QUALITY IMPROVEMENT FOR TB CASE DETECTION
A Toolkit for Health Facilities

UNITED REPUBLIC OF TANZANIA
MINISTRY OF HEALTH, COMMUNITY DEVELOPMENT, GENDER, ELDERLY AND CHILDREN

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QUALITY IMPROVEMENT FOR TB CASE DETECTION
A toolkit for health facilities

National TB and Leprosy Programme (NTLP)
6 Samora Avenue
P.O Box 9083
11478 Dar es Salaam
Email: info@ntlp.go.tz
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A toolkit for health facilities
# TABLE OF CONTENTS

**Acronyms and Abbreviations** ........................................... vi

**Foreword** .................................................................................. viii

**Acknowledgements** .................................................................. x

**CHAPTER 1: INTRODUCTION** .................................................. 1

1.1. TB case detection in Tanzania ................................................ 1
1.2. Rationale for the toolkit for Quality Improvement for TB Case Detection ................................................................................. 1
1.3. The objectives of the Toolkit ....................................................... 2
1.4. Target group for the Toolkit ......................................................... 3
1.5. Methodology for development of the toolkit ............................... 3
1.6. Contents of the toolkit ............................................................... 4
1.7. How to implement the toolkit in health facilities ....................... 5

**CHAPTER 2: IMPROVING ACCESS TO TB CASE DETECTION** ..... 7

2.1. Barriers to TB case detection in health facilities ...................... 7
2.2. Approaches to overcome barriers for TB case detection in health facilities .............................................................................. 8
   2.2.1. Increase access to TB services in health facilities .............. 9
   2.2.2. Improve organization and management of TB case detection activities ............................................................................... 9
   2.2.3. Improve access to laboratory TB diagnosis in health facilities .......................................................................................... 10
   2.2.4. Strengthen Health facilities outreach to increase access to TB case detection ................................................................. 13

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*A toolkit for health facilities*
CHAPTER 3: ORGANIZATION OF QUALITY IMPROVEMENT FOR TB CASE DETECTION AT HEALTH FACILITY LEVEL

3.1. Organization of TB Case detection in health facility

3.1.1. Organization of TB case detection: Roles and responsibilities of Health Facility In-charge and supervisors

3.1.2. Organization of TB case detection: Activities targeting Health Care Providers

3.1.3. Organization of TB case detection: Objectives and tasks of the health facility TB /HIV team

3.4. Organization of TB case detection: Tasks of the facility TB focal person

CHAPTER 4: STRENGTHENING IDENTIFICATION OF TB CASES IN HEALTH FACILITIES

4.1. At most Risk groups to consider for systematic screening for tuberculosis in health facilities

4.1.1. Guidance on Identification of TB Suspects in Wards

4.1.2. Guidance to doctors, clinicians and nurses on identification of TB Suspects

4.2. Approaches to increase TB case detection in RCH and MCH under-five clinics

4.3. Active TB case finding in HIV/AIDS clinics (CTC, PMTCT& VCT)

4.4. Active TB case finding in Diabetes clinic

4.5. Approaches to increase TB case detection in Children

A toolkit for health facilities
CHAPTER 5: STRENGTHENING TB LABORATORY SERVICES... 36
5.1. Organizing TB case detection in laboratory ...................... 36
    5.1.1. Methods and approaches for TB diagnosis .............. 36
    5.1.2. Quality control for the laboratory......................... 38
5.2. SOPs for collection of sputum specimen.......................... 39
5.3. Checklist for laboratory workers in improving quality of
    TB diagnosis.......................................................................... 40

CHAPTER 6: STRENGTHENING TB CARE, TREATMENT
AND PREVENTION................................................................. 43
6.1. Patient-centered care and treatment................................. 43
6.2. Contact tracing.................................................................. 47
6.3. Tracing TB patients who are lost to follow-up.................... 49

CHAPTER 7: MONITORING AND EVALUATION.................... 51
7.1. Activities to increase TB case detection related to Data..... 51
7.2. National level TB case detection indicators .................... 52
7.3. Health facility level indicators for TB case detection....... 53
7.4. Additional TB case detection indicators ......................... 55
7.5. Additional TB case detection data .................................. 55

ANNEXES.............................................................................. 56
1. Summary of Quality Improvement Approaches in TB case
detection ................................................................................ 56
ACRONYMS AND ABBREVIATIONS

AIDS   Acquired Immunodeficiency Syndrome
ART    Anti-retroviral Therapy
CHCP   Community Health Care Providers
CHS    Community Health Supporter
CHW    Community Health Worker
CME    Continuous Medical Education
CTC    Care and Treatment Clinic
CXR    Chest X-Ray
CHMTs  Council Health Management Teams
DLT    District Laboratory Coordinator
DMO    District Medical Officer
DOT    Direct Observed Therapy
DTLC   District TB and Leprosy Coordinator
ENT    Ear, Nose and Throat unit
EPTB   Extra-Pulmonary TB
FNA    Fine Needle Aspiration
HB     Home Based
HBCP   Home-Based Care Providers
HCW    Health Care Worker
HIV    Human Immunodeficiency Virus
ICF    Intensified TB Case Finding
IEC    Information, Education and Communication
MP     Member of Parliament
MSH    Management Sciences for Health
NGO    Non-Governmental Organisations
NTLP   National Tuberculosis and Leprosy Program
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>OPD</td>
<td>Outpatient Department</td>
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<tr>
<td>PATH</td>
<td>Program for Appropriate Technology in Health</td>
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<td>PCT</td>
<td>Patient Centered TB Treatment</td>
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<td>PLHIV</td>
<td>People Living with HIV</td>
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<td>PMTCT</td>
<td>Prevention of Mother to Child Transmission of HIV</td>
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<td>PST</td>
<td>Prevalence Survey for TB</td>
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<tr>
<td>QI</td>
<td>Quality Improvement</td>
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<tr>
<td>RCH</td>
<td>Reproductive and Child Health Unit</td>
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<tr>
<td>RTLC</td>
<td>Regional TB and Leprosy Coordinator</td>
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<tr>
<td>SOP</td>
<td>Standard Operating Procedures</td>
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<tr>
<td>SS</td>
<td>Sputum Smear</td>
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<td>TB</td>
<td>Tuberculosis</td>
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<tr>
<td>TPHS</td>
<td>Tanzania Health Promotion Services</td>
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<tr>
<td>TOKIUKI</td>
<td>Tokomeza Kifua Kiku na Ukimwi Kinondoni</td>
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<tr>
<td>TST</td>
<td>Tuberculin Skin Test</td>
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<tr>
<td>TS</td>
<td>Treatment Supporter</td>
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<tr>
<td>TQIF</td>
<td>Tanzania Quality Improvement Framework</td>
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<tr>
<td>VCT</td>
<td>Voluntary Counseling and Testing</td>
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<tr>
<td>WEO</td>
<td>Ward Executive Officer</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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The Ministry of Health, Community development, Gender, Elderly and Children (MoHCDGEC) is committed to ensure that high quality health care services and especially at health facilities in particular are provided to all citizens countrywide through implementation of evidence-based interventions. The Ministry is aiming at improving the quality of services provided at health facilities and has already developed the Tanzania Quality Improvement Framework (TQIF) as a guiding document for quality improvement of health services provision in the country.

In recognition of the need to improve the quality of services many stakeholders undertook initiatives geared towards improving quality of services at health facilities including the provision of quality TB control services. The impetus for this toolkit has focused on improving the TB, TB/HIV and DR-TB services at health facilities of various levels of health care system.

TB case detection rates in Tanzania is notably very low at 36% which means that a bigger proportion of cases remain not identified and that the diagnostic methods currently on use are already exhaustive to bring the changes. This toolkit will introduce the known innovative interventions to improve TB case detection in the health facilities within selected districts in the 16 targeted regions.

Another key area in the toolkit guidelines include dimensions of quality, whereby all activities to be implemented in any service area need to be assessed to ensure they are cognizant of the following dimensions of quality; safety, access, effectiveness, technical performance, efficiency, continuity, compassionate relations, appropriateness, participation and sustainability.

The monitoring and evaluation part of this toolkit is intended to guide health facilities self-assessments against agreed set of standards using a set of defined indicators to measure...
improvements in quality of TB control services in their areas. Indicators to measure progress in attaining the toolkit objectives shall be defined as part and parcel of the respective health facility quality improvement plan. Strength of taking QI for TB case detection forward lies in the self-sustaining approach of self-assessments and internal assessments facilitated through mentoring and coaching, elements that should change the landscape of the routine supportive supervision.

This guideline will provide a direction for quality service provision to most vulnerable groups at all levels in Tanzania. It will also facilitate monitoring the impact and stimulate further innovations in service provision to stop TB transmission in the country.

It is my sincere expectation that health facility in-charges and all other service providers will adhere to the toolkit guidance and use it to efficiently to detect all TB cases in need.

Dr. Mpoki Ulisubisya
PERMANENT SECRETARY
ACKNOWLEDGEMENTS

The development and review of this toolkit for improvement of TB case detection at health facility level is a result of efforts of many individuals. The National Tuberculosis and Leprosy Programme would like to thank consultants Drs Sode Matiku, Mwanaisha Nyamkara and Nyagosya Range for their technical support in the development of the toolkit.

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Finally, we are immensely grateful to the Global Fund to fight AIDS, TB and Malaria (GF ATM) for their technical and financial support which facilitated the successful development of this toolkit for quality improvement in TB case detection.

Prof. Muhammad Bakari

CHIEF MEDICAL OFFICER
CHAPTER 1: INTRODUCTION

1.1. TB case detection in Tanzania

Tanzania is ranking 6th among the 30 WHO identified high TB burden countries\(^1\). The results of the first national prevalence survey for TB (PST) conducted in 2012 and published in the WHO’s Global TB report 2015, showed a much higher TB burden compared to previous years where the country had exceeded the WHO set TB case detection target of 70%. As per the WHO Global TB report 2015, the estimated TB prevalence is 528/100,000, with a case detection of 36% far lower from the previous estimates of 172/100,000 prevalence and case detection of 79%. The number of estimated TB cases in the country is 170,000\(^2\), and the estimated number of missed cases is 108,429\(^3\). Furthermore, about 30,000 people are estimated to die from TB every year. These reports show that there is a big gap in TB case detection and this call for a special strategy or intervention to address and mitigate the problem of low TB case detection in the country.

1.2. Rationale for the toolkit for Quality Improvement in TB Case Detection

Given the context of TB burden in the country with considerably low case detection, the National Tuberculosis and Leprosy Program (NTLP) identified improving TB case detection practices in health facilities as one of the key interventions. NTLP focused on identifying innovations and ‘workarounds’, to overcome health systems challenges to deliver high quality services and to improve efficiencies and quality in TB case detection.

This toolkit for Quality Improvement for TB case detection has been designed to assist health facility in-charge/supervisors and staff to optimize existing or known TB case detection strategies and efforts within health facilities by improving the quality of TB

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1 2015 Global Tuberculosis Report, WHO  
2 2014 Global Tuberculosis Report, WHO  
3 2015 NTLP reports.
related case detection strategies at health facility level. Based on this merit, the toolkit has been developed to be an effective resource that provides clear and simple guidance to health workers on how to improve TB case detection at different units and sections of health facilities.

The toolkit describes processes and provides instructions to optimize the organization and practices in improving TB case detection according to the national guidelines. This toolkit is essential in increasing access to TB services, providing equity of care, patient safety and standardization of service provision.

