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Programmatic Implementation of Tuberculosis Contact Investigation (PI-TBCI)

Package of Tools for Priority High TB Burden Countries

August 2020

This document aims to provide adaptable implementation guidance and tools for relevant stakeholders of USAID and its implementing partners (IPs) to ensure contact investigation (CI) activities are expanded within the TB care and prevention program activities of the high TB burden priority countries. The document is based on existing global evidence-based guidelines and country experiences with implementation of CI interventions.

Table of Contents

continued next page

ANNEXES

Acknowledgements

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Acronyms and Abbreviations

PI-TBCI	Programmatic Implementation of TB Contact Investigation
CI	Contact investigation
CXR	Chest x-ray
CSO	Civil Society Organization
DST	Drug susceptibility Test
DRS	Drug resistance survey
DR-TB	Drug Resistant TB
DM	Diabetes Mellitus
DR	Drug resistance
EPTB	Extra-pulmonary TB
FNA	Fine Needle Aspiration
HW	Health Worker
HCP	Health care providers
HF	Health facility
HIV	Human Immunodeficiency Virus
IGRA	Interferon-Gamma Release Assays
IPs	Implementing partners
INH	Isoniazid
IPT	INH Preventive Therapy
ISS	Integrated Supportive Supervision
J2SR	Journey to Self-reliance
LTBI	Latent TB infection
MDR-TB	Multidrug-resistant tuberculosis
NGO	Non-governmental Organization
NTP	National TB Program
OPD	Out Patient Department
PHC	Primary Health Care
PMTPT	Programmatic Management of TB Preventive Treatment
PLHIV	People living with HIV
SOPs	Standard Operating Procedures
TBCI	TB contact investigation
TPT	Tuberculosis Preventive Treatment
TST	Tuberculin Skin Test
UNHLM	United Nations High Level Meeting
USAID	United States Agency for International Development
WHO	World Health Organization

1. INTRODUCTION: NEED FOR PROGRAMMATIC IMPLEMENTATION OF TB CONTACT INVESTIGATION (PI-TBCI)

Background – The global perspective

One fourth of the world's population—over 1.8 billion people—is infected by *Mycobacterium Tuberculosis* and up to 15 percent will develop active tuberculosis (TB) disease if not treated [1]. In September 2018, the United Nations convened the first-ever High-Level Meeting (UNHLM) to accelerate the global response for ending the TB epidemic by 2035 [4]. This elimination target will only be possible by implementing active case finding and preventive strategies, including TB contact investigation and treatment of latent TB infection (LTBI).

Global Partners: USAID's investments to end TB focus on strengthening high TB priority countries' self-reliance for sustainable program activities to achieve the shared goal of ending the global TB epidemic. USAID works with partner governments in 23 high TB burden countries and several implementing partners (IPs) to prevent TB transmission, and to renew systematic efforts to find, treat, and cure the missing TB cases.

USAID's TB response is based on and in coordination with the U.S. Government Global TB Strategy 2015-2019 [2], the Global End TB Strategy [3] and The Stop TB Partnership – Global Plan to End TB 2018-2022 [5]. USAID's TB response emphasizes strengthening key technical areas that focus on drug susceptible TB (DS-TB) and drug resistant TB (DR-TB) prevention, diagnosis and treatment services in an integrated manner using optimal and proven tools, and interventions that result in high impact. The USAID Global TB Strategy further focuses on "preventing TB transmission and disease progression" as one of the three objectives to end TB. Specifically, improving TB contact investigation (CI) and contact follow-up interventions and treatment are listed as key interventions to achieve this objective.

Need for Case Detection: Despite significant progress in reducing TB incidence and mortality, low case notification rates with continued transmission continue to be primary challenges. More than 3 million TB cases are "missed" annually, meaning they are not properly diagnosed or reported to National TB Programs (NTPs) [1]. Stronger and coordinated action is needed to prevent TB transmission and disease progression with a focus on: 1) improving TB contact investigation; 2) screening and testing high-risk individuals with rapid TB diagnostics (like GeneXpert MTB/RIF) and implementing universal screening and rapid TB diagnostics for people in high-risk congregate settings; 3) identifying individuals with latent TB infection (LTBI), and implementing universal testing with methods like IGRA for those who have risk factors for progression to TB disease; 4) identifying individual and community-level risk factors and socioeconomic determinants that must be addressed to prevent TB transmission in a specific population, and 5) enhancing program management capacity [2].

Systematic screening: Investigating household contacts of newly diagnosed index TB patients for TB infection and disease (TB contact investigation) increases the opportunity for early TB case detection and initiation of treatment. The ultimate goal of contact investigation is to stop *Mycobacterium tuberculosis* transmission in the community through improved case detection, reduced diagnostic delays, and initiation of early treatment in order to improve outcomes for people with TB. There is a growing evidence base on the effectiveness of contact investigation to increase TB case finding and facilitate provision of TB preventive therapy (TPT) [6,7,8,9,10,11]. Although additional evidence is needed to evaluate impact of programmatic implementation and cost effectiveness of individual and/or community-level

benefits, NTPs are encouraged to implement or enhance systematic contact investigation and screening for TB disease as a key priority intervention to improve the following program performance measures:

1) Increase the number of TB cases found by TB contact investigation and initiated on anti-TB treatment.
2) Identify cases earlier in the course of disease to reduce transmission and improve treatment outcomes (reduce progression to TB disease and mortality from it).
3) Expand programmatic implementation of TB contact investigation as an entry for accelerated implementation/scale up of TB preventive therapy (TPT) for persons with LTBI.
4) Strengthen health systems via TB program capacity building, thus improving the impact on TB epidemiology and overall health outcomes per the goals of EndTB strategy and the UNHLM resolution.

This document provides guidance on systematic implementation of TB contact investigation (TB CI), and adaptable tools for relevant stakeholders of USAID and its implementing partners (IPs) to ensure TB contact investigation is implemented and expanded within the TB control program activities in the high TB burden priority countries. The tools provide adaptable implementation guidance to strategically implement TB CI activities under existing or future TB programs, to assist partner countries to comprehensively test, treat and prevent active disease and latent TB infection in order to reach the overall goal of TB elimination.

2. OBJECTIVES, GOALS, AND EVIDENCE (RATIONALE)

2.1. End TB Strategy, the UNHLM targets and the global plan to end TB 2018-2022

The End TB Strategy, alongside the United Nations Sustainable Development Goals (SDGs) and the United Nations General Assembly High-Level Meeting (UNHLM), has provided post-2015 global strategic guidance with targets for TB prevention and care. The strategy aims to end the global TB epidemic, with targets to reduce TB deaths by 95% and to cut new cases by 90% between 2015 and 2035, and to ensure that no family is burdened with catastrophic expenses due to TB. **The EndTB Strategy** has provided additional interim milestones for 2020, 2025 and 2030 so countries can monitor their performance while adapting and implementing innovative strategies with a focus on high impact interventions. The strategy focuses on motivating countries to ensure strong political commitment and ensure resource availability using domestic financing to achieve the 2035 targets. The ambitions of individual nations as expressed through the UNHLM targets (annex 11) reveal the need for further expansion of active case finding strategies including TB CI and ensure optimal treatment of TB infection and TB disease.

The Global Stop TB Partnership has further developed **The Global Plan to EndTB 2018-2022**, which proposes investment packages for a set of critical TB program activities including TBCI for the different regional/ country settings with varying TB disease burden and health system capacity. The plan proposes high TB priority settings scale up active TB case finding strategies including contact investigation with additional investments, as well as improve the quality of existing efforts in LTBI testing and preventive therapy.

The Global Plan further proposes:

- Early diagnosis among key populations through routine contact investigation and active case finding at household levels by engaging community health workers to provide additional support.

- Countries to make additional investments in TB care and specifically to strengthen contact investigation and a continuum of care for testing and TB preventive therapy, which can also be used to strengthen the health system that can also help to deal with other TB program priorities and health interventions with shared implementation strategies.

2.2. Rationale for TBCI implementation

Access to TB treatment and diagnostics over the past decade have been expanded and resulted in reduced TB incidence and mortality [1]. However, despite improvements in diagnostic tools, implementation of active TB case finding strategies remains limited. Moreover, high risk groups including children and other vulnerable populations with TB infection predisposed to developing active TB have limited access to screening and TB preventive therapy [1].

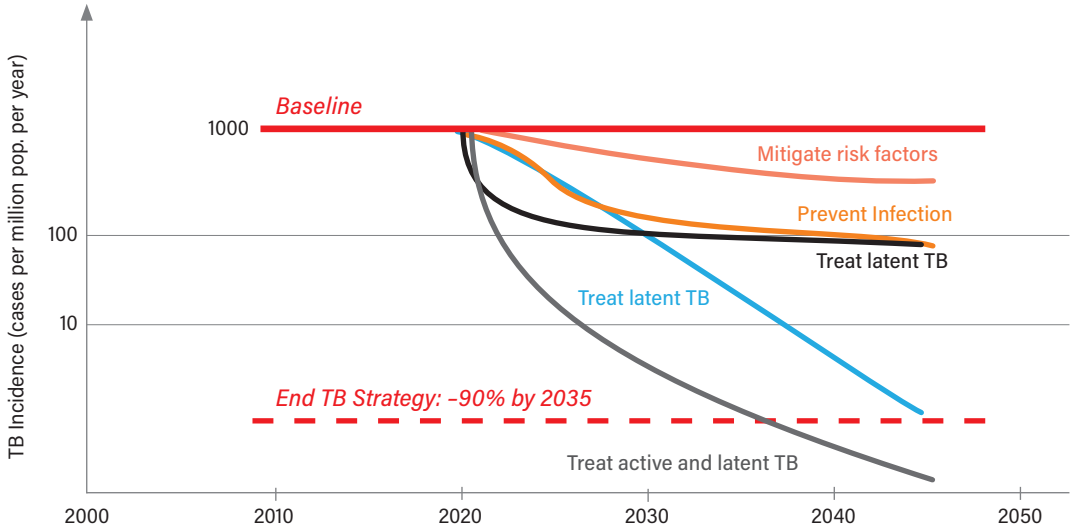
Global TB control performance modeling conducted by the WHO shows that incidence rates are declining on average at 1.6% per year in the period 2000–2018, and 2.0% between 2017 and 2018. The cumulative reduction between 2015 and 2018 was only 6.3%, considerably short of the End TB Strategy milestone of a 20% reduction between 2015 and 2020. Reaching the desired EndTB incidence reduction targets with the existing level of efforts, tools and implementation strategies with the available funding may not be possible. TB programs are highly underfunded and donor dependent, resulting in the lack of capacity by national programs to implement the complete the package of tools available to eliminate TB.

The renewed global commitments through the UNHLM and End TB adapted strategies and targets recognize that without strong interventions to prevent TB transmission and preventive treatment, while expanding early diagnosis and treatment of TB and DR-TB, it would be difficult to achieve the EndTB targets of 2035 [1, 2, 3, 4, modeling]. (See Figure 1 below.)

Studies have shown that the prevalence of active TB may reach 5% among household contacts, particularly children. Furthermore, contact investigation can identify people who were exposed to an index case of multi-drug-resistant or extensively drug-resistant TB, who require customized treatment, and vulnerable groups (people infected with HIV, diabetics, under-nourished), whose risk for rapid progression to active TB is high.

Systematic reviews and meta-analysis of TB contact investigation in various settings showed that contact investigation may improve early case detection and

Figure 1. TPT contribution to the End TB Strategy targets



Dye C et al., Prospects for Tuberculosis Elimination. Ann Rev Public Health 2013 34:271-86

decrease transmission of M. tuberculosis in high-incidence areas. Contacts of TB patients are considered a high-risk group for developing TB, particularly within the first year, with a particularly high risk for children <5 years of age and people living with HIV, prompting the need to scale up implementation of cost-effective contact investigation strategies, and also incorporate complementary strategies to enhance case finding. However, despite good evidence and global recommendations scale-up of active case finding strategies including TB CI and provision of TPT remain low in many high-burden countries. Some of the barriers for the limited implementation of WHO TB CI guidelines include lack of resources, high costs and shortage of for TB screening tools and lack of regulatory approval of newer treatments for TB infection (LTBI). More efforts are needed for additional resource mobilization, commodities price reductions for LTBI tests and treatments, and new diagnostic tools that can be more easily implemented at peripheral healthcare levels [1,6,9,10,11]. Successful implementation of TB CI as an active case finding strategy requires strong political commitment and TB program technical and management capacity at all levels to ensure policy guidance with additional human, financial and material (diagnostic and treatment) resources through the development and implementation of a strategic frame work for **programmatic implementation of TBCI (PI-TBCI)**

The aim of this tool is therefore to provide **adaptable implementation guidance and tools** to address the requirements of health system and TB programs of the high TB burden priority countries in their efforts to implement TB contact investigation as part of their expanded TB program activities in a programmatic manner.

2.3. WHO guidance and reference documents for TB CI

WHO recommends the implementation of TBCI as an important component of NTP activities. However, the expanded implementation of TBCI in a programmatic manner is limited to few countries [1, USAID landscape analysis] and therefore, this package of tools is intended to complement existing WHO guidelines and country experiences to provide a comprehensive, shareable, and adaptable package of tools and references for countries to expand TBCI activities.

While new WHO policy guidelines on systematic screening/TBCI are under revision for update using recent evidence, countries can refer to the *following global guidance documents.*

List of global guidance documents for PI-TBCI

i. *"Recommendations for investigating contacts of persons with infectious tuberculosis in low- and middle-income countries"* [12]. (Refer to annex 1 for summary recommendations)

ii. *"The 2015 WHO Systematic screening for active tuberculosis: an operational guide"*. The guide includes a description of ScreenTB, a web-based tool that can be used to help identify and prioritize risk groups and chose appropriate screening and diagnostic algorithms[13]

iii. Recommendations for Investigating Contacts of Persons with Infectious Tuberculosis in Low- and Middle-income Countries – Adaptation and Implementation Guide; TBCARE I/USAID – 2015 [17].

iv. 2020 WHO Rapid Communication on forthcoming changes to the programmatic management of Tuberculosis preventive treatment (TPT) [16]

v. World Health Organization. (2020). WHO operational handbook on tuberculosis: module 1: prevention: tuberculosis preventive treatment. World Health Organization. https://apps.who.int/iris/handle/10665/331525. License: CC BY-NC-SA 3.0 IGO [15]

3. OPERATIONAL GUIDE FOR TBCI AND TPT IMPLEMENTATION

3.1. USAID's strategic advantage in supporting contact investigation activities

USAID has longstanding relationship with the Ministries of Health and NTPs, and is strategically positioned to integrate TB contact investigation and TPT provision activities through existing and future TB programs support activities.

