

REPUBLIC OF KENYA



MINISTRY OF HEALTH

Mulika TB Hospitalini, Maliza TB Kenya



FIELD GUIDE ON SYSTEMATIC SCREENING OF ACTIVE TB IN KENYA

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Acronyms

ACF	Active Case Finding
ADR	Adverse Drug Reaction
AIDS	Acquired Immunodeficiency Syndrome
AMREF	Amref Health Africa in Kenya
ANC	Antenatal Clinic
ART	Anti-retroviral Therapy
BCG	Bacillus Calmette–Guérin
BMI	Body Mass Index
CCC	Comprehensive Care Clinic
CHCP	Community Health Care Providers
CHS	Community Health Strategy
CHV	Community Health Volunteers
CME	Continuous Medical Education
CMLT	County Medical Laboratory Technologist
CTLC	County TB and Leprosy Coordinator
CXR	Chest X-Ray
CHMTs	County Health Management Teams
CMLT	County Medical Laboratory Coordinator
SCMO	Sub County Medical Officer
DHIS	Division of Health Information System
DNA	Deoxyribonucleic acid
DOT	Direct Observed Therapy
DST	Drug Susceptibility Testing
ENT	Ear, Nose and Throat unit
EPTB	Extra-Pulmonary TB
EQA	External Quality Assurance
FNA	Fine Needle Aspiration

FSW	Female Sex Workers
GF	Global Fund
HF	Health Facility
HB	Home Based
HBCP	Home-Based Care Providers
HCW	Health Care Worker
HFTB	Health Facility Tuberculosis
HIV	Human Immunodeficiency Virus
HMT	Health Management Team
HSS	Health System Strengthening
HTC	HIV Testing and Counselling
ICF	Intensified TB Case Finding
IDU	Injecting Drug Users
IEC	Information, Education and Communication
IPT	Isoniazid Preventive Therapy
MCH	Maternal and Child Health
MNCH	Maternal and Neonatal Child Health
MP	Member of Parliament
MSH	Management Sciences for Health
MSM	Male Sex Workers
MTB	Mycobacteria Tuberculi
NGO	Non-Governmental Organisations
NNS	Numbers Needed to Screen
NPO	Nil per Oral
NTLD- Program	National Tuberculosis and Leprosy Program
OPD	Outpatient Department
PCT	Patient Centred TB Treatment
PHO	Public Health Officer
PLHIV	People Living with HIV

PMTCT	Prevention of Mother to Child Transmission of HIV
PST	Prevalence Survey for TB
QC	Quality Control
QI	Quality Improvement
RCH	Reproductive and Child Health Unit
SCTLC	Sub County TB and Leprosy Coordinator
SDP	Service Delivery Points
SOP	Standard Operating Procedures
SS	Sputum Smear
TA	Technical Assistance
TBF Reports	Tuberculosis Facility Reports
TSR	Treatment Success Rate
TST	Tuberculin Skin Test
TS	Treatment Supporter
VCT	Voluntary Counselling and Testing
WHO	World Health Organisation
ZN	Zielh Neelsen

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CHAPTER 1: INTRODUCTION

1.1. TB case detection in Kenya

Tuberculosis (TB) is a key priority communicable disease and a major public health problem in Kenya. Kenya is currently ranked 15 among the 30 high burden TB countries of the world; with estimated TB prevalence of 283/100,000 population case detection of all forms of TB is estimated to be 75% (74-77%) – WHO 2014 report. **The preliminary results for prevalence TB survey in Kenya indicates higher TB burden of about 400/100,000 population, which is 40% higher than earlier estimated.**

The Kenya TB control program has posted good indicators since 2006 when the country was declared to have attained 70% case detection rate. The treatment success rate among TB patients increased from 88% in 2013 to 88.3% in 2014 with adverse outcomes contributed by loss to follow up (5.3%) and deaths (3.4%). Testing for HIV in TB patients has remained relatively stagnant at 94%, which is above the global average of 48% and 76% for the African region. A decline in the proportion of notified TB- HIV co-infected patients continues to be noted, from as high as 45% in 2008 to 35% in 2014.