1.3. The objectives of the Toolkit

The main objective of the toolkit is to standardize and optimize TB quality improvement interventions with a specific focus to increase detection of TB cases as a permanent and routine activity carried out in all health facilities. It is expected that the toolkit will achieve the following:

- Provide staff with valid technical and operational guidance to improve the organization of TB care and prevention practices within health facilities;
- Ensure that TB case detection practices are harmonized and performed consistently within and across health facilities to maintain standard quality of care;
- Serve as a quick reference document for quality improvement of TB case detection in health facilities for in-charge/supervisors and health care providers;
- Serve as a quality improvement tool for TB case detection for health facility and council health management teams (CHMTs) to evaluate service delivery at health facility level and reinforce performance in accordance with national guidelines;

1.4. Target group for the Toolkit

The toolkit is targeted for health facility in-charge/supervisors and all health care providers who come into contact with patients presenting with any form of ailment and primarily those with respiratory symptoms at any service delivery points.
This includes a wide range of health cadres working in waiting areas/record rooms; outpatient departments (OPDs); laboratory and pharmacy staff; HIV/ART/chronic clinics; Diabetes clinics and DOT centers; Reproductive and Child Health unit (RCH) and Pediatrics wards; and nurses and clinicians/doctors in consultation rooms and other departments and in patients' wards. The toolkit is also useful to the workers at district, regional and national levels who supervise the implementation of TB at various levels of health facilities.

1.5. Methodology for development of the toolkit

The Standard Operating Procedures (SOPs) for improving TB case detection in Tanzania (2011) formed the foundation for development of this toolkit. The toolkit draws on in-country observations of several TB case detection interventions practiced in 30 health facilities in six regions of Arusha, Mwanza, Zanzibar, Coast, Mbeya and Dar es Salaam; literature review; and consultations and interviews with national experts. The two main criteria for the approaches in increasing TB case detection described in this toolkit included:

- Approaches that have been implemented in a number of regions within the country or in other countries and proved to work without requirements for policy changes and depends primarily on facility-level planning and decisions;

- Approaches that require only reorganization of service delivery or reallocation of resources, but may not necessarily require extra investments, except for some initial investment in set-up and training.

1.6. Contents of the toolkit

The toolkit is organized in seven chapters. Each chapter starts with a preamble that provides key concepts of the chapter, also providing the context of the toolkit and other important information. Key staff involved in the implementation of specific quality improvement (QI) activities are mentioned and abbreviated at the end of each task. The staff for each task is
not limited to the ones mentioned and may change according to staffing conditions of the health facility. Detailed step-by-step information on how to perform certain procedures is also provided. If the reader requires more information, important resource documents are referred for each chapter at the end of the document. The chapters are as follows:

1. Provides an overview of TB burden in the country and a brief overview of this toolkit specifically how the toolkit was developed, contents and steps that health facilities should follow to implement the toolkit.
2. Describes barriers to TB case detection and approaches that can be used by health facilities to improve access to TB case detection within the health facility and through community engagement.
3. Describes organization of Quality Improvement for TB case detection at a health facility level.
4. Provides important information on approaches for increasing TB case detection in OPD, in-patients departments (IPD) and other different departments of the health facility; and how to identify suspects, screen and diagnose TB patients.
5. Describes organizing TB services in the Laboratory including an outline of SOPs for collection of sputum specimen and checklist for Laboratory workers in improving quality of TB diagnosis.
6. Provides information on how health facilities should strengthen TB treatment and prevention focusing on patient-centered approaches; contact tracing; and tracing patients who are lost to follow-up.
7. Provides the list of indicators for monitoring and evaluation of TB case detection activities at different levels of the health facility.

The toolkit is complemented with diagnostic flow charts, algorithms and other job aids to assist service providers to effectively deliver TB interventions at service delivery points. Furthermore, a selection of best practices and case studies
for improving TB case detection are included at the end of the document. When detailed technical information on how to perform specific procedures is required, the toolkit should be used in conjunction with other relevant national guidelines.

1.7. How to implement the toolkit in health facilities

1.7.1. Steps to implement the toolkit for TB Case detection at health facility

Facility level approach to implement this toolkit follows 6 key steps that follow initial training/orientation of health facility in-charge/supervisors and representatives from the facility. Health facility in-charge should lead the health facility to follow the following six steps to implement this toolkit:

i. Provide feedback to healthcare providers on Quality Improvement in TB case detection after attending training/orientation.

ii. Conduct orientation on Quality Improvement in TB Case Detection to healthcare providers at the health facility.

iii. Step 3: Conduct meeting with staff from different departments e.g. CTC, PMTCT, VCT, RCH, laboratory, OPD wards, Diabetic clinic, Paediatric OPD/clinic to Identify barriers and opportunities for TB case detection at the health facility.

- Identify barriers and opportunities at different points of care:
  - Administrative barriers
  - Patients’ barriers
  - Health care providers barriers
  - Laboratory barriers
  - TB clinic/DOT centre barriers

iv. Develop a plan for implementation of the toolkit to increase TB case detection at the health facility.

v. Ensure availability of tools for TB case detection (e.g. screening questionnaire, Job Aids, cough registers).
vi. Implement and monitor Quality Improvement in TB Case Detection in all units of the health facility through supportive supervision and meetings to discuss progress and problems.

1.7.2. Activities to start implementing the toolkit at health facility level after training of QI for TB case detection

i. Setting and sending TB case detection targets to the health facilities by the Council Health Management Team (CHMT) under the leadership of the DTLC.

ii. Provision of feedback to health facility management team and unit/clinic staff by the health facility staff who attended the training.

iii. Orientation of health facility management team and HF staff on quality improvement in TB case detection by the health facility staff who attended the training.

iv. Formulation of the TB/HIV team by the health facility management.

v. Appointment of the health facility TB focal person and provide her/him with clear tasks in increasing TB case detection as per guidance from the toolkit.

vi. Inclusion of TB case detection as a permanent agenda in the health facility clinical meetings by the health facility management.

vii. Setting and agreement on TB case detection targets for each of the units/clinics at the health facility by the health facility management.

viii. Introduction of cough registers and start accelerated TB case detection at all units/clinics of the health facility.

ix. Introduction of pediatric TB screening book and start accelerated TB case detection at all units/clinics of the health facility.

x. Units/Clinics start reporting the selected indicators specific for the unit/clinic.

xi. Quarterly review meetings of TB/HIV team.

xii. Supportive supervision and mentorship to unit/clinic staff.
CHAPTER 2: IMPROVING ACCESS TO TB CASE DETECTION

Preamble

About one third of all incident cases of active TB are not properly diagnosed, are missed or delayed diagnosed\(^4\). This leads to a higher risk of death, suffering and longer duration of infectiousness for individuals, and thus sustains transmission. There is a large pool of undetected TB in Tanzania, and this is evidence from PST conducted in 2012 which showed the prevalence of 528/100,000 population (WHO, 2015).

Effective management of TB begins with improving access to TB services by early identification, diagnosis and treatment of patients who present to the health facilities. However, the approach is not smooth and there are several barriers. Facility level approaches to improve access to TB services are based on identification and removing barriers for patient pathway to TB care.

2.1. Barriers to TB case detection in health facilities

Barriers to TB case detection in health facilities include though not limited to the following:

- Poor leadership for active TB case finding within facilities
- Low TB suspicion index among health workers
- Low commitment among health providers in TB case detection
- Low usage of diagnostic algorithms including pediatric algorithms/ score charts for diagnosis of TB in children by HCWs
- Low priority or attention given to sputum processing in the laboratory by lab staff

\(^4\) WHO(2013) Systematic screening for active tuberculosis: Principles and recommendations
• Weak referral and linkages between different units within health facilities and between diagnostic and non-diagnostic centers, public/private facilities.
• Limited use of data within district and facility levels for planning and problem solving
• Inability to perform gastric aspiration or sputum induction in children in lower and some higher level health facilities
• Limited number of health facilities offering X-ray services and lack of radiologists to interpret results.
• Absence of TB laboratory diagnostic services in some lower health facilities
• Unequal distribution of diagnostic health facilities/Health centers for TB
• Cost sharing and user fees for presumptive cases/clients/patients registration upon arrival at health facility, prior TB investigations and diagnosis.
• Lack of planned preventive maintenance (PPM) of microscopes and other diagnostic tools
• Absence of rapid molecular tests in most of the health facilities.

2.2. Approaches to overcome barriers for TB case detection in health facilities

In order to overcome these barriers, the following approaches should be done:

i. Increase access to TB services in health facilities.

ii. Improve organization and management of TB case detection activities.

iii. Improve access to TB diagnosis in health facilities.

iv. Strengthen Health facilities outreach activities to increase access to TB case detection.
2.2.1. Increase access to TB services in health facilities

- Raise index of TB suspicion among health care providers during clinical meetings, CME and on job mentorship and supportive supervision.
- Systematic symptom screening for TB to all patients presenting in the health facility regardless of the HIV or diabetes status.
- Information on free TB diagnostic and treatment services in health facilities using posters and other IEC materials to patients.
- Health education to patients on TB symptoms and signs.
- Strengthening referral and linkages between different units within health facilities and between diagnostic and non-diagnostic centers, public/private facilities.
- Use of simple tools (i.e. TB screening questions/questionnaire, cough registers, TB registers to collect and analyze data within district and facility levels for planning and problem solving).
- Tracking routine contact tracing (close contacts: family members, including children in contact with adults with TB, school roommates) of all clients diagnosed with pulmonary TB.
- Ensure the usage of diagnostic algorithms including pediatric algorithms/score charts for diagnosis of TB in children by HCWs.
- Exemption of registration and user fees for all TB presumptive and TB patients in the health facilities.

2.2.2. Improve organization and management of TB case detection activities

- Leadership and commitment by health facility in-charge/supervisors
• Availability of functional TB/HIV teams including a TB focal person in health facilities
• Availability and implementation of quarterly work plans for TB
• Training and mentorship on TB disease to health care workers
• Involvement of all health care providers in the health facility in active TB screening
• Rewarding to staff who perform better in active TB screening at the HF (i.e. motivation such as certificate of recognition, refresher training, exposure to a different HF to share experience).
• Regular supportive supervision and mentorship.

2.2.3. Improve access to laboratory TB diagnosis in health facilities

• Availability and functioning smear microscopy/Xpert testing in the health facilities
• Expand coverage of TB laboratory diagnostic services to communities:
  o Sputum fixation and/or referrals of sputum samples: This can be achieved through involvement of community-based providers.
  o Referral of presumptive TB cases: through establishment of a link to TB diagnostic centers to where he/she can be investigated.
  o Improving patient referral systems from clinics to laboratory back to clinics within health facilities.
• Availability of qualified staff to perform TB laboratory diagnosis.
• Availability of laboratory supplies including reagents and other commodities.
Example 1: Innovations in increasing Pediatric TB case detection - Mwananyamala Municipal Hospital, Dar es Salaam

Context: At the beginning of 2015, Mwananyamala Hospital introduced new strategy to improve TB case detection especially among children. It was observed that more children suffer from TB, yet fewer were diagnosed due to lack of pediatric specific diagnostic tools or methods.

What Mwananyamala hospital did: The administration set aside a building/pediatric clinic within the hospital; training for staff (Nurses and clinicians) on how to diagnose TB in children; strengthened laboratory capacity in terms of training laboratory personnel and improved infrastructure; and installation of GeneXpert machine to enhance TB diagnosis especially among children and smear negative TB cases. Strategies included: Contact tracing of all children in contact with smear positive cases using EX-TB patient groups; Sensitization of community on TB; Mass screening of TB at schools, orphanage centers; Provision of health education sessions at all sections in the morning every day from Monday to Friday; Distribution of TB fact sheets and pamphlets to different places, community schools and markets; and collaboration with Ex-TB patient group called TOKIUKI.
Performance: Mwananyamala hospital acts as a referral centre for five HFs (for the diagnosis of pediatric TB. Proportion of children diagnosed with TB increased from 4.1% in quarter 1 of 2015 to 17% in the quarter 1 of 2016 (Table below).

