclusion

This study assessed the Tuberculosis Preventive Treatment (TPT) care cascade, compared the effectiveness of two preventive regimens, and identified key implementation barriers within the Badda TB Diagnostic Center under the BRAC Dhaka Urban Programme.

The findings show that the programme has a robust capacity for active TB case finding, successfully completing contact investigations for 89% of identified household contacts. However, a significant attrition occurs at the treatment initiation stage of eligible household contacts, where only 70% of them actually register to start the preventive treatment. Remarkably, adults aged 15 and older were significantly more likely to register for TPT compared to children under 15 years of age, suggesting that paediatric TPT delivery faces systemic barriers including parental worries of giving antibiotics to their healthy children and a lack of child-friendly medications. For those who start treatment, the programme is effective; both the weekly (3HP) and daily (3HR) regimens achieved an identical, outstanding completion rate of 97.12%, demonstrating them to be effective even in the urban setting. This high success for the daily regimen likely shows the intense, personalized follow-up provided by field organizers, which successfully alleviated the burden of daily pills.

The study also emphasized several major barriers preventing people from taking treatment. At the patient level, the biggest barriers were the lack of awareness about TPT, the widespread misconception that asymptomatic individuals do not need to take medicines, deeply rooted social stigma regarding marriage and business prospects, and economic limitations like losing daily wages to attend clinic and center appointments. At the system level, healthcare providers are constrained by limited availability of medicine and supplies, the double burden of filling out both paper and digital reports, management of complicated cases and the challenges of tracking highly mobile populations, especially in urban slums. Furthermore, the diagnostic pathway is hindered by fragmented referral cycles, inconsistent telephone-based screening and prescriptions from external providers that infrequently deviate from national guidelines, forcing patients into unnecessary visits.

6.2 Recommendations

Based on the study's findings, practical recommendations to improve the uptake and effectiveness of the TPT care cascade are as follow.

National level

- Ensuring that diagnostic centers are provided with reserve buffer stocks of TPT medicines and preventing the stock-outs that currently force patients to delay or abandon treatment
- Integration of the current dual reporting requirement into a single reliable digital system and eliminating the need for staff to enter the same data into physical paper registers and the digital platform of e-TB Manager

Programme level

- Ensuring the availability of child-friendly medications (dispersable tablets) to improve TPT registration rates among the paediatric population
- Equipping field staff with picture-based IEC materials, to effectively deliver the risks of asymptomatic TB to community members, especially those with lower literacy levels
- Hiring or creating dedicated counseling staff to focus on patients and to improve adherence, which will simultaneously reduce the administrative burden currently placed on field staff
- Extending existing public awareness campaigns which focus only on active TB to specifically educate communities about preventive treatment and help the community to reduce social stigma
- Implementing flexible center hours or weekend appointments to accommodate garment workers and other day laborers who cannot afford to lose a day's wages for center/clinic appointments

Future research

- Initiating longitudinal research to track patients over a certain time period to measure the long-term effectiveness of TPT in actually preventing active TB cases and to generate valuable local evidences

- Conducting similar implementation studies in rural areas, as the barriers identified in this study such as slum dynamics may totally differ from the challenges faced in rural areas of the country
- Conducting focused qualitative research into parental hesitancy to identify specific reasons behind the low paediatric TPT registration rates

Declaration of GenAI Use

GenAI usage declaration

I, Zin Min Tun, declare that in preparation of this thesis, I used Gemini (Gemini 3 Flash, 2026) as a supporting tool to assist with thinking ideas, organizing the format of my write up and improving language usage in the text that I drafted myself. Gemini was not used to generate original arguments, interpret findings or production of the final academic content. All substantive ideas, opinions, references and conclusions are my own and have been independently verified according to JPGSPH academic integrity guidelines.

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Appendices

Appendix A: Data Collection Instruments

Quantitative data collection templates

Data collection template for performance of TPT care cascade at Badda TB Diagnostic Center

Quarter	No. of pulmonary bacteria confirmed cases	Household member	Contact investigation done by field staff	Eligible for TPT declared by Physician	No. of people registered for TPT
1 st					
2 nd					
3 rd					
4 th					
2024					
1 st					
2 nd					
3 rd					
4 th					
2025					
Total					

Data collection template for TPT registration among household contacts of TB patients

Branch office	UID	Age	Sex	Eligible	Registered	year

Data collection template for TPT completion

Branch office	UID	TPT registration number	Sex	Age	TB registration number of index case	Relation to index case	TPT registration date	TPT regimen	TPT start date	TPT outcome	TPT outcome date

Qualitative guidelines (Bengali version)

বিশদ সাক্ষাৎকারের জন্য নির্দেশিকা

উত্তরদাতা: যক্ষ্মা রোগীর পরিবারের সদস্যবৃন্দ, যারা যক্ষ্মা প্রতিরোধমূলক চিকিৎসার (TPT) জন্য উপযুক্ত (Household Contacts)

গবেষণা শিরোনাম: ঢাকার বাড্ডা টিবি ডায়াগনস্টিক সেন্টারের আওতাধীন ব্র্যাক সেবা এলাকায় যক্ষ্মা প্রতিরোধমূলক চিকিৎসা (TPT) এর ফলাফল, দৃষ্টিভঙ্গি এবং বাস্তবায়নের বাঁধাসমূহ মূল্যায়ন: একটি মিশ্র-পদ্ধতি গবেষণা।

পার্ট ১: পরিচিতি এবং সাক্ষাৎকার সংক্রান্ত তথ্য

ক্রমিক নং	প্রশ্ন	কোড/উত্তর
১	সাক্ষাৎকারের তারিখ	____/____/২০____ দিন/ মাস/ বছর
২	প্রশ্নপত্রের আইডি (ID):	
৩	সাক্ষাৎকার গ্রহণকারীর নাম:	
৪	নোট গ্রহণকারীর নাম:	
৫	সাক্ষাৎকার শুরুর সময়:	
৬	সাক্ষাৎকার শেষের সময়:	
৭	সাক্ষাৎকারের স্থান (স্থানের বিবরণ):	

পার্ট ২: উত্তরদাতার ব্যক্তিগত তথ্য

ক্রমিক নং	প্রশ্ন	কোড/উত্তর
১	উত্তরদাতার নাম (ঐচ্ছিক)	
২	বয়স (বছরে)	____ ____ বছর
৩	লিঙ্গ	১=পুরুষ; ২=নারী; ৩=অন্যান্য
৪	শিক্ষাগত যোগ্যতা (শ্রেণী উত্তীর্ণ)	০=শিক্ষাগত যোগ্যতা নেই; ১=প্রাথমিক/ইবতেদায়ী; ২=মাধ্যমিক/দাখিল; ৩=উচ্চ মাধ্যমিক/ডিপ্লোমা/আলিম; ৪=স্নাতক/ফাজিল; ৫=স্নাতকোত্তর
৫	পেশা	
৬	বৈবাহিক অবস্থা (ঐচ্ছিক)	১=বর্তমানে বিবাহিত; ২=বিবাহবিচ্ছেদ/আলাদা; ৩=বিপত্নীক/বিধবা; ৪=অবিবাহিত
৭	টিডিসি (TDC) নাম: (যেখান থেকে চিকিৎসা নিয়েছেন/নেন)	১= বাড্ডা টিডিসি; ২= অন্যান্য (থাকলে লিখুন)

৮	শাখার নাম: (যেখান থেকে চিকিৎসা নিয়েছেন/নেন)	১. আফতাবনগর, ২. দক্ষিণখান, ৩. জগন্নাথপুর, ৪. কামারপাড়া, ৫. উত্তর বাড্ডা, ৬. উত্তরখান
৯	শনাক্ত রোগীর (Index Case) সাথে সম্পর্ক	
১০	ঠিকানা	
১১	যোগাযোগ নম্বর	

পার্ট ৩: সচেতনতা, ঝুঁকি সম্পর্কে ধারণা এবং সামাজিক লজ্জা (Stigma)

- এই কর্মসূচি শুরু হওয়ার আগে যক্ষ্মার ঝুঁকি সম্পর্কে আপনার ধারণা কী ছিল?
[প্রোব/সহায়ক প্রশ্ন: যক্ষ্মা রোগীর সাথে বসবাস করার সময় আপনার নিজের যক্ষ্মা হওয়ার ঝুঁকি সম্পর্কে কেমন অনুভব করতেন?]
- আপনি সুস্থ থাকা অবস্থায় যখন ফিল্ড অর্গানাইজার (FO) আপনাকে যক্ষ্মা প্রতিরোধমূলক চিকিৎসা (TPT) নেওয়ার পরামর্শ দেন, তখন আপনার প্রাথমিক প্রতিক্রিয়া কী ছিল?
[প্রোব/সহায়ক প্রশ্ন: কোনো উপসর্গ ছাড়া ঔষধ খাওয়ার ব্যাপারে কোনো ভয়, সন্দেহ বা ভুল ধারণা কাজ করেছিল কি?]
- আপনার বাড়িতে যক্ষ্মা শনাক্ত হওয়ার বিষয়টি আপনার সামাজিক জীবনে কী ধরনের প্রভাব ফেলেছে?
[প্রোব/সহায়ক প্রশ্ন: প্রতিবেশী বা সহকর্মীরা জেনে ফেলার ভয়ে কি আপনি স্ক্রিনিং বা প্রতিরোধমূলক চিকিৎসা নিতে দ্বিধাবোধ করেছিলেন?]