The National TB control program in Kenya is implementing its activities in the newly devolved health system guided by the 2015-2018 National Strategic Plan (NSP) Goal; “To accelerate the reduction of TB, leprosy and lung disease burden through provision of people-centred, universally accessible, acceptable and affordable quality services in Kenya”. To build towards achieving this goal, the NTLD-Program will: a) **implement quality enhancements; b) re-align the program’s operations to the new governance structure, ensuring unified commitment from both national and county levels; and c) rapidly introduce/expand prevention efforts, including reducing diagnostic delays to diminish transmission.**

1.2. Rationale for the toolkit for improved early TB Case Detection approaches

Kenya has posted impressive Tuberculosis control indicators over the years; 75%-Case detection rate; 88%- Treatment success rate; 99%-HIV screening; continued reduction in number of TB cases notified annually over the last 8 years (since 2007). Based on findings of prevalence survey in other countries with similar risk factors as Kenya, TB experts in Kenya and the region have voiced concern that there could be more TB cases than the current estimates the country is using. Several recent operational studies seem to point to the fact that significant number of patients with TB may be passing through the health system undetected. CDC in Kisumu, and AMPATH in Western Kenya have conducted two such studies. Both studies have used a hospital based active case detection approach; screening all persons who seek any care in the intervention hospital. These results show as high as 20% TB cases diagnosed in clients who presented in other departments other than the Chest Clinic.

This phenomenon had been documented in 2014 by the team developing the current NSP and made the following recombination: ***Implement interventions to improvement of TB surveillance at the point of diagnosis and strengthening of mechanisms that link diagnosed TB cases to treatment and care.***

Further, the Current NSP (2015-2018) objective 2; Intensify finding the missing TB cases; is a major call to all actors to use innovative ways to increase TB case detection in Kenya. TB program managers in Kenya postulates that most of the missing cases are mainly; children, key populations, other persons with ill health who regularly visit health facilities to seek different types of care. Further, given the preliminary TB Prevalence Survey data the NTLD-Program management is convinced that if the capacity of health workers to suspect, screen and diagnose TB cases is increased, Kenya would notify additional 20,000 to 40,000 TB clients annually.

Further, in line with the current WHO End TB Strategy vision “A World Free of TB”, also expressed as “zero Deaths, Disease and Suffering due to TB”. Kenya just as other signatory countries of this international commitment aims to end TB Epidemic by 2035. Active Case Finding (ACF) in Kenya is an intervention to implement the first Pillar of the End TB strategy-. Integrated, patient-centred care and prevention. The NTLD-Program in Kenya under this ACF activity will focus on the following main thrusts of Pillar one of End TB strategy:

- a) Early diagnosis of TB including universal drug- susceptibility testing, and systematic screening of TB contacts and high risk groups
- b) Treatment of all people with TB including drug- resistant TB, and provision of patient support
- c) Collaborative TB/HIV activities, and management of co-morbidities
- d) Preventive treatment of persons at high risk (IPT), and vaccination against TB (BCG)

In addition to previous WHO strategies, End TB strategy recommends systematic screening for active TB among contacts of TB patient and other high-risk groups. In Kenya, due to the high TB prevalence about 0.06% (2016 unpublished Kenya TB prevalence survey), the NTLD-Program has decided to conduct a pilot project on systematic screening for active TB among all clients seeking care in selected public health hospitals for a period of one year. Findings from this pilot will be critical in the development of the next National TB strategic plan in the year 2017.

WHO guides that systematic screening is essentially a health care worker initiated activity. In this respect NTLD-Program in Kenya plans to implement a phased systematic TB screening as a routine health delivery service in the 13 target hospitals. Where possible CHVs and additional laboratory technicians will be engaged to deal with the expected sudden increase in triage workload and sputum specimens.

This toolkit is therefore designed as an operational guide for all health care workers and their managers in the adoption and implementation of active

TB case finding approaches as part of their standard patient health care. ***It is expected to improve the capacity of all health workers in TB case detection, diagnoses and appropriate management.*** This manual is aimed at assisting the health facility in-charges, TB managers and staff to optimise existing TB case detection strategies and/or adopt innovative approaches at health facility level, by providing clear and easy tools for health workers ***on how to improve TB case detection in each of the several Service delivery points (SDPs) in the health facility.***

The toolkit describes processes and provides instructions and tools to use in optimising HF organisation, patient flow and other care practices to improve early TB case detection at the health facility level. ***Early TB case detection and proper management is extremely important in reducing the risk of nosocomial TB infection to both health workers and patients.***

This toolkit is essential in increasing access to TB services, promoting equity in care delivery, health workers & patient safety and elimination of health facility delay in TB diagnosis.

1.3. Objectives

The main objective of this toolkit is to contribute to accelerating Kenya's efforts to END TB by 2035 and TB elimination by 2050 by standardising and optimising the quality of interventions with a specific focus to increase early detection of TB cases as a ***permanent and routine activity carried out in all service delivery points (SDPs) of all health facilities.*** It is expected that the implementation of the toolkit will achieve the following:

- **Build the capacity & confidence of staff to suspect, screen and diagnose TB** by providing them with current technical and operational guidance on TB prevention practices, diagnoses and treatment skills & tools
- **Ensure that TB case detection practices are harmonised** and performed consistently within and across all service delivery points in the 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; health care providers and quality improvement committees
- ***Serve as a quality improvement tool*** for TB case detection for health facility and County health management teams (CHMTs) to evaluate service delivery at health facility level and reinforce performance in accordance with national guidelines;
- ***The indicators provided herein will serve as a standard yard stick for measuring and comparing health facilities efforts and achievements in TB case detection***

1.4. Target group for the Toolkit

The target audience for the guide is all health workers working at both National and County health facilities. This document is of particular interest to all staff at NTLD-Program and sub-National or County public-health Departments, Health facility management, as well as other public and private partners involved in planning, implementing and/or monitoring TB control activities in Kenya.