<table>
<thead>
<tr>
<th>Year</th>
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<th>2016</th>
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<tr>
<td>Quarters</td>
<td>Q. 1</td>
<td>Q. 2</td>
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<tr>
<td>Total TB cases notified</td>
<td>147</td>
<td>132</td>
</tr>
<tr>
<td>No. of children with TB</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>% of Children with TB</td>
<td>4.1</td>
<td>4.5</td>
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Key messages:

- Use of combined methods e.g. sensitizing community and health care workers in OPDs, IPDs, PCH, MCH on pediatric TB, use of score charts and special pediatric TB screening registers, increased number of children diagnosis with TB.
- Involvement of different stakeholders, partners, and Ex-TB patient groups, results into improved TB services including case detection at the HF.
- Assigning of Ex-TB groups/individuals in different catchment areas (around and far from the hospital) contribute to the improvement of contact tracing and screening and TB case detection both for children and adults.
- GeneXpert and X rays can be implemented as additional to strengthening the health system.
2.2.4. Strengthen Health facilities outreach to increase access to TB case detection

Health facilities can perform community based activities independently or through collaborations with community based organizations to increase TB case detection. The activities include:

- Follow-up of TB clients who miss appointments.
- Training and orientation of local leaders and traditional healers on TB case detection.
- Sensitization on TB signs and symptoms to raise awareness in the communities.
- Distribution and dissemination of TB IEC materials in the community (e.g. TB posters in work places: Industries, mines, market places etc).
- Involvement of community leaders (e.g. WEO) and politicians (e.g. MPs, Councilors, etc) to sensitize community on TB services during community based forums and meetings.
- Tracing all children who are in contact with adults pulmonary TB cases; and screened for TB; and ensuring eligible children are started on TB treatment or isoniazid preventive therapy.
- Ensuring that PLHIV in the community are screened for TB and those with positive symptoms are further investigated for TB and linked to TB care and treatment.
- Outreach services to the community such as: provision of health education on TB, contact tracing and TB screening in the community and in congregate settings such as schools, churches, mosques and market places.
Example 2: Village health day in communities with difficult in accessing health care services – Zanzibar.

**Context:** The district health management teams (DHMTs) has introduced a program of village health day to reach communities with difficult in accessing health care services. Variety of services such as TB, HIV, ENT, diabetes, cardiovascular services are provided through this program. The DHMTs organize a team of experts to provide services in the scheduled villages. DHMTs inform the SHEHA (community leaders) to mobilize people and conduct community sensitization to create demand for services by the community. Premise for the activity is schools.

**What TB Team did:** Use this opportunity to raise community awareness on TB symptoms, signs and treatment through local drama show and active case finding. The district TB/Leprosy coordinator (DTLC) checks understanding and asks communities who have any of TB symptoms to produce sputum for examination. Sputum results are provided back to presumptive TB cases through telephone. So far already conducted 4 village health days since 2015.

**Results/Performance**

- Collected about 15 sputum specimens, out of those 3 (20%) were smear positive

**Key messages**

- The use of general Community outreach services to address TB issues in areas with poor access to health services can lead to identification of infectious cases which contribute to increase TB case notifications
- Health education, helps community to recognize TB symptoms and increase demand for TB services.
Example 3: Outreach community services to Key population (drug uses) – Kibaha, Coast Region

**Context:** Kibaha district is among the district with high prevalence of drug abusers in coast region. The Philbert Bayi Foundation has opened a sober house (methadone assisted model clinic) to support those who want to quit drugs. People who use drugs have high prevalence of TB compared to the general population. In January 2016 TPHS in collaboration with Tumbi hospital and Philbert Bayi Foundation introduced systematic screening for active TB among drug users who are admitted in sober house and HOT SPOT/Maskani (places where drug users meet).

**What they did:** The TPHS trained peer educators to conduct screening for TB to their peers who are in sober house and HOT Spots. Presumptive TB cases are escorted to TB clinics for investigations and other management such as HIV screening.

**Results:** Identified 3 patients who were on treatment out of 12 presumptive TB cases.

**Challenges:** Reported to have poor compliance and need close follow up.

**Key Message**

- Peer educators can support outreach services in key population.
- Close monitoring of adherence to treatment is needed when dealing with drug user.
CHAPTER 3:
ORGANIZATION OF QUALITY IMPROVEMENT FOR TB CASE DETECTION AT HEALTH FACILITY LEVEL

Improving the organization of quality improvement for TB case detection in health facilities is an important step in ensuring that TB case detection procedures and practices within health facilities are optimized and standardized. It is important that quality improvement activities are planned, implemented, monitored and supervised by existing structures and systems within the health facilities. This will ensure that TB case detection activities carried out among people with symptoms visiting health facilities becomes part of routine standard of care and is therefore sustainable.

**Key staff involved:** Health facility in charge, Health facility TB/HIV Team, Matron/Patron, CTC in charge, Health facility TB focal person and DOT nurse.

### 3.1. Organization of TB Case detection in health facility

#### 3.1.1. Organization of TB case detection: Roles and responsibilities of Health Facility In-charge and supervisors

Health facility in-charge/supervisors include the medical officer in charge and the matron/patron. In order to increase TB case detection in health facilities, the facility in-charge/supervisors should:

- Provide in increasing TB case detection.
- Ensure availability of functional that focuses on quality improvement for TB care and prevention including active TB case finding at the facility.
• Appoint a focal person who is not part of the TB clinic to lead the facility in active TB case finding.
• Ensure development and use of for TB quality improvement activities.
• Develop plan for all doctors/clinicians, nurses and other practitioners and further review their achievement during individual’s annual appraisal.
• Constant monitor the facility to ensure they screen clients for TB.
• Organize and conduct staff regular (weekly/monthly) meetings for feedback and discussions on TB case detection progress

Fig 3.1: Quarterly work plan template for TB case detection

<table>
<thead>
<tr>
<th>No.</th>
<th>Activity</th>
<th>Requirements</th>
<th>Time frame</th>
<th>Responsible</th>
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</table>

3.1.2. Organization of TB case detection: Activities targeting Health Care Providers-TB Clinicians/Physicians, DTLCs, TB/HIV Officers DOT Nurse

In order to ensure all health care providers in the health facility are fully involved in TB case detection as part of performing their routine standard of care, the following should be done by the health facility management in collaboration with the TB clinician/doctor, DOT nurse in the facility, and the DTLC and TB HIV Officer from the district level:

• Orientation of all health care providers (doctors/clinicians, nurses, laboratory technicians, nurse assistants, cleaners, and guards) from OPD, CTC, RCH and wards on active TB
case finding, TB screening and referral for TB investigations.

- Provision of on job training and mentorship on TB to all health workers including inclusion of TB topics focusing on quality improvement and TB case detection in weekly clinical meetings and Continuous Medical Education (CME) sessions.

- Ensuring that all health workers understand how and are responsible to write/fill correctly sputum request forms and refer/escort clients to the Laboratory for TB investigations.

- Perform active TB screening to all HCWs in the facility.

3.1.3. Organization of TB case detection: Objectives and tasks of the health facility TB /HIV team

The main objectives of the TB/HIV team is to improve TB case detection by ensuring that TB case detection becomes a permanent, routine and consistent activity carried out among people with TB symptoms visiting health facilities. To ensure quality improvement for TB case detection in the health facility, TB/HIV teams should:

- Monitor implementation of for TB quality improvement activities.

- Monitor the functions of in implementation and documenting TB case detection activities in the health facility.

- Meet regularly, at least once a month, to review achievements in TB case detection targets and discuss quality improvement issues related to TB services.

- Ensure availability of TB case detection materials such as SOPs, flow charts, algorithms, job aids, and wall posters are available and used in every department/unit of the health facility as well as reagents for diagnosis.
• Ensure that referral and linkages within the different departments/clinics in the pathway of care of TB suspects are optimal and functional.

• Ensure that data for all TB suspects and patients are properly recorded in the appropriate registers and reported in a timely manner (TB laboratory register, health facility unit TB register, TB laboratory report, quarterly TB case finding report, and quarterly treatment outcome report).

• Ensure that TB case detection data are analyzed on monthly basis for targets and achievements comparison; and trends, and are presented in simple graphs and tables. This will inform the HF for regular review and adjustments of strategies to achieve the set targets.

• Ensure that TB issues including TB case detection activities are presented at least once a month in the clinical meetings.

• Facilitate experience sharing on specific TB cases that have been detected by health workers during weekly facility clinical meetings.

• Ensure c in all units of the health facility.

3.1.4. Organization of TB case detection: asks of the facility

The TB case detection focal person/cough officer is the key person who monitors daily TB case detection activities in the health facility. Key tasks of the TB focal person include:

• Ensuring that all care delivery points in the health facility have cough registers that are updated on daily basis.

• Distribution of TB case detection materials such as SOPs, flow charts, algorithms, job aids, and wall posters in every department/unit of the health facility.
• Ensuring that all TB suspects are screened and properly recorded in cough registers

• Ensure that all triage and fast tracking of presumptive TB (TB suspects) in waiting areas are referred for TB investigations.

• Ensuring that all presumptive TB (TB suspects) who screen positive are referred for TB investigation.

• Ensuring daily update of cough registers with results from TB investigations and final diagnosis.

• Development of health facility weekly/monthly TB case detection summary report.

• Report TB case detection activities to the TB/HIV team and the health facility management on monthly basis.
Example 4: Context: In 2011, MSH and PATH in collaboration with the NTLP, introduced the SOPs for improving TB case detection. Arusha was among the pilot region and Meru district hospital has been a success in increasing TB case detection through implementation of SOPs.

What Meru district Hospital did: The District Medical Offer (DMO) and the medical officer in charge of Meru district hospital took leadership and commitment in implementation of SOPs.

Besides implementing the SOPs whereby the facility has in place a TB/HIV team and a TB focal person, all health workers were given annual targets for TB case finding which were assessed during their annual appraisal. Sputum registers are uniformly implemented in all units of the hospital and data are analyzed and used to monitor performance.

Furthermore, the hospital oriented all health workers on active TB case finding, and continue to equip them with TB knowledge by including TB topics and experience sharing with focus on identified TB cases in CMEs and weekly clinical meetings.

Performance: Since the introduction of SOPs in 2011, TB cases have increased by 110% over a period of 4 years between 2011 and 2014.

Key Messages

- Uniform and consistent application of standardized methods such as SOPs including cough registers for increasing TB case detection are useful in increasing TB case finding in health facilities.

- Commitment and leadership at the local implementing levels (facilities, districts) are key in successful implementation of TB case finding methods.

- Use of data at the local level is key for monitoring progress of implementation of TB case finding interventions
CHAPTER 4:
STRENGTHENING IDENTIFICATION OF TB CASES IN HEALTH FACILITIES

Preamble

Identification of presumptive TB cases (TB suspects) should start when a person reports at the registration/waiting area/reception. This will facilitate instituting appropriate early case detection, TB infection control practices, counseling and testing for HIV and subsequent management of the patient. The objective is to ensure that early TB case detection practices becomes a permanent and routine activity at all health service delivery points.

Systematic screening for active TB is provider initiated screening, which is defined as the . The screening tests, examinations or other procedures should efficiently distinguish people with a high probability of having active TB from those who are unlikely to have active TB. Among those whose screening is positive, the diagnosis needs to be established by one or several diagnostic tests and additional clinical assessments, which together have higher accuracy.

4.1. At most Risk groups to consider for systematic screening for tuberculosis in health facilities

• People presenting with symptoms of TB
• People previously treated for TB
• People with an untreated fibrotic lesion identified by chest radiography
• People living with HIV and people attending clinics for HIV testing
• People with diabetes mellitus
• People with chronic respiratory disease and smokers
• Undernourished people/malnourished people/children
• People with gastrectomy or jejunoileal bypass
• People with an alcohol-use disorder and intravenous drug users
• People with chronic renal failure
• People having treatments that compromise their immune system
• Elderly people
• People in mental health clinics or institutions
• Young children/scholars/prisoners/miners.

Situation
• 12yrs old boy referred to the medical ward at Mount Meru regional hospital with complains of bilateral knee and waist pains; and episodes on nasal bleeding
• History of falling down and injury of left knee.
• Provisional diagnosis of Pnemonia, epistaxis 2°.

Challenges
• Transferred from medical to the surgical ward following the history of falling and x-ray findings.
• Mixed history
• Seriousness of the child, whereby he stopped breathing and was rescued by CPR.