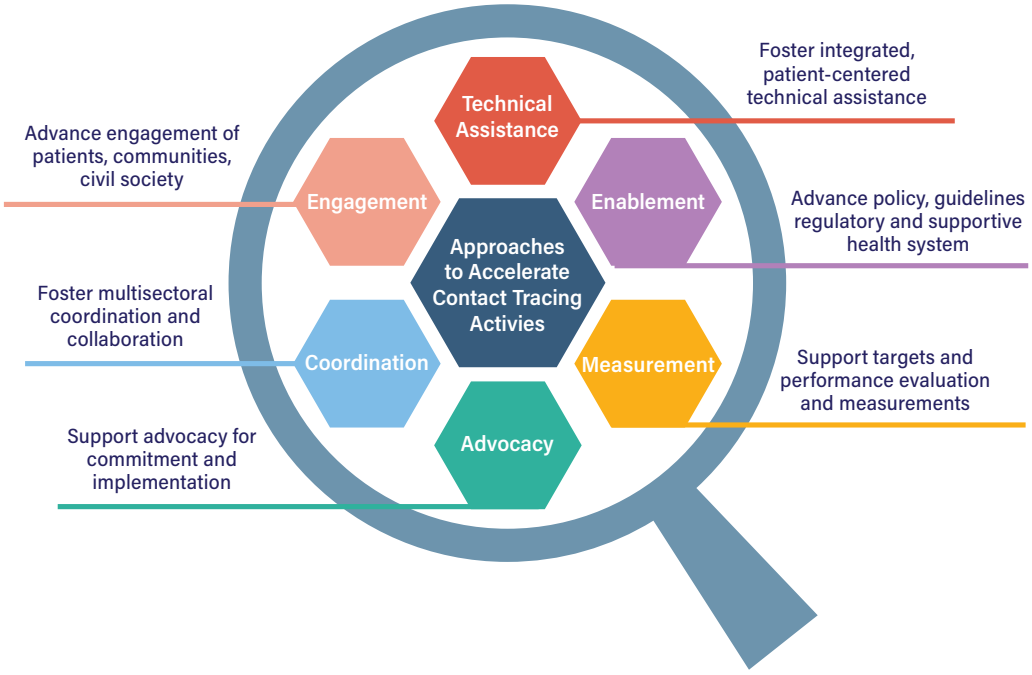
Initiatives under USAID's Global Accelerator to End TB offers USAID missions great opportunities to achieve targets and support countries in their journey to self-reliance (J2SR) and to end TB.

USAID supports a wide range of TB case finding activities through implementing partners' technical assistance and in some settings through direct program support at national, sub-national and community levels in priority countries. These platforms offer excellent opportunity for detection of missed cases of active TB, as well as identification of individuals who will benefit from TPT.

3.2. Key approaches to accelerate TB contact investigation activities

- Foster patient-centered, evidence-based and locally-driven TB CI interventions.
- Support an enabling environment for TB prevention (policy, guidelines, and regulatory frameworks).
- Foster multi-sectoral coordination, collaboration and contribution to TB prevention efforts.
- Ensure strong TB program capacity for community TB care activities, referral and rapid diagnosis.
- Strengthen a continuum of care for TB diagnosis and treatment in children and vulnerable people with co-morbidities.
- Advance engagement of patients, communities and civil society in TB prevention.
- Advance performance evaluations and measurements of targets.
- Support advocacy for commitment to TB prevention to end TB.

Figure 2. TB Contact Investigation Activities



3.3. Key interventions for implementing partners (IPs)

- **National guidelines and plans:** USAID missions and IPs should work with NTPs and stakeholders to ensure that TB priority interventions, including TB CI and treatment of latent TB infection are included into the national strategic plan (NSP). IPs should provide technical assistance to scale up TB CI and screening and treatment for LTBI, particularly for people living with HIV (PLHIV), children and persons in close contact with people who have TB disease. Key interventions include, but are not limited to: update guidelines in line with the latest WHO guidelines; engage in technical expert group discussions; identify risk groups; update diagnostic algorithms; provide guidance on treatment regimens; and assist in dissemination and implementation of updated guidelines.
- **Reach high risk groups:** IPs should work with NTPs to develop a coverage plan to reach vulnerable and key populations (child household contacts less than 5; household contacts more than 5 years old; PLHIV; and other clinical risk groups (silicosis, diabetes, dialysis, anti-TB treatment, transplant, etc.) with contact investigation activities according to national guidelines.
- **Human resources for contact investigation activities:** IPs should support the NTPs in developing human resource and staffing plans and approaches to capacitate dedicated and qualified personnel to support contact investigation activities, and to train and sensitize health care workers (HCWs) on the importance of TB prevention and contact investigation. IPs should also provide technical assistance to NTPs to: conduct assessments of training need; develop training modules/ materials; and train/orient health staff.
- **Community based approaches:** In the absence strong community-based health services, dedicated staff for TB activities at sub-regional health offices (district) and primary health facilities should be complemented by a strategy to engage civil society organizations (CSOs)/ NGOs to cover for the community centered TBCI activities. IPs should provide technical and financial support to strengthen the program at all levels including working with local CSOs/NGOs.
- **Technical assistance:** As a critical aspect of IPs support to enhance TB CI, technical assistance (TA) should focus on development and implementation of TBCI country roadmap and SOPs; ensure quality screening, testing and treatment of TB and DR-TB; support community outreach and engagement of community based organizations; implement monitoring and evaluation and supply chain management.

Section 12, provides interventions for implementing partners in scaling up and optimizing TPT.

5. TARGET AUDIENCE, SCOPE, AND DEFINITION OF TERMS

5.1. Target Audience

The package of tools in this document is aimed at expanding the Programmatic Implementation of TB Contact Investigation (PI-TBCI) in high TB and HIV burden countries through the support of USAID and its implementing partners (IPs) and MOH/NTP embedded technical advisors. The tools can be used to reinforce exiting national TB and HIV program policy guidelines and Standard Operating Procedures (SOP) or support their development for countries where they are missing. At country level, the target audiences are program managers and technical staff of TB and HIV programs; at national and sub-national levels, the target audience is health care providers at health facility and community levels. These tools should also be used to create opportunities to engage CSOs and community groups and other stakeholders involved in TB and HIV program activities. The tools need to be thoughtfully adapted to individual country community settings for context specific approaches to strengthen the linkages between community and facility level services.

5.2. Scope

The aim of TB contact investigation is to expand opportunities for early case finding and treatment of TB cases, and expand screening for LTBI to provide preventive treatment for those who are infected but not sick with the disease, hence reducing community transmission of *mycobacterium tuberculosis.* While there is a growing evidence base on the effectiveness of contact investigation to enhance case finding and provision of TB preventive therapy, as an active TB case finding strategy, contact investigation can be resource intensive and therefore prioritizing the index cases and their contacts for further investigation should be an important aspect of making the strategy cost-effective and sustainable especially in resource limited settings.

In countries where resources are limited and NTPs require significant additional funding, the models of interventions would then be prioritized to screening household (HH) close contacts, those high priority TB index cases identified based on their potential to transmit the infection to their contacts, and source cases with a focus on key vulnerable populations. If these highest priorities are addressed, TBCI could be further expanded to other groups based on the specific context of the country when resources are available.

The scope of this package of tools is to provide universal guidance and should be adapted to specific country settings so that national TB programs develop country specific TBCI roadmaps with key strategic interventions to conduct landscape analysis and develop policy guidelines, implementation plans, standard operation procedures and monitoring and evaluation of TBCI activities in order to reach the ultimate goal of TB elimination.

5.3. Definition of terms

While contact investigation has been a public health activity sporadically implemented for decades, the terminology and approaches to the activity have not been consistent. Clear agreed upon standardized definitions and indicators of the components of contact investigation are required for program planning and generating useful programmatic data on the local, national, and global levels.

TERM / CONCEPT	DEFINITION
Index case (index patient)	The initially identified person of any age with new or recurrent TB in a specific household or other comparable setting in which others may have been exposed. An index case is the person on which a contact investigation is centered but is not necessarily the source case.
Contact	Any person who was exposed to a person with tuberculosis
Household contact	A person who shared the same enclosed living space as the index case for one or more nights or for frequent or extended daytime periods during the 3 months before the start of current treatment.
Close contact (Casual contacts)	A person who is not in the household but shared an enclosed space, such as a social gathering place, workplace or facility, for extended time periods during the day with the index case during the 3 months before commencement of the current treatment episode.
Contact investigation	A systematic process for identifying previously undiagnosed people with TB among the contacts of an index case. Contact investigation consists of identification and prioritization and clinical evaluation. It may also include testing for LTBI to identify candidates for TB preventive treatment.
Contact identification and prioritization	A systematic process to identify contacts with or at increased risk for development of tuberculosis. For purposes of these recommendations, the definition of contact identification and prioritization includes an interview with the index case to obtain the names and ages of contacts and an assessment of contacts' risk for having (generally based on the presence of symptoms compatible with tuberculosis) or developing tuberculosis, to determine those for whom clinical evaluation (defined below)is indicated.
Contact clinical evaluation	A systematic process for the diagnosis or exclusion active tuberculosis among contacts. Clinical evaluation is undertaken if the results of contact identification and prioritization indicate a risk for having or developing tuberculosis. For the purposes of these recommendations, the definition of contact clinical evaluation includes, at a minimum, a more extensive assessment of symptoms compatible with tuberculosis. Additional components may include: ▪ a more detailed medical history, ▪ a physical examination, ▪ microbiological assessment of specimens from sites of suspected involvement, ▪ radiographic examinations, ▪ invasive diagnostic tests. Implementation of these components will depend on the clinical circumstances and the available resources. In addition, depending on the epidemiological circumstances and resources, a tuberculin skin test or interferon gamma release assay for LTBI may be part of the clinical evaluation.

Published in: *Recommendations for Investigating Contacts of Persons with Infectious Tuberculosis in Low- and Middle-Income Countries.* (World Health Organization, ed.). WHO: Geneva; 2012::1–70. and Fair E, Miller CR, Ottmani SE, Fox GJ, Hopewell PC. Tuberculosis contact investigation in low- and middle-income countries: standardized definitions and indicators. *Int J Tuberc Lung Dis.* 2015 Mar; 19(3):269-72. PMID: 25686131.

6. HEALTH SYSTEMS AND TB PROGRAM REQUIREMENTS FOR TBCI IMPLEMENTATION

6.1. Health systems requirements for TBCI implementation

The availability of quality basic health services (Universal Health Coverage) is a requirement for optimal implementation of TB programming and hence integrating TBCI into routine activities. Investing in an equitable and quality health system with sustainable financing is the foundation of any disease specific intervention like TB programs. National level health care strategic planning documents need to have a comprehensive approach with strong political commitment to ensure human capital requirements and health service coverage per specific population so that TB programs can have the capacity to integrate new initiatives and innovative strategies like TB CI with limited additional resources.

As part of the overall health system human resource capacity development, integrated TB training plans are important platforms to ensure training of key TB service providers for additional interventions like TBCI. A plan for collaboration and technical assistance can be used to strengthen TB program technical and management capacity. The role of IPs in strengthening health system capacity through technical assistance should be one of the primary contributions.

As much as implementation strategies allow, TB program activities should follow an integrated approach within existing general health services. Opportunities should be sought for integrated program planning, financing, supportive supervision, human resources and logistical capacity to ensure efficiency and cost-effectiveness while safeguarding availability of additional capacity to provide TBCI services. National health management information systems (HMIS) should be used to integrated TB program monitoring and evaluation including TBCI and TPT activities.

Additional investments for contact investigation can strengthen long-term health systems gains that can be capitalized and utilized during other health emergencies. The case of Covid-19 pandemic or other diseases of epidemic/pandemic potential, which require the readiness of the health care system at all levels to expand surveillance and conduct contact investigation activities, can be examples of how investing in disease specific vertical programs can help build a strong and resilient health system and vice versa.

Using local community health structures and engaging local partners (CSOs/NGOs, private sector) with a continuum of care from primary to referral health facilities allows early case finding, quality diagnosis and treatment of TB cases and their contacts. The health system should focus on strengthening primary health care programs and community-based health services as well as civil society and community-based organizations to have a stronger advocacy as well as implementation support role in strengthening the health system. In addition, identifying potential community structures and enabling and engaging them to work together with the health providers would create a strong support base for TB patients/families with their economic and social challenges during diagnosis and treatment for TB and DR-TB.

TB programs should strategize and capitalize on existing health interventions that focus on key vulnerable populations to integrate services to reduce TB transmission and infection with a focus on collaborative services. Some of such examples are maternal and child health (MCH) services, pediatric care, TB/HIV integrated services, urban health programs and health services for congregate settings (migrant workers, prison, refugee/IDPs, care homes).

Key health systems requirements for TBCI implementation

Universal Health Coverage	▶ Quality health services ▶ Equitable health services ▶ Health service coverage
Political Commitment	▶ National Health Strategic Plan ▶ Human capital development ▶ Sustainable financing ▶ National TB Strategic Plan
Integrated Health care services	▶ TB program integrated planning, financing and management. ▶ Integrated M&E, supportive supervision, staff training, logistics. ▶ Linkages to MNCH services, TB/HIV integrated services, urban health programs and congregate settings

6.2. TB program requirements for TBCI implementation

Implementation of TB contact investigation requires planning and detailed processes and procedures that commonly differ from place to place. Adaptation to the local context is essential. Some initial considerations include assessing the local *epidemiology of tuberculosis, the local risk factors for tuberculosis*, and the *distribution of cases within the area.* Proper planning with regards to the availability of resources to support the program is essential. Ensuring there is local capacity to undertake the contact investigation activities as well as the diagnostic and clinical capacity to take care of increased cases in imperative.

Because contact investigation is the active case finding intervention that falls within the scope of work of the national or local TB control program, it is best positioned within the NTP at the national as well as the local level. The NTP's infrastructure and resources should be carefully considered in assessing its preparedness for undertaking contact investigation. Basic TB services (quality diagnosis and treatment) must be in place before implementing contact investigation activities. The NTP and local programs will need to evaluate their capacity to diagnose, treat, and manage additional cases detected through contact investigation.

Once national policies for contact investigation have been developed, the NTP should develop a detailed budget for contact investigation activities and develop a standard template for local budgeting. This costing work will vary based on health financing systems and partner organizations and stakeholder engagement but should be a coordinated budget planning exercise.

Mapping of Community Based Care Systems is an important requirement and conducting a national situation assessment must include a review of the community-based care system within and in partnership with the NTP. Review of staffing levels and the capacity of existing staff to take on additional responsibilities is suggested at all levels. Country level data can be used to estimate the additional load of contact investigation, for example, the number of contacts to be evaluated and the staff time projected to be required. Appropriate plans for training new or existing workforce for contact investigation should be assessed and planned for.