1.5. Methodology

This toolkit is based on the ***WHO: Systematic screening for active tuberculosis: principles and recommendations***. It draws several practical lessons from two key hospital based active TB case detection operational studies done in Kenya by KEMRI-CDC, AMPATH in Kisumu and Busia Counties and the “Standard Operating Procedures” (SOPs) for improving TB case detection in Tanzania (2011). In addition, this toolkit is informed by evidence gathered from literature reviews in particular, the three main criteria for inclusion of approaches this toolkit included:

- Active TB case detection approaches that have been successfully implemented in Kenya or in other East African countries
- Approaches whose successful implementation ***depends primarily on facility-level planning and decisions;***

- Approaches that require only reorganisation of service delivery or reallocation of resources, except for some initial investment in set-up and initial training
- Approaches that **do not involve policy changes** or significant **additional funding/investments**

1.6. Contents of the toolkit

This toolkit is organised into six chapters. Each chapter starts with a preamble that provides key concepts and context of the chapter. The task of TB case finding is not limited to the proposed list herein; each health facility is encouraged to organise their staffs to suit their staffing norms and other local conditions. Detailed step-by-step information on how to perform certain procedures is also provided and later summarised into SOPs. The reader is encouraged to refer to the National TB control guidelines and other referenced document listed at the end of this document. The sections of this Toolkit include:

- **Chapter 1: Background and scope of the this ACF toolkit**
Provides an overview of TB burden in Kenya and a brief overview of this toolkit specifically how the toolkit was developed, contents and steps that health facilities should follow to successfully implement this toolkit.
- **Chapter 2: Overview on HSS barriers to TB detection and proposed interventions**
Describes barriers to TB case detections and approaches that can be used by health facilities to improve access to TB case detection within the health facility and through community engagement.
- **Chapter 3: Proposed Leadership and Management changes required at Health Facilities (HFs) level to increase TB case detection**
Describes organisation required to improve TB case detection and case holding at a health facility level.
- **Chapter 4: Describes in details on “How to” implement TB case detection interventions**
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 clients with presumptive TB, investigate/test and diagnose TB patients.

- **Chapters 5: Describes proposed intervention required in the Laboratory to increase early diagnosis:**

Provides key SOPs on sputum specimen collection, processing, recording and reporting. Also describes steps to improve quality of TB diagnosis lab results.

- **Chapter 6: M&E framework for this ACF activity**

Provides the list of indicators for monitoring and evaluation of TB case detection activities at different levels of the health facility.

ACF toolkit Annex: List of Job Aids and SOPs

The toolkit is complemented with TB diagnostic flow charts, Diagnostic & treatment algorithms and other job aids to assist service providers to effectively deliver TB interventions in their duty stations. When finer technical information on how to perform specific procedures is required, the health workers are requested to refer to other relevant NTLD-Program guidelines/documents.

1.7. Implementation Approach at the Health Facilities

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

The approach to implement this toolkit in any health facility has 7 distinct steps that follow initial training/orientation of health facility in-charge/supervisors and representatives from each service delivery point. Health facility in-charge provides leadership to the health facility staff to follow the following seven steps to implement this toolkit:

- **Step 1: Health facility and SPDs team leaders' training/ orientation** on rationale and approaches to increase TB cases detection
- **Step2: Trained health providers provide feedback to other staff in their SDPs.** The feedback should be provided immediately after the team leads' training with focus on the importance of

adopting and implementing interventions on Active TB case finding.
Reduce TB burden and reduce TB transmission to staff and patients

- **Step 3: Conduct sensitisation/training on ACF to build the capacity of all health workers** Ensure all HCWs in all the service delivery points in the health facility are trained on TB detection, diagnosis and proper case management. Focus on the need, roles & responsibilities and benefit to staff, community and patients
- **Step 4: Engage all Health care workers to build ownership and buy-in of the ACF intervention.** By conduct meetings with staff from different departments e.g. CCC, 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 point of care:
 - Administrative barriers
 - Financial barriers
 - Health care providers barriers
 - Laboratory barriers
 - TB clinic related barriers
- **Step 5: Develop a plan for implementation of the toolkit to increase TB case detection and proper case management at the health facility:**
 - ✓ Establish a team to coordinate this ACF work. (TB/HIV committee or other)
 - ✓ Appoint a focal person for facility TB case finding activity (a clinician with adequate level of influence in the HF)
 - ✓ Set facility and service delivery TB case finding targets
- **Step 6: Provide the necessary tools for TB case detection:**
 - ✓ TB screening questionnaire (Update all hospital stationery with the 5 TB screening questions)
 - ✓ Guide each SDP to calculate their annual or quarterly TB case detection targets
 - ✓ Job Aids
 - ✓ Presumptive TB register