Actions
• Pediatrician revealed the history of Fever, night sweats, and previous contact with TB patient, which was missed.
• Pleural tap for smear microscopy was taken.
Results

- The child was found to be smear positive for TB and was started on anti-TB
- The child was seen two weeks after initiation of anti-TB and there was slow improvement (Photo left).
- One month of TB treatment in the last week of May, 2016 the child had improved and was discharged to continue TB medication at home.

The OPD/clinic nurse in-charge and staff working at OPD/clinic should:

- Display posters on TB symptoms and TB diagnosis information in waiting /registration areas/ clinic /wards rooms
- Provide health education on TB symptoms and services during morning talks in clinics to patients waiting to meet the doctors.
- Triage and fast track presumptive TB clients in waiting areas and escort them for TB investigations.
- Record all presumptive TB clients in the cough register and follow up laboratory investigations and results.

4.1.1. **Guidance on Identification of TB Suspects in Wards**

The Nurse in-charge and staff working wards should:

1. Actively ask for TB symptoms to all patients admitted in the ward regardless of the presenting symptoms.
o Administer TB screening tool TB screening tool to all PLHIV. Cough of any duration for PLHIV should raise a suspicion of TB.

o Collect sputum to for all TB suspect in an open area/ outside the ward and submit for laboratory sputum smear examination.

o Ensure that sputum results of in patients are available in 24 hours.

2. Display posters on TB symptoms. Infection control and TB/HIV in areas of the ward.

3. Patients with intra operative findings suggestive for TB should have their sputum specimens examined for AFB microscopy.

4. Specimens from surgical procedures for patients suspected to have extra pulmonary TB should be submitted for cytological and histological investigation.

5. Ensure close contacts of sputum smear positive TB patients are also screened for TB.


7. Refer to the national TB diagnostic algorithms to follow up of smear negative TB suspects as follows:
   • Re-asses all those with smear negative results including extra pulmonary TB.
   • Treat with broad spectrum antibiotics for 7-10 days.
   • If not responding to antibiotic, repeat sputum smear examination and request/refer for chest X-ray and other investigations.
   • If X-ray shows signs of TB the patients should immediately be escorted to TB clinic to start TB treatment.
4.1.2. **Guidance to doctors, clinicians and nurses on identification of TB Suspects**

Doctors, clinicians, nurses and any other designated person at OPD/clinic/wards should:

- Offer systematic screening for TB to all patients/clients presenting in the health facility regardless of the HIV status/clinical presentation
- Take attention of all clinical risk groups (section 4.1)
- Do thorough physical examination (assess fever, anemia, lymphadenopathy, chest abnormalities and hepatosplenomegaly) to all patients to rule-out extra-pulmonary TB even if a patient does not complain of cough.
- Request sputum examination for all presumptive TB cases by properly filling in sputum request forms
- Refer all presumptive TB cases to laboratory for sputum examination (refer specimen for investigations if not available on site)
- Ensure all presumptive TB cases are recorded in the cough register
- Ensure that all sputum results from the laboratory are submitted back to OPD and patients receive their results.
- Escort all newly diagnosed TB patients to TB clinic/DOTS centers for treatment
- Re-asses all those patients with smear or Xpert negative results for pulmonary or extra-pulmonary TB using TB diagnostic algorithm for adult/children. Request for X ray / Radiological investigation (refer patients for investigations not available on site).
4.2. Approaches to increase TB case detection in RCH and MCH under-five clinics

The nurse in-charge and staff working at RCH/MCH under-fives clinic should:

- Display posters on TB symptoms and TB diagnosis information in RCH and MCH under-fives clinics.
- Provide health education on TB symptoms and services during morning talks in RCH and MCH under-fives clinics to mothers waiting to be attended.
- Actively ask for TB symptoms to all mothers in RCH and MCH under-fives clinics.
- Triage and fast track presumptive TB clients in in RCH and MCH under-fives clinics and escort them for TB investigations.
- Record all presumptive TB clients in the cough register and follow up laboratory investigations and results.
- Escort all confirmed TB patients to TB clinic to start anti TB treatment.
- Refer to the national TB diagnostic algorithms to follow up of smear negative TB suspects as follows:
  - Re-asses all those with smear negative results including extra pulmonary TB.
  - Treat with broad spectrum antibiotics for 7-10 days.
  - If not responding to antibiotic, repeat sputum smear examination and request/refer for chest X-ray and other investigations.
  - If X-ray shows signs of TB the patients should immediately be escorted to TB clinic to start TB treatment.
4.3. Active TB case finding in HIV/AIDS clinics (CTC, PMTCT& VCT)

Successful implementation of TB/HIV services among PLHIV depends on effective Intensified TB Case Finding (ICF). TB is the commonest opportunistic infection among PLHIV, and the major cause of death among AIDS patients. This calls for routine and symptom-based TB screening and testing to early detection of cases and prompt treatment. Subsequently, ICF increase TB case detection rate, improve quality of life and reduce TB transmission to the community.

WHO estimates the annual risk of developing TB in PLHIVs who are co-infected with Mycobacterium tuberculosis ranges from 5% to 15%. Up to 60% of PLHIV develop active TB during their lifetime compared to about 10% of HIV-negative individuals. The risk of TB in HIV-infected persons continues to increase as HIV disease progresses and immunity decreases. Systematic screening for active TB among this clinical risk group will yield more cases.

Example: if your CTC is registering an average of 200 new PLHIV cases per quarter, an average 10% of those translating to 20 cases will be co-infected with TB and need to be found and reported.

Doctors, clinicians and nurses in HIV clinics should ensure:

- Target setting for TB cases to be identified in HIV clinics (CTC, PMTCT & VCT).
- Routine TB screening for clients all clients in CTCs, PMTCT and VCT during any visit.
- All presumptive TB cases at CTCs, PMTCT and VCT clinics are escorted to the laboratory for sputum investigation for TB.
- Sputum smear results from the laboratory are submitted back to CTCs, PMTCT and VCT clinics and patients receive their sputum results.
• Escort all newly diagnosed TB co-infected patients to TB clinics/DOTS centers for treatment and follow up. Or other means to ensure all arrive/received-up.

• Use or refer clients with presumptive TB from CTCs, PMCTC and VCT clinics for X ray and GeneXpert for TB diagnosis where available.

4.4. Active TB case finding in Diabetes clinic

People with diabetes mellitus have high prevalence of TB compared to the general population. In 12 studies on screening for TB in people with diabetes, the rates of TB ranged from 2% to 36%, depending on where the screening was conducted.

Example If your Diabetes clinic is registering an average of 50 new diabetes cases per quarter; 2% – 36% translating to (1-18 people with diabetes have active TB of the total registered cases) and need to be found and reported.

Doctors, clinicians and nurses in Diabetes clinics should ensure:

• Target setting for TB cases to be identified in Diabetes clinics.

• Routine TB screening for all clients in diabetes clinics during any visit.

• All presumptive TB cases in diabetes clinics are escorted to the laboratory for sputum investigation for TB.

• Sputum smear results from the laboratory are submitted back to diabetes clinics and patients receive their sputum results.

• Escort all newly diagnosed TB co-infected patients to TB clinics/DOTS centers for treatment and follow up. Or other means to ensure all arrive/received-up.

• Use or refer clients with presumptive TB from diabetes clinics for X ray and GeneXpert for TB diagnosis where available.
### 7 Steps to find TB cases in CTCs, VCTs, PMTCTs and diabetes clinics

<table>
<thead>
<tr>
<th>STEP</th>
<th>ACTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Set target</td>
<td># of PLHIV x 10%</td>
</tr>
<tr>
<td>2</td>
<td>Educate</td>
<td>• On: TB disease, TB/HIV, TB/diabetes co-infection issues, importance of active TB screening, IPT to PLHIV, TB infection control</td>
</tr>
<tr>
<td>3</td>
<td>Screen TB</td>
<td>presumptive TB - PLHIV with the following symptoms:&lt;br&gt;- Any fever&lt;br&gt;- Any cough&lt;br&gt;- Night sweats&lt;br&gt;- Wight loss&lt;br&gt;- Blood stained sputum</td>
</tr>
<tr>
<td></td>
<td>every visit</td>
<td>Presumptive TB – diabetes with the following symptoms for 2 or more weeks:&lt;br&gt;- Cough&lt;br&gt;- Fever&lt;br&gt;- Night sweats&lt;br&gt;- Wight loss&lt;br&gt;- Blood strained sputum</td>
</tr>
<tr>
<td>4</td>
<td>Separate</td>
<td>• Refer PLHIV with TB to access ART in TB clinic&lt;br&gt;Fast track presumptive cases</td>
</tr>
<tr>
<td>5</td>
<td>Investigate</td>
<td>• Fill lab request and Refer to laboratory TB diagnosis&lt;br&gt;• If the TB lab diagnosis is not available on site, then establish and link with a TB diagnostic center to which client can be referred&lt;br&gt;• Follow up all sputum smear results at laboratory and provide feedback to patients&lt;br&gt;• Reassess those with smear-ve result for pulmonary and extra pulmonary TB using TB diagnostic algorithm.</td>
</tr>
<tr>
<td>6</td>
<td>Treat</td>
<td>• Refer all TB cases to TB clinic/DOTS center&lt;br&gt;• Provide IPT to all eligible PLHIV adult and children</td>
</tr>
<tr>
<td>7</td>
<td>Notify</td>
<td>• Record, update and report TB screening information in cough/suspect register.&lt;br&gt;• Utilize data and see if you have reach you target.</td>
</tr>
</tbody>
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**QUALITY IMPROVEMENT FOR TB CASE DETECTION**

_A toolkit for health facilities_
Example 5: Quality Improvement at CTC - Mnazi Mmoja Referral Hospital – Zanzibar

Context: Staff from care and treatment clinic (CTC) attended training on quality improvement in provision of HIV care and treatment services. Following this training CTC staff conducted a meeting to identify challenges/gaps and opportunities. Among the identified gaps included: low TB screening among PLHIV, investigations to monitor patients such as biochemistry, CD4, FBC are not done on time as per guidelines, laboratory results get lost and it takes a long time to trace patients’ files/charts.

What Mnazi Mmoja did: Staff decided to set target for addressing the above identified gaps and revised job responsibilities as follows:

- Triage nurse – performs TB screening to all PLHIV.
- Peer educators in collaboration with nurse- provide health education on TB, TB/HIV, HIV/AIDS issues.
- CTC laboratory in charge - oversee all laboratory investigations including collection of specimens (Sputum, blood & urine), submit specimens and follow up of results from main laboratory, filing of patients results in their charts/files, registering of PLHIV who are TB suspected in cough register and update of the register.
- Clinicians at CTC -verify screening for TB and offer other consultation.
- Community Health Provider – provides community support to clients, and trace defaulters.
- Appointment book keeper - Provides dates for clients and sort out patients files/charts before clinic day.
- Allocate a room/area for sputum collection.
- Conduct meeting every Tuesday to discuss progress.

Results

- Uptake of screening increased from 42 to 97%
- Less time to find files and reduced the loss of laboratory results

Key Messages:  

- Quality Improvement delivery of TB services increase TB case notification at CTCs.
4.6. Approaches to increase TB case detection in Children

Any child infected with TB is a result of transmission from adult family member or children (household contact) with pulmonary TB. In children, risk of progression to disease is influenced by age of the child (the younger the child, the higher the risk), HIV infection, nutrition status and other infections such as measles. More often TB infection in children and clinical features as well as CXR are non-specific. In the case of uncertainty of TB infection, use score charts for TB diagnosis in children.