পার্ট ৪: সেবার সহজলভ্যতা এবং পদ্ধতিগত বাঁধাসমূহ

- যক্ষ্মা (TB) ডায়াগনস্টিক সেন্টারে স্ক্রিনিং বা পরীক্ষা সেবা গ্রহণের অভিজ্ঞতা আপনার কাছে কেমন ছিল? [প্রোব/সহায়ক প্রশ্ন: যাতায়াত বা ভ্রমণের দূরত্ব, অপেক্ষার সময়, অথবা পরীক্ষার প্রক্রিয়া (যেমন: এক্স-রে বা জিন-এক্সপার্ট) সম্পর্কে আপনার অভিজ্ঞতার কথা বলুন।]
- সেবা কেন্দ্র থেকে আপনি যে তথ্যগুলো পেয়েছেন, সেগুলো যথেষ্ট স্পষ্ট কি না আপনি কীভাবে মূল্যায়ন করবেন? [প্রোব/সহায়ক প্রশ্ন: যদি কোনো তথ্য আপনার কাছে অস্পষ্ট থেকে থাকে, তবে সেগুলো কী ছিল?]
- ডায়াগনস্টিক সেন্টারের ভেতরের পরিবেশ বর্ণনা করুন। [প্রোব/সহায়ক প্রশ্ন: সেবা কেন্দ্রের গঠন বা পরিবেশ আপনার ব্যক্তিগত গোপনীয়তা রক্ষা করা বা স্বাস্থ্য বোধ করার ক্ষেত্রে যথেষ্ট কি না?]

পার্ট ৫: চিকিৎসা শুরু এবং নিয়মিত ঔষধ সেবন (Adherence)

- (যারা টিপিটি (TPT) শেষ করেন নি তাদের জন্য): প্রতিদিন বা প্রতি সপ্তাহে ঔষধ খাওয়ার রুটিন সম্পর্কে আপনার অভিজ্ঞতা বর্ণনা করুন।
[প্রোব/সহায়ক প্রশ্ন: এই ঔষধ আপনার শারীরিক স্বাস্থ্যের ওপর কেমন প্রভাব ফেলেছিল (পার্শ্বপ্রতিক্রিয়া)? এটি আপনার দৈনন্দিন কাজ বা জীবনযাত্রার ওপর কেমন প্রভাব ফেলেছিল?]

8. ঢাকার মতো একটি ঘনবসতিপূর্ণ এলাকায় বসবাস করা আপনার চিকিৎসার ওপর কেমন প্রভাব ফেলেছে? [প্রোব/সহায়ক প্রশ্ন: স্থানান্তরিত হওয়া বা ঘন ঘন বাসা বদলানো বা গ্রামের বাড়িতে যাতায়াতের কারণে মাঠ পর্যায়ের সংগঠক বা ফিল্ড অর্গানাইজার এর (FO) সাথে যোগাযোগ রাখা কি আপনার জন্য কঠিন হয়ে পড়ে?]
9. চিকিৎসা সম্পন্ন করার ক্ষেত্রে আপনার প্রধান বাধা বা চ্যালেঞ্জগুলো কী ছিল? এবং কেন?
10. (যারা টিপিটি (TPT) শুরু করেননি তাদের জন্য): চিকিৎসা গ্রহণ না করার প্রধান কারণ বা চ্যালেঞ্জগুলো কী ছিল? এবং কেন? এই পরিস্থিতি কাটিয়ে উঠতে আপনাদের কী ধরনের সহযোগিতা প্রয়োজন?

পার্ট ৬: অর্থনৈতিক সীমাবদ্ধতা এবং সম্পদ ব্যবস্থাপনা

11. টিপিটির (TPT) চিকিৎসা নিতে আপনার পরিবারের আর্থিক অবস্থার উপরে কী ধরনের প্রভাব ফেলেছে?
[প্রোব/সহায়ক প্রশ্ন: যাতায়াত খরচ, আপনার দৈনন্দিন কাজ বা উপার্জনে কোনো প্রভাব পড়েছে কি না?]
12. এমন কি হয়েছে, যখন আপনাকে বলা হয়েছে যে ঔষধ নেই বা স্টক শেষ? যদি হয়ে থাকে তবে এটি টিবি প্রোগ্রামের প্রতি আপনার আস্থার উপরে কিভাবে প্রভাব ফেলেছে?
13. এই চিকিৎসা চালিয়ে নেওয়ার ক্ষেত্রে কি কোনো লুকানো খরচ আছে (যেমন- বাড়তি পুষ্টিকর খাবার বা ভিটামিন কেনা) যা আপনার জন্য কষ্টকর?

পার্ট ৭: দীর্ঘমেয়াদী যক্ষ্মা প্রতিরোধমূলক চিকিৎসা সেবা নিশ্চিতকরণে কার্যকর উপায়

14. যক্ষ্মা কেন্দ্রের বর্তমান যক্ষ্মা প্রতিরোধমূলক চিকিৎসা (TPT) সেবার প্রধান সীমাবদ্ধতাগুলো কী কী? এগুলো উন্নত করতে আপনার পরামর্শ কী?
15. মাঠ পর্যায়ের সংগঠক বা ফিল্ড অর্গানাইজারের (FO) মাধ্যমে ঔষধ সেবন তদারকি করার বর্তমান পদ্ধতির ব্যাপারে আপনার মতামত কি? এটি পুরো মেয়াদে চিকিৎসা প্রদানে রোগীদের সহযোগিতা করার জন্য বাস্তবসম্মত কি না?
16. মানুষের জন্য এই চিকিৎসা গ্রহণ করা বা সম্পন্ন করা সহজ করতে এই সেবায় আর কী কী পরিবর্তন আনা যেতে পারে বলে আপনি মনে করেন?
[প্রোব/সহায়ক প্রশ্ন: ডিজিটাল রিমাইন্ডার (SMS/ ফোন কল), স্বাস্থ্য শিক্ষা, কর্মজীবী মানুষের জন্য সন্ধ্যায় সেবাকেন্দ্র খোলা রাখা ইত্যাদি]

Key Informant Interview (KII) নির্দেশিকা

অংশগ্রহণকারী: ম্যানেজার / মেডিকেল অফিসার

গবেষণা শিরোনাম: ঢাকার বাড্ডা টিবি ডায়াগনস্টিক সেন্টারের আওতাধীন ব্র্যাক সেবা এলাকায় যক্ষ্মা প্রতিরোধমূলক চিকিৎসা (TPT) এর ফলাফল, দৃষ্টিভঙ্গি এবং বাস্তবায়নের বাধাসমূহ মূল্যায়ন: একটি মিশ্র-পদ্ধতি গবেষণা।

পার্ট ১: পরিচিতি এবং সাক্ষাৎকার সংক্রান্ত তথ্য

ক্রমিক নং	প্রশ্ন	কোড/উত্তর
১	সাক্ষাৎকারের তারিখ	____/____/২০____ দিন/ মাস/ বছর
২	প্রশ্নপত্রের আইডি (ID):	
৩	সাক্ষাৎকার গ্রহণকারীর নাম:	

৪	নোট গ্রহণকারীর নাম:	
৫	সাক্ষাৎকার শুরুর সময়:	
৬	সাক্ষাৎকার শেষের সময়:	
৭	সাক্ষাৎকারের স্থান (স্থানের বিবরণ):	

পাট ২: উত্তরদাতার ব্যক্তিগত তথ্য

ক্রমিক নং	প্রশ্ন	কোড/উত্তর
১	উত্তরদাতার নাম (ঐচ্ছিক)	
২	বয়স (বছরে)	_ _ বছর
৩	লিঙ্গ	১=পুরুষ; ২=নারী; ৩=অন্যান্য
৪	শিক্ষাগত যোগ্যতা (শ্রেণী উত্তীর্ণ)	০=শিক্ষাগত যোগ্যতা নেই; ১=প্রাথমিক/ইবতেদায়ী; ২=মাধ্যমিক/দাখিল; ৩=উচ্চ মাধ্যমিক/ডিপ্লোমা/আলিম; ৪=স্নাতক/ফাজিল; ৫=স্নাতকোত্তর
৫	কার্যস্থানের ধরণ	১= উপজেলা পর্যায়; ২= জেলা পর্যায়; ৩= জাতীয় পর্যায়
৬	বর্তমান পদবী	১= ম্যানেজার; ২= মেডিকেল অফিসার
৭	কাজের অভিজ্ঞতা	_ _ (বছর)
৮	যোগাযোগ নম্বর	

১. যক্ষ্মা নিয়ন্ত্রণ কর্মসূচিতে আপনার বর্তমান ভূমিকা এবং দায়িত্ব সম্পর্কে সংক্ষেপে বলবেন কি?

পাট ৩: কৌশল এবং সামাজিক বাঁধা (Strategy and Stigma)

২. আপনার বর্তমান টিবি সেন্টারের সক্ষমতা কি জাতীয় যক্ষ্মা নিয়ন্ত্রণ কর্মসূচির (NTP) টিপিটি (TPT) নির্দেশিকার সাথে সামঞ্জস্যপূর্ণ?
৩. যক্ষ্মা রোগী শনাক্তকরণের (Active TB Case Finding) পাশাপাশি টিপিটি (TPT) শুরু করার বিষয়ে আপনার কেন্দ্রে কীভাবে ভারসাম্য বজায় রাখেন?
৪. টিপিটি (TPT) সম্পর্কে সাধারণ মানুষ বা রোগীদের মধ্যে সবচেয়ে বড় ভুল ধারণা বা ভয়গুলো কী কী?
[প্রোব/সহায়ক প্রশ্ন: যক্ষ্মা নিয়ে সামাজিক ভীতি স্বাস্থ্যকর্মীদের ক্ষেত্রে কন্টাক্ট ট্রেসিং বা যক্ষ্মার সংস্পর্শে আসা ব্যক্তিদের খুঁজে বের করার কাজে কিভাবে প্রভাব ফেলে?]