Key TB program requirements for TBCI implementation

Local TB epidemiological context	▶ Local epidemiology of tuberculosis ▶ Local risk factors for tuberculosis ▶ Distribution of cases within the area
TB program capacity	▶ NTP management and technical capacity at all levels ▶ Availability and budgeting additional resources for TB CI ▶ Diagnostic and clinical capacity to care for increased cases ▶ Continuum of care from primary to referral health facilities
Community based care and local partners	▶ Capitalize on community based national health system and structures ▶ Engaging local partners (CSOs/NGOs, private sector) ▶ Focus on reaching key vulnerable populations

6.3. TB screening and diagnostic capacity including children and vulnerable populations at primary level

In the planning process, national policies should prioritize the approaches to the evaluation of index cases and contacts, and include algorithms for clinical evaluation. Prioritization should reflect the objectives of the contact investigation program, and should focus on index cases more likely to transmit the infection or circumstances in which persons at risk of developing TB have been exposed.

Per the WHO CI Guidelines [12,13,14,15], prioritization for contact investigation is recommended for index patients who have the following characteristics: Bacteriologically confirmed TB cases; MDR-TB or XDR-TB (proven or suspected); PLHIV; and children <5 years of age. Other factors could also be considered depending on the setting, such as geography (urban/rural), social or economic standing of the patient (movement within community), and presence of other co-morbidities or risk factors.

Depending on the context considerations for additional priority index cases are summarized in the table below:

Priority index cases for household (HH) and congregate setting TB Contact Investigation:

- Bacteriologically confirmed TB Cases
- Clinically diagnosed Pulmonary TB cases
- All form of TB in PLHIV and immune compromizing co-morbitities (Diabetes Mellitus, immune-deficiency, malignancy)
- All forms of TB in children <5 years
- Patients with presumed or proven DR-TB
- TB patients from congregate settings with a high risk of transmission (prisons, detention centers, boarding institutions, health facilities, migrants, workplaces, etc.)

Suggested prioritization of household contacts for clinical evaluation is also detailed in the WHO CI Guidelines; prioritization for clinical evaluation is recommended for contacts who have the following characteristics: symptoms suggestive for TB; children <5 years of age; people with known or suspected immune compromising conditions (especially PLHIV); contacts of index cases with MDR-TB or XDR-TB (proven or suspected).

As with index cases, prioritization of contacts can include other considerations, depending on the context and the approach to contact investigation being implemented.

Algorithms for evaluations and microbiological tests to be used for specific situations should be specified in national policies, which should be consistent with WHO recommendations for use of rapid molecular testing. Implementation of these policies will be dependent on the distribution of rapid molecular testing units within the country.

- Quality ensured laboratory network for screening and diagnostics coverage with strong specimen referral system (X-rays, GeneXpert, Culture/DST, pathology (FNA), TST/IGRA)
  - Focus on GeneXpert as an initial diagnostic test to provide rapid feedback and preliminary rifampicin resistance results
    - Focus on same-day results and strong referral networks to reduce time from test sample collection to treatment initiation
  - Availability of Culture/DST and X-ray diagnostics
    - In certain contexts it will be essential to have full drug-susceptibility testing (DST) results to ensure high-quality, appropriate therapy
  - Availability of TST/IGRA for high-risk groups as indicated
    - Among certain high risk groups it may be prudent to offer IGRA testing for LTBI with subsequent initiation on TPT
  - Availability of U-LAM for PLHIV with CD4 <100

Refer to the WHO 2020 guidelines for TB and DR-TB diagnosis and treatment:

- Rapid Communication: Molecular assays as initial tests for the diagnosis of tuberculosis and rifampicin resistance – WHO 2020 [21]
- Operational handbook on tuberculosis – Module 4 – Drug-resistant TB Treatment –WHO 2020 [22]
- Consolidated guidelines on tuberculosis – Module 4 – Drug-resistant TB Treatment – WHO 2020 [23]

- Engagement of Professional Associations (pediatric association, public health associations) to create additional capacity for pediatric and key population interventions.
- Ensure evidence generation by tapping into existing health/TB research capacity by engaging academia institutions, program implementing partner organizations (IPs) and the national program in the conduct of program based operational research.

7. ROAD MAP FOR PROGRAMMATIC IMPLEMENTATION OF TB CONTACT INVESTIGATION (PI-TBCI)

7.1. Strategic Framework of Interventions

The roadmap (Strategic Framework of Interventions) for PI-TBCI is a systematic approach for countries to achieve their shared goal of implementing TB contact investigation as one of the TB case finding and prevention strategic pillars to ending the TB epidemic. This roadmap is intended as a technical support package in operationalizing the current WHO guidance on CI and PMTPT, as well as other internationally accepted standards for CI to help USAID supported countries expand TBCI activities with a systematic approach.

Therefore, developing a roadmap (strategic framework of interventions) will guide health policy makers, program managers and technical leaders to implement TB Contact Investigation in a programmatic manner. While the main audiences of these TBCI implementation tools remain USAID Missions and implementing partners (IPs), the package should have wider applicability to a broader national TB partners and stakeholders.

The roadmap is aimed at providing high TB priority countries the big picture strategic highlights and requirements for Programmatic Implementation of TB Contact Investigation (PI-TBCI) with milestones to measure their performance. It also provides a full spectrum of implementation steps for countries with a status ranging from those about to start implementing TBCI to those countries with already implementing TBCI but need to improve the quality and scope (coverage) of their TBCI activities.

It is important to note that prior to implementation of TBCI, national TB programs may not have designated funding to undertake the additional TB CI activities. It is required to ensure from the outset the availability of funds or the ability of the program to shift resources as needed. With the implementation of the UNGA targets for TB preventive treatment, a number of countries have or are aligning their Global Fund applications to include specific prevention and TBCI activities (and funding). Also, through the USAID Roadmap development process, specific CI indicators are developed with the expectation that some part of USAID TB investments would be directed to TBCI. It is not effective to implement TB contact investigation unless treatment, care and support services are of high quality. Furthermore, NSP should articulate TB Contact Investigation as an important program activity and ensure it is budgeted for and not masked within the standard routine TB Prevention and Care program activities.

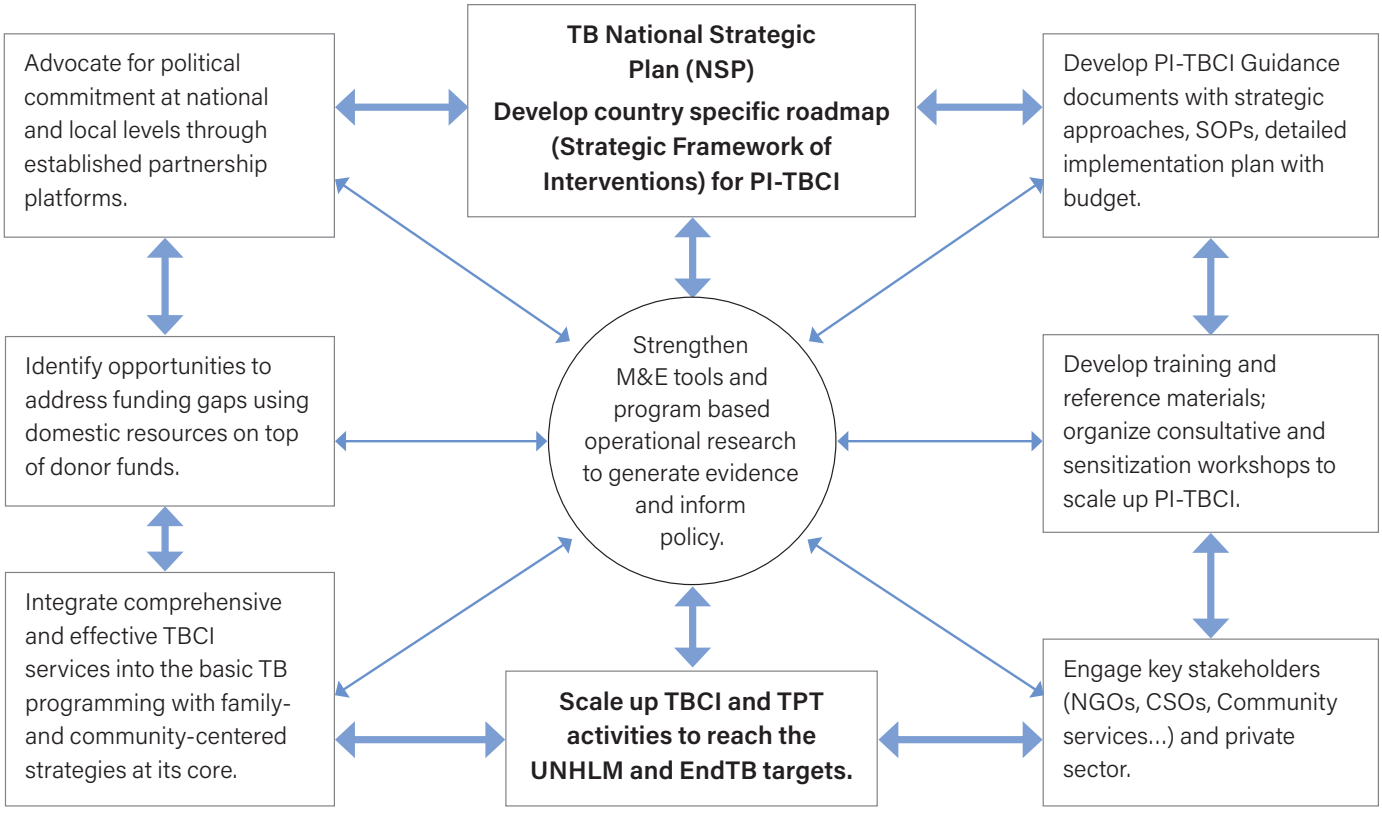
The roadmap focuses on addressing key pre-requisites in the planning and implementation of TBCI. The following key **"strategic interventions"** will help countries systematically integrate, implement and expand TBCI and TPT within their TB Prevention and Care program activities.

1. Political commitment at national and sub-national levels to integrate Programmatic Implementation of TBCI (PI-TBCI) into national TB control programs as a standard practice based on evidence and part of policy development and clinical practice.

2. Develop country specific roadmap (Strategic Framework of Interventions) for PI-TBCI with financial, technical, and management support.
3. Develop PI-TBCI Guidance document with strategic approaches, Standard Operating Procedures (SOPs) and detailed implementation plan with budget.
4. Develop or strengthen M&E tools for data collection, analysis, sharing of key TBCI indicators and program based operational research to generate evidence and inform policy.
5. Develop training and reference materials for program managers and activity implementers at health facility and community levels.
6. Strengthen local capacity for TB program management and technical leadership to ensure optimal implementation of TBCI.
7. Integrate comprehensive and effective TBCI services into the basic TB programming with family- and community-centered strategies at the core of the services.
8. Identify opportunities to engage key stakeholders (NGOs, CSOs, Community services) and private sector using context specific approaches.
9. Identify opportunities to address funding gaps using domestic resources on top of donor funds by advocating for political commitment, mobilization and coordination of resource through established partnership platforms.
10. Scale up TBCI and TPT activities with continuous monitoring and evaluation and strategic adjustment to meet the UNHLM targets.

Annex 6 & 7 provide general guidance for a 12 months NTP planning, budgeting and implementation time frame as well as the roles of USAID missions and IPs in the planning process and development of the roadmap for strategic interventions for PI-TBCI with selected milestones.

Figure 3. Strategic Framework of Interventions for PI-TBCI



7.2. Roadmap: Strategic interventions, specific activities and milestones (Detail)

Strategic Interventions	Specific activities to be accomplished	Outcome measures (Key milestone)
Political Commitment at national and sub-national levels for financial, technical and management support to integrate TBCI into national TB control program as a standard practice based on evidence and part of policy development and clinical practice	▪ Present TBCI as a key agenda to the TB TWGs led by NTP with members from all relevant technical partners, funding agencies as well as community based and civil society organizations. ▪ Conduct situation analysis & strategic prioritization based on national TB program review and baseline assessment of the general health-care system capacity ▪ Conduct staffing and resource mapping to define requirements and identify gaps for TBCI and TPT ▪ Secure additional funding and resources through domestic financing on top of donor resources. ▪ Develop a national level technical assistance (TA) plan ▪ Assess and address gender barriers, ethical considerations and stigma at all levels of the planning and implementation process.	PI-TBCI incorporated into National TB Strategic Plan (NSP) with budget. EndTB targets for TB elimination updated with the UN High-Level Meeting targets.
Develop country specific roadmap (Strategic Framework of Interventions) for Programmatic Implementation of TBCI with financial, technical and management support.	▪ Develop a roadmap for PI-TBCI by integrating all the key implementation steps, planning and M&E tools as national guidance document. ▪ Conduct a national consultative workshop with all TB program stakeholders for sensitization, consultation, resource mapping and reach consensus on the key implementation steps and indicators. ▪ Develop context specific national TBCI policy, strategy and implementation guidelines with detailed operational plan with budget.	Country specific PI-TBCI roadmap developed National PI-TBCI Guidance document with strategic approaches, SOPs, activity plan with budget developed. National level consultative workshop conducted with the proceedings to inform PI-TBCI implementation
Strengthen data collection, analysis and sharing on Programmatic Implementation of TBCI as part of key program indicators	▪ Develop monitoring & evaluation plan including process indicators to track the progress of the different stages of the PI-TBCI implementation plan and activities. ▪ Ensure data collection and inclusion from public and non-public service providers including the private sector and CSOs into the national system. ▪ Develop patient and program monitoring forms and tools.	M&E framework developed and integrated into National TB Strategic Plan and National Health Information Management System (HMIS).
Develop training and reference materials for programmatic implementation of TBCI	▪ Integrate/update TBCI guidelines into the existing TB training materials. ▪ Develop national level integrated training plan with tools for integrated blended teaching including distance learning ▪ Integrate and update TBCI into the facility level TB guidance manual. ▪ Prepare a concise desk manual to help initial implementation, monitoring and evaluation. (Optional) ▪ Organize expanded sensitization and TOT for all relevant health care workers and other care providers (NGOs, CSOs, private sector)	TBCI Integrated and updated training manual with training plan developed and conducted.