**Guidance to doctors, clinicians and nurses on identification of TB Suspects among children in OPD, RCH, MCH under-fives clinics and pediatric wards**

Doctors, clinicians and nurses in contact with children in OPD, RCH, MCH under-fives clinics and pediatric ward should:

- Routinely screen for TB in all children presenting in OPD, RCH, MCH under-fives clinics and pediatric ward with any complaints using TB screening suspect books.
- Take history of:
  - Contact with smear positive TB case adult or child
  - Cough especially if persistent and not improving with antibiotics
  - Weight loss or failure to gain weight
  - Fever and/or night sweats
  - Fatigue, reduced playfulness, less active
  - BCG vaccination
- Ensure integration of childhood TB services at OPD, RCH, MCH under-fives clinics and pediatric ward.
- Perform active TB case finding in children who are coughing, malnourished, HIV+ as well as all children who present with any chronic complaints using TB diagnostic algorithm and score chart for diagnosis of TB in children.
Where appropriate use all possible alternatives as exemplified in examples # 1.

- Perform gastric aspiration for all children under five years olds, to obtain specimen for laboratory diagnosis of TB.

*Note National target for childhood TB (0-14) years is 15% of all notified TB cases.

**Guidance to doctors, clinicians and nurses on identification of TB Suspects among children in HIV clinics (CTC, PMTCT)**

Doctors, clinicians and nurses in contact with children in HIV clinics (CTC, PMTCT) should:

- Routinely screen for TB in all children during every visit to the HIV clinic (CTC, PMTCT) TB screening questionnaire.
- Take history of:
  - Contact with smear positive TB case adult or child
  - Cough especially if persistent and not improving with antibiotics
  - Weight loss or failure to gain weight
  - Fever and/or night sweats
  - Fatigue, reduced playfulness, less active
  - BCG vaccination
- Ensure integration of childhood TB services in HIV clinics (CTC, PMTCT).
- Perform active TB case finding in children who are coughing, malnourished, HIV+ as well as all children who present with any chronic complaints using TB diagnostic algorithm and score chart for diagnosis of TB in children. Where appropriate use all possible alternatives as exemplified in examples # 1.
- Perform gastric aspiration for all children under five year olds, to obtain specimen for laboratory diagnosis of TB.

*Note National target for childhood TB (0-14) years is 15% of all notified TB cases.
Example 6: Active TB case finding in pediatric ward by using TB screening suspect book – Mount Meru Regional Hospital, Arusha.

Context: Mount Meru regional hospital is conducting active TB case finding among all children admitted in pediatric ward and the ones attending pediatric clinic using TB screening suspect book that has included both TB screening tool and score card for TB case finding in children.

What Mount Meru regional Hospital did: Through the leadership of hospital in-charge/supervisors and the head of pediatrics unit, the hospital created a TB screening suspect book that is being used to screen all children admitted or attending pediatric clinic in the hospital.

Furthermore, all children admitted in other units’ i.e. surgical ward are routinely evaluated by a pediatrician whereby they also being evaluated for TB using the TB screening suspect book.

Performance: Data analysis for the period of one year (May, 2015 – April 2016) shows that a total of 100 children were identified as TB suspects, of which 30% (30 children) were diagnosed with TB and were started on TB treatment.

Key messages

- Active TB case finding targeting all children in the health facility using mixed screening methods increases TB case detection in children.
- TB screening suspect book is an innovation that can easily be adopted without need of extra resources, to increase TB case detection among children.
### Sample of TB screening suspect book used at Mount Meru RRH

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Patient Name</th>
<th>Age</th>
<th>Sex</th>
<th>HIV status</th>
<th>Address /Tel No</th>
<th>OPD/ in-patient</th>
<th>Suspect criteria 1,2,3,4,5,6,7</th>
<th>Type of investigation 1,2,3,4,5,6,7</th>
<th>Result</th>
<th>Confirmed TB case</th>
<th>Date started anti-TB</th>
<th>Remarks</th>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>1. Hx of TB</td>
<td>1. X-ray</td>
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<td></td>
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<td></td>
<td></td>
<td>2. Cough</td>
<td>2. Sputum</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3. Fever</td>
<td>3. Culture</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>5. Loss of wt.</td>
<td>5. TST</td>
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<td></td>
<td></td>
<td>6. Lymphoadenopathy</td>
<td>6. TB score chart</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>7. Others</td>
<td>7. Any other</td>
<td></td>
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</tr>
</tbody>
</table>
CHAPTER 5: STRENGTHENING TB LABORATORY SERVICES

Sputum examination (smear microscopy and GeneXpert technology) is the cornerstone for TB diagnosis. Proper diagnosis using sputum smears requires that the sputum samples produced are of good quality. It is the responsibility of Health workers to make sure that clear explanation and instructions are given to TB presumptive case on how to produce and collect good quality sputum.

5.1. Organizing TB case detection in laboratory

5.1.1. Methods and approaches for TB diagnosis

Different methods or approaches are used to diagnose TB in adults and in children at different levels of health facilities, these including:

2. Fluorescence light smear microscopy such as LED Microscopy.
3. Molecular diagnostic methods (GeneXpert MTB/Rif – for TB diagnosis and detection of Rifampicin resistance and Line Probe Assay such as HAIN test.
4. Culture on solid media (LJ) or on liquid media (MIGT).

1. X-ray for diagnosis of smear negative and or extra-pulmonary TB (EPTB).
2. Algorithm for TB diagnosis for both adults and children.
3. Tuberculin skin test (TST) – mainly for children.
4. Score chart (for children).

Whether the samples collected are to be processed using sputum smear microscopy or molecular technologies such as GeneXpert MTB/Rif, health facilities should ensure the following in the laboratory in order to increase TB case detection:
• Availability of laboratory supplies and commodities.
• Use of sensitive and specific laboratory techniques and laboratory algorithms.
• Regular service and maintenance of TB diagnostic equipment.

**Sputum sample management**

- Spatum examination request forms are available and are properly filled in all spaces for all TB suspects to facilitate traceability of the address of the patient including physical address and mobile telephone number.
- Presence of a qualified lab staff at the specimen collection point to ensure that the sputum and other samples submitted are of good quality and adequate.
- Clear and simple instructions are provided to the patient on how to collect good quality sputum in a safe manner.
- All unsuitable samples are rejected and request for proper sample after giving clear instructions to the patient.
- Collection and submission of two sputum specimens (spot, morning specimens) is explained to patients to avoid submission of one sample for diagnosis instead of two.
- For patient considered at risk of not returning for investigations either due to long distance or any other reason: Spot- Spot sputum collection is recommended (Time between spot – spot should not be less than one hour).
- Procedures for smear preparation are correctly done according to the existing SOPs.

**Sputum Results Management**

- AFB microscopy results are ready and be submitted to the requesting clinic within 24hrs after receiving the sputum in the laboratory.
- When GeneXpert is used for diagnosis of TB, results should be ready within 3 hrs.
• All results from the laboratory are not provided to patients/clients and rather brought to the referring doctor/clinician or nurse.
• All clients with positive results should be escorted to the clinician by the laboratory staff.

Recording and Reporting of Results
• Results are recorded both in the laboratory register and laboratory request form and also ensuring that all columns in the TB Laboratory Register are properly and correctly recorded.
• All smear/Xpert positive results recorded in the lab register are assigned the District TB number to make sure that patients with positive results have been put on treatment.
• All smear/Xpert positives recorded in unit register are notifies and initiated treatment.
• Laboratory Quarterly reports are completed, utilized at the local level and submitted to the DTLC and DLT.

5.1.3. Quality control for the laboratory

Quality control in laboratory is a key component for quality TB diagnosis. Health facilities should ensure the following in the laboratory in order to ensure quality of laboratory services for TB:

• Ensure that different laboratory guidelines and SOPs for different lab processes are available and are used.
• Ensure that appropriate Job Aids / SOPs are displayed at relevant smear microscopy and other diagnostics processing points in the laboratory, and should include relevant infection control steps for each process.
• Ensure that both ‘internal Quality Control’ and ‘External Quality Assessment’ activities for TB microscopy, GeneXpert and other technologies are implemented as recommended in the Guidelines for Quality Assurance for TB Diagnosis.
• Ensure that known positive and negative samples are used as controls.
• For quality control of the slides, use known positive and negative controls.
• Ensure that reading of the smears is done by first reader if discordant the second reader should examine the same slide.
• Ensure that discordant results are discussed by the team and consensus reached.
• Ensure exchange of slides for reading within different labs. DTLC or DLT collects slides bring them to a different Health Facility for reading. Compare the results after reading.
• For quality control of GeneXpert, the machine is accompanied with the controls from the manufacturer; ensure that always the machine is in good condition to avoid false positive or false negative results.
• Ensure that lab results turnaround time is maintained within 24 hours i.e. clients receive their results the day they go for the 2nd sputum collection.
• Ensure that a laboratory quality officer is available to foresee all lab quality issues.
• Provide regular continuing medical education (CME) to lab staff to equip them on all new innovations and ensure quality of the lab services provided.

5.2. SOPs for collection of sputum specimen

• Ensure that sputum AFB request forms are available and are duly filled with all required information.
• Ensure that all suspect cases submit 2 sputum specimens; spot and morning for diagnosis.
• Label the sputum container on the side and the lid with lab number and sample sequence (1 or 2) meaning 1 = spot and 2 = morning sample.
• Instruct the patient to collect the specimen in an open isolated space away from other patients.
• Give clear instructions to patients on how to produce quality sputum.
Clear saliva is not suitable, but examine saliva if a better specimen cannot be produced especially for follow-up examinations.

A specimen mainly containing blood should be examined and the patient immediately referred to the doctor for assessment and management.

Verify the quality and quantity of the sample, by looking at it through the clear sides of the container. Never try to open the container holding the sputum.

Ideal sputum volume should be 3-5 mls.

If, for any reason, health personnel have to manipulate a sputum sample, they must wear disposable gloves.

Wash hands with running water and soap following each collection of a sputum sample or after handling containers with sputum samples, and at the end of the working day.

Discard all materials contaminated with sputum in 10% Sodium hypochlorite/ JIK solution.

Ensure that one follow-up sputum sample is submitted for all smear positive patients at 2 or 3 and at 5 or 6 months for follow-up.

5.3. Checklist for laboratory workers in improving quality of TB diagnosis

A check list for laboratory for sputum smears should be observed and used by staff working in the laboratory to ensure quality of the laboratory services rendered.

1) Recording and Reporting—
   a. Check if TB lab register (TB04) is available.
   b. Check that the correct TB registration numbers have been recorded in the laboratory register for all smear positive patients.
   c. Check examination request form (TB05).
   d. Check if slides are kept for rechecking.
e. Check that the diagnosis and results of follow-up sputum examinations have been recorded accurately.

f. Check that test results and laboratory identification numbers have been accurately recorded in the TB treatment register at the basic management unit.

2) Logistics – reagents and other lab materials (supplies)
   a. Quantify and order reagents and other lab materials (reagents).
   b. Check the amount of reagents available, are they adequate based on the workload?
   c. Check that lab receives reagents supply for 6 months

Other materials- Check the availability of equipment required for the lab, e.g. wood applicator, slides, gas burner, lead/diamond pencil, forceps, slides stand, xylene, immersion oil, funnel, filter paper, etc.

3) Bio-safety- Check following points; separate space for smear preparation, room cleanliness, disposal of contaminated materials (methods used ), condition of disposal place, appropriate soap available, type of disinfectant used.

4) Microscopy- Check the condition of microscopy for TB examination; make (Brand name), storage, lens cleanness, protection measures from high humidity.

5) Others – Check availability of NTLP lab manual, internal QC in place and performed, effective communication between lab and other persons at the facility.

6) Smear examination- (by a technical person from the lab) 
   – Check examined slides (both positive and negative) as follows:
Example 7: Improving TB Diagnosis in Children - Baylor Centre at Mbeya Referral Hospital

Context: Baylor Tanzania Centre of Excellence (COE) in Mbeya partners with NIMR-MMRC and Mbeya Referral Hospital to offer more comprehensive paediatric TB diagnostics (‘one stop shop’ model”) since 2013. The centre provides advanced TB diagnostics and treatment for children identified with presumptive TB.