পাট ৪: কার্যপ্রণালী এবং পদ্ধতিগত বাঁধাসমূহ

৫. যক্ষ্মা রোগীর পরিবারের সদস্যদের টিপিটি (TPT) সেবার আওতায় আনার প্রক্রিয়াটি বর্ণনা করুন।

[প্রোব/সহায়ক প্রশ্ন: স্ক্রিনিং প্রক্রিয়ায় প্রধান বাঁধাগুলো কী কী (যেমন- জিন-এক্সপার্ট বা এক্স-রের সল্পতা অথবা জনবল সংকট)]

6. চিকিৎসা পদ্ধতির কোন ধাপে (শনাক্তকরণ, স্ক্রিনিং, চিকিৎসা শুরু এবং সম্পন্ন করা) রোগীরা সবচেয়ে বেশি ঝরে পড়ে? কেন?

[প্রোব/সহায়ক প্রশ্ন: সুস্থ থাকা সত্ত্বেও ঔষধ খেতে হবে এটা শোনার পরে কেন রোগীরা ঔষধ নিতে অনীহা প্রকাশ করে বলে আপনি মনে করেন?]

7. বর্তমান টিবি সেন্টারের গঠনগত কাঠামো কি রোগীদের গোপনীয়তা রক্ষা এবং মানসম্মত সেবা নিশ্চিত করতে সক্ষম? যদি না হয়, কেন?

পার্ট ৫: নিয়মিত ঔষধ সেবন (Adherence))

8. মানুষের বসবাসের বৈশিষ্ট্য (যেমন: স্থানান্তরিত হওয়া বা ঘনবসতিপূর্ণ আবাসন) নিয়মিত ঔষধ সেবনে(documentation) কী ধরনের প্রভাব ফেলে?
9. ব্র্যাক (BRAC) যম্ভা কর্মসূচিতে টিপিটি (TPT) ফলো-আপ বা নিয়মিত পর্যবেক্ষণের ধারাবাহিকতা বজায় রাখার ক্ষেত্রে কোন বিষয়গুলো প্রভাব ফেলে? [প্রোব/সহায়ক প্রশ্ন: যেমন জনবল (staffing) বা ব্যবস্থাপনা (management) সংক্রান্ত কোনো বিষয় কি এতে কোনো ভূমিকা রাখে?]
10. পুরো চিকিৎসা চলাকালীন রোগীদের ট্র্যাকিং বা পর্যবেক্ষণের জন্য বর্তমানে প্রচলিত রেজিস্ট্রার এবং রিপোর্টিং ফরম্যাটগুলোর পর্যাপ্ততা কি না আপনি কীভাবে মূল্যায়ন করবেন? [প্রোব/সহায়ক প্রশ্ন: মাঠ পর্যায়ের সংগঠক বা ফিল্ড অর্গানাইজারদের (Field Organizers) কাছ থেকে পাওয়া রিপোর্টে কি কোন চ্যালেঞ্জ বা বিশেষ কোনো তথ্যের ঘাটতি আপনি নিয়মিত লক্ষ্য করেন?]

পার্ট ৬: সম্পদ ব্যবস্থাপনা এবং অর্থনৈতিক সীমাবদ্ধতা

11. টিপিটি (TPT) ঔষধ (যেমন: ৩এইচপি/3HP বা আইসোনিয়াজিড) এবং অন্যান্য সরঞ্জামের মজুদের ধারাবাহিকতা সম্পর্কে আপনার অভিজ্ঞতা কেমন? [প্রোব/সহায়ক প্রশ্ন: যদি ঔষধের ঘাটতি (stock-out) দেখা দেয়, তবে তা সেবাপ্রদানকারীদের কাজের আগ্রহ বা প্রোগ্রামের ওপর রোগীদের আস্থার ক্ষেত্রে কী ধরনের প্রভাব ফেলে?]
12. মাঠ পর্যায়ের কর্মীরা অন্যান্য স্বাস্থ্যসেবার তুলনায় টিপিটি (TPT)-কে কিভাবে অগ্রাধিকার দেয়? [প্রোব/সহায়ক প্রশ্ন: মাঠ পর্যায়ের কর্মীদের জন্য কোন ইন্সেন্টিভ বা সহায়তা কাঠামো ভূমিকা রাখে কি না?]
13. টিপিটি (TPT) কার্যক্রম পরিচালনার জন্য বর্তমানে বরাদ্দকৃত জনবল (human resources) এবং বাজেটের পর্যাপ্ততাকে আপনি কিভাবে মূল্যায়ন করেন?

পার্ট ৭: দীর্ঘমেয়াদী যম্ভা প্রতিরোধমূলক চিকিৎসা সেবা নিশ্চিতকরণে কার্যকর উপায়

14. স্বল্পমেয়াদী চিকিৎসার (যেমন: ৩এইচপি/3HP) প্রচলন আপনার সেন্টারে প্রোগ্রামের ফলাফল এবং রোগীদের চিকিৎসা সম্পন্ন করার হারকে (completion rates) কীভাবে প্রভাবিত করেছে?
15. আপনার মতে, বর্তমানে প্রচলিত টিপিটি (TPT) কার্যক্রমের স্থায়িত্ব বা দীর্ঘমেয়াদী কার্যকারিতার (sustainability) ক্ষেত্রে প্রধান শক্তি এবং চ্যালেঞ্জগুলো কী কী?

16. ঢাকার মতো শহরে পরিবেশে টিপিটি (TPT)-এর আওতা বাড়তে এবং ২০২৭ সালের জাতীয় লক্ষ্যমাত্রা অর্জনে আপনি সুনির্দিষ্ট কী ধরনের পরিবর্তন বা নতুন পদ্ধতির পরামর্শ দেবেন?

Key Informant Interview (KII) নির্দেশিকা

উত্তরদাতা: ফিল্ড অর্গানাইজার (FO)

শিরোনাম: ঢাকার বাড়ি টিবি ডায়াগনস্টিক সেন্টারের আওতাধীন ব্র্যাক সেবা এলাকায় যক্ষ্মা প্রতিরোধমূলক চিকিৎসা (TPT)

এর ফলাফল, দৃষ্টিভঙ্গি এবং বাস্তবায়নের বাধাসমূহ মূল্যায়ন: একটি মিশ্র-পদ্ধতি গবেষণা।

পার্ট ১: পরিচিতি এবং সাক্ষাৎকার সংক্রান্ত তথ্য

ক্রমিক নং	প্রশ্ন	কোড/উত্তর
১	সাক্ষাৎকারের তারিখ	____/____/২০____ দিন/ মাস/ বছর
২	প্রশ্নপত্রের আইডি (ID):	
৩	সাক্ষাৎকার গ্রহণকারীর নাম:	
৪	নোট গ্রহণকারীর নাম:	
৫	সাক্ষাৎকার শুরুর সময়:	
৬	সাক্ষাৎকার শেষের সময়:	
৭	সাক্ষাৎকারের স্থান (স্থানের বিবরণ):	

পার্ট ২: উত্তরদাতার ব্যক্তিগত তথ্য

ক্রমিক নং	প্রশ্ন	কোড/উত্তর
১	উত্তরদাতার নাম (ঐচ্ছিক)	
২	বয়স (বছরে)	____ বছর
৩	লিঙ্গ	১=পুরুষ; ২=নারী; ৩=অন্যান্য
৪	শিক্ষাগত যোগ্যতা (শ্রেণী উত্তীর্ণ)	০=শিক্ষাগত যোগ্যতা নেই; ১=প্রাথমিক/ইবতেদায়ী; ২=মাধ্যমিক/দাখিল; ৩=উচ্চ মাধ্যমিক/ডিপ্লোমা/আলিম; ৪=স্নাতক/ফাজিল; ৫=স্নাতকোত্তর
৫	বর্তমান পদবী	
৬	কাজের অভিজ্ঞতা	____ (বছর)
৭	টিডিসি (TDC) নাম: (যেখানে কাজ করেন)	১= বাড়ি টিডিসি; ২= অন্যান্য (থাকলে লিখুন)
৮	শাখার নাম: (যেখানে কাজ করেন)	১. আফতাবনগর, ২. দক্ষিণখান, ৩. জগন্নাথপুর, ৪. কামারপাড়া, ৫. উত্তর বাড়ি,

		৬. উত্তরখান
৯	যোগাযোগ নম্বর	

1. যক্ষ্মা নিয়ন্ত্রণ কর্মসূচিতে আপনার বর্তমান ভূমিকা এবং দায়িত্ব সম্পর্কে সংক্ষেপে বলবেন কি?