- **Step 7:** 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 challenges:

Weekly ACF coordinator report to the Medical Superintendent & Hospital Nursing Officer-in-charge on progress and challenges, suggested solutions *(First 3 months, then monthly)*

- ✓ Monthly ACF task force meeting to review progress and resolve challenges
- ✓ Monthly mentorship TA visit from the National or regional supporting team/partner
- ✓ Quarterly presentation in the TB quarterly review meetings
- ✓ Annual assessment and awards to best service delivery points and health facilities in each County

1.7.2. Activities to start implementing the toolkit at health facility level after training

- Orientation of health facility management team and HF staff on quality improvement in TB case detection by the health facility staff who attended the TOT training
- Formulation of the TB/HIV team by the health facility management
- Appointment of the health facility TB focal person and provide her/him with clear tasks in increasing TB case detection as per the HF targets and approaches listed in this toolkit
- Inclusion of TB case detection as a permanent agenda in the health facility clinical meetings by the health facility management
- ACF committee & focal person to support each SDP to calculate their TB case detection targets
- Introduction of presumptive register in all service delivery points and start screening of all clients and recording client positive for any TB symptom
- Introduction of Paediatric TB screening tool & presumptive register in various children service delivery points including NMCH clinics,

Nutrition clinic, Paediatric OPD clinic and all Paediatric wards. To accelerated TB case detection among children as one of the high risk cohort for severe TB

- All SDPs/Units or clinics to start reporting the selected TB case finding indicators every week and monthly.
- Health facility to evaluate ACF performance every quarter and take measure to resolve any pending challenges. This activity to be led by HF TB/HIV team to demonstrate the improvement of the facility and its TB focal person
- Supportive supervision and mentorship to unit/clinic staff, preferably every month. Initially, with technical support from the National level and implementing partner.

CHAPTER 2: IMPROVING ACCESS TO TB CASE DETECTION SERVICES

Preamble

Kenya is a world leader in TB control, especially, TB/HIV, IPT and high TB success treatment rate. The country is known for the over 98% HIV testing rate among TB patients, ART uptake of over 97% and TB TSR of over 88%.

TB case detection seems to be a major challenge to the Kenya Health system like many other countries. Published findings from several meta-analysis reviews by WHO demonstrate that the high TB burden countries about 30% to 50% of all incident cases of active TB are not diagnosed on time or are missed entirely. This leads to a higher risk of death, suffering and longer duration of infectiousness for individuals, and thus sustains TB transmission. This results in a large pool of undetected TB in these high TB burden countries.

Effective control of TB disease in Kenya and making progress to elimination of TB require improving access to TB services by early TB patient diagnosis and proper treatment. Proponents of ACF assume that TB as a serious chronic illness forces most patients to seek care in health facilities several times in the course of the illness. Further, published data has demonstrated that many clients with TB symptoms pass through modern health facilities even several times without the proper diagnoses being made due to several Health system related barriers. ***Facility level-based approach to improve access to TB services is aimed at identification and removing of barriers from the patient pathway to quality TB care. (Diagnosis & Treatment)***

2.1. Barriers to TB Case Detection in Health Facilities

Health facility/system barriers to TB case detection include but not limited to:

- Leadership gaps for active TB case finding within health facilities
- Low TB suspicion index among health workers

- Most health providers assume that the duty of TB case detection belong to chest clinic staff
- Low understanding & utilisation of diagnostic algorithms including Paediatric algorithms in the diagnosis of TB in children by HCWs
- Low priority or attention given to sputum processing in the laboratory
- Weak referral and linkages between different units within health facilities and between diagnostic and TB treatment sites both public and private facilities
- Limited use of data within district and facility levels for planning and problem solving
- Inadequate skill and commitment to perform aggressive TB diagnostic procedure such as gastric aspiration in children in most HFs
- Inadequate access to Chest X-ray service due to limited number of health facilities offering X-ray services and/or financial barriers
- Absence of TB laboratory diagnostic services in some lower health facilities
- Cost sharing and user fees for presumptive cases/clients/patients registration upon arrival at health facility, prior TB investigations and diagnosis
- Recurrent closure of TB diagnostic centres due to equipment breakdown associated with lack of planned preventive maintenance (PPM)
- 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 will be implemented:

- Increase access to TB services in health facilities
- Improve organisation and management of TB case detection activities

- Improve access to TB diagnosis in health facilities
- Strengthen health facilities outreach activities to increase access to TB case detection

2.2.1. Increase access to TB services in health facilities

- Build the capacity of health care workers, through training, CMEs, on-the job mentorship. This will help to raise index of TB suspicion among health care providers to always look out for TB related symptoms & signs in all their clients
- Introduce routine systematic TB symptom screening for all patients presenting in the health facility regardless of the HIV or diabetes status. ***TB screening in principle is a provided/initiated service that should be offered to all clients seeking health care***
- Inform clients on free TB diagnostic and treatment services in health facilities using posters and other IEC materials to patients
- Where available train and supervise community health volunteers to assist frontline health workers deal with the increased work load associated with ACF
 - ✓ Provision of Health education to patients on TB symptoms and signs
 - ✓ Guide & supervise sputum sample collection
 - ✓ Deliver sputum sample to the labs
 - ✓ Update the presumptive TB register
 - ✓ Guide and or escort clients referred from one SDP to another within the Health facility
 - ✓ Tracking family and close contacts of biologically confirmed TB cases
- Strengthening referral and linkages between different units within health facilities and between diagnostic and non-diagnostic centres, public/private facilities
- Use of simple tools. The main tools include; TB screening

questionnaire, TB presumptive registers, TB registers to collect and analyse data within facility levels for planning and decision making

- Ensure the usage of diagnostic algorithms including Paediatric algorithms for diagnosis of TB in children by HCWs
- Consider exemption of registration and user fees for all TB presumptive and TB patients in the health facilities

2.2.2. Improve organisation and management of TB case detection activities in each Health facility

- **Shift the responsibility of TB case finding management from Chest clinic staff to the health facility in-charge or manager**
- Establish & support functional TB/HIV teams (as technical working group on TB & HIV management in each Health facility)
- Appoint a TB focal person in each health facility- an officer with power and influence over both TB and HIV clinics
- Ensure development and implementation of quarterly work plans for TB
- Capacity building of HCWs on TB cases detection & management through training, mentorship and TB patient management
- Involvement of **all health care providers in the health facility in early TB case detection**
- Rewarding to SDPs and/or staff who perform in active TB screening at the HF with certificate of recognition, refresher training, support them to provide TA & experiencesharing trips with other HFs)
- Regular supportive supervision and mentorship where possible on a monthly basis
- Promote data collection, analysis and use locally to improve monitoring and planning
- Include two case finding and notification indicators in the performance contracts of the Health facility managers
- Include the 5 TB screening questions in the health facility EMR (as mandatory field) to ensure universal client screening for TB

2.2.3. Improve access to quality TB diagnostic services in the health Facility

- Availability of functional patient investigation equipment and laboratory supplies in the health facilities (Microscopes, Xpert machines, X-ray machines) as per the national TB diagnosis algorithm (See Annex ACF toolkit)
- Ensure availability of adequate numbers of qualified staff to perform TB laboratory diagnosis
- Availability of laboratory supplies including reagents and other commodities
- Ensure clients can access quality Chest X-ray imaging
- Ensure the CXR are interpreted by qualified and experienced specialist on site or remotely

2.2.4. Strengthen Health facilities outreach to increase access to TB case detection

Health facilities can perform community based activities through collaborations with community based organisations supported by AMREF Africa under the current GF funding to increase referral of clients with presumptive TB for diagnosis and support of TB patient on treatment to enhance adherence. The activities include:

- Tracing all children who are in contact with adults with bacteriologically confirmed TB cases and ensuring eligible children are started on IPT or TB treatment
- Training and orientation of local leaders and traditional healers on TB case detection
- Sensitisation 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, market places etc.).
- Involvement of community leaders' e.g. chiefs and religious leaders

to sensitise community on TB services during community forums and social gatherings

- 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 prisons every quarter
- Engage Peer Educators supporting key populations such IDUs, FCSW, & MSM to conduct regular health education, conduct TB symptom screening and collect sputum for TB diagnosis

CHAPTER 3: PROPOSED ORGANISATIONAL IMPROVEMENTS AT HEALTH FACILITY LEVEL TO INCREASE TB CASE DETECTION

Preamble

Currently, TB detection and management activities are mainly supervised by NTLD-Program staff (CTLCS), who lack administrative authority over the health facility staff. While NTLD-Program managers and county TB coordinators provide excellent technical assistance, they lack requisite authority to provide administrative support supervision required at county and health facility level. Improving leadership and the general organisation at the health facility level is a critical shift in ensuring that TB case detection procedures and practices within health facilities are optimised, standardised and the implementation is effectively supervised. To reach the desired TB case detection & treatment outcome targets, TB detection and control activities need to be included in the health facility annual work plans. In addition, the TB activities will need to be monitored and supervised by existing leadership and management structures within the health facilities. **This will ensure that TB case detection activities become part of routine standard of care offered to all clients.**

Key staff involved: Health facility in charge, Health facility management team (HMT), Health facility TB/HIV Team, Hospital Nursing officer, CCC in charge, Health facility TB focal person, TB clinic staff and Health records & information officer (HRIO).

3.1. Organisation of TB Case Detection in Health Facility

3.1.1. Roles and responsibilities of Health Facility Management Team (HMT)

Health facility Management team is the highest management organ in each health facility. The HMT team members include, the health facility-in-

charge as chairperson, all Heads of Units, and the Hospital administrator is the secretary. This team makes budgetary plans of each health facility and is therefore critical in implementing TB case detection activities in any hospital and other health facilities. **Cognisant the importance of the HMF in managing a health facility we propose the Health facility –in-charge to provide leadership and commitment in increasing TB case detection and improved treatment outcome by:**

- **Establishing HF based coordination mechanism to address TB & HIV in the facility by:**
 - ✓ Establishing or strengthening a TB/HIV team or IPC team to focus on prevention of TB transmission, early TB detection and proper treatment at the facility
 - ✓ Appoint a TB case detection focal person or TB control champion who is not part of the TB clinic to lead the facility in active TB case finding
 - ✓ Provide support supervision on the TB/HIV team
- **Ensure active TB case detection and proper treatment interventions are included in the annual and quarterly work plans & budgets**
 - ✓ Development and implementation of quarterly work plans to improve the quality of services provided in the facility towards TB elimination targets of the country
 - ✓ Set and communicate annual and quarterly TB case detection targets for both Service delivery points' and special clinics
 - ✓ Include TB case detection targets in the individual's staff annual performance contracts
- **Provide leadership in monitoring and evaluation of TB case detection and treatment in the facility:**
 - ✓ Review SDPs' TB case detection weekly performance reports
 - ✓ Organise and conduct staff monthly meetings to discuss SDP

- progress on TB case detection progress
- ✓ HODs to review individual staff TB case detection performance every quarter
- ✓ Evaluate the health facility TB case detection and treatment outcomes performance quarterly
- ✓ Participate in the NTLD-Program quarterly meetings to share experiences and bench mark with other health facilities
- **Reward and recognise SDPs and individual staff who meet or exceed expectations/targets by either:**
 - ✓ Awarding them annual certificate of merit
 - ✓ Listing them on the wall of fame
 - ✓ Sponsoring them to attend conferences or further training on TB, HIV, Infection prevention or quality improvement among other related fields
 - ✓ Supporting them to publish their achievements

Fig 3.1: Typical Quarterly work plan budget for TB case detection

TB case detection activity	Inputs/ requirements	Budget (KSE)	Source of funding	Time frame	Responsible
1-day Quarterly TB progress review & planning meeting	<ol style="list-style-type: none"> Hall and presentation materials Refreshments for staff 	0 20,000	County	Quarterly	HF-in-Charge
Preparation of weekly SDP reports	<ol style="list-style-type: none"> Data from SDP register & laboratory Staff time 	TBD*	County	Weekly	Head of SDP
Symptomatic Screening of clients	<ol style="list-style-type: none"> Questionnaire/SOP TB diagnosis algorithm Presumptive TB register TB lab request form 	TBD*	National Government	Annual	HF-in-Charge (TB focal person)
Lab investigation	Xpert MTB/RIF test (cartridge & services the machine)	1,100	National Government	Every working day	Head-NTLD-Program
Lab investigation	<ol style="list-style-type: none"> Microscopy for AFB tests EQA activities 	TBD*	National Government	Every working day	Head-NTLD-Program
Monthly mentorship visits	2 Officers from NTP to provide TA to HF staff.	TBD*	National Government	Monthly	Head NTLD-Program
Quarterly NTLD-Program progress review meetings	CTLCs, CMLT, County pharmacist, HF-in-charge supported to a 2 days forum	600,000	National Government	Quarterly	Head-Program

TBD* Cost to be determined on case by case basis

3.1.2. Organisation 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 all clients presenting in all the SDPs in the health facility. To ensure active TB detection activities are conducted systematically and to the expected standard in the health facility, the TB/HIV team duties includes:

- Participate in the development of the quarterly HF TB/HIV work plans & Budgets
- Support the SDPs and TB focal person to implement the *quarterly work plans* to improve TB case detection & quality of TB/HIV care
- Support and supervise the activities of the *TB case detection focal person* in implementation and managing the TB case detection related data
- Hold monthly coordination meetings to review progress and resolve challenges in TB case detection related activities
- Ensure availability and utilisation of required materials such as SOPs, flow charts, algorithms, job aids, and wall posters in every SDP
- Strengthen referral linkages between various SDPs/clinics in the clients care pathway are optimised and functional
- Ensure that data generated in the cascade of increased TB case detection is correctly and completely recorded in the appropriate registers and reported in a timely manner:
 - ✓ (Presumptive TB register, TB laboratory register, health facility TB treatment register, Contact tracing TB register)
 - ✓ Reports: Weekly and monthly SDPs TB case detection reports, quarterly TB case finding report, and quarterly treatment outcome report.
- Use the monthly data TB case detection reports to make decisions to improve performance. Use the information derived from this report to inform the HTM for regular reviews and adjustments of strategies to achieve the set targets

- Ensure TB case detection, prevention and proper treatment related topics are presented at least once a month in the clinical meetings and the CMEs to foster experience sharing and increase confidence of staff to management TB disease
- ***Ensure consistent use of the screening algorithms (SOPs) to systematically screen all clients and follow through to investigate all patients who screen positive. This is key to increase TB case detection in all SDPs/units of the health facility***

3.1.3 Tasks of the facility TB focal person

The TB case detection focal person/clinician is the champion who monitors daily TB case detection activities in the health facility. The duties of this TB case detection team leader will include but not limited to:

- Coordinate orientation/training of staff members on TB case detection to ensure the all health workers are capable of conducting proper client screening for active TB
- Ensuring that all SDPs/Units in the health facility have all the necessary materials & tools (SOPs, Tally sheet, presumptive TB register and IEC posters) on a 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 as needed
- Support and supervise CHVs and other staff to ensure that all clients visiting each SDP are adequately screened for TB and properly recorded **presumptive TB register**
- Ensure that sputum specimen is collected from all clients with presumptive TB, and these clients are safely fast tracked from the waiting areas to reduce risk of TB transmission to Staff & other patients
- Ensuring that fellow clinicians are using the updated TB Diagnostic algorithm to manage patients with presumptive TB
- Ensuring daily update of the presumptive TB registers with results from TB investigations and final diagnosis

- Ensure the TB clinic staff immediately contact by phone all patients diagnosed with TB (***client who fail to return for review as scheduled***). This is critical to ensure early initiation of effective treatment to reduce TB transmission and increase chances of successful treatment
- Preparing weekly, monthly and quarterly TB case detection report for the health facility by collating the weekly and monthly SDP reports
- Present the monthly and quarterly TB case detection progress and challenges reports to the TB/HIV team and the health facility management on monthly and quarterly respectively

Example 1: Implementation of SOPs for increasing TB case detection - Meru district Hospital, Arusha-Tanzania

Context: In 2011, MSH and PATH in collaboration with the NTLD-Program, 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 Officer (DMO) and the medical officer in charge of Meru district hospital took leadership and commitment in implementation of TB case detection SOPs.

Besides implementing the SOPs each facility had also in place a **TB/HIV team** and a **TB focal person**, all health workers were allocated annual targets for TB case finding which were assessed during their annual appraisal. Sputum registers were implemented in all units of the hospital and data was analysed and used to monitor performance monthly.

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 identification of TB cases in CMEs and weekly clinical meetings.

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

Key Messages

- Uniform and consistent application of standardised 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 to is key for monitoring progress of implementation of TB case finding interventions

CHAPTER 4: STRENGTHENING IDENTIFICATION OF TB CASES IN HEALTH FACILITIES

Preamble

The NTLD-Program in Kenya arrived at this approach after reviewing the preliminary the National TB prevalence survey 2015/16 that indicate that the country has very high TB prevalence about 558/100,000 (0.6%). This prevalence study indicated that the Kenya was notifying about 60% of the TB burden. This level of TB prevalence is very high and Kenya as country needs to use all resources available to lower to TB burden towards ending TB by 2035.

Secondly, the process of identifying patients with TB symptoms (TB suspects) should start when a client reports at the triage area of any Health facility. This will ensure that health workers are initiated early TB case detection, TB infection control practices, counselling 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 a provider initiated activity, which is defined in this manual as the ***systematic identification of people with presumptive active TB among all clients seeking health services in a given health facility using the TB symptomatic questions and BMI.*** The screening tests, examinations used are able to efficiently distinguish people with a high probability of having active TB from those who are unlikely to have active TB. Among those whose screen symptomatic positive, the diagnosis will be established by Xpert MTB/RIF, CXR or several diagnostic tests available and additional clinical assessments, which together have higher accuracy.

To adopt and implement systematic screening of all clients visiting all

service delivery points in a health facility requires that all staffs are directly involved to the implementation of this important task. Further, that staffs in each SDP use an appropriate screening and diagnosis algorithm depending on the risk profile of their usual clients. Detailed below are the specific activities (SOPs) recommended in conducting systematic TB screening of clients from various risk group.

4.2 TB screening in both General OPD, Special OPD Clinics and IPD Wards

Generally, client-seeking services in these service delivery points of the hospital are classified as having intermediate risk of having TB. The exceptions to this rule are patients with diabetes, PLHIV or severe malnutrition.

TB Screening in adults and children aged 10 years or older:

Step 1: Start with an interview about TB symptoms and HIV status

Step 2: Symptomatic screen: Further investigation for TB should be done for persons with any of the following symptoms: **cough of any duration, haemoptysis, weight loss, fever or night sweats or chest pains.**

Step 3: Investigations: Collection of sputum specimen from client who has any of the above TB symptoms for to Xpert MTB/RIF test

Step 4: Finally, any patient with negative XpertMTB/RIF test but continue to have respiratory symptoms a CXR should be considered adjunct test for TB and other respiratory disorders

For persons known to be HIV-positive, investigate and manage them according to the National TB/HIV guidelines (sputum for Xpert MTB/RIF, if Negative put on IPT; if positive treat for TB)

NB: All patients' investigation findings/results should be given to the clinician to review and advise the patient

4.2.1 To increase TB case detection, the OPD nurse or triage staff will:

- Provide Health education on TB to the clients in the waiting area. Describe the symptoms & signs of TB. Then explain that TB diagnosis

and treatment is available & free

- Display posters on TB symptoms and other client education materials in waiting /registration areas/ clinic to raise clients awareness on TB
- Ensure updated TB diagnosis and treatment flow charts/protocols in the consultation room
- **Conduct effective Triage, that includes: TB symptomatic screening and interview on HIV status:**
 - a) TB symptomatic screen and HIV status treatment
 - b) Record all presumptive TB clients in the presumptive register
 - c) **For client with presumptive TB;**
 - ✓ Collect Sputum specimen for Xpert MTB/RIF test
 - ✓ Give the client a 3-days return date to be reviewed with TB test results
 - ✓ Fast track the clients to be attended first by the clinician
 - d) Deliver the sputum sample in the laboratory and follow Xpert result within 48 hours
 - e) Update the presumptive TB register with Lab result of each client
 - f) Deliver the all TB positive results to the chest clinic to await the return of the patients

Notably, a in country with high TB burden like Kenya; TB prevalence of about 558/100,000 population. At least 0.6% of the HIV negative clients seeking services in general OPD, wards and clinics have a high likelihood of having TB disease and need to be found, treated and notified to the NTLD-Program.

Example: if your health facility general ODP is attendance is about **1000 new patients** per month, an **average 0.6%** of those client have active TB. Translating to **6 cases** have active TB disease and need to be found put on treatment and notified

4.2.2. To increase TB case detection, Doctors and other clinicians

The doctor or other clinician attending clients in OPD/clinic/wards should:

- Check the client cards to ensure the TB screening section on the patient OPD card or admission form is complete regardless of the HIV status/clinical presenting complaints
- Confirm from the patient with any TB symptom that sputum has been collected by the triage officer or assistant
- Take special attention on clients who belong the very high TB risk groups (***PLHIV, DM, Malnutrition, child under 5 years***)
- Do thorough physical examination (assess fever, anaemia, lymphadenopathy, chest abnormalities and hepato-splenomegaly, weight, BMI) to all patients to rule-out extra-pulmonary TB even if a patient does not complain of cough
- Demand that all sputum results from the laboratory are submitted back to the clinician to review and advise the client
- Prescribe treatment as per the NTLD-Program treatment guidelines and follow up for TB confirmed by lab test to have TB disease
- Where possible advice that confirmed TB patient be escorted to the TB clinic for counselling and initiation of treatment
- Re-asses all those patients with Xpert MTB/RIF negative results for **pulmonary or extra-pulmonary TB** using the National TB diagnostic algorithm. ***Request for Chest Radiological investigation as appropriate***

4.3. Active TB Case Finding among PLHIV and Other High Risk Groups (CCC, PMTCT& VCT) Diabetes clinic

Successful implementation of TB/HIV services among PLHIV depends on effective implementation of the Intensified TB Case Finding (ICF) guidelines. TB is the most common opportunistic infection among PLHIV, and the major cause of death among AIDS patients. This calls for routine thorough symptom-based TB screening and sputum Xpert MTB/RIF testing to ensure early

detection of TB cases and prompt treatment. Subsequently, ICF increases TB case detection rate, improves 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 high risk group is critical and yields about 10% TB patient annually.

Example: If