What Baylor did: Baylor deployed different approaches to improve TB diagnosis especially in children; sputum induction and gastric aspiration, tuberculin skin testing (TST), fine needle aspiration (FNA), and chest x-ray (CXR) interpretation. They also use GeneXpert for sputum diagnosis. The main focus of the centre is care and treatment of children and people infected with HIV with four main goals; Provision of care, case finding HIV, TB and malnutrition, capacity building through training, mentorship and supervision, and creation of community awareness especially on TB, HIV and malnutrition. Outreach services are also provided to the RCH and to CTCs in other health facilities. The centre has linkage with HIV/AIDS and nutrition program and is well equipped with qualified medical doctors who are responsible for diagnosis and counseling of patients. A well-trained nurse is available for sputum induction and gastric aspiration procedures for children. Baylor established and uses a computer-based documentation (i.e. writing visit notes in the computer) in a system known as the Baylor Electronic Medical Records (or Baylor EMR). All patient visit notes are documented in EMR, as well as all lab results, prescriptions and patient demographics.

Performance: The centre has been able to recruit a total of 4,127 clients of which 2,448 (59%) are HIV positive. Since November 2011 through April 2016, a total of 550 (13%) children of which 332 (60%) were HIV-positive have been diagnosed and treated for TB.

Key messages:

- Joint efforts and entering partnership with other institutions with advanced technology for TB diagnosis can improve quality and increase TB case detection especially among children.
- Deployment of different diagnostic approaches for TB diagnosis can improve TB case detection.
CHAPTER 6:
STRENGTHENING TB CARE, TREATMENT AND PREVENTION

Preamble

Early case finding and treatment are the corner stone of TB control. Good quality management starts with the timely and accurate registration of TB cases, including delivering appropriate treatment using standardized regimens of TB treatments as well as providing support for patients. Good quality management also ensures that patients who miss one or more doses of treatment are quickly followed up, and that their contacts especially children, and others belonging to high-risk groups are investigated or assessed to determine whether they have active TB.

Adherence by the patient to the full treatment regimen is a critical factor in curing TB. This can be especially difficult when the patient no longer feels ill or if the anti-TB medicines cause side effects. Adherence is best when the treating facility has a patient-centred approach which facilitates access to treatment, cooperates with the patient in arranging supervised administration of drug doses, and provides support services, such as food or transportation.

6.1. Patient-centered care and treatment

In 2006 a novel approach called “Patient centered TB Treatment (PCT)” was introduced in Tanzania. All TB patients need to take drugs daily under observation - directly observed treatment (DOT). New TB patients need to take drugs for six months while retreatment cases and others take drugs for eight months. The daily observation can be done by health care worker at the health facility (HF-DOT) or by a family member chosen by a patient at home (HB-DOT). In the PCT approach, TB patients...
are given choice to be supervised at health facility or at home. Under home supervision, they choose a person of their own choice to supervise their daily drug intake. The person chosen by a patient is called treatment supporter (TS). There is no restriction on the choice of TS; she/he can be a spouse, family member, neighbour, relative, or a friend.

Role in care and treatment by health cadre

Below are some of the suggested specific roles and responsibilities for the health professionals for ensuring quality TB treatment services:

1. Clinician/Doctor:

- Educate and to advise the TB patient
- Establish an appropriate relationship physician-patient
- Determine the treatment according to the standardized NTLP treatment guidelines
- Calculate the dose of anti-TB medicines according to the patient’s body weight and age
- Follow up TB cases in treatment, through the medical consultation
- Carry out the control of contacts of SS+/Xpert +ve patients
- Prescribe the preventive therapy to the contacts of TB SS+/Xpert +ve under 5 years of age
- Check the condition of the patient’s treatment outcome
- Manage the adverse effects to anti-TB medicines
- Determine the initial seriousness, risk of dying of TB, and attention to complications that may arise.
- Refer complicated TB patients to the hospital (if the patient is at a lower health facility).
- Organize tracing of defaulters using staff or community groups (such as HBCs, Ex-TB patients, volunteers, e.t.c).
2. DOT Nurse / Nurse responsible for TB:

- Organize the treatment to be administered
- Establish a monitoring and evaluation system for treatment
- Educate and advise the TB patient and treatment supporter on importance of treatment adherence and of DOT.
- Carry out the reporting and recording system of treatment
- Administer the treatment, according to the medical indication and standardized treatment outlines
- Guarantee the supervised treatment
- Use the TB treatment card
- Carry out the patient’s monthly weight
- Guarantee the appropriate use and conservation of anti-TB medicines
- In coordination with the physician, request the control sputum smear exam under NTLP guidelines
- In the event of received transfers, communicate the outcome condition to the establishment of origin health
- In places of difficult access or in case the patient has physical limitations to go to the health facility, the treatment will be able to be administered by a CHS/CHW for such an end, under the personnel’s of health supervision
- Identify in the patient behaviors of risk, in order to avoid the abandonment
- Organize domiciliary visits
- Organize the TB treatment card box:
  - Place dividers for first phase and second phase, and inside each one of them per day.
  - The cards should be placed in the space corresponding to the day of administration.
o Place dividers for the patients considered as absent, hospitalized and according to the outcome conditions.

o Keeping in mind the cohort study, the cards should remain for one period of up to two years.

• Organize the referral/transfer system of TB patients.

3. Laboratory technician:

• Coordinate with physician and nurse for the reception of the sputum samples for follow up of TB patients in treatment.

• Carry out the necessary sputum smear exam for follow up of TB patients in treatment.

• Inform the nurse about the result of the sputum smear exam in the format for bacteriological exam.

• Coordinate with the intermediate laboratory on the referral of samples of sputum that require culture (if available)

• In the event of being samples of another health facilities will send the results in a term than 48 hours

• Carry out the reporting and recording system of TB laboratory.

4. Role of treatment supporter:

The treatment supporter should support the patient to complete a full course of treatment. In particular, the supporter should:

• Remind /encourage the patient to take their drugs everyday

• Watch the patient take their drugs everyday

• Mark the treatment card after the drugs are taken

• Give his/ her word for the drug intake to the health worker

• Collect drugs every week (7 days) from the health facility during intensive phase and twice a month (14 days) during continuation phase
• Inform the health worker of any problems encountered including any drug side-effect
• Accompany the patient to the health facility when needed
• Make sure the patient goes for the follow-up sputum examination (if smear positive).

6.2. Contact tracing

TB is an infectious disease; patients who are diagnosed with smear positive and not put on treatment are at higher risk of transmitting the disease to other family members or people who live closely with them. Children are more prone to getting infection and developing the disease since their immune is not yet well developed and not strong enough to contain the infection hence need to be checked and put on treatment if they have TB or put on isoniazid preventive therapy if they don’t have active TB.

• Active tracing of household contacts of adults with TB Sm+/Xpert +ve disease is desirable to identify newly infected adults and children under 5 years old.

• If children under 5 years who are living with Sm+/Xpert +ve patient are symptom-free they should receive preventive treatment with isoniazid 5 mg/kg daily for 6 months.

Systematic literature review of studies assessing the effects of TB contact investigations in low and middle income countries has shown that 4.5% of identified household contacts had active TB (8.5% of children less than five years old). The Prevalence of bacteriological confirmed TB was 2.3%. Example in Morocco data collected on routine basis has shown that 4 to 8% of TB cases registered annually by the NTP were identified among household contacts. In children less than 10 years of age, approximately 20% of TB cases registered were identified in household contacts.
These findings show that contact investigations can give high yield of active TB cases particularly children. Clinician, DTLC and DOT nurse should implement the following approaches for contact tracing:

- Set targets for TB cases identified through contact tracing.
- Develop a list of all smear positive cases for contact tracing.
- Ensure availability and use of contact tracing register.
- Introduce IPT register for children less than 5 years.
- Provide health education and screen all contact of smear positive.
- Structure a routine contact tracing mechanism:
  - Involve Community TB care providers to assist you in conducting contact tracing
  - Invite contact of smear/Xpert positive cases and do systematic screening.
  - Conduct facility outreach contact tracing.
- All contacts that are traced and diagnosed with TB should be recorded and put on treatment.
- Report achievement, challenges and provide recommendations.
Example 8: Active TB screening in a secondary school in coast region

Context: DTLC noted increased number of TB cases from the Secondary school, he informed district medical officer (DMO) and advised him to conduct active TB screening to students. The Regional TB/Leprosy Coordinator (RTLC) was also informed and reported the matter to NTLP. The DMO and his team planned and sent a mission team of expert to investigate as to why many students get TB as well as offering active TB screening.

What Expert team did: Conduct assessment on environment in dormitories and classrooms; provide health education about TB disease to teachers and students. Active TB screening was done to close contact of a source case. Recommendation on TB infection control including improving ventilation in the dormitories was provided.

Results

- A total of 737 students were screened for TB, out of those 58 were presumptive TB cases. Of the later 3 were diagnosed to have TB.
- Improved ventilation in dormitories.

Key messages

- Contact tracing lead to identification of infectious case and minimize transmission chain.
- School dormitories to be build in line with recommendations on TB infection control in congregate settings.

6.3. Tracing TB patients who are lost to follow-up

TB patients are supposed to adhere to TB treatment and take their medication regularly till they complete all prescribed doses for six or eight months. At times for some reasons patients do not adhere to the treatment schedule. The question is;
Is there a system for contacting patients who do not collect their medication or present to a health facility when requested? If yes, how is default tracing carried out?

At the time of TB treatment initiation; patients together with their treatment supporter or relative who escort the patient to the health facility are given clear information by health care worker (nurse or clinician) on the importance of completing treatment.

- Information on what may occur if the patient does not adhere or complete treatment should clearly be explained, including; poor treatment outcomes, development of drug resistance, treatment failure, transmission of the infection to other people and even death may occur.

- Proper and clear contact information for the patients, including ten cell leaders (where applicable), street name/number, and telephone numbers should be recorded to the register for follow-up.

- Health facility should establish linkage with the Community health care providers (CHCPs), Home-based care providers (HBCPs), groups of Ex-TB patients, different non-government organisations (NGOs) working in the area for patient tracing and provision of health education on the importance of treatment adherence.

- Health facilities identify and establish links with these different groups to support or trace patients who do not adhere to treatment (defaulters).

- Health care providers organise seminars/ regular meetings with these groups on TB and other issues related to TB treatment and prevention to enable them support contact tracing.
CHAPTER 7: MONITORING AND EVALUATION

Monitoring and evaluation is an essential component of quality improvement in TB case detection. It allows the health facilities to follow the trends in TB case detection, utilize the data for planning and problem solving and report on key TB case detection indicators. The National tool shall be used at all health facilities for routine recording and reporting key indicators on regular basis.

Monitoring involves recording and reporting properly various steps and events involved in implementing TB case detection activities. Monitoring should concentrate on key information in order to measure and report progress of the activities.

Monitoring should also be standardized using well-designed formats for recording. The information collected should be analyzed, interpreted and utilized to make decisions at health facility level and at higher levels.