পাট ৩: সচেতনতা, ঝুঁকি সম্পর্কে ধারণা এবং সামাজিক লজ্জা

2. বাড়ি এলাকার পরিবারগুলোর মধ্যে টিপিটি (TPT) সম্পর্কে সাধারণ ভুল ধারণাগুলো কী কী?
3. সামাজিক বন্ধনার ভয়ে কোনো পরিবার যদি তাদের যক্ষ্মা রোগীর সংস্পর্শে আসা সদস্য হিসেবে তাদের (Contacts) নাম নিবন্ধন করতে অস্বীকার করে, তবে আপনি পরিস্থিতিটি কীভাবে সামলান?
4. বাহ্যিক কোনো কারণ—যেমন মহামারী-পরবর্তী পরিবর্তন (post-pandemic shifts) বা স্থানীয় অস্থিতিশীল অবস্থা—মাঠ পর্যায়ের কর্মীদের সাথে কমিউনিটির মানুষের সম্পৃক্ততার (community engagement) ওপর কোনো প্রভাব ফেলেছে কি? *[প্রোব/সহায়ক প্রশ্ন: এসব কারণে সাধারণ মানুষের বাড়ি বাড়ি গিয়ে সেবা প্রদান (household access) করার ক্ষেত্রে এটি কীভাবে প্রভাব ফেলেছে?]*

পাট ৪: কার্যপ্রণালী এবং পদ্ধতিগত বাঁধাসমূহ

5. শনাক্তকৃত যক্ষ্মা রোগীদের তালিকা অনুযায়ী তাদের পরিবারের সদস্যদের বা সংস্পর্শে আসা ব্যক্তিদের (household contacts) খুঁজে বের করা বা ম্যাপিং করার প্রক্রিয়াটি বর্ণনা করবেন।
6. বাড়িতে শনাক্ত হওয়া একজন ব্যক্তির ডায়াগনস্টিক সেন্টারে এসে পরীক্ষা (screening) করানোর ক্ষেত্রে কোন বিষয়গুলো প্রভাব ফেলে? *[প্রোব/সহায়ক প্রশ্ন: এক্ষেত্রে কাজের চাপ (workload), যাতায়াত ব্যবস্থা (transport), অথবা সেবা কেন্দ্রের সেবা প্রদানের সময়সূচীর (operating hours) মতো বিষয়গুলো কতটা প্রভাব ফেলে বলে আপনি মনে করেন?]*
7. বাড়ি বা ঢাকার মতো ঘনবসতিপূর্ণ এলাকায় সকল যক্ষ্মা রোগীর পরিবারের সকল সদস্যকে খুঁজে বের করতে না পারার কারণগুলো কী কী?

পাট ৫: নিয়মিত ঔষধ সেবন (Adherence)

8. ঢাকার অভ্যন্তরীণ অভিবাসন বা ঘন ঘন এলাকা পরিবর্তন কীভাবে নিয়মিত ঔষধ সেবনে প্রভাব ফেলে?
9. পরিবারের সদস্যরা তাদের ঔষধের সাপ্তাহিক ডোজ নিয়মিতভাবে নিচ্ছেন কি না, তা যাচাই করার জন্য বর্তমানে কোন পদ্ধতি বা স্থানীয় কৌশল ব্যবহার করা হয়? *[প্রোব/সহায়ক প্রশ্ন: যারা দীর্ঘ সময় কাজ করেন বা ঘন ঘন ভ্রমণ করেন, এমন রোগীদের ক্ষেত্রে আপনারা কীভাবে নজরদারি (track) করেন?]*
10. টিপিটি (TPT) ঔষধ সেবনের ধারাবাহিকতা (adherence) পর্যবেক্ষণের ক্ষেত্রে প্রধান চ্যালেঞ্জগুলো কী কী এবং এগুলো কীভাবে সমাধান করা যেতে পারে?

পাট ৬: অর্থনৈতিক সীমাবদ্ধতা এবং সম্পদ ব্যবস্থাপনা

11. মাঠকর্মীদের জন্য বর্তমানে প্রচলিত ইনসেন্টিভ (incentive) বা সহায়তা কাঠামো সম্পর্কে বলবেন কি? অন্যান্য সক্রিয় যক্ষ্মা রোগী শনাক্তকরণের (active TB case finding) তুলনায় টিপিটি (TPT)-কে অগ্রাধিকার দেওয়ার ক্ষেত্রে এটি কীভাবে প্রভাব ফেলে?
12. টিপিটি (TPT) ঔষধের প্রাপ্যতা বা সহজলভ্যতা সম্পর্কে আপনার অভিজ্ঞতা কেমন? এটি আপনার মাঠপর্যায়ের পরিকল্পনা অথবা পরিবারের সদস্যদের (household contacts) ঔষধের প্রতি আগ্রহের ক্ষেত্রে কী ধরনের প্রভাব ফেলে?

13. এই কর্মসূচির জন্য সরবরাহকৃত সহায়ক উপকরণগুলোর (যেমন: ফ্লিপচার্ট, রেজিস্ট্রার, কাউন্সেলিং কার্ড) পর্যাপ্ততাকে আপনি কীভাবে মূল্যায়ন করবেন?
এক্ষেত্রে কোনো বিশেষ ঘটতি আপনার নজরে এসেছে কি?

পার্ট ৭: দীর্ঘমেয়াদী যক্ষ্মা প্রতিরোধমূলক চিকিৎসা সেবা নিশ্চিতকরণে কার্যকর উপায়

14. ঢাকার বাড্ডা এলাকায় বর্তমানে প্রচলিত টিপিটি (TPT) কার্যক্রমের দীর্ঘমেয়াদী স্থায়িত্ব এবং সম্ভাব্যতাকে আপনি কীভাবে মূল্যায়ন করবেন?
15. বর্তমান টিপিটি (TPT) সেবার প্রধান চ্যালেঞ্জগুলো কী কী এবং এগুলো মাঠকর্মীদের কাজের চাপের ওপর কী ধরনের প্রভাব ফেলে?
16. টিপিটি (TPT) কার্যক্রম এর আওতা (coverage) এবং স্থায়িত্ব উন্নত করার জন্য আপনার পরামর্শ কী? *[প্রোব/সহায়ক প্রশ্ন: ডিজিটাল ট্র্যাকিং (digital tracking), সরাসরি বাড়িতে গিয়ে চিকিৎসা শুরু করা, অথবা ফলো-আপের সময়সূচী পরিবর্তন করার মতো বিষয়গুলো কি বিবেচনা করা যেতে পারে?]*

Guideline for In-Depth Interview (IDI)

Respondents - Household contacts (HHCs) eligible for TB preventive treatment (TPT)

Title: Evaluating Tuberculosis Preventive Treatment (TPT) Outcomes, Perspectives and Implementation Barriers: A Mixed-Methods Study in BRAC Covered Areas under the Badda TB Diagnostic Center in Dhaka, Bangladesh

Part 1: Identification and interview related information

No.	Question	Codes/Answers
1	Date of the interview	____/____/20____ Day/ Month/ Year
2	Questionnaire ID:	
3	Name of the interviewer:	
4	Name of note taker:	
5	Interview starting time:	
6	Interview ending time:	
7	Place of interview [setting details]:	

Part 2: Background information of the respondent

No.	Questions	Codes/Answers
1	Name of the respondent (optional)	
2	Age (in year)	____ ____ Year
3	Sex	1=Male; 2=Female; 3= Other
4	Educational attainment <i>What was the highest educational attainment?</i>	0= No education 1= Primary/Ebtedayee 2= Secondary/Dakhil 3= Higher secondary/Diploma/Alim 4= Graduate/Fazil 5= Postgraduate
5	Occupation	
6	Marital status (optional)	1= Currently married 2= Divorced/Separated 3= Widowed 4= Never married
7	TDC name: (from where he/she took treatment)	1= Badda TDC 2= Other (specify) _____
8	Branch name: (from where he/she took treatment)	1. Aftabnagar 2. Dokkhin Khan 3. Jogonnathpur 4. Kamarpara 5. Uttar Badda

		6. Uttarkhan
9	Relationship to the index case	
10	Address	
11	Contact number	

Part 3: Awareness, risk perception, and stigma

17. What was your understanding of TB risk before this programme?

[Probe: How did you feel about your risk of catching TB while living with a TB patient?]

18. What was your initial reaction when the field organizer (FO) suggested TB preventive treatment (TPT) while you felt healthy?

[Probe: immediate fears, doubts, or misconceptions about taking drugs without symptoms]

19. How has the TB diagnosis in your house affected your social life?

[Probe: Did the fear of neighbors or coworkers finding out about the TB house affect your decision to participate in screening or start treatment on TPT?]

Part 4. Access to TPT services and systemic barriers

20. How would you describe your experience accessing screening services at the TB Diagnostic Center? *[Probe: Talk about your experience with travel distance, waiting times, or the testing process (X-ray/GeneXpert).]*

21. How would you rate the clarity of the information you received during your clinic visits? *[Probe: If there were things that remained unclear, what were they?]*

22. Describe the physical environment of the diagnostic center. *[Probe: How did the layout or setting affect your sense of privacy or comfort?]*

Part 5. Treatment initiation/adherence

23. **(For those who did not complete TPT):** Could you describe your experience with the daily or weekly routine of taking the medication?

[Probe: How did the medication affect your physical health (side effects) or your usual work/life schedule?]

24. How does living in a high-density area like Dhaka impact your treatment?

[Probe: Does frequent moving (internal migration) or travel to your village home make it difficult to keep in touch with the FO?]

25. What were the main challenges to complete the treatment? Why?

26. (For those who didn't initiate TPT) what were the main reasons/challenges to take the treatment? Why? To overcome these situations, what kinds of support will be required?