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7.2. Roadmap: Strategic interventions, specific activities and milestones (Detail) continued

Strategic Interventions	Specific activities to be accomplished	Outcome measures (Key milestone)
Strengthen local capacity for TB program management and technical leadership to ensure optimal implementation of TBCI.	▪ Conduct epidemiological mapping of target populations to identify disease burden, gaps in case detection, current case-finding activities and the size and distribution of risk groups that could be targeted for contact investigation; ▪ Conduct needs assessment of the TB program capacity and readiness with a focus on TB program structures and service capabilities for high-quality TB diagnosis, treatment, care, management and support for patients at all levels in order to ensure effective TBCI interventions and follow-up activities including additional capacity to scale up services. ▪ Ensure local level political commitment to strengthen program capacity, ownership and support at local level for resource sharing, human resource availability and integrated supportive supervision (ISS). ▪ Develop a local level technical assistance (TA) and training plan.	Local level TB program planning and budgeting document incorporates TBCI funding requirements and performance targets including for vulnerable populations. Epidemiologic mapping and needs assessment findings are well documented and used for planning and as references.
Integrate comprehensive and effective TBCI services into the basic TB programming with family- and community-centered strategies at its core.	▪ Implement appropriate algorithms for TBCI screening and diagnosis of different target groups according to WHO policy and approved diagnostics(SOPs) ▪ Assess gaps and opportunities to devise local context specific community based strategy to conduct contact investigation. ▪ Conduct TB contact investigation with community participation and engagement of front-line health workers. ▪ Develop strategy for vulnerable groups that are at high risk of TB or likely to face barriers to accessing TB services ▪ Ethical issues should be considered at all levels of the planning and implementation process. ▪ Prepare an intervention plan based on epidemiologic, operational characteristics and challenges and population characteristics ▪ Incorporate TBCI into family and community level TB/HIV program service package. ▪ Build capacity of Health Care Workers on monitoring, coordination and supervision issues, using SOPs and operational protocols.	Health systems and community systems mapping document developed. SOPs for PI-TBCI developed and implemented at facility and community levels.
Identify opportunities to engage key stakeholders (NGOs, CSOs, Community services...) and private sector using context specific approaches.	▪ Prepare an inventory and mapping of CSOs, NGOs and private providers working in health and related areas that could support TBCI activities and engage them meaningfully while enabling them to participate. ▪ Engage the private sector through private public partnership and improve referrals and notifications among all care providers	CSOs/NGOs and private sector mapping document developed. A concise CSOs/NGOs and private sector engagement plan developed as integral into TBCI implementation plan.

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7.2. Roadmap: Strategic interventions, specific activities and milestones (Detail) continued

Strategic Interventions	Specific activities to be accomplished	Outcome measures (Key milestone)
Identify priority research questions and integrate program based operational research	▪ Translate global research questions into country specific operational research activity ▪ Identify country/local specific priority research questions on TB and TBCI ▪ Engage TB program staff, academia and program partner organizations (IPs) in the conduct of program based operational research. ▪ Ensure TBCI research activities are shared during national and international annual TB and TB/HIV research symposia.	TBCI research priorities integrated into the national TB research agenda. TBCI research works presented and published in national and international symposia and journals.
Identify opportunities to address funding gaps using domestic resources on top of donor funds by advocating for political commitment, mobilization and coordination of resource through establishing partnership platforms.	▪ Ensure a comprehensive approach to TB control program funding to guarantee comprehensive TB prevention, case finding, diagnosis, treatment and care. ▪ Strengthen integrated program activities to leverage resources from multiple program funds to scale up of TBCI and TPT. ▪ Domestic resource mobilization using innovative funding models. ▪ Establish a matching funding system to complement bi-lateral and multilateral TB and HIV program funds	Annual resource mapping with TBCI funding allocation and available to scale up PI-TBCI. XX% of TB (TBCI) funding from domestic sources.
Scale up TBCI and TPT activities with continuous monitoring and evaluation and strategic adjustment to meet the UNHLM targets	▪ Remember that it is not effective to implement TB contact investigation and TPT unless overall TB and DR-TB treatment, care and support services are of high quality. ▪ Use program based operational research and routine data to generated evidence and introduce new and high impact innovative strategies to enhance performance. ▪ Ensure TBCI and TPT becomes integral parts of the overall TB program activities and performance is monitored using the set of TB program performance indicators as per the national standard which include TBCI and TPT. ▪ Continue to ensure political commitment for a sustained program support so that adequate financial resources and human resources can be made available for CI	TBCI and TPT data are reported quarterly and annually. TBCI and TPT are addressed as important technical area during annual National and sub-national TB Program reviews. Quality-assured diagnostic services and regular and reliable supplies of TPT and anti-TB drugs are ensured.

8. COUNTRY EXAMPLES

Ethiopia

Ethiopia as one of the USAID priority high TB burden countries has made significant progress in reducing TB incidence and mortality over the past decade [1}. The national TB program (NTP) through support of USAID activities has expanded, among other TB technical priorities, the implementation of TB Contact Investigation (TBCI) and TB Preventive Treatment (TPT) activities. The activities initially focused on generation of local evidence on the implementation of TBCI activities, which demonstrated that contact investigation was effective in finding additional cases of TB and DR-TB and to scaling up TPT.

Publications by the USAID supported activities showed that the yield of household contact investigation was over 10 times higher than the estimated prevalence in the general population and household contact investigations can serve as an entry point for TPT and childhood TB care. Additional activities on community-based "retrospective" TB contact Investigation showed that the yield of retrospective contact investigation was about six times the case notification in the study geographic area, contributing a fourth of all TB cases notified over the same period suggesting that retrospective contact investigation can be an additional strategy to identify high risk groups not addressed through currently recommended screening approaches [7, 8].

The use of local evidence [7,8] together with WHO's recommendations [12,13,14] has catalyzed Ethiopia's expanded implementation of TB contact investigation and TPT as program based activities integrated into the national TB guidelines using country specific standard operating procedures (SOPs) [18].

However, contextualizing TB Contact Investigation strategies to the country specific situations and addressing the health system and TB program requirements were critical to integrate TBCI activities as a standard program component. The TB program has capitalized on and used Ethiopia's well established Health Extension Program (HEP) which provided the basis for capacity to conduct contact identification and referral within the primary health care and community systems. The strong political commitment at all levels of the health services management and strong donor (USAID and the GFATM) and strong technical assistance from implementing partners were instrumental in strengthening the TB program capacity. The establishment of dedicated TB program teams at national and sub-national levels and focal persons at health facilities and community levels were critical for integrated supportive supervision and implementation and scaling up TBCI and TPT. The program has also insured integrated approach to health systems and TB program investments in staff capacity, staff training, laboratory capacity for screening and diagnosis, especially the use of GeneXpert as a primary test; logistical capacity for investigating contacts and supportive supervision of community based and facility level activities, integrated HMIS, local level joint planning of activities and funding allocation and shared utilization of TB program resources to establish program based routine screening of close contacts of index TB patients to enhance case finding and TPT [19].

Mozambique

Contact investigation (CI) for tuberculosis (TB) patients is a targeted, effective approach to find undiagnosed prevalent TB cases and children under 5 years of age eligible for Isoniazid preventive therapy (IPT). Contact investigation is recommended in Mozambique's National TB Program (PNCT) guidelines but was not then fully implemented in a consistent systematic manner or rigorously measured and evaluated.

In 2017, based within Challenge TB (CTB) Mechanism, FHI 360 requested technical assistance in setting up systematic and programmatic TB contact investigation.

Work began by drafting new policy guidelines for CI based on the WHO policy guidelines and the companion CI Implementation Guide [12,13,14,15]. Once plans were agreed upon, paper-based recording and reporting tools, and a M+E plan were developed.

A week-long training was held for community health workers (called "Activists") in conducting CI for newly diagnosed TB patients, including: screening household contacts for active TB, referring symptomatic contacts for evaluation, and initiating eligible children on IPT. The impact of CI on TB case detection and IPT initiation was assessed, comparing six months of data before and after implementation.

The objectives were to evaluate a programmatic implementation of home-based CI in one district of Mozambique. Key findings included the number of contacts screened for TB more than doubled from the previous year, the number of contacts diagnosed with TB increased five-fold, the number of children under 5 screened and started on IPT increased. Overall, the scope of the intervention and its effectiveness for detecting additional TB cases improved from the baseline to the implementation period. The yield, or % of screened contacts who are diagnosed with TB, increased from 0.4% to 1.0% and the number needed to screen (NNS) to find one newly diagnosed case of TB decreased from 224 to 98. Initial evaluation of home-based CI suggests it is feasible and effective at increasing TB detection and IPT initiation among children under 5 in this district of Mozambique (paper forthcoming). Further evaluation will show the potential impact of the intervention at scale to contribute to national case detection and IPT targets. One major gap was the redundancy of using paper forms.

9. STANDARD OPERATING PROCEDURES (SOPS) FOR TBCI AND TPT

The first step of implementation of TB contact is developing a set of clear and comprehensive standard operation procedures (SOPs). This is imperative because it enables the program planners, whether within the NTP or IPs, to map out and think through the details of the activity. The SOPs should provide clear and comprehensive guidance to how each part of the contact investigation activity will be carried out, who will be responsible for each activity, and what reporting and recording is required to monitor the activity.

Standard Operating Procedures (SOPs) for TB contact investigation are important component of the package of tools to assist countries and their TB programs to implement standardized guidelines. The SOPs in this package of tools are intended to provide generalized guidance for countries to develop their own context specific detail SOPs to be integral part of their national TB program activities. An elemental TB program component is that health workers and program managers involved in the conduct of TB contact investigation and provision of TPT conduct the required activities in a systematic and standardized manner.

The SOPs in this package of tool are intended to guide the steps to conduct TB CI activities for all priority household and close contacts of priority index TB patients through clinical evaluation and diagnosis of active disease as well as screening for TB infection for provision of TB preventive treatment (TPT). The guidance is based on the WHO recommendations and the country specific national policy recommendations from countries that have integrated a strong TBCI activity into their national programs with a on high priority index and contacts including key vulnerable populations (PLHIV, DM), Children <5 years and older. [8]

Annexes 2-5 of this PI-TBCI package of tools provide the important details of selected prioritized standard procedures and formats for TB contact investigation SOPs. Please note that the outline described here is a comprehensive list of the requirements for comprehensive SOPs to implement TBCI and TPT and need to be further developed in detail as per the country context specific situations.

Outline to guide the development of SOPs for high TB priority countries

1) Overall strategic approach to TBCI SOPs implementation
   a) Define the implementation strategy of the selected models of TB CI interventions (household (HH) and other non HH settings) as a standard program component in all relevant settings.
   b) TB program staff, facility health workers and community health workers as target audience and their roles and responsibilities and the standard job descriptions as their role to accomplish TBCI activities.
   c) The required training and motivation for the facility level and community health workers involved and the required job aids.
   d) The role and engagement of local stakeholders and community-based organizations (CSOs, NGOs and the private sector) to assist in the activity.
2) Standard Operating Procedures (SOPs) proposed outline: *For additional details refer to annex 2*
   a) TB index case evaluation
   b) Identification of TB contacts
   c) Screening of contacts for TB
      i) Index case interviewing
      ii) Clinical and laboratory evaluation of TB disease
      iii) Diagnosis, referral and treatment of active TB
      iv) Clinical and laboratory evaluation for LTBI and TB preventive treatment (TPT)
   v) Special populations: Children, contacts of DR-TB patients, PLHIV, DM, other co-morbidities
   d) WHO 2018 algorithm for screening adults and adolescents living with HIV for TB
   e) WHO 2018 algorithm for screening children < 5 years of age who are household contacts of people with TB.
   f) TB Screening and TPT algorithms (Operational handbook Module 1 – Prevention: TPT – WHO 2020)– Annex 4
   g) TB CI and TPT activities monitoring and evaluation (M&E)
      i) Data registers
      ii) Screening forms
      iii) Reporting forms
   h) Logistical and equipment requirements
   i) Supportive supervision plan
   j) TPT options for latent tuberculosis infection (LTBI) and contacts of patients with multidrug-resistant tuberculosis (WHO 2020) and recommended drug dosages.

10. M&E FRAMEWORK FOR TBCI AS AN INTEGRAL KEY TB PROGRAM PERFORMANCE INDICATOR

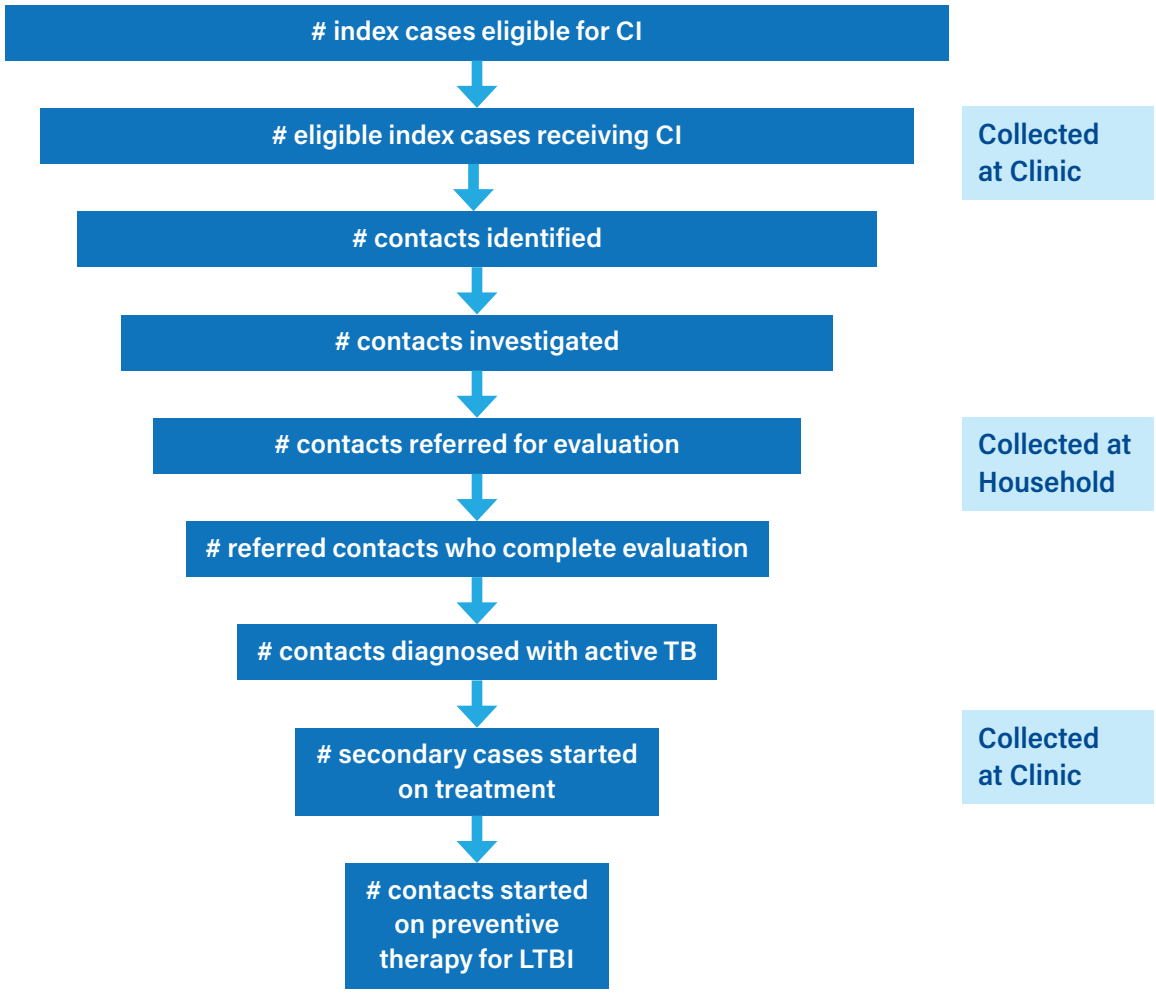
Systematic and routine monitoring and evaluation of contact investigation activities is critical. Monitoring enables implementers at national and local levels to understand whether the program is being implemented properly and if not, where the challenges or gaps are. In addition to monitoring the process of implementation, monitoring is also vital to measure the impact the activity has on TB case finding and ideally on the incidence over time.

MONITORING

Monitoring generally consists of two activities:

- Structured monitoring visits to review clinic or program records to determine the completeness of documentation and confirm follow-up of participants,
- Regular recording and reporting of program indicators.

The below figure shows the description and cascade of data that should be collected during routine contact investigation activities:



The indicators are collected in several different locations initially at the health facility where the index case is diagnosed, then collected in the index case's household, and finally back at the health center. It is often a challenge to track how many identified contacts return to the health center for evaluation and treatment initiation. This requires strong protocols and follow-up.

Below are the key definitions for the M&E data that should be routinely collected and analyzed:

Quarterly/yearly performance indicators:

Contact Investigation Coverage: # contacts of bacteriologically confirmed Pulmonary TB patients who were evaluated for active TB and latent TB, out of those eligible, expressed as a %.

Estimated average # of household contacts identified per one notified new and relapse bacteriologically confirmed pulmonary TB case: Estimated average # of household contacts identified per one notified new and relapse bacteriologically confirmed pulmonary TB case.

% of contacts evaluated for TB disease: % of contacts of bacteriologically confirmed notified pulmonary TB who were evaluated for TB disease during reporting period, among all contacts of new and relapse notified bacteriologically confirmed.

% of contacts detected with TB disease: % of TB cases identified (both bacteriologically and clinically) among contacts during reporting period, out of total # of contacts of new and relapse notified bacteriologically confirmed Pulmonary TB.

% of contacts detected with DR-TB (RR/MDR-TB and XDR) disease: % of DR-TB (RR/MDR-TB and XDR) cases identified (both bacteriologically and clinically) among contacts during reporting period, out of total # of contacts of new and relapse notified bacteriologically confirmed Pulmonary TB patients during reporting period.

# of close contacts of bacteriologically confirmed pulmonary TB cases who were screened for TB infection (tested for TB infection) according to national screening protocols during the specified reporting period: Total # of close contacts of bacteriologically confirmed pulmonary TB cases who were screened for TB infection according to national screening protocols during the specified reporting period.

% of close contacts who tested positive for TB infection: % of contacts who were ruled out for TB disease and tested positive for TB infection among eligible contacts during reporting period.

% of close contacts under 5 who tested negative for TB disease and who were subsequently started on TB preventive therapy

% of close contacts living with HIV (PLHIV) who tested negative for TB disease and who were subsequently started on TB preventive therapy

Refer to **annex 8** for further details of TB Contact Investigation (TBCI) performance monitoring and reporting guidance and process indicators as well as program quality improvement indicators.

11. TB PREVENTIVE TREATMENT (TPT) AS A CONTINUUM OF CARE OF TB CONTACT INVESTIGATION (TB CI)

11.1. TB Contacts are an important starting point for reaching TB prevention targets

Following the UNHLM Declaration, the Stop TB Partnership (STP), in collaboration with WHO and other partners, articulated all the treatment and prevention global targets (http://www.stoptb.org/global/advocacy/unhlm_targets.asp) into a national level breakdown, by country and year to help high-burden countries in setting their national goals [4]. Out of the 30million target for preventive treatment, 20million are expected to be adult contacts. Although contact investigation is established as an intervention in most of the USAID priority countries, the implementation of contact investigation remains uneven. Globally, less than 100,000 adult contacts were initiated on preventive treatment in 2018 (and a large number of countries did not report any data to WHO [1] There is clearly a need for technical support and assistance with scaling up preventive treatment via TB contact investigation across USAID supported countries.

WHO, the International Union against Tuberculosis and Lung Disease (the Union) and the International Standards for Tuberculosis Care (ISTC) recommend the following to reach TB prevention targets:

- **Expanding the number of groups being prioritized for latent TB infection testing and treatment.** Health practitioners have prioritized testing and treatment of people living with HIV and children < 5 years who have been in contact with people who have TB. WHO has now identified HIV-negative children aged <5 years, adolescents and adults who are contacts of TB patients, as well as contacts of patients with multidrug-resistant TB (MDR-TB), as additional high-risk groups. In summary, people living with HIV and other co-morbidities (DM), and all children, adolescents and adults who are contacts of TB patients (both DS- and DR-TB) are priority groups for LTBI screening and prophylaxis.
- **Expanding the testing options:** WHO recommends scaled-up testing for latent TB infection in both high- and low- TB- burden countries. A tuberculin skin test or interferon-gamma release assay (IGRA)can be used to test people for latent TB infection. Screening for active TB disease has to be done prior to prescribing preventive treatment, as per WHO guidelines. However, LTBI testing is not required for PLHIV and children <5 prior to initiation of TPT once the presence of TB disease has been excluded. Also, IPs should ensure that all persons exposed to DR-TB receive urgent assessments to rule out active disease and are followed routinely over a period of 2 years, or abide by existing country recommendations for contacts of persons with DR/TB disease.
- **Expanding the treatment options:** WHO recommends two new shorter treatment regimens to treat latent TB infection: 3HP and 1HP. Rifapentine and isoniazid given once weekly for 3 months—the so-called 3HP regimen- may be offered as an alternative to 6-9 months of daily isoniazid monotherapy as preventive treatment for both adults and (children <5 years). Rifampicin plus isoniazid given daily for 3 months—the so-called 3HR regimen—or rifampicin daily for 4 months should be offered as an alternative to 6-9 months of isoniazid monotherapy as preventive treatment for children and adolescents aged < 15 years. These shorter regimens may help patients adhere to their treatment and complete it.

Key TPT interventions for implementing partners

- **Quality of screening and testing for TB infection:** while supporting contact investigation activities, IPs should work with NTPs to ensure that testing algorithms incorporate ruling out of active TB and testing for infection (and securing the necessary resources to do so).

- **Optimize treatment for LTBI:** while supporting contact investigation activities, IPs should work with NTPs to ensure increasing use of shorter and simpler TB preventive therapy, including the 3HP regimen (3 months of weekly RPT + INH) for populations where effectiveness is clear as well as support activities to improve adherence to treatment. IPs should also ensure that contacts have the support they need to complete the full course of treatment for LTBI and improve reporting of completion rates.
- **Community outreach:** IPs should provide technical assistance to NTPs in: mapping of community-based health services; mapping of community-based organizations; capacity building and coverage of community-based TB preventive treatment services for persons at risk of disease progression.
- **Monitoring and evaluation:** IPs should provide technical assistance in: updating/developing recording and reporting tools; reporting data on child household contacts, PLHIV and other household contacts; reporting on other co-morbid risk groups (Silicosis, diabetes, dialysis, anti-TNF treatment, transplant recipients); and use of digital tools for recording and reporting of TB preventive treatment. For people receiving chemoprophylaxis for DR-TB, strong data collection should be in place to monitor the response to treatment, manage potential side effects and collect evidence of treatment outcomes.
- **Supply chain management:** IPs should work with NTPs and USAID's global programs (MTAPs, PSM, GDF) to ensure: inclusion of new preventive regimens into the national essential medicines list (EML); and forecasting need for diagnostics and new drugs and supply planning as per algorithm, and the use of available pooled procurement mechanisms (e.g., GDF).
- **Adverse drug events monitoring:** IPs should provide technical assistance to develop/update systems for monitoring management of adverse events

11.2. Integrated TBCI and TPT implementation package

The 2012 and 2018, the World Health Organization (WHO) recommendations for TB contact investigation in low and middle resource settings (6) and updated guidelines on the management of persons with LTBI respectively remain as the key guidance documents to intensify TPT [14]. The LTBI guidelines outline how to clearly consider the probability of progression to active TB disease in a specific risk group, the epidemiology, the burden of TB, the availability of resources and the likelihood of a broad public health impact. This document complements the End TB Strategy which has well-defined milestones and targets to assess progress [3]. WHO targets an increase of LTBI treatment coverage by 2025 (compared with the 2015 baseline) to reach over 90 percent of those infected and at high risk of developing TB disease.

In 2019, USAID released a report to the US Congress "A time of change: Accelerating the response to TB". The report highlighted progress on TB prevention and presented key TB indicators including "number of patients on TB preventive therapy (TPT)."

TB preventive treatment (TPT) guidance / reference documents:

For further reference on implementation of TPT as a continuum of contact investigation activities, the following WHO guidance and USAID/CDC package of tools provide comprehensive information:

- The 2020 WHO rapid communication on TPT highlights the need for effective and safe programmatic coordination at several key steps in the cascade of preventive care including identifying individuals at highest risk, testing them for infection, excluding active TB disease, choosing the treatment option that is best suited to an individual, managing adverse drug reactions, supporting medication adherence and monitoring programmatic performance [16].

- The rapid communication document together with the WHO consolidated guidelines and Operational Handbook on Tuberculosis Module 1: Prevention (Tuberculosis preventive treatment) provides key updates that will be featured in the 2020 guidelines. Annex 10 provides a summary of the recommendations from the WHO module on TPT [15].
- TB preventive treatment (TPT) implementation tools (https://www.pepfarsolutions.org/tools-2/2018/9/25/tpt-implementation-tools) [20].

12. PROGRAM BASED OPERATIONAL RESEARCH (EVIDENCE GENERATION)

Operational research activities in implementing TB contact investigation activities should be aimed at 1) improving program performance; 2) assessing the feasibility, effectiveness and impact of TBCI strategies or interventions on TB control; and 3) collecting evidence to guide policy recommendations on TBCI specific interventions. Conducting program based operational research requires strengthened capacity to plan, train, conduct, analyze and disseminate the findings. All these required elements and prioritized research activities have to be coordinated at national level and integrated into programs for implementation.

Strengthening research partnership and coordination through existing platforms including TB TWGs at national levels and engagement of academic institutions would help capacitate programs to conduct program based OR. TBCI and TPT have to be incorporated into the national TB operational research road map priority agenda and priority TBCI and TPT research questions tested under programmatic conditions. The successes of programs in strengthening OR activities should be measured by the evidences they generate and widely share to ensure they are used to guide policy recommendation at national as well as local levels.

Limited technical and financial capacity can be a barrier to OR activities at local levels requiring a coordinated effort to build the capacity of a critical mass of researchers at different levels of the health system to catalyze research through promotion, training, support and recognition of health workers and program managers at different levels. Moreover, if OR activities are embedded within program activities from the outset of program planning and resource mapping, routine project data can be used to generate evidence minimizing the need for additional research funds.

IPs should support operational research efforts to provide inputs on current coverage of TB preventive treatment and to identify implementation bottlenecks. Technical assistance should include, but is not limited to: development of a research agenda; protocol development; conduct of research; and adoption of research into policy.

List of relevant program-based operational research questions to enhance TB contact investigation activities to support policy guidance

a. Is contact investigation an important active TB case finding and prevention strategy for high-risk or vulnerable groups? Yield of TB contact investigation across risk groups?

b. What are best practices and strategies to implement TBCI? Household versus non-household based contact investigation?

c. What are the health systems, community and patient related barriers and requirements for implementing program integrated TB contact investigation activities?

d. What are the most efficient and high yielding approaches to implement TB contact investigation?

e. Costing and cost effectiveness analysis of TBCI (Estimated cost for TBCI specific program activities and cost effectiveness analysis for TBCI calculated as the cost per index case and TB case detected).

f. Which high risk and vulnerable populations should be targeted for TB contact investigation?

g. What are the best diagnostic and treatment algorithms for investigating contacts of TB patients for TB treatment and provision of TPT?

h. What are key quality improvement/assurance indicators and processes to support programs expand quality assured TBCI activities?

i. What are the barriers and opportunities for engaging different care providers (CSOs, NGOs and the private health providers in scaling up TBCI as part of the broader TB Control activities?

j. What are the best tools to rule out active TB in contacts and high-risk populations to ensure TPT coverage is not limited by complex screening and diagnostic steps?

k. How can new technologies (e.g. mobile phone etc.) be effectively used to support TBCI and follow up activities including TPT and adherence?

l. What are the barriers and opportunities (enabling factors) for community level TBCI interventions?

m. Impact of TBCI interventions on overall TB case finding.

n. Impact of CI interventions on population-based TB incidence.

o. TB social determinants assessment, identification and interventions study.

p. The impact of TBCI in enhancing coverage of TPT

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ANNEXES

Annex 1
WHO recommendations for investigating contacts of persons with infectious tuberculosis – 2012

Annex 2
Standard Operating Procedures (SOPs) for implementation of TBCI activities

Annex 3
Tuberculosis household (HH) Contact Investigation (CI) Form

Annex 4
TB Screening and TPT algorithms (Operational handbook Module 1 – Prevention: TPT – WHO 2020)

Annex 5
PI-TBCI country landscape analysis tool

Annex 6
PI-TBCI planning, budgeting and prioritization tool
(use together with annex 7)

Annex 7
PI-TBCI work plan development tool for IPs/NTP

Annex 8
PI-TBCI performance monitoring and reporting guidance tool for implementing partners (IPs)/NTP

Annex 9
PI-TBCI Supportive supervision (SS) and Standard of Care (SoC)/quality improvement tool

Annex 10
Tuberculosis preventive treatment (TPT) – WHO 2020 recommendations
(all recommendations)

Annex 11
TPT UNHLM Targets for USAID Priority Countries

Annex 12
TB program indicators for 10 priority technical areas including TBCI (USAID)

ANNEX 1. WHO RECOMMENDATIONS FOR INVESTIGATING CONTACTS OF PERSONS WITH INFECTIOUS TUBERCULOSIS – 2012

Recommendation 1 (Strong recommendation, very low-quality evidence): It is recommended that contact investigation be conducted for house - hold and close contacts when the index case has any of the following characteristics

- sputum smear-positive pulmonary tuberculosis, MDR-TB or XDR-TB (proven or suspected), is a PLHIV or is a child < 5 years of age.

Recommendation 2 (Conditional recommendation, very low-quality evidence): It is suggested that contact investigation be conducted for household and close contacts of all other index cases with pulmonary TB, in addition to the index cases covered in **Recommendation 1**.

Recommendation 3 (Strong recommendation, very low-quality evidence): Clinical evaluation of household and close contacts for active TB is recommended as a priority on the basis of their risk for having or developing active TB or for the potential consequences of the disease if it develops. Priority should be given to:

- People of all ages with symptoms suggestive of TB,
- Children < 5 years of age,
- People with known or suspected immune compromising conditions (especially PLHIV) and
- Contacts of index cases with MDR-TB or XDR-TB (proven or suspected).

Recommendation 4 (Strong recommendation, very low-quality evidence): In settings of high HIV prevalence it is recommended that all household and close contacts be counselled and tested for HIV.

Recommendation 5 (Strong recommendation, very low-quality evidence): It is recommended that all household contacts of an index case who is a PLHIV should be counselled and tested for HIV.

Recommendation 6 (Conditional recommendation, very low-quality evidence): It is recommended that all household and close contacts of people with TB who have symptoms compatible with active TB should receive counselling and testing for HIV as part of their clinical evaluation.

Recommendation 7 (Strong recommendation, high-quality evidence): PLHIV who are household or close contacts of people with TB and who, after an appropriate clinical evaluation, are found not to have active TB should be treated for presumed LTBI as per WHO guidelines.

Recommendation 8 (Strong recommendation, high-quality evidence): Children <5 years of age who are household or close contacts of people with TB and who, after an appropriate clinical evaluation, are found not to have active TB should be treated for presumed LTBI as per WHO guidelines.

ANNEX 2. STANDARD OPERATING PROCEDURES (SOPS) FOR IMPLEMENTATION OF TBCI ACTIVITIES

The following table includes detailed protocols for each activity required for conducting contact investigation, including:

- The activity
- The personnel responsible for completing the activity
- The forms that need to be filled out while conducting the activity
- The procedures to be followed while conducting the activity
- Additional comments or considerations

Each activity may be expanded on in an individual SOP and expanded upon given the setting context and resources.

Activity	Personnel Responsible	Forms	Procedures	Comments
New index case diagnosed at clinic	Health Care Worker (HCW)	STANDARD NTP REPORTING FORMS / TB REGISTRY	▪ A New Index Case eligible for CI is defined as all bacteriologically confirmed and pulmonary clinically diagnosed TB cases. Prioritize known index Bac+ve cases, persons with TB/HIV co-infection, M/XDR-TB, and pediatric cases <5 years of age. ▪ When a new eligible case is identified, HCW should register them as a TB patient, then alert the contact investigator that there is a case who is eligible for CI. ▪ This should ideally happen before the index case leaves the clinic so the contact investigator can meet them before they leave. ▪ If the contact investigator is not at the clinic at the time, the HCW should inform them that the contact investigator will be contacting them within 2-3 days.	For index patients who have died, contact investigation should still be conducted if information can be gathered from family members.
Index case interviewed for roster of household contacts	Contact Investigator	CI FORM	▪ Contact investigator meets with the newly diagnosed index case for the first time at the clinic, or meets them at their household (HH). ▪ Contact investigator provides basic education about TB to the index case. ▪ Contact investigator tells the index case about the importance of CI and that a HH visit will be conducted. ▪ Contact investigator 1) offers to escort the index case home to conduct the HH CI immediately or 2) sets a time with the index case to visit the HH. HH visit must be completed within one week of the index case being diagnosed.	**Timing of the interview and identification of contacts** When CI is initiated the index case should be interviewed as soon as possible after the diagnosis (generally within 1 week) to elicit the names of HH members and other close contacts. The focus should be on HH members, but persons in work-place and social settings in which there is a similar degree of exposure should not be ignored.

continued

Annex 2. Standard Operating Procedures (SOPs) for implementation of TBCI activities continued

Activity	Personnel Responsible	Forms	Procedures	Comments
Index case interviewed for roster of household contacts *continued*	Contact Investigator	CI FORM	▪ Contact investigator creates a new CI FORM, fills in the index patient information at the top of the page. ▪ Contact investigator asks the index case for the name, age, sex for every person who lives in the HH with them. — *Depending on the setting, HH definitions may vary. In general a "household contact" is defined as a person who shares the same enclosed living space for 1 or more nights or for frequent or extended periods during the day with the index case during the 1 month before diagnosis.*	The interview should be conducted by a person who speaks the same language as the index patient and is familiar with the social and cultural context. Ethical considerations are important and so therefore for contact investigation of household members, index patient agreement should be sought.
Home visit and household assessment	Contact Investigator	CI FORM REFERRAL FORM	**Household Contact Screening:** ▪ Contact investigator visits HH and screens all HH members within one week of the index case being diagnosed with TB. ▪ When the contact investigator finds the HH they introduce themselves to HH members and provide education about TB and CI. ▪ Contact investigator reviews the roster of HH contacts and adds to the roster additional people who are there and eligible for screening, including name, age, sex. ▪ Contact investigator interviews each HH member individually. They should ask about each sign and symptom. For pediatric cases Contact investigator should interview a parent or caregiver. ▪ Depending on the capacity of the health system and the community level programs, when household visit is a major challenge, index cases should be asked to send their household contact to health facilities for contact screening. ***TB Symptom Screening*** *Do you have a cough?* *Are you coughing up blood or blood-stained sputum?* *Do you have a fever?* *Have you had noticeable weight loss (≥ 3 kg loss in a month)? Did you lose a belt size? Loss of appetite?* *Have you been sweating at night?* *Do you have any lumps or swelling?* ***Past Medical History*** *Have you ever been told before that you had TB?* *Have you ever been tested for HIV?* *What us the HIV result?*	If the index patient is known to have MDR TB, all contacts should be referred for clinical evaluation with GeneXpert. **Household visits** As noted above, HH visits are preferred. As with the index case interview, the visit should be conducted as soon after the index case is identified as possible, ideally within one week. The visit should be scheduled and take place at a time when the largest number of HH members will be present. If persons with symptoms are identified they should be brought to the clinic immediately, accompanied by the health worker. There is urgency in evaluating children <5 years of age and persons with or at risk of HIV infection because of the potential for rapid progression of TB if infection has occurred. Occasionally a second or third visit may be required to evaluate all HH members.

continued

Annex 2. Standard Operating Procedures (SOPs) for implementation of TBCI activities continued

Activity	Personnel Responsible	Forms	Procedures	Comments
Home visit and household assessment *continued*	Contact Investigator	CI FORM REFERRAL FORM	▪ If a contact answers YES to ANY of the symptom screening questions, OR the contact is HIV-positive or a child under 5 years of age tell the contact that she or he should go to the health clinic for evaluation. ▪ If a contact looks very sick, even without these symptoms, please refer them to the clinic. ▪ For each referred contact, the contact investigator should complete a referral form for them to bring with them to the clinic when they are seeking evaluation. ▪ If a contact answers NO to ALL symptom screening questions thank the contact and let him/her know that if s/he develops any of these symptoms, s/he should go to the clinic for an evaluation and/or chemoprophylaxis.	
Follow up to determine if those referred actually went to clinic	Contact Investigator	CI FORM	▪ After the contact investigator has evaluated the contacts and referred those for further clinical evaluation, it is imperative for them to follow up to ensure they actually went to a local clinic. ▪ It is the contact investigator's responsibility to follow up with each referred contact until they seek the recommended clinical evaluation. ▪ As the contact investigator gets information on referred contact's evaluation they should enter it into the CI FORM. ▪ If they do not know the status of those contacts who were referred, 2 weeks after the first home visit, the contact investigator should return to the HH to follow up on all referred contacts. ▪ At the HH the contact investigator should ask to see each referred contact's REFERRAL FORM and enter the appropriate information onto the CI FORM. o *If the contact investigator is unable to travel to the HH, they should at least call the index case to ask about the contacts who were referred.*	

continued

Annex 2. Standard Operating Procedures (SOPs) for implementation of TBCI activities continued

Activity	Personnel Responsible	Forms	Procedures	Comments
3 month follow up visit to HH	Contact Investigator	CI FORM REFERRAL FORM	Contact investigator to check in with the index case to see how they are doing and to make sure they have done their first control. **Household Contact Rescreening:** ▪ Contact investigator visits HH and rescreens all HH members 3 months after initial diagnosis. They should ask about signs and symptoms. For pediatric cases contact investigator should interview a parent or caregiver. ▪ If a contact answers YES to ANY of the symptom screening questions, tell the contact that she or he should go to the health clinic for evaluation. ▪ For each referred contact, the contact investigator should complete a REFERRAL FORM for them to bring with them to the clinic when they are seeking evaluation. ▪ If a contact answers NO to ALL symptom screening questions thank the contact and let him/her know that if s/he develops any of these symptoms, s/he should go to the clinic for an evaluation.	If the index patient is known to have MDR TB, all contacts should be referred for clinical evaluation with GeneXpert.
6 month follow up visit to HH	Contact Investigator	CI FORM REFERRAL FORM	Contact investigator to check in with the index case to see how they are doing and to make sure they have done their second control. **Household Contact Screening:** ▪ Contact investigator visits HH and rescreens all HH members 6 months after initial diagnosis. They should ask about signs and symptoms. For pediatric cases contact investigator should interview parent/caregiver. ▪ If a contact answers YES to ANY of the symptom screening questions, tell the contact that they should go to the health clinic for evaluation. ▪ For each referred contact, the contact investigator should complete a REFERRAL FORM for them to bring with them to the clinic when they are seeking evaluation. ▪ If a contact answers NO to ALL symptom screening questions thank the contact and let him/her know that if s/he develops any of these symptoms, s/he should go to the clinic for an evaluation. **IPT Completion Check:** ▪ Contact investigator will follow up with any child HH member <5 or contact who is HIV+ who was started on IPT and ensure they have completed treatment or record any change of status. ▪ Contact investigator will record treatment completion on CI form.	If the index patient is known to have MDR TB, all contacts should be referred for clinical evaluation with GeneXpert.

ANNEX 3. TUBERCULOSIS HOUSEHOLD (HH) CONTACT INVESTIGATION (CI) FORM

Index Case Study ID _____ Index Case TB Type: ☐ Bac+ve ☐ Bac-ve ☐ EPT Index Case HIV: ☐+ ☐- ☐ UNKNOWN/NOT TESTED

Index Case Name Date of Index Case Diagnosis __ __ / __ __ / __ __ __ __ (DD / MM / YYYY)

Clinic/District where Index Case was diagnosed: _____

TB Contact Investigator (TBCI) Name: _____ Date of household visit __ __ / __ __ / __ __ __ __ (DD / MM / YYYY)

Contact Number	Contact name *(First name, Surname)*	Age	Sex *(M, F)*	Contact Found? Date contact screened *(DD/MM/YYYY)*	Cough? *(circle)*	If YES to Cough:	Fever?	Weight loss? (>3kgs/ mth)	Abnormal night sweats? (past 4 wks)	Swelling or lumps? (neck, arm pits, groin)	Prior TB?	HIV? *(Reactive, Non-reactive, Unknown, not tested)*	Contact whose specimen was collected	Contact sought evaluation?	Contact positive for TB? TB Registry Number
1			M F	Contact found? YES NO Date screened _ _ /_ _ /_ _ _ _	YES NO	How long? ☐ <1 wk ☐ 1-3 wks ☐ 3 wks – 1 yr ☐ >1 yr Coughing blood? YES NO	YES NO If fever, how long? _____ days	YES NO	YES NO	YES NO	YES NO	R NR UNK/NT	YES NO	YES NO	YES NO Registry #: _____ Date diagnosed _ _ / _ _ / _ _ _ _
2			M F	Contact found? YES NO Date screened _ _ /_ _ /_ _ _ _	YES NO	How long? ☐ <1 wk ☐ 1-3 wks ☐ 3 wks – 1 yr ☐ >1 yr Coughing blood? YES NO	YES NO If fever, how long? _____ days	YES NO	YES NO	YES NO	YES NO	R NR UNK/NT	YES NO	YES NO	YES NO Registry #: _____ Date diagnosed _ _ / _ _ / _ _ _ _
3			M F	Contact found? YES NO Date screened _ _ /_ _ /_ _ _ _	YES NO	How long? ☐ <1 wk ☐ 1-3 wks ☐ 3 wks – 1 yr ☐ >1 yr Coughing blood? YES NO	YES NO If fever, how long? _____ days	YES NO	YES NO	YES NO	YES NO	R NR UNK/NT	YES NO	YES NO	YES NO Registry #: _____ Date diagnosed _ _ / _ _ / _ _ _ _

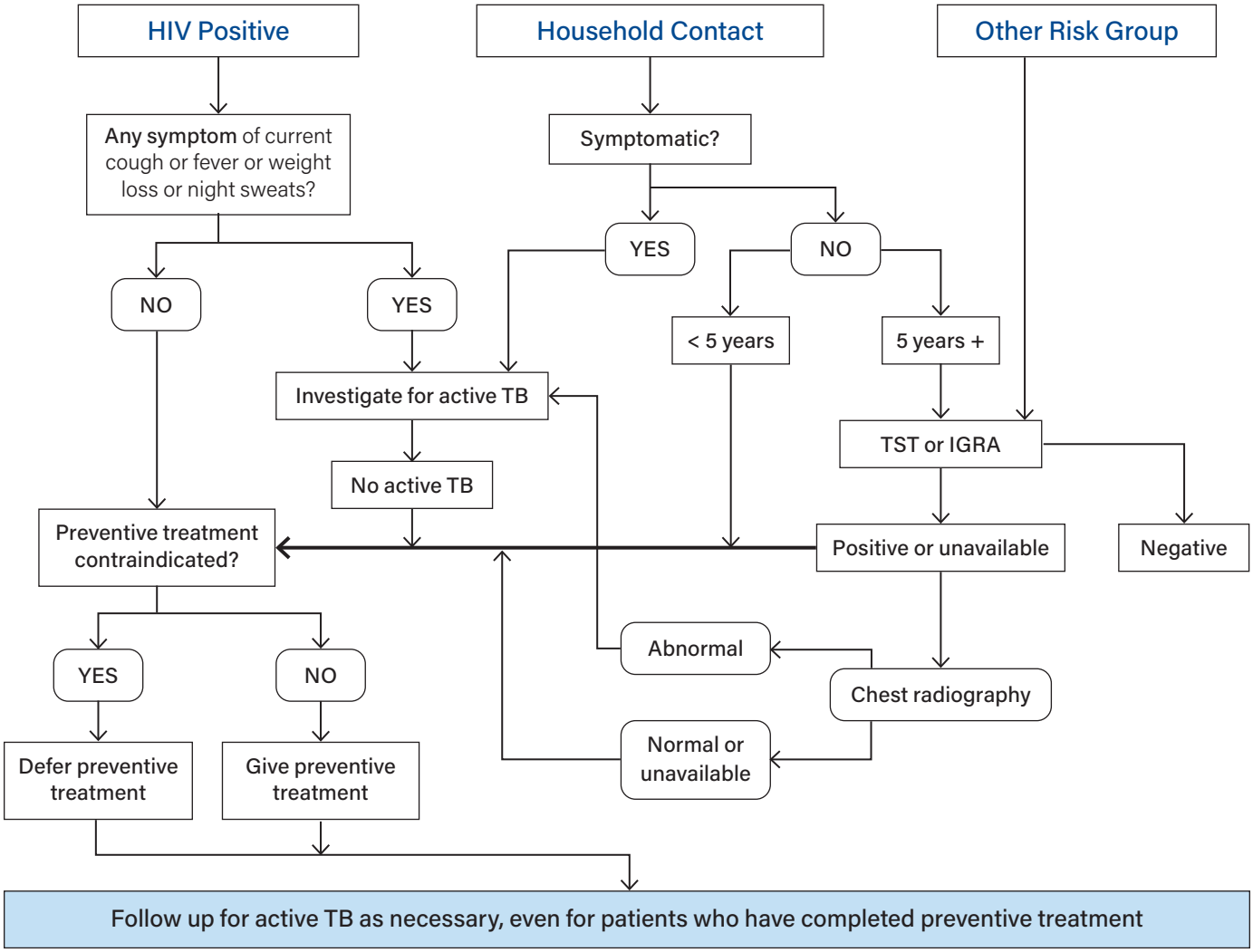
For each index case, it is recommended that this form or version of it is filled out. At the top there is basic information about the index case. Each row details a household contact. Rows can be added. Incorporated in this form is the contact symptom screening questions that take place at the household, as well as clinical and lab diagnoses if the contact is symptomatic. Because these data are collected in different places and at different time points, it is recommended that this form is used to capture all data.

Note to TB Contact Investigators

- Fill out the top part of the last sheet of paper on this form and give it to this household contact
- If this contact answers YES to ANY of the symptom screening questions, OR the contact is HIV-positive or a child under 5 years of age:
  - Tell this contact that she or he should go to the health clinic for evaluation.
  - Tell this contact to present the sheet of paper to the clinic at the time of evaluation.
  - Inform the DTLC that they will be coming in for evaluation.
- If this contact answers NO to ALL symptom screening questions:
  - Tell this contact to go to the clinic for evaluation if s/he develops any of these symptoms in the future
  - Tell the contact to bring the sheet of paper to the clinic if s/he does go to the clinic to get evaluated

ANNEX 4. TB SCREENING AND TPT ALGORITHMS (OPERATIONAL HANDBOOK MODULE 1 – PREVENTION: TPT – WHO 2020)

Figure 4.1 Algorithm for TB screening and TPT



ANNEX 5. PI-TBCI COUNTRY LANDSCAPE ANALYSIS TOOL

Explanation: This tool is for IPs and NTPs to do an initial quick assessment of the status of TB CI activities. The values can be entered as percentage (when qualitative) or as "Yes" or "NO". Depending on the target or indicator value one of the colors is selected to indicate the status. If necessary additional qualitative information can be provided in the "remark" column. NB: The data and color entered are examples.

Strategic intervention or performance indicator (both qualitative and quantitative)	Quality Indicator	Numerator (N)/ Denominator (D)	Value for indicator (Y/N) or % for N & D	Data/info source	Quarterly measure result % (for quantitative indicators)			Remark
					>90%	80-90%	<80%	
Political Commitment at national and sub-national levels	PI-TBCI incorporated into National TB Strategic Plan (NSP) with budget		Yes	NSP document				
Roadmap (Strategic Framework of Interventions) for PI-TBCI	Comprehensive roadmap document developed		Under development	NTP planning document				
TBCI data collection, analysis and sharing part of key program indicators	TBCI M&E framework developed		No					Included in the PI-TBCI roadmap as a key activity
Proportion of eligible index cases receiving CI	Reportable indicator	Number of eligible index cases receiving CI / Number of index cases eligible for CI	82%	National HMIS		82%		
TBCI trained staff capacity in the program at all levels with reference materials for programmatic implementation	TBCI Integrated and updated training manual with training plan developed							
TB program planning and budgeting document with TBCI funding requirements and performance targets including for vulnerable populations								
SOPs for PI-TBCI developed and implemented at facility and community levels.								
CSOs/NGOs and private sector mapping and engagement plan developedto support PI-TBCI								
TBCI and TPT activities with continuous monitoring and evaluation and strategic adjustment to meet the UNHLM targets								

ANNEX 6. PI-TBCI PLANNING, BUDGETING AND PRIORITIZATION TOOL (USE TOGETHER WITH ANNEX 7)

Strategic interventions / Milestone	Collaborators	Quarter 1 activities	Quarter 2 activities	Quarter 3 activities	Quarter 4 activities	Budget
PI-TBCI incorporated into NSP with UNHL targets with resource mapping for TBCI funding allocation.	NTP/TWG Mission IPs	▪ TWG meeting ▪ Desk review ▪ Literature review ▪ Baseline assessment	▪ National consultative workshop ▪ Writeup teams			
National and sub-national level technical assistance (TA) plan and provide national level TA support.	TWG Mission IPs	Enter details of planned activities for each quarters in each box.				
Develop country specific PI-TBCI roadmap with strategic approaches and national level consultation.	NTP TWG IPs					
National PI-TBCI implementation plan with SOPs, activities and budget.	NTP/TWG IPs					
M&E framework integrated into NTP reporting and National HMIS.	NTP TWG IPs					
TBCI updated and integrated training manual with training plan and conduct.	NTP/TWG IPs Local NTP					
National and Local level health systems, community systems (CSOs/ NGOs and private sector) mapping and engagement plan.	NTP IPs Local NTP					
Local TB epidemiologic mapping and needs assessment and performance targets including for vulnerable populations.	Local NTP IPs					
Health systems and community systems mapping CSOs/NGOs and private sector	Local NTP IPs					
Quality-assured diagnostic services, regular and reliable supplies of TPT and anti-TB drugs with strong referral and continuum of care.	NTP/TWG IPs Local NTP					
Scale up TBCI and TPT activities with continuous M&E and strategic adjustment to meet the UNHLM targets	NTP IPs Local NTP					
TBCI research priorities integrated into the national TB research agenda and conducted as program based OR.	NTP/TWG IPs/program Academia					

ANNEX 7. PI-TBCI WORK PLAN DEVELOPMENT TOOL FOR IPS/NTP

Project summary:	
Country of performance	
Implementing partner	
Other partners	
Country director / Chief of Party	
Activity name / number	
Period of performance	
Total budget allocated	
AOB	

PI-TBCI Project Description:

- Country context and health systems structure
- Key objectives and targets
- Country TB epidemiology
- National TB Strategic Plan objectives, targets, and timeframe
- NTP structure and program performance
- Vulnerable key populations
- Strategic approach (national and sub-national strategic interventions)
- Program management and technical assistance package plan

PI-TBCI Implementation plan and budget

Intervention area	Planned key activities	Detail activities and Time frame				Budget
		Q1	Q2	Q3	Q4	
Programmatic Implementation of TB contact investigation (PI-TBCI) Expanded TPT implementation Strengthen TB program and health systems capacity	Conduct baseline assessment					
	Scope of activity (Geographic)					
	Develop implementation plan					
	Develop SOPs for TBCI					
	Conduct consultative workshop					
	Monitoring and evaluation plan					
	Technical assistance plan					
	Supervision plan					
	Procurement plan					
	Ensure diagnostic and treatment standards for CI					
	TBCI and TPT for < 5yrs and PLHIV					
	TBCI and TPT for key vulnerable populations and congregate settings					
	TBCI and TPT Standard of Care (SoC) and quality improvement.					

continued

Annex 7. PI-TBCI work plan development tool for IPs/NTP continued

TB Contact Investigation performance planning and reporting format (revise)		
TB Contact investigation	**Baseline 2020**	**Target 2021**
Number of index cases		
Number of contacts screened (clinical)		
Number of contacts screened (X-ray)		
Number presumptive TB contacts referred to health facilities for evaluation		
Number of presumptive TB contacts tested (Xpert/AFB microscopy, culture/DST)		
Number of contacts TB cases (All forms) diagnosed		
Number of Contact bact+ TB cases diagnosed		
Number of contact TB cases started on TB treatment		
Number of contacts started on TB preventive treatment (TPT)		

ANNEX 8. PI-TBCI PERFORMANCE MONITORING AND REPORTING GUIDANCE TOOL FOR IMPLEMENTING PARTNERS (IPS)/NTP

1. Narrative summary:

- TB Contact Investigation roadmap implementation progress status (country context specific)
- Summarize the baseline assessment findings (implementation status, gaps, opportunities)
- For status of PI-TBCI: describe the level to which TBCI policy / strategy is implemented in the country. Use the landscape analysis tool (Annex 8 for details). The classification below would help the initial status determination.
  - No TBCI policies or practices implemented - describe barriers and next steps
  - TBCI policies / strategies /SOPs/M&E tools/implementation plan/ to support TBCI have been developed and approved describe next steps and possible gaps
  - TBCI policies / strategies /SOPs/M&E tools/implementation plan/have been piloted/introduced in limited settings – describe performance status, lessons learnt and TBCI expansion plan
  - TBCI policies / strategies /SOPs/M&E tools/ activities implemented nationally – describe performance status using the full spectrum of M&E system and program based OR (evidence generation).
- Describe overall national TB Program and integrated TBCI technical, management, human resources, logistical capacity, staff training and supportive supervision activities.
- Funding availability (status) for TBCI (Domestic and external donor funds)
- Provide overall data on TB and DR-TB case finding, treatment success and cure rates and TPT performance (use annex 2 for comprehensive TB performance indicators)
- Describe community and facility based integrated TBCI activities and program coverage including engagement of other care providers (CSOs/ NGOs and private sector).
- Describe TBCI Standard of Care (SoC) and quality improvement tools implementation and status (refer to annex 11)
- Quarterly/yearly reporting of the standard TBCI performance indicators
- Operational research activities (priority OR agenda, implementation, presentations and publications)

2. TB Contact Investigation (TBCI) performance and process indicators (for quarterly performance reporting, process indicators and program quality improvement indicators)

2.1. Quarterly/yearly performance indicators:

Ref #	Indicator	Definition	Numerator	Denominator	Disaggregation
CI-1	Contact Investigation Coverage	Number of contacts of bacteriologically confirmed Pulmonary TB patients who were evaluated for active TB and latent TB, out of those eligible, expressed as a percentage	Number of contacts of new and relapse notified bacteriologically confirmed Pulmonary TB patients who were evaluated for active TB disease and LTBI during reporting period	Total number of contacts of new and relapse notified bacteriologically confirmed Pulmonary TB patients during reporting period.	
CI-2	Estimated average number of household contacts identified per one notified new and relapse bacteriologically confirmed pulmonary TB case	Estimated average number of household contacts identified per one notified new and relapse bacteriologically confirmed pulmonary TB case	Estimated average number of household contacts identified per one notified new and relapse bacteriologically confirmed pulmonary TB case	N/A	
CI-3	Percent of contacts evaluated for TB disease	Percentage of contacts of bacteriologically confirmed notified pulmonary TB who were evaluated for TB disease during reporting period, among all contacts of new and relapse notified bacteriologically confirmed	Number of contacts of bacteriologically confirmed notified pulmonary TB who were evaluated for TB disease during reporting period	Total number of contacts of new and relapse notified bacteriologically confirmed Pulmonary TB patients during reporting period.	by age (<5 and >5) and use respective denominator whenever applicable

continued

Annex 8. PI-TBCI performance monitoring and reporting guidance tool for implementing partners (IPs)/NTP continued

2. TB Contact Investigation (TBCI) performance and process indicators (for quarterly performance reporting, process indicators and program quality improvement indicators)

2.1. Quarterly/yearly performance indicators:

Ref #	Indicator	Definition	Numerator	Denominator	Disaggregation
CI-4	Percent of contacts detected with TB disease	Percentage of TB cases identified (both bacteriologically and clinically) among contacts during reporting period, out of total number of contacts of new and relapse notified bacteriologically confirmed Pulmonary TB	Number of TB cases identified (both bacteriologically and clinically) among contacts during reporting period	Number of contacts of bacteriologically confirmed notified pulmonary TB who were evaluated for TB disease during reporting period	By age (<5 and >5) and use respective denominator whenever applicable
CI-5	Percent of contacts detected with DR-TB (RR/MDR-TB and XDR) disease	Percentage of DR-TB (RR/MDR-TB and XDR) cases identified (both bacteriologically and clinically) among contacts during reporting period, out of total number of contacts of new and relapse notified bacteriologically confirmed Pulmonary TB patients during reporting period.	Number of DR-TB (RR/MDR-TB and XDR) cases identified among the contacts during the reporting period	Number of contacts of bacteriologically confirmed notified pulmonary TB who were evaluated for TB disease during reporting period	By age (<5 and >5) and use respective denominator whenever applicable
PR-2	Number of close contacts of bacteriologically confirmed pulmonary TB cases who were screened for TB infection (tested for TB infection) according to national screening protocols during the specified reporting period	Total number of close contacts of bacteriologically confirmed pulmonary TB cases who were screened for TB infection according to national screening protocols during the specified reporting period Every contact will first be assessed for active TB as per national protocols; once active TB has been ruled out, assessment for TB infection becomes relevant. This indicator is calculated as "total number of contacts screened" minus "the number of contacts who were diagnosed with TB." LTBI screening protocols may vary by country. Some countries may screen using a screening test such as TST or IGRA.	Number of close contacts of bacteriologically confirmed pulmonary TB cases who were screened for TB infection according to national screening protocols during the specified reporting period	N/A	If testing was used, disaggregate by type: TST, IGRA, or both
CI-6	Percent of close contacts who tested positive for TB infection	Percentage of contacts who were ruled out for TB disease and tested positive for TB infection among eligible contacts during reporting period	Number of contacts who were ruled out for TB disease and tested positive for TB infection during reporting period	Total number of eligible contacts who were who were ruled out for TB disease and were tested for TB infection (using TST, IGRA, or both) during reporting period	By test type : TST, IGRA, both

continued

Annex 8. PI-TBCI performance monitoring and reporting guidance tool for implementing partners (IPs)/NTP continued

2. TB Contact Investigation (TBCI) performance and process indicators (for quarterly performance reporting, process indicators and program quality improvement indicators)

2.2. TB Contact Investigation additional process / quality indicators

Ref #	Indicator	Definition	Numerator	Denominator	Disaggregation
CI-7	Proportion of eligible index cases receiving CI		Number of eligible index cases receiving CI	Number of index cases eligible for CI	
CI-8	Proportion of identified contacts investigated		Number of contacts investigated	Number of contacts identified	
CI-9	Proportion of referred contacts who complete evaluation		Number of referred contacts who complete evaluation	Number of contacts referred for evaluation	
CI-9	Proportion of contacts diagnosed with active TB and started on treatment		Number of contact active TB cases started on treatment	Number of contacts diagnosed with active TB	

2.3. Epidemiologic (outcome / impact indicators) and operational research (OR)

- Overall program TB & DR-TB treatment outcome – (TSR, CR) plus the additional USAID required TB program indicators (annex 2) with a focus on:
  - New additional cases detected (change in Case notification)
  - TPT expansion and coverage in the target populations
  - New TB and DR-TB infections prevented / incidence decline (Proxy indicator from TB prevalence study, DRS)
- Vulnerable populations coverage (disaggregated by context specific priority populations)
- Estimated cost for TBCI specific program activities and cost effectiveness analysis for TBCI calculated as the cost per index case and TB case detected.
- TB social determinants assessment, identification, appropriate interventions designed, implemented and monitored

2.4. Additional list of all indicators to choose from when relevant and for OR purposes

- Number of contacts with presumptive TB cases identified (i.e, number requested to give samples for bacteriologic test)
- Number contacts who received bacteriologic test results
- Number of bacteriologic positive TB among contacts screened.
- Number of bacteriologic negative/EP TB among contacts screened.
- Proportion of bacteriologic positive TB cases diagnosed among Contacts of index cases (reportable)
- Proportion of bacteriologic negative/EP TB cases diagnosed among Contacts of index case
- Number of contact TB cases (all forms) started on curative treatment dis-aggregated by gender, HIV status, age (<5yrs, 5-14yrs, Adults) and DR-TB (MDR-TB, XDR-TB)
- Number/proportion of contacts started on preventive treatment (TPT) dis-aggregated by gender, HIV status, age (<5yrs, 5-14yrs, Adults), DR-TB (MDR-TB, XDR-TB) and TPT regimen

ANNEX 9. PI-TBCI SUPPORTIVE SUPERVISION (SS) AND STANDARD OF CARE (SOC)/QUALITY IMPROVEMENT TOOL

(This tool should be modified for context specific SS and SoC improvement for selected performance and quality indicators at local health office, health facility and Community level)

Name /address of facility or office visited _____

Reporting period (quarter) _____ Year _____

Supportive supervision (SS) date _____

TB program/activity	Yes	No	NA	Comments
Is there comprehensive TB screening, diagnostic and treatment service at the local catchment area and corresponding health facilities?				
Is there designated TB focal person trained in TB contact investigation at local health office, health facility and community levels				
Are job aids, guidelines and manuals for comprehensive TB prevention, diagnosis and treatment activities available?				
Do health facilities provide regular health education, perform triaging/cougher prioritization for fast tracking of coughing patient at OPDs				
Are TB contact investigation SOPs including TB screening tools, TBCI diagnostic and treatment algorithms and referral forms available?				
Is there TB contact investigation register form (integrated or separate) available?				
Have all index TB cases (all forms) had their household and close contacts screened for TB				
Is TB contact investigation integrated into a community TB care referral and treatment linkage activity? If yes, describe in the comments.				
Is there access for the required screening and diagnostic tools (X-ray, microscopy, GeneXpert, culture/DST, pathology) and referral for TBCI				
Is there access to comprehensive treatment, adherence support and social support for all TB and DR-TB patients and those diagnosed through contact investigation and on TPT?				
Are treatment outcomes (TSR and CR) as per recommended global and national standards				
Are all TB patients tested (HIV test result documented) for HIV				
Is TPT provided to all <5 children, PLHIV, contacts and other high-risk groups? Provide details				
Add additional context relevant area if needed!!				

continued

Annex 9. PI-TBCI Supportive supervision (SS) and Standard of Care (SoC)/quality improvement tool continued

TB contact screening data collection tool during Supportive Supervision *(Previous reporting period / Quarter)*

TB case finding	# of index TB Cases registered	# of index whose contact assessed	Total number of HH/close contacts		# of TB screening results for < 5yrs		# of TB screening results for 5yrs and older		Diagnostic results		Number TPT started	
			< 5yrs	5 yrs & older	Pos	Neg	Pos	Neg	< 5 yrs	5yrs & older	< 5yrs	5yrs & older
Bacteriologic +ve pulmonary TB												
Bacteriologic –ve pulmonary TB												
Extrapulmonary TB												

TB Contact investigation activity Standard of Care (SoC) and quality assessment tool
(Please note that the values and colors entered are just example)

Strategic intervention or performance indicator (both qualitative and quantitative)	Quality Indicator	Numerator(N) / Denominator (D)	Value for indicator (Y/N) or % for N & D	Data/ info source	Quarterly measure result % (for quantitative indicators)			Remark
					>90%	80-90%	<80%	
TB program performance measure	Treatment success rate	Percentage of TB cases successfully treated (cured or completed treatment) among TB cases notified to during a specified period Total TB cases (new and relapse) notified during a specified period	91%	National HMIS TB register	91%			
TB program performance measure	TB case finding	Number of new and relapse TB cases that were notified in a reporting year. Estimated number of incident TB cases in the same year.	70%	National HMIS TB register				
TB contact Investigation activity performance measure	Proportion of eligible index cases receiving CI	Number of eligible index cases receiving CI Number of index cases eligible for CI						
TB contact Investigation activity performance measure	TB contact investigation coverage	Number of contacts of new and relapse notified bacteriologically confirmed Pulmonary TB patients who were evaluated for active TB disease and LTBI during reporting period Total number of contacts of new and relapse notified bacteriologically confirmed Pulmonary TB patients during reporting period.		National HMIS TB register				

continued

Annex 9. PI-TBCI Supportive supervision (SS) and Standard of Care (SoC)/quality improvement tool continued

TB Contact investigation activity Standard of Care (SoC) and quality assessment tool *(Please note that the values and colors entered are just example)*								
Strategic intervention or performance indicator (both qualitative and quantitative)	Quality Indicator	Numerator(N) / Denominator (D)	Value for indicator (Y/N) or % for N & D	Data/ info source	Quarterly measure result % (for quantitative indicators)			Remark
					>90%	80-90%	<80%	
TB contact Investigation activity performance measure	Percent of contacts evaluated for TB disease	Number of contacts of bacteriologically confirmed notified pulmonary TB who were evaluated for TB disease during reporting period Total number of contacts of new and relapse notified bacteriologically confirmed Pulmonary TB patients during reporting period.		National HMIS TB register				
TPT coverage		Number of eligible Household Contacts and PLHIV enrolled on TB preventive treatment Number of eligible Household Contacts and PLHIV for TPT which includes: 1) household contacts (adult and children <5) of people with bacteriologically confirmed pulmonary TB, and 2) PLHIV enrolled in HIV care.	82%	National HMIS TB register				
Add more context specific quality/ performance indicators								

ANNEX 10: TUBERCULOSIS PREVENTIVE TREATMENT (TPT) – WHO 2020 RECOMMENDATIONS (ALL RECOMMENDATIONS)

Operational handbook Module 1- Prevention: Tuberculosis preventive treatment (TPT) – WHO 2020 recommendations.

1. Adults and adolescents living with HIV who are unlikely to have active TB should receive TB preventive treatment as part of a comprehensive package of HIV care. Treatment should also be given to those on antiretroviral treatment, to pregnant women and to those who have previously been treated for TB, irrespective of the degree of immune suppression and even if LTBI testing is unavailable.
2. Infants aged <12 months living with HIV who are in contact with a person with TB and who are unlikely to have active TB on an appropriate clinical evaluation or according to national guidelines should receive TB preventive treatment.
3. Children aged ≥12 months living with HIV who are considered unlikely to have active TB on an appropriate clinical evaluation or according to national guidelines should be offered TB preventive treatment as part of a comprehensive package of HIV prevention and care if they live in a setting with high TB transmission, regardless of contact with TB.
4. All children living with HIV who have successfully completed treatment for TB disease may receive TB preventive treatment.
5. Children aged <5 years who are household contacts of people with bacteriologically confirmed pulmonary TB and who are found not to have active TB on an appropriate clinical evaluation or according to national guidelines should be given TB preventive treatment even if LTBI testing is unavailable.
6. Children aged ≥5 years, adolescents and adults who are household contacts of people with bacteriologically confirmed pulmonary TB who are found not to have active TB by an appropriate clinical evaluation or according to national guidelines may be given TB preventive treatment.
7. In selected high-risk household contacts of patients with multidrug-resistant tuberculosis, preventive treatment may be considered based on individualized risk assessment and a sound clinical justification.
8. People who are initiating anti-TNF treatment, or receiving dialysis, or preparing for an organ or haematological transplant, or who have silicosis should be systematically tested and treated for LTBI.
9. Systematic LTBI testing and treatment may be considered for prisoners, health workers, immigrants from countries with a high TB burden, homeless people and people who use drugs.
10. Systematic LTBI testing and treatment is not recommended for people with diabetes, people who engage in the harmful use of alcohol, tobacco smokers and underweight people unless they also belong to other risk groups included in the above recommendations.
11. Adults and adolescents living with HIV should be screened for TB according to a clinical algorithm. Those who do not report any of the symptoms of current cough, fever, weight loss or night sweats are unlikely to have active TB and should be offered preventive treatment, regardless of their ART status.
12. Adults and adolescents living with HIV who are screened for TB according to a clinical algorithm and who report any of the symptoms of current cough, fever, weight loss or night sweats may have active TB and should be evaluated for TB and other diseases that cause such symptoms.
13. Chest radiography may be offered to people living with HIV and on ART and preventive treatment given to those with no abnormal radiographic findings.
14. Infants and children living with HIV who have poor weight gain, fever or current cough or who have a history of contact with a person with TB should be evaluated for TB and other diseases that cause such symptoms. If TB disease is excluded after an appropriate clinical evaluation or according to national guidelines, these children should be offered TB preventive treatment, regardless of their age.
15. The absence of any symptoms of TB and the absence of abnormal chest radiographic findings may be used to rule out active TB disease among HIV-negative household contacts aged ≥5 years and other at-risk groups before preventive treatment.
16. Either a tuberculin skin test (TST) or interferon-gamma release assay (IGRA) can be used to test for LTBI.
17. The following options are recommended for the treatment of LTBI regardless of HIV status: 6 or 9 months of daily isoniazid, or a 3-month regimen of weekly rifapentine plus isoniazid, or a 3-month regimen of daily isoniazid plus rifampicin. A 1-month regimen of daily rifapentine plus isoniazid or 4 months of daily rifampicin alone may also be offered as alternatives.

ANNEX 11. TPT UNHLM TARGETS FOR USAID PRIORITY COUNTRIES

Total TB Preventive Treatment (TPT) targets							
#	Country	2018	2019	2020	2021	2022	Cumulative 2018-2022
1	Afghanistan	7,900	19,800	38,300	51,100	60,500	**177,600**
2	Bangladesh	37,400	95,300	204,400	288,500	343,700	**969,300**
3	Cambodia	7,000	11,800	20,200	25,300	27,800	**92,100**
4	DRC	56,900	121,800	257,200	321,900	372,800	**1,130,600**
5	Ethiopia	49,000	76,700	103,600	127,800	132,900	**490,000**
6	India	378,100	900,300	1,489,300	1,959,700	2,270,000	**6,997,400**
7	Indonesia	58,500	191,400	334,100	448,900	531,100	**1,564,000**
8	Kazakhstan	3,200	4,900	7,300	10,000	11,600	**37,000**
9	Kenya	167,500	187,600	216,300	197,400	181,100	**949,900**
10	Kyrgyzstan	2,100	3,400	5,200	7,000	8,200	**25,900**
11	Malawi	49,700	65,000	74,900	94,000	90,500	**374,100**
12	Mozambique	218,100	219,500	225,400	247,400	213,200	**1,123,600**
13	Myanmar	30,700	56,100	99,400	128,800	145,600	**460,600**
14	Nigeria	200,100	340,900	565,300	610,700	650,600	**2,367,600**
15	Pakistan	74,500	186,700	358,600	480,900	568,700	**1,669,400**
16	Philippines	52,600	122,800	241,300	334,900	395,900	**1,147,500**
17	South Africa	419,300	523,600	622,800	589,300	521,800	**2,676,800**
18	Tanzania	87,100	127,500	181,200	173,800	167,600	**737,200**
19	Uganda	76,800	101,600	132,300	155,800	149,800	**616,300**
20	Ukraine	17,500	24,800	34,600	50,800	55,900	**183,600**
21	Uzbekistan	5,400	9,300	13,600	18,100	20,700	**67,100**
22	Viet Nam	19,400	38,400	61,600	80,600	91,500	**291,500**
23	Zambia	59,100	80,200	94,300	107,300	100,000	**440,900**
24	Zimbabwe	76,500	96,900	107,000	155,200	154,100	**589,700**
TOTAL		**2,067,300**	**3,478,800**	**5,307,000**	**6,491,400**	**7,098,000**	24,442,500

ANNEX 12. TB PROGRAM INDICATORS FOR 10 PRIORITY TECHNICAL AREAS INCLUDING TBCI (USAID)

	Name	Definition	Baseline (2019 calendar year)	Target (2021 calendar year)
REACH				
	REACH: Increased DS- and DR-TB case notification			
Indicator 1	TB detection (TB treatment coverage)	Number of new and relapse TB cases (and cases with unknown previous TB treatment history) that were notified in a reporting year, divided by the estimated number of incident TB cases in the same year, expressed as a percentage.		
Indicator 2	Bacteriological Diagnosis Coverage (Pulmonary TB)	Percent of new and relapse bacteriologically confirmed pulmonary TB cases among notified new and relapse pulmonary TB cases during reporting period		
Indicator 3	Childhood TB notifications	Number of new and relapse Childhood (0-14yr) TB cases (and childhood cases with unknown previous TB treatment history) who were notified in reporting year.		
Indicator 4	Drug-resistant TB notifications	Number of laboratory-confirmed DR-TB cases notified during reporting year.		
Indicator 5	Private sector TB notifications	Number of new and relapse TB cases notified by private non-NTP providers in reporting year.		
Indicator 6	Contact investigation coverage	Number of contacts of bacteriologically confirmed Pulmonary TB patients who were evaluated for active TB and latent TB, out of those eligible, expressed as a percentage		
CURE				
	CURE: High treatment success rate in DS- and DR-TB			
Indicator 7	TB treatment success rate	Percentage of TB cases successfully treated (cured or completed treatment) among TB cases (new and relapse) notified to the national health authorities during a specified period		
Indicator 8	Drug-Resistant TB treatment Success Rate	Percentage of DR-TB cases successfully treated (cured or completed treatment) among DR-TB cases enrolled on appropriate treatment during a specified period.		
PREVENT				
	PREVENT: Prevent TB transmission and development			
Indicator 9	TB preventive treatment (TPT) coverage	Number of eligible Household Contacts and PLHIV enrolled on TB preventive treatment which includes: 1) household contacts (adult and children <5) of people with bacteriologically confirmed pulmonary TB, and 2) PLHIV enrolled in HIV care.		
SELF-RELIANCE				
Indicator 10	Proportion of Domestic Financing for TB	Percentage of NTP funding from domestic sources		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