7.1. Activities to increase TB case detection related to Data

- Supportive supervision and mentorship on TB case detection by DTLC/TB focal person.
- Monthly Health facility information exchange meetings to discuss TB screening programme.
- Use of TB data collected for improvement of services; problem solving; and monitoring performance; of TB case finding in the facility.
- Consistent recording of all TB suspect in the Presumptive TB register.
- Use of data to develop trends in TB cased finding in the facility and dissemination to health workers.
- Display of graphs and data tables on TB case finding at facility level using but not limited to the following parameters: monthly/quarterly trends; referring sections/source; targets Vs Achievements etc.
7.2. National level TB case detection indicators

Fig. 7.1: TB case detection indicator pyramid

Detailed List of National level indicators

A. Number of people eligible for screening

B. Number of people screened

   **Indicator 1:** Proportional of people screened among those eligible (B/A)

C. Number of suspected TB patients identified

   **Indicator 2:** Proportional of people suspected TB patients identified among those screened (C/B)

D. Number of people tested/evaluated for TB

   **Indicator 3:** Proportional of people tested/evaluated for TB among suspected patients (D/C)

E. Number of people diagnosed with TB

   **Indicator 4:** Proportional of people diagnosed among those screened (E/B)

   **Indicator 5:** Proportional of people diagnosed among tested (E/D)

   **Indicator 6:** Proportional of notified cases of all diagnosed TB cases.

F. Number of TB patients initiated on treatment

   **Indicator 7:** Proportional of people initiated on treatment among those diagnosed (F/E)

G. Number of TB patients successfully completing treatment

   **Indicator 8:** Proportional of patients successfully completing treatment among those initiated (G/F).
7.3. Health facility level indicators for TB case detection

The following indicators should be collected at health facility level:

- **Indicator 9:** Existence of the TB focal person
- **Indicator 10:** Number of staff trained/oriented in Quality improvement for TB case detection.
- **Indicator 11:** Existence of functional health facility TB/HIV Team or QI team with TB issues integrated
- **Indicator 12:** Number of health facility TB/HIV Team meetings conducted
- **Indicator 13:** Presence and use of toolkit and job aids for improving TB case detection in all designated/important departments of health facility.
- **Indicator 14:** Presence and use of TB algorithms, wall posters and TB screening tools including Presumptive TB register.
# Table 7.1: Health facility indicator table

<table>
<thead>
<tr>
<th>Indicatory</th>
<th>Source</th>
<th>Monitoring tool</th>
<th>Frequency</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existence of the TB focal person</td>
<td>Baseline</td>
<td>Supervision</td>
<td>Quarterly</td>
<td>DTLC</td>
</tr>
<tr>
<td>Number of staff trained/oriented in Quality improvement for TB case detection.</td>
<td>Training reports</td>
<td>Supervision</td>
<td>Quarterly</td>
<td>DTLC</td>
</tr>
<tr>
<td>Existence of functional Health facility TB/HIV Team</td>
<td>Baseline</td>
<td>Supervision</td>
<td>Quarterly</td>
<td>DTLC</td>
</tr>
<tr>
<td>Number of HFTB meetings conducted</td>
<td>Minutes of HFTB meetings</td>
<td>Supervision</td>
<td>Quarterly</td>
<td>Health facility TB Focal person</td>
</tr>
<tr>
<td>Presence and use of toolkit and job aids for improving TB case detection in all designated/important departments of health facility</td>
<td>TBFP monthly reports</td>
<td>Supervision</td>
<td>Quarterly</td>
<td>Health facility TB Focal person</td>
</tr>
<tr>
<td>Presence and use of TB algorithms, wall posters and TB screening tools</td>
<td>TBFP monthly reports</td>
<td>Supervision</td>
<td>Quarterly</td>
<td>Health facility TB Focal person</td>
</tr>
<tr>
<td>Rate of TB (suspects) Presumptive Identified</td>
<td>TB presumptive register /TB Laboratory/AFB register</td>
<td>Case finding report</td>
<td>Quarterly</td>
<td>Health facility TB Focal person</td>
</tr>
</tbody>
</table>
7.4. Additional TB case detection indicators

Indicators for Health System Strengthening (HSS) and IPT

- Laboratories performing smear microscopy that show adequate performance on EQA (Number and Percentage)
- Districts reporting no stock-outs of anti-TB drugs on the last day of the quarter (Number and Percentage)
- Number of children <5 in contact with TB patients who were initiated on IPT
- Districts submitting timely reports according to national guidelines.

7.5. Additional TB case detection data

1) Time from onset of symptoms to TB diagnosis
   - Change between baseline and intervention.
2) Time from TB diagnosis to treatment initiation
   - Change between baseline and intervention.
3) Smear grading and positivity rate at diagnosis
   - Change between baseline and intervention.
1. Summary of Quality Improvement Approaches in TB case detection

<table>
<thead>
<tr>
<th>QUALITY IMPROVEMENT IN TB CASE DETECTION: SUMMARY</th>
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<tbody>
<tr>
<td>ORGANIZATION OF QUALITY IMPROVEMENT FOR TB CASE DETECTION AT HEALTH FACILITY LEVEL</td>
</tr>
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</table>

**Roles and responsibilities of Health Facility in-charge/supervisors**

- Provide leadership and commitment in increasing TB case detection.
- Ensure availability of functional TB/HIV team that focuses on quality improvement for TB care and prevention including active TB case finding at the facility.
- Appoint a who is not part of the TB clinic to lead the facility in active TB case finding.
- Ensure development and use of quarterly work plans for TB quality improvement activities.
- Develop individual targets for TB case detection or all doctors/clinicians, nurses and other practitioners and further review their achievement during individual's annual appraisal.
- Constant in the facility to ensure they screen clients for TB.
- Organize and conduct staff regular (monthly) meetings for feedback and discussions on TB case detection progress.
### Activities targeting Health Care Providers-TB

- Orientation of all health care providers (doctors/clinicians, nurses, assistants, cleaners, and guards) from OPD, CTC, RCH and wards on active TB case finding, TB screening and referral for TB investigations.
- Provision of on job training and mentorship on TB to all health workers.
- Inclusion of TB topics focusing on quality improvement and TB case detection in weekly clinical meetings and Continuous Medical Education (CME) sessions.
- Ensuring that all health workers understand how and are responsible to write/fill correctly sputum request forms and refer/escort clients to the Laboratory for TB investigations.
- Perform active TB screening to all HCWs in the facility.

### Tasks of the health facility TB/ HIV team

- Monitor implementation of quarterly work plans for TB quality improvement activities.
- Monitor the functions of TB case detection focal person in implementation and documenting TB case detection activities in the health facility.
- Meet regularly, at least once a month, to review achievements in TB case detection targets and discuss quality improvement issues related to TB services.
- Ensure availability of TB case detection materials such as SOPs, flow charts, algorithms, job aids, and wall posters are available and used in every department/unit of the health facility as well as reagents for diagnosis.
- Ensure that referral and linkages within the different departments/clinics in the pathway of care of TB suspects are optimal and functional.
- Ensure that data for all TB suspects and patients are properly recorded in the appropriate registers and reported in a timely manner (TB laboratory register, health facility unit TB register, TB laboratory report, quarterly TB case finding report, and quarterly treatment outcome report).
- Ensure that TB case detection data are analyzed on monthly basis for targets and achievements comparison; and trends, and are presented in simple graphs and tables. This will inform the HF for regular review and adjustments of strategies to achieve the set targets.
- Ensure that TB issues including TB case detection activities are presented at least once a month in the clinical meetings.
- Facilitate experience sharing on specific TB cases that have been detected by health workers during weekly facility clinical meetings.
- Ensure consistent and uniform use of SOPs for increasing TB case detection in all units of the health facility.

<table>
<thead>
<tr>
<th>Tasks of the TB Case detection focal person</th>
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<tbody>
<tr>
<td>• Ensuring that all care delivery points in the health facility has cough registers that are updated on daily basis.</td>
<td></td>
</tr>
<tr>
<td>• Distribution of TB case detection materials such as SOPs, flow charts, algorithms, job aids, and wall posters in every department/unit of the health facility.</td>
<td></td>
</tr>
<tr>
<td>• Ensuring that all TB suspects are screened and properly recorded in cough registers</td>
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<tr>
<td>• Ensure that all triage and fast tracking TB presumptive in waiting areas are referred for TB investigations.</td>
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<tr>
<td>• Ensuring that all TB presumptive who screen positive are referred for TB investigation.</td>
<td></td>
</tr>
<tr>
<td>• Ensuring update of cough registers with results from TB investigations and final diagnosis.</td>
<td></td>
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<tr>
<td>• Development of health facility monthly TB case detection summary report.</td>
<td></td>
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<tr>
<td>• Report TB case detection activities to the TB/HIV team and the health facility management on monthly basis.</td>
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</table>
## Strengthening Identification of TB Cases in Health Facilities

**Approaches to increase TB case detection in registration/waiting area/OPD/clinics and wards:**

**OPD/clinic nurse in-charge**
- Display posters on TB symptoms and TB diagnosis information in waiting/registration areas/clinics/wards rooms.
- Provide health education on TB symptoms and services during morning talks in clinics to patients waiting to meet the doctors.
- Triage and fast tracking presumptive TB clients in waiting areas and escort them for TB investigations.
- Record all presumptive TB in the cough register.

**Approaches to increase TB case detection in registration/waiting area/OPD/clinics:**

**Doctors, clinicians and nurses**
- Offer systematic screening for TB to all patients/clients presenting in the health facility regardless of the HIV status/clinical presentation.
- Take attention of all clinical risk groups (section 4.1).
- Do thorough physical examination (assess fever, anemia, lymphadenopathy, chest abnormalities and hepato-splenomegaly) to all patients to rule-out extra-pulmonary TB even if a patient does not complain of cough.
- Request sputum examination for all presumptive TB by properly filling in sputum request form.
- Refer all presumptive TB to laboratory for sputum examination.
- Ensure all presumptive TB are recorded in the cough register.
- Ensure that all sputum smear results from the laboratory are submitted back to OPD and patients receive their sputum results.
- Escort all newly diagnosed TB patients to TB clinic/DO Ts centers for treatment.
- Re-asses all those with patients with smear negative results for pulmonary smear negative or extra-pulmonary TB using TB diagnostic algorithm for adult/children.
Approaches to increase TB case detection in wards: **Doctors, clinicians and nurses**

- Actively ask for TB symptoms to all patients admitted in the ward regardless of the presenting symptoms.
  - Administer TB screening tool to all PLHIV. Cough of any duration for PLHIV should raise a suspicion of TB.
  - Collect sputum for all TB suspect in an open area outside the ward and submit for laboratory sputum smear examination.
  - Ensure that sputum results of in patients are available in 24 hours.
- Display posters on TB symptoms. Infection control and TB/HIV in areas of the ward.
- Patients with intra operative findings suggestive for TB should have their sputum specimens examined for AFB microscopy.
- Specimens from surgical procedures for patients suspected to have extra pulmonary TB should be submitted for cytological and histological investigation.
- Ensure close contacts of sputum smear positive TB patients are also screened for TB.
- Escort all confirmed TB patients to TB clinic to start anti TB treatment.
- Refer to the national TB diagnostic algorithms to follow up of smear negative TB suspects as follows:
  - Re-asses all those with smear negative results including extra pulmonary TB.
  - Treat with broad spectrum antibiotics for 7-10 days.
  - If not responding to antibiotic, repeat sputum smear examination and request/refer for chest X-ray and other investigations.
  - If X-ray shows signs of TB the patients should immediately be escorted to TB clinic to start TB treatment.
The nurse in-charge and staff working at RCH/MCH under-fives clinic should:

- Display posters on TB symptoms and TB diagnosis information in RCH and MCH under-fives clinics.
- Provide health education on TB symptoms and services during morning talks in RCH and MCH under-fives clinics to mothers waiting to be attended.
- Actively ask for TB symptoms to all mothers in RCH and MCH under-fives clinics.
- Triage and fast track presumptive TB clients in in RCH and MCH under-fives clinics and escort them for TB investigations.
- Record all presumptive TB clients in the cough register and follow up laboratory investigations and results.
- Escort all confirmed TB patients to TB clinic to start anti TB treatment.
- Refer to the national TB diagnostic algorithms to follow up of smear negative TB suspects as follows:
  - Re-asses all those with smear negative results including extra pulmonary TB.
  - Treat with broad spectrum antibiotics for 7-10 days.
  - If not responding to antibiotic, repeat sputum smear examination and request/refer for chest X-ray and other investigations.
  - If X-ray shows signs of TB the patients should immediately be escorted to TB clinic to start TB treatment.
Active TB case finding in HIV/AIDS clinics (CTC, PMTCT & VCT): Doctors, clinicians and nurses

- Target setting for TB cases to be identified in HIV clinics (CTC, PMTCT & VCT).
- Routine TB screening for clients all clients in CTCs, PMTCT and VCT during any visit.
- All presumptive TB cases at CTCs, PMTCT and VCT clinics are escorted to the laboratory for sputum investigation for TB.
- Sputum smear results from the laboratory are submitted back to CTCs, PMTCT and VCT clinics and patients receive their sputum results.
- Escort all newly diagnosed TB co-infected patients to TB clinics/DOTS centers for treatment and follow up. Or other means to ensure all arrive/received-up.
- Use or refer clients with presumptive TB from CTCs, PMCTC and VCT clinics for X ray and GeneXpert for TB diagnosis where available.