Part 6. Economic constraints and resource management

27. How has taking TPT impacted your household finances?
[Probe: Beyond transportation costs, did the time required for clinic visits or feeling weak from side effects impact your ability to work or earn a daily wage?]
28. Were there any times you were told the medicine was unavailable or out of stock? How did that affect your trust in the programme?
29. Are there any hidden costs (e.g., buying extra nutrition or vitamins) that make TPT difficult to maintain?

Part 7. Feasible approaches for sustainable TPT coverage/outcomes

30. What are the main challenges/shortcomings of the current TPT service at the TB center? What do you suggest to improve them?
31. What is your opinion on the current method of FO monitoring? Is it a sustainable way to support patients for the full duration of treatment?
32. How would you suggest to improve its approach to make it easier for people to take/complete treatment?
[Probe: Digital reminders (SMS/Calls), health education, evening clinic/center hours for working people]

Key Informant Interview (KII) Guideline

Respondents: Manager/Medical Officer

Title: Evaluating Tuberculosis Preventive Treatment (TPT) Outcomes, Perspectives and Implementation Barriers: A Mixed-Methods Study in BRAC Covered Areas under the Badda TB Diagnostic Center in Dhaka, Bangladesh

Part 1: Identification and interview related information

No.	Question	Codes/Answers
1	Date of the interview	____/____/20____ Day/ Month/ Year
2	Questionnaire ID:	
3	Name of the interviewer:	
4	Name of note taker:	
5	Interview starting time:	
6	Interview ending time:	
7	Place of interview [setting details]:	

Part 2: Background information of the respondent

No.	Questions	Codes/Answers
1	Name of the respondent (optional)	
2	Age (in year)	_ _ _ Years
3	Sex	1=Male; 2=Female; 3= Other
4	Educational attainment <i>What was the highest educational attainment</i>	0= No education 1= Primary/Ebtedayee 2= Secondary/Dakhil 3= Higher secondary/Diploma/Alim 4= Graduate/Fazil 5= Postgraduate
5	Type of affiliation	1= Sub-district level management 2= District level management 3= National level management (change option according to your demands)
6	Current Designation	1= Manager 2= Medical Officer
7.	Year of experience (In TB Programme)	_ _ _ Years
8	Contact number	

17. Could you please briefly describe about your current role and responsibilities in the TB control programme?

Part 3. Strategy and stigma

18. Do your current TB center's actual operational capacity align with National Tuberculosis Control Programme (NTP) guidelines for TPT?
19. How is the balance between TPT initiation and active TB case finding managed at your center?
20. What are the most common misconceptions or fears you encounter from the community or patients regarding TPT?
[Probe: How does the perceived stigma of TB in the coverage area affect the willingness of providers to push for contact tracing?]

Part 4. Operational workflow and systemic barriers

21. Could you describe the process for TPT in household contacts of TB patients?
[Probe: What are the main bottlenecks in the screening process (e.g., GeneXpert availability, X-ray availability, or staffing)]
22. At which specific step of TPT care cascade (identification, screening, initiation and completion) do you observe the highest rate of patient dropout? Why?

[Probe: What do you think eligible patients disappear after being told they are healthy but need medicine?]

23. To what extent does the current structure of the center allow for the patients' privacy and quality healthcare services necessary to initiate TPT? If not, why?

Part 5. Adherence

24. How does the nature of the living of population (e.g., internal migration or high-density housing) influence the treatment adherence?
25. What factors, if any, influence the consistency of TPT follow-up within the BRAC TB programme? (such as; staffing or management)
26. How would you rate the sufficiency of current registers and reporting formats for tracking patients throughout the treatment period?

[Probe: Are there specific data gaps or challenges you frequently encounter in reports from field organizers?]

Part 6. Resource management and economic constraints

27. What has been your experience regarding the consistency of TPT drug stocks (e.g., 3HP or Isoniazid) and supplies?

[Probe: If stock-outs occur, how do they influence provider motivation or patient trust in the programme?]

28. How does the field staff prioritize TPT compared to other health services?

[Probe: any incentives or support systems for FO?]

29. What is your assessment of the human resources and budget currently available to conduct TPT activities?

Part 7. Feasible interventions and sustainable approaches

30. How has the transition to shortened regimens (e.g., 3HP) influenced programme outcomes and patient completion rates at your center?
31. In your view, what are the primary strengths and challenges regarding the sustainability of the current TPT implementation strategy?
32. What specific adjustments or new approaches would you suggest to improve TPT coverage in urban settings like Dhaka and meet the national 2027 targets?

Key Informant Interview (KII) Guideline

Respondents: Field Organizers

Title: Evaluating Tuberculosis Preventive Treatment (TPT) Outcomes, Perspectives and Implementation Barriers: A Mixed-Methods Study in BRAC Covered Areas under the Badda TB Diagnostic Center in Dhaka, Bangladesh

Part 1: Identification and interview related information

No.	Question	Codes/Answers
1	Date of the interview	____/____/20____ Day/ Month/ Year
2	Questionnaire ID:	
3	Name of the interviewer:	
4	Name of note taker:	
5	Interview starting time:	
6	Interview ending time:	
7	Place of interview [setting details]:	

Part 2: Background information of the respondent

No.	Questions	Codes/Answers
1	Name of the respondent (optional)	
2	Age (in year)	____ Years
3	Sex	1=Male; 2=Female; 3= Other
4	Educational attainment (What was the highest educational attainment)	0= No education 1= Primary/Ebtedayee 2= Secondary/Dakhil 3= Higher secondary/Diploma/Alim 4= Graduate/Fazil 5= Postgraduate
5	Current Designation	
6	Year of experience (In TB programme)	____ Years
7	TDC name: (from where he/she works)	1= Badda TDC; 2= Other (specify) _____
8	Branch name: (from where he/she works)	1. Aftabnagar 2. Dokkhin Khan 3. Jogonnathpur 4. Kamarpara 5. Uttar Badda 6. Uttarkhan
9	Contact number	

17. Could you please briefly describe about your current role and responsibilities in TB control programme?

Part 3. Awareness, risk perception, and stigma

18. What are the most common misconceptions families in Badda have about TPT?
19. How do you manage situations where a family refuses to register contacts due to fear of social exclusion?
20. In what ways, if any, have external factors such as post-pandemic shifts or local instability influenced community engagement with TB field staff?
[Probe: How has this affected your ability to access households?]

Part 4. Operational workflow and systemic barriers

21. Could you describe the process you use to map household contacts based on the list of confirmed TB patients?
22. What factors influence the transition of a contact from being identified at home to arriving at the center for screening?
[Probe: Consider factors like workload, transport, or clinic operating hours.]
23. What are the reasons unable to locate or identify all household contacts in high-density urban settings like Badda/Dhaka?

Part 5. Adherence

24. How does population movement (internal migration) in Dhaka influence the treatment adherence?
25. What systems or local strategies are currently used to verify that household contacts are adhering to their weekly doses? *[Probe: How do you track patients with long work hours or frequent travel?]*
26. What are the primary challenges in monitoring TPT adherence, and how might these be addressed?

Part 6. Economic constraints and resource management

27. Could you describe the current incentive and support structure for field staff, and how it influences the way you prioritize TPT compared to active TB case finding?
28. What has been your experience with TPT drug availability, and in what ways does this influence your field planning or the motivation of household contacts?
29. How would you evaluate the adequacy of the supporting materials (flipcharts, registers, counseling cards) provided for the programme, and what specific gaps, if any, have you identified?

Part 7. Feasible interventions and sustainable approaches

30. How would you evaluate the long-term sustainability and feasibility of the current TPT approach in Badda/Dhaka?

31. What are the primary challenges of current TPT services, and how do they impact the workload of field staff?
32. What suggestions do you have for improving the intervention, coverage, and sustainability of TPT? [*Probe: Consider options like digital tracking, home-based initiation, or revised follow-up schedules.*]

Appendix B: Informed Consent Form

Information sheet and assent form (Bengali version)

তথ্যকণিকা

ভূমিকা: আসসালামু আলাইকুম/নমস্কার, আমার নাম [_____]। আমি ব্র্যাক বিশ্ববিদ্যালয়ের জেমস পি গ্র্যান্ট স্কুল অফ পাবলিক হেলথ থেকে এসেছি। আমরা “ঢাকার বাড়্যা টিবি ডায়াগনস্টিক সেন্টারের আওতাধীন ব্র্যাক কর্তৃক সেবা প্রদানকৃত এলাকায় যক্ষ্মা প্রতিরোধমূলক চিকিৎসা (TPT) এর ফলাফল, দৃষ্টিভঙ্গি এবং বাস্তবায়নের বাঁধাসমূহ মূল্যায়ন: একটি মিশ্র-পদ্ধতি গবেষণা” শীর্ষক একটি গবেষণা পরিচালনা করছি। এই গবেষণাটি ব্র্যাক টিবি প্রোগ্রামের সহযোগিতায় এবং ব্র্যাক বিশ্ববিদ্যালয়ের জেমস পি গ্র্যান্ট স্কুল অফ পাবলিক হেলথের এমপিএইচ (MPH) প্রোগ্রামের অর্থায়নে পরিচালিত হচ্ছে।

ক্রমিক নং: [_____]

গবেষণার উদ্দেশ্য: এই গবেষণার মূল উদ্দেশ্য হলো, কেন কিছু মানুষ যক্ষ্মা প্রতিরোধমূলক ঔষধ খাওয়া সম্পন্ন করেন এবং কেন কিছু মানুষ যক্ষ্মা প্রতিরোধমূলক ঔষধ খাওয়া সম্পন্ন করেন না সে সম্পর্কে জানা। আমরা দুই ধরনের প্রতিরোধমূলক চিকিৎসা (সাপ্তাহিক ও দৈনিক) তুলনা করতে চাই এবং ঢাকা শহরে যক্ষ্মা প্রতিরোধে যক্ষ্মা রোগী ও স্বাস্থ্যকর্মীদের চ্যালেঞ্জগুলো চিহ্নিত করতে চাই।

অংশগ্রহণের যৌক্তিকতা: আপনাকে এই গবেষণায় অংশগ্রহণের জন্য অনুরোধ করা হচ্ছে কারণ আপনি যক্ষ্মা আক্রান্ত কোনো ব্যক্তির পরিবারের সদস্য। যক্ষ্মা প্রতিরোধমূলক চিকিৎসার বাস্তব বাঁধাগুলো বোঝার জন্য আপনার অভিজ্ঞতা অত্যন্ত গুরুত্বপূর্ণ।

আমরা এই গবেষণার বিষয়ে আপনার বাবা-মা/আইনগত অভিভাবকের সাথে কথা বলেছি এবং তারা জানেন যে আমরা আপনার কাছ থেকেও অনুমতি চাইছি। আপনি যদি এই গবেষণায় অংশগ্রহণ করতে রাজি থাকেন তাহলে আপনার বাবা-মা/আইনগত অভিভাবককেও রাজি হতে হবে। আবার, আপনি যদি অংশগ্রহণ করতে রাজি না থাকেন তাহলে আপনার বাবা-মা/আইনগত অভিভাবক রাজি থাকলেও আপনাকে অংশগ্রহণ করতে হবে না।

আপনি আপনার বাবা-মা/আইনগত অভিভাবকের সাথে বা বন্ধু বা অন্য কারও সাথে আলোচনা করতে পারেন। আপনি তাদের সাথে আলোচনা শেষে অংশগ্রহণের ব্যাপারে সিদ্ধান্ত নিতে পারেন। আপনাকে এখনি সিদ্ধান্ত নিতে হবে না।

অংশগ্রহণের পদ্ধতি: আপনি যদি অংশগ্রহণ করতে রাজি হন, তবে আমরা আপনার একটি সাক্ষাৎকার নেবো যা প্রায় ৪৫ থেকে ৬০ মিনিট সময় লাগবে।

- **যক্ষ্মা আক্রান্ত কোনো ব্যক্তির পরিবারের সদস্যদের জন্য:** আমরা আপনার যক্ষ্মা প্রতিরোধ ঔষধের অভিজ্ঞতা, পার্শ্বপ্রতিক্রিয়া এবং চিকিৎসা চলাকালীন কোনো চ্যালেঞ্জ (যেমন- খরচ বা সামাজিক সমস্যা) এবং চিকিৎসা সম্পন্ন না করার কোনো কারণ থাকলে তা জানতে চাইবো।
- **স্বাস্থ্যকর্মীদের জন্য:** আমরা স্বাস্থ্যসেবা প্রদান, কাজের চাপ, সরবরাহ সমস্যা, চ্যালেঞ্জ এবং বর্তমান যক্ষ্মা প্রতিরোধ সেবার উন্নতির জন্য আপনার পরামর্শ সম্পর্কে জানতে চাইবো।

আপনার অনুমতি সাপেক্ষে, আমরা সাক্ষাৎকারটি অডিও রেকর্ড করবো যাতে আপনার কথাগুলো সঠিকভাবে সংরক্ষণ করা যায় এবং পরবর্তী বিশ্লেষণের জন্য ব্যবহার করা যায়। এছাড়া সাক্ষাৎকার চলাকালীন আমরা আপনার অনুমতি সাপেক্ষে কিছু ছবি তুলবো, যেখানে আপনার মুখ দেখা যাবে না।

অংশগ্রহণের সুবিধা: এই গবেষণায় অংশগ্রহণ করলে আপনি সরাসরি কোনো চিকিৎসা বা আর্থিক সুবিধা পাবেন না। তবে আপনার দেওয়া উত্তরগুলো জাতীয় যক্ষ্মা নিয়ন্ত্রণ কর্মসূচি এবং ব্র্যাক এর টিবি প্রোগ্রামকে তাদের সেবাগুলো সাজাতে সাহায্য করবে যা ভবিষ্যতে আপনার লোকালয়ের মানুষের জীবন বাঁচাতে সহায়ক হবে।

সম্মানী: আপনার সময় এবং যাতায়াত খরচ বাবদ আমরা আপনাকে ৪০০ টাকা (BDT) প্রদান করব।

ঝুঁকি: এই গবেষণায় অংশগ্রহণে আপনার কোনো শারীরিক ক্ষতির ঝুঁকি নেই। আপনার স্বাস্থ্য বা জীবনখারা নিয়ে কিছু ব্যক্তিগত প্রশ্ন আপনাকে কিছুটা অস্বস্তিতে ফেলতে পারে। আপনি চাইলে যেকোনো প্রশ্নের উত্তর এড়িয়ে যেতে পারেন এবং যেকোনো সময় সাক্ষাৎকারটি বন্ধ করে দিতে পারেন।

নামহীনতা এবং গোপনীয়তা: আমরা আপনার পরিচয় কঠোরভাবে গোপন রাখব। আপনার নামের পরিবর্তে একটি কোড নম্বর ব্যবহার করা হবে এবং আপনার ব্যক্তিগত তথ্য গবেষণা দলের বাইরের কারো সাথে শেয়ার করা হবে না। সকল তথ্য পাসওয়ার্ড-সুরক্ষিত ফাইলে রাখা হবে। তথ্য ফাঁসের সামান্য ঝুঁকি থাকলেও আমরা তা নিয়ন্ত্রণে সর্বোচ্চ সতর্কতা অবলম্বন করবো। গবেষণার ফলাফল প্রকাশ বা অংশীদারদের সাথে শেয়ার করার সময় তা সমষ্টিগতভাবে প্রকাশ করা হবে, যাতে আপনাকে ব্যক্তিগতভাবে শনাক্ত করা না যায়।

অংশগ্রহণের ধরণ: এই গবেষণায় আপনার অংশগ্রহণ সম্পূর্ণ ঐচ্ছিক। আপনি চাইলে "না" বলতে পারেন, এর ফলে আপনার প্রাপ্ত স্বাস্থ্যসেবায় কোনো প্রভাব পড়বে না। এমনকি সাক্ষাৎকার শেষ হওয়ার পরেও যদি আপনি আপনার তথ্য মুছে ফেলতে চান, তবে আমাদের সাথে যোগাযোগ করতে পারেন।

যোগাযোগ: এই গবেষণা প্রকল্প সম্পর্কে আরও কিছু জানার থাকলে যোগাযোগ করুন: জিন মিন তুন (Zin Min Tun), এমপিএইচ শিক্ষার্থী, জেমস পি গ্র্যান্ট স্কুল অফ পাবলিক হেলথ, ব্র্যাক বিশ্ববিদ্যালয়। ফোন নম্বর: +৮৮০ ১৭৬৬৪৫৭৭৩। নৈতিক কোনো বিষয়ে অভিযোগ বা জিজ্ঞাসার জন্য ইনস্টিটিউশনাল রিভিউ বোর্ড (IRB)-এর সাথে যোগাযোগ করুন: ফোন: +৮৮০ ১৯৯৩৩৭৯৫১২, ইমেইল: irb-jpgsph@bracu.ac.bd।

সম্মতিপত্র

গবেষণা শিরোনাম: ঢাকার বাড্ডা টিবি ডায়াগনস্টিক সেন্টারের আওতাধীন ব্র্যাক কর্তৃক সেবা প্রদানকৃত এলাকায় যক্ষ্মা প্রতিরোধমূলক চিকিৎসা (TPT) এর ফলাফল, দৃষ্টিভঙ্গি এবং বাস্তবায়নের বাঁধাসমূহ মূল্যায়ন: একটি মিশ্র-পদ্ধতি গবেষণা।

আপনি যদি এই গবেষণায় অংশগ্রহণ করতে রাজি হন, তবে অনুগ্রহ করে নিচের ঘরে টিক চিহ্ন দিয়ে এবং আপনার স্বাক্ষর/বৃদ্ধা আঙ্গুলের ছাপ দিয়ে সম্মতি নিশ্চিত করুন।

আপনার আন্তরিক সহযোগিতার জন্য ধন্যবাদ।

আপনি কি সাক্ষাৎকারটি অডিও রেকর্ড করার অনুমতি দিচ্ছেন? (আপনি চাইলে যেকোনো সময় রেকর্ডার বন্ধ করতে বলতে পারেন) হ্যাঁ ☐ না ☐

আপনি কি গবেষণার প্রাপ্ত ফলাফল শেয়ার করার অনুমতি দিচ্ছেন? হ্যাঁ ☐ না ☐

আপনি কি ছবি তোলায় অনুমতি দিচ্ছেন? হ্যাঁ ☐ না ☐

আপনি কি ছবিগুলো শেয়ার করার অনুমতি দিচ্ছেন? হ্যাঁ ☐ না ☐

আপনার কি কোনো প্রশ্ন আছে? হ্যাঁ ☐ না ☐

যদি প্রশ্ন থাকে, তবে তা উল্লেখ করুন:

অংশগ্রহণকারীর গ্রহণকারীর নাম:	সাক্ষাৎকার নাম:
অংশগ্রহণকারীর স্বাক্ষর/বাম হাতের বৃদ্ধাঙ্গুলির ছাপ:.....	সাক্ষাৎকার গ্রহণকারীর স্বাক্ষর:
অংশগ্রহণকারীর বাবা-মা/অভিভাবকের স্বাক্ষর অথবা বাম হাতের বৃদ্ধাঙ্গুলির ছাপ	
তারিখ:	তারিখ:

আপনার মূল্যবান সময়ের জন্য আপনাকে অসংখ্য ধন্যবাদ।

Information Sheet

Introduction: Greetings, my name is [_____], and I came from **James P Grant School of Public Health, BRAC University**. We are conducting a study on “**Evaluating Tuberculosis Preventive Treatment (TPT) Outcomes, Perspectives and Implementation Barriers: A Mixed-Methods Study in BRAC Covered Areas under the Badda TB Diagnostic Center in Dhaka, Bangladesh**” in collaboration with BRAC TB Programme, funded by MPH Programme of James P Grant School of Public Health, BRAC University.

Serial no.: [_____]

Objectives: The purpose of this study is to understand why some people complete their TB preventive medicine while others do not. We want to compare two types of TB preventive treatment (weekly vs. daily) and identify the challenges faced by both patients and healthcare providers to improve TB prevention in Dhaka, Bangladesh.

Justification of participation: You are being asked to participate in the study because you are a household contact of someone who had TB. Your firsthand experience is essential to help us understand the real-world barriers to completing TB preventive treatment.

We have discussed this research with your parents/legal guardians, and they know that we are also asking for your permission. If you agree to participate in this research, your parents/legal guardians must also agree. However, if you do not agree to participate, you will not have to take part even if your parents/legal guardians agree.

You may discuss this with your parents/legal guardians, friends, or anyone else you trust. You can decide whether to participate after discussing it with them. You do not have to make a decision right now.

Procedure: If you agree to participate, we will conduct an interview that will take around 45 to 60 minutes.

- For household contacts of TB patients: We will ask about your experience with the TB preventive medicine, any side effects, and challenges you faced (like costs or social issues) while taking treatment and any reason of why you didn't complete it.
- For healthcare providers: We will ask about healthcare services provision, workload, supply issues, challenges and your suggestions for improvement of current TB preventive services.

With your permission, we will audio record the interview to ensure we capture your responses accurately as we need to write transcripts for data analysis. We will also take photographs of you while conducting interview only from the backside without showing your face.

Benefits of participation: There is no direct medical or financial benefit to you for participating in this study. However, your answers will help the National TB Control Programme/BRAC TB Programme design better ways to support people taking TB preventive treatment, potentially saving lives in your community.

Compensation: To compensate for your time and transportation, we will provide 400 BDT.

Risk: You do not face any risk of physical harm. Some questions about your health or lifestyle may feel personal or make you feel slightly uncomfortable. You do not have to answer any question you do not like, and you can stop the interview at any time.

Confidentiality and anonymity: We will keep your identity strictly confidential. Your name will be replaced with a code number, and personal details will not be shared with anyone outside the study team. Data will be stored in password-protected files. There is a risk of loss of confidentiality, however, we will do everything we can to minimize these risks. When we publish the results or share findings with partners like National TB Control Programme/BRAC TB Programme, it will be in a summary form so that no one can identify you personally.

Nature of participation: Your participation is completely voluntary. You are free to say "no" without any penalty or impact on the healthcare services you receive. Even after the interview, you can contact us if you change your mind and want us to delete your information.

Contact information: If you have any further queries about this research project, please contact Zin Min Tun, MPH Student, James P Grant School of Public Health, BRAC University at this phone number: +880 1766457793.

For ethical concerns, you can contact the Institutional Review Board (IRB): Phone: +8801993379512 Email: irb-jpgsph@bracu.ac.bd

Assent Form

Title of the study: Evaluating Tuberculosis Preventive Treatment (TPT) Outcomes, Perspectives and Implementation Barriers: A Mixed-Methods Study in BRAC Covered Areas under the Badda TB Diagnostic Center in Dhaka, Bangladesh

If you agree to participate in this study, please confirm by putting your signature/thumbprint.
Thank you for your cordial cooperation.

Do you give permission for the interview to be audio recorded? Yes No
Please note that at any point during the interview, you can ask the interviewer to turn off the recording device.

Do you give permission to share your findings? Yes No

Do you give permission to take photos? Yes No

Do you give permission to share the photos? Yes No

Do you have any question? Yes No

(If yes) State the question:

Respondent's name:	Interviewer name:
Respondent's signature/fingerprint of left thumb:	Interviewer signature:
Guardian's signature or fingerprint of left thumb:	
Date:	Date:

Thank you very much for your valuable time

Information sheet and consent form (Bengali version)

তথ্যকণিকা

ভূমিকা: আসসালামু আলাইকুম/নমস্কার, আমার নাম [_____]। আমি ব্র্যাক বিশ্ববিদ্যালয়ের জেমস পি গ্র্যান্ট স্কুল অফ পাবলিক হেলথ থেকে এসেছি। আমরা “ঢাকার বাড্ডা টিবি ডায়াগনস্টিক সেন্টারের আওতাধীন ব্র্যাক কর্তৃক সেবা প্রদানকৃত এলাকায় যক্ষ্মা প্রতিরোধমূলক চিকিৎসা (TPT) এর ফলাফল, দৃষ্টিভঙ্গি এবং বাস্তবায়নের বাঁধাসমূহ মূল্যায়ন: একটি মিশ্র-পদ্ধতি গবেষণা” শীর্ষক একটি গবেষণা পরিচালনা করছি। এই গবেষণাটি ব্র্যাক টিবি প্রোগ্রামের সহযোগিতায় এবং ব্র্যাক বিশ্ববিদ্যালয়ের জেমস পি গ্র্যান্ট স্কুল অফ পাবলিক হেলথের এমপিএইচ (MPH) প্রোগ্রামের অর্থায়নে পরিচালিত হচ্ছে।

ক্রমিক নং: [_____]

গবেষণার উদ্দেশ্য: এই গবেষণার মূল উদ্দেশ্য হলো, কেন কিছু মানুষ যক্ষ্মা প্রতিরোধমূলক ঔষধ খাওয়া সম্পন্ন করেন এবং কেন কিছু মানুষ যক্ষ্মা প্রতিরোধমূলক ঔষধ খাওয়া সম্পন্ন করেন না সে সম্পর্কে জানা। আমরা দুই ধরনের প্রতিরোধমূলক চিকিৎসা (সাপ্তাহিক ও দৈনিক) তুলনা করতে চাই এবং ঢাকা শহরে যক্ষ্মা প্রতিরোধে যক্ষ্মা রোগী ও স্বাস্থ্যকর্মীদের চ্যালেঞ্জগুলো চিহ্নিত করতে চাই।

অংশগ্রহণের যৌক্তিকতা: আপনাকে এই গবেষণায় অংশগ্রহণের জন্য অনুরোধ করা হচ্ছে কারণ আপনি যক্ষ্মা আক্রান্ত কোনো ব্যক্তির পরিবারের সদস্য অথবা আপনি ব্র্যাক টিবি প্রোগ্রামে যক্ষ্মা প্রতিরোধ নিয়ে কাজ করেন এমন একজন স্বাস্থ্যকর্মী। যক্ষ্মা প্রতিরোধমূলক চিকিৎসার বাস্তব বাঁধাগুলো বোঝার জন্য আপনার অভিজ্ঞতা অত্যন্ত গুরুত্বপূর্ণ।

অংশগ্রহণের পদ্ধতি: আপনি যদি অংশগ্রহণ করতে রাজি হন, তবে আমরা আপনার একটি সাক্ষাৎকার নেবো যা প্রায় ৪৫ থেকে ৬০ মিনিট সময় লাগবে।

- **যক্ষ্মা আক্রান্ত কোনো ব্যক্তির পরিবারের সদস্যদের জন্য:** আমরা আপনার যক্ষ্মা প্রতিরোধ ঔষধের অভিজ্ঞতা, পার্শ্বপ্রতিক্রিয়া এবং চিকিৎসা চলাকালীন কোনো চ্যালেঞ্জ (যেমন- খরচ বা সামাজিক সমস্যা) এবং চিকিৎসা সম্পন্ন না করার কোনো কারণ থাকলে তা জানতে চাইবো।
- **স্বাস্থ্যকর্মীদের জন্য:** আমরা স্বাস্থ্যসেবা প্রদান, কাজের চাপ, সরবরাহ সমস্যা, চ্যালেঞ্জ এবং বর্তমান যক্ষ্মা প্রতিরোধ সেবার উন্নতির জন্য আপনার পরামর্শ সম্পর্কে জানতে চাইবো।

আপনার অনুমতি সাপেক্ষে, আমরা সাক্ষাৎকারটি অডিও রেকর্ড করবো যাতে আপনার কথাগুলো সঠিকভাবে সংরক্ষণ করা যায় এবং পরবর্তী বিশ্লেষণের জন্য ব্যবহার করা যায়। এছাড়া সাক্ষাৎকার চলাকালীন আমরা আপনার অনুমতি সাপেক্ষে কিছু ছবি তুলবো, যেখানে আপনার মুখ দেখা যাবে না।

অংশগ্রহণের সুবিধা: এই গবেষণায় অংশগ্রহণ করলে আপনি সরাসরি কোনো চিকিৎসা বা আর্থিক সুবিধা পাবেন না। তবে আপনার দেওয়া উত্তরগুলো জাতীয় যক্ষ্মা নিয়ন্ত্রণ কর্মসূচি এবং ব্র্যাক এর টিবি প্রোগ্রামকে তাদের সেবাগুলো সাজাতে সাহায্য করবে যা ভবিষ্যতে আপনার লোকালয়ের মানুষের জীবন বাঁচাতে সহায়ক হবে।

সম্মানী: আপনার সময় এবং যাতায়াত খরচ বাবদ আমরা আপনাকে ৪০০ টাকা (BDT) প্রদান করব।

ঝুঁকি: এই গবেষণায় অংশগ্রহণে আপনার কোনো শারীরিক ক্ষতির ঝুঁকি নেই। আপনার স্বাস্থ্য বা জীবনধারা নিয়ে কিছু ব্যক্তিগত প্রশ্ন আপনাকে কিছুটা অস্বস্তিতে ফেলতে পারে। আপনি চাইলে যেকোনো প্রশ্নের উত্তর এড়িয়ে যেতে পারেন এবং যেকোনো সময় সাক্ষাৎকারটি বন্ধ করে দিতে পারেন।

নামহীনতা এবং গোপনীয়তা: আমরা আপনার পরিচয় কঠোরভাবে গোপন রাখব। আপনার নামের পরিবর্তে একটি কোড নম্বর ব্যবহার করা হবে এবং আপনার ব্যক্তিগত তথ্য গবেষণা দলের বাইরের কারো সাথে শেয়ার করা হবে না। সকল তথ্য পাসওয়ার্ড-সুরক্ষিত ফাইলে রাখা হবে। তথ্য ফাঁসের সামান্য ঝুঁকি থাকলেও আমরা তা নিয়ন্ত্রণে সর্বোচ্চ সতর্কতা অবলম্বন করবো। গবেষণার ফলাফল প্রকাশ বা অংশীদারদের সাথে শেয়ার করার সময় তা সমষ্টিগতভাবে প্রকাশ করা হবে, যাতে আপনাকে ব্যক্তিগতভাবে শনাক্ত করা না যায়।

অংশগ্রহণের ধরণ: এই গবেষণায় আপনার অংশগ্রহণ সম্পূর্ণ ঐচ্ছিক। আপনি চাইলে "না" বলতে পারেন, এর ফলে আপনার প্রাপ্ত স্বাস্থ্যসেবায় কোনো প্রভাব পড়বে না। এমনকি সাক্ষাৎকার শেষ হওয়ার পরেও যদি আপনি আপনার তথ্য মুছে ফেলতে চান, তবে আমাদের সাথে যোগাযোগ করতে পারেন।

যোগাযোগ: এই গবেষণা প্রকল্প সম্পর্কে আরও কিছু জানার থাকলে যোগাযোগ করুন: জিন মিন তুন (Zin Min Tun), এমপিএইচ শিক্ষার্থী, জেমস পি গ্র্যান্ট স্কুল অফ পাবলিক হেলথ, ব্র্যাক বিশ্ববিদ্যালয়। ফোন নম্বর: +৮৮০ ১৭৬৬৪৫৭৭৯৩। নৈতিক কোনো বিষয়ে অভিযোগ বা জিজ্ঞাসার জন্য ইনস্টিটিউশনাল রিভিউ বোর্ড (IRB)-এর সাথে যোগাযোগ করুন: ফোন: +৮৮০ ১৯৯৩৩৭৯৫১২, ইমেইল: irb-jpgsph@bracu.ac.bd।

সম্মতিপত্র

গবেষণা শিরোনাম: ঢাকার বাড্ডা টিবি ডায়াগনস্টিক সেন্টারের আওতাধীন ব্র্যাক কর্তৃক সেবা প্রদানকৃত এলাকায় যক্ষ্মা প্রতিরোধমূলক চিকিৎসা (TPT) এর ফলাফল, দৃষ্টিভঙ্গি এবং বাস্তবায়নের বাঁধাসমূহ মূল্যায়ন: একটি মিশ্র-পদ্ধতি গবেষণা।

আপনি যদি এই গবেষণায় অংশগ্রহণ করতে রাজি হন, তবে অনুগ্রহ করে নিচের ঘরে টিক চিহ্ন দিয়ে এবং আপনার স্বাক্ষর/বৃদ্ধা আঙ্গুলের ছাপ দিয়ে সম্মতি নিশ্চিত করুন। আপনার আন্তরিক সহযোগিতার জন্য ধন্যবাদ।

আপনি কি সাক্ষাৎকারটি অডিও রেকর্ড করার অনুমতি দিচ্ছেন? (আপনি চাইলে যেকোনো সময় রেকর্ডার বন্ধ করতে বলতে পারেন)

হ্যাঁ

না

আপনি কি গবেষণার প্রাপ্ত ফলাফল শেয়ার করার অনুমতি দিচ্ছেন?

হ্যাঁ

না

আপনি কি ছবি তোলা অনুমতি দিচ্ছেন?

হ্যাঁ

না

আপনি কি ছবিগুলো শেয়ার করার অনুমতি দিচ্ছেন?

হ্যাঁ

না

আপনার কি কোনো প্রশ্ন আছে?

হ্যাঁ

না

যদি প্রশ্ন থাকে, তবে তা উল্লেখ করুন:

অংশগ্রহণকারীর গ্রহণকারীর নাম:	সাক্ষাৎকার নাম:
অংশগ্রহণকারীর স্বাক্ষর/বাম হাতের বুড়ো আঙুলের ছাপ:.....	সাক্ষাৎকার গ্রহণকারীর স্বাক্ষর:
তারিখ:	তারিখ:

আপনার মূল্যবান সময়ের জন্য আপনাকে অসংখ্য ধন্যবাদ।

Information Sheet

Introduction: Greetings, my name is [_____], and I came from **James P Grant School of Public Health, BRAC University**. We are conducting a study on “**Evaluating Tuberculosis Preventive Treatment (TPT) Outcomes, Perspectives and Implementation Barriers: A Mixed-Methods Study in BRAC Covered Areas under the Badda TB Diagnostic Center in Dhaka, Bangladesh**” in collaboration with BRAC TB Programme, funded by MPH Programme of James P Grant School of Public Health, BRAC University.

Serial no.: [_____]

Objectives: The purpose of this study is to understand why some people complete their TB preventive medicine while others do not. We want to compare two types of TB preventive treatment (weekly vs. daily) and identify the challenges faced by both patients and healthcare providers to improve TB prevention in Dhaka, Bangladesh.

Justification of participation: You are being asked to participate because you are either a household contact of someone who had TB, or you are a healthcare provider working directly with TB prevention at the BRAC TB Programme. Your first-hand experience is essential to help us understand the real-world barriers to completing TB preventive treatment.

Procedure: If you agree to participate, we will conduct an interview that will take around 45 to 60 minutes.

- For household contacts of TB patients: We will ask about your experience with the TB preventive medicine, any side effects, and challenges you faced (like costs or social issues) while taking treatment and any reason of why you didn't complete it.
- For healthcare providers: We will ask about healthcare services provision, workload, supply issues, challenges and your suggestions for improvement of current TB preventive services.

With your permission, we will audio record the interview to ensure we capture your responses accurately as we need to write transcripts for data analysis. We will also take photographs of you while conducting interview only from the backside without showing your face.

Benefits of participation: There is no direct medical or financial benefit to you for participating in this study. However, your answers will help the National TB Control Programme/BRAC TB Programme design better ways to support people taking TB preventive treatment, potentially saving lives in your community.

Compensation: To compensate for your time and transportation, we will provide 400 BDT.

Risk: You do not face any risk of physical harm. Some questions about your health or lifestyle may feel personal or make you feel slightly uncomfortable. You do not have to answer any question you do not like, and you can stop the interview at any time.

Confidentiality and anonymity: We will keep your identity strictly confidential. Your name will be replaced with a code number, and your personal details will not be shared with anyone outside the study team. Data will be stored in password-protected files. There is a risk of loss of confidentiality, however, we will do everything we can to minimize these risks. When we publish the results or share findings with partners like National TB Control Programme/BRAC TB Programme, it will be in a summary form so that no one can identify you personally.

Nature of participation: Your participation is completely voluntary. You are free to say "no" without any penalty or impact on the healthcare services you receive. Even after the interview, you can contact us if you change your mind and want us to delete your information.

Contact information: If you have any further queries about this research project, please contact Zin Min Tun, MPH Student, James P Grant School of Public Health, BRAC University at this phone number: +880 1766457793.

For ethical concerns, you can contact the Institutional Review Board (IRB): Phone: +8801993379512 Email: irb-jpgsph@bracu.ac.bd

Consent Form

Title of the study: Evaluating Tuberculosis Preventive Treatment (TPT) Outcomes, Perspectives and Implementation Barriers: A Mixed-Methods Study in BRAC Covered Areas under the Badda TB Diagnostic Center in Dhaka, Bangladesh

If you agree to participate in this study, please confirm by putting your signature/thumbprint.
Thank you for your cordial cooperation.

Do you give permission for the interview to be audio recorded? Yes No
Please note that at any point during the interview, you can ask the interviewer to turn off the recording device.

Do you give permission to share your findings? Yes No

Do you give permission to take photos? Yes No

Do you give permission to share the photos? Yes No

Do you have any question? Yes No

(If yes) State the question:

Respondent's name:	Interviewer name:
Respondent's signature/fingerprint of left thumb:	Interviewer signature:
Date:	Date:

Thank you very much for your valuable time