Active TB case finding in Diabetes clinic: Doctors, clinicians and nurses

- Target setting for TB cases to be identified in Diabetes clinics.
- Routine TB screening for all clients in diabetes clinics during any visit.
- All presumptive TB cases in diabetes clinics are escorted to the laboratory for sputum investigation for TB.
- Sputum smear results from the laboratory are submitted back to diabetes clinics and patients receive their sputum results.
- Escort all newly diagnosed TB co-infected patients to TB clinics/DOTS centers for treatment and follow up. Or other means to ensure all arrive/received-up.
- Use or refer clients with presumptive TB from diabetes clinics for X ray and GeneXpert for TB diagnosis where available.
Doctors, clinicians and nurses in contact with children in OPD, RCH, MCH under-fives clinics and pediatric ward should:

- Routinely screen for TB in all children presenting in OPD, RCH, MCH under-fives clinics and pediatric ward with any complaints using TB screening suspect books.
- Take history of:
  - Contact with smear positive TB case adult or child
  - Cough especially if persistent and not improving with antibiotics
  - Weight loss or failure to gain weight
  - Fever and/or night sweats
  - Fatigue, reduced playfulness, less active
  - BCG vaccination
- Ensure integration of childhood TB services at OPD, RCH, MCH under-fives clinics and pediatric ward.
- Perform active TB case finding in children who are coughing, malnourished, HIV+ as well as all children who present with any chronic complaints using TB diagnostic algorithm and score chart for diagnosis of TB in children. Where appropriate use all possible alternatives as exemplified in examples # 1.
- Perform gastric aspiration for all children under five years olds, to obtain specimen for laboratory diagnosis of TB.
- Routinely screen for TB in all children during every visit to the HIV clinic (CTC, PMTCT) TB screening questionnaire.
- Take history of:
  - Contact with smear positive TB case adult or child
  - Cough especially if persistent and not improving with antibiotics
  - Weight loss or failure to gain weight
  - Fever and/or night sweats
  - Fatigue, reduced playfulness, less active
  - BCG vaccination
• Ensure integration of childhood TB services in HIV clinics (CTC, PMTCT).
• Perform active TB case finding in children who are coughing, malnourished, HIV+ as well as all children who present with any chronic complaints using TB diagnostic algorithm and score chart for diagnosis of TB in children. Where appropriate use all possible alternatives as exemplified in examples # 1.
• Perform gastric aspiration for all children under five year olds, to obtain specimen for laboratory diagnosis of TB.

3 IMPROVING ACCESS TO TB CASE DETECTION

Approaches to overcome barriers for TB case detection in health facilities:
- Increase access to TB services in health facilities

- Exemption of registration and user fees for all TB presumptive and TB patients in the health facilities.
- Information on free TB diagnostic and treatment services in health facilities using posters and other IEC materials.
- Health education to patients on TB symptoms and signs
- Raise index of suspicious among health care providers during clinical meeting and supportive supervision
- Active TB screening to all patients presenting in the health facility regardless of the HIV or diabetes status.
- Tracking routine contact tracing (close contacts: family members, including children, school roommates) of all clients diagnosed with smear positive TB.

Approaches to overcome barriers for TB case detection in health facilities:
- Improve organization and management of TB case detection activities

- Leadership and commitment by health facility in-charge/supervisors
- Availability of functional TB/HIV teams in health facilities
- Availability and implementation of quarterly work plans for TB
- Training and mentorship on TB disease to health care workers
- Involvement of all health care providers in the health facility in active TB screening
- Rewarding to staff that perform better in active TB screening at the HF (i.e. motivation such as certificate of recognition, refresher training, exposure to a different HF to share experience).
- Regular supportive supervision and mentorship.
### Approaches to overcome barriers for TB case detection in health facilities

- **Improve access to laboratory TB diagnosis in health facilities**
  - Availability and functional smear microscopy in the health facility
  - Expand coverage of TB laboratory diagnostic services to communities:
    - Sputum fixation and/or referrals of sputum sample: This can be achieved through involvement of community based providers.
    - Referral of presumptive case: through establishment of a link to TB diagnostic centre to where he/she can be referred.
  - Availability of qualified staff to perform TB laboratory diagnosis
  - Availability of laboratory supplies including reagents and other commodities.

### Community based activities to increase access to TB case detection

- Follow-up of TB clients who miss appointments.
- Training and orientation of local leaders and traditional healers on TB case detection.
- Outreach services to the community such as: provision of health education on TB, contact tracing and TB screening in the community and in congregate settings such as schools, churches, mosques and market places.
- Sensitization on TB signs and symptoms to raise awareness in the communities.
- Distribution and dissemination of TB IEC materials in the community (e.g. TB posters in work places: Industries, mines, market places e.t.c).
- Involvement of community leaders (e.g. WEO) and politicians (e.g. MPs, Councilors, e.t.c) to sensitize community on TB services during community based forums and meetings.
STRENGTHENING TB LABORATORY SERVICES

Health facilities should ensure the following in the laboratory in order to increase TB case detection:

- Availability of laboratory supplies and commodities.
- Use of sensitive and specific laboratory techniques and laboratory algorithms.
- Regular service and maintenance of TB diagnostic equipment.

Sputum management

- are available and are properly filled in all spaces for all TB suspects to facilitate traceability of the address of the patient including physical address and mobile telephone number.
- Presence of a qualified lab staff at the specimen collection point to ensure that the sputum and other samples submitted are of good quality and adequate.
- Clear and simple instructions are provided to the patient on how to collect good quality sputum in a safe manner.
- All unsuitable samples are rejected and request for proper sample after giving clear instructions to the patient.
- Collection and submission of two sputum specimens (spot, morning specimens) is explained to patients to avoid submission of one sample for diagnosis instead of two.
- For patient considered at risk of not returning for investigations either due to long distance or any other reason: Spot- Spot sputum collection is recommended (Time between spot –spot should not be less than one hour).
- Procedures for smear preparation are correctly done according to the existing SOPs.

Sputum Results Management

- AFB microscopy results are ready and be submitted to the requesting clinic within 24hrs after receiving the sputum in the laboratory.
- When GeneXpert is used for diagnosis of TB, results should be ready within 3 hrs.
• All results from the laboratory are not provided to patients/clients and rather brought to the referring doctor/clinician or nurse.
• All clients with positive results should be escorted to the clinician by the laboratory staff.

Recording and Reporting of Results

• Grades are recorded both in the laboratory register and laboratory request form and also ensuring that all columns in the TB Laboratory Register are properly and correctly recorded.
• All smear/Xpert positive results recorded in the lab register are assigned the District TB number to make sure that patients with positive results have been put on treatment.
• All smear/Xpert positives recorded in unit register are notifies and initiated treatment.
• Laboratory Quarterly reports are completed, utilized at the local level and submitted to the DTLC and DLT.

<table>
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<th>5</th>
<th>STRENGTHENING TB CARE, TREATMENT AND PREVENTION</th>
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<tr>
<th>Role in care and treatment by health cadre: Clinician/Doctor</th>
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<tbody>
<tr>
<td>• Educate and to advice the TB patient</td>
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<td>• Establish an appropriate relationship physician-patient</td>
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<td>• Determine the treatment according to the standardized NTLP treatment guidelines</td>
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<td>• Calculate the dose of anti-TB medicines according to the patient’s body weight and age</td>
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<td>• Follow up TB cases in treatment, through the medical consultation</td>
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<td>• Carry out the control of contacts of SS+ patients</td>
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<td>• Prescribe the chemoprophylaxis to the contacts of TB SS+ under 5 years of age</td>
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<tr>
<td>• Check the condition of the patient's treatment outcome</td>
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<td>• Manage the adverse effects to the anti-TB medicines</td>
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<td>• Determine the initial seriousness, risk of dying of TB, and attention of complications</td>
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<td>• Refer complicated TB patients to the hospital</td>
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<tr>
<td>• Organize tracing of defaulters using staff or community groups (such as HBCs, Ex-TB patients, volunteers, e.t.c).</td>
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Role in care and treatment by health cadre: DOT Nurse / Nurse responsible for TB

- Organize the treatment to be administered
- Establish a monitoring and evaluation system for treatment
- Educate and advise the TB patient and treatment supporter on importance of treatment adherence and of DOT.
- Carry out the reporting and recording system of treatment
- Administer the treatment, according to the medical indication and standardized treatment outlines
- Guarantee the supervised treatment
- Use the TB treatment card
- Carry out the patient’s monthly weight
- Guarantee the appropriate use and conservation of anti-TB medicines
- In coordination with the physician, request the control sputum smear exam under NTLP guidelines
- In the event of received transfers, communicate the outcome condition to the establishment of origin health
- In places of difficult access or in case the patient has physical limitations to go to the health facility, the treatment will be able to be administered by a CHS/CHW for such an end, under the personnel’s of health supervision
- Identify in the patient behaviors of risk, in order to avoid the abandonment
- Organize domiciliary visits
- Organize the TB treatment card box:
  - Placed dividers for first phase and second phase, and inside each one of them per day.
  - The cards should be placed in the space corresponding to the day of administration.
  - Place dividers for the patients considered as absent, hospitalized and according to the outcome conditions.
  - Keeping in mind the cohort study, the cards should remain for one period of up to two years.
- Organize the referral/transfer system of TB patients.
### Role in care and treatment by health cadre: DOT Nurse / Nurse responsible for TB
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- Organize the referral/transfer system of TB patients.

### Role in care and treatment by health cadre: Laboratory technician
- Coordinate with physician and nurse for the reception of the sputum samples for follow up of TB patients in treatment.
- Carry out the necessary sputum smear exam for follow up of TB patients in treatment
- Inform the nurse about the result of the sputum smear exam in the format for bacteriological exam.
- Coordinate with the intermediate laboratory the derivation of samples of sputum that require culture (if available)
- In the event of being samples of another health facilities will send the results in a term than 48 hours
- Carry out the reporting and recording system of TB lab.

### Role in care and treatment by health cadre: treatment supporter
- Remind /encourage the patient to take their drugs everyday
- Watch the patient take their drugs everyday
- Mark the treatment card after the drugs are taken
- Give his/ her word for the drug intake to the health worker
- Collect drugs every week (7 days) from the health facility during intensive phase and twice a month (14 days) during continuation phase
- Inform the health worker of any problems encountered including any drug side-effect
- Accompany the patient to the health facility when needed
- Make sure the patient goes for the follow-up sputum examination (if smear positive).
### QUALITY IMPROVEMENT FOR TB CASE DETECTION

**Approaches for contact tracing: Clinician, DTLC and DOT nurse**

- Set targets for TB cases identified through contact tracing.
- Develop a list of all smear positive cases for contact tracing.
- Ensure availability and use of contact tracing register.
- Introduce IPT register for children less than 5 years.
- Provide health education and screen all contact of smear positive.
- Structure a routine contact tracing mechanism:
  - Involve Community TB care providers to assist you in conducting contact tracing
  - Invite contact of smear positive cases and do systematic screening.
  - Conduct facility outreach contact tracing.
- All contacts that are traced and diagnosed with TB should be recorded and put on treatment.
- Report achievement, challenges and provide recommendations.

### Monitoring and Evaluation

**Activities to increase TB case detection related to Data.**

- Supportive supervision and mentorship on TB case detection by DTLC/TB focal person.
- Monthly Health facility information exchange meeting to discuss TB screening program.
- Use of TB data collected for improvement of services; problem solving; and monitoring performance; of TB case finding in the facility.
- Consistent recording of all TB suspects in the cough register.
- Use of data to develop trends in TB case finding in the facility and dissemination to health workers.
- Display of graphs and data tables on TB case finding at facility level using but not limited to the following parameters: monthly/quarterly trends; referring sections/source; targets Vs Achievements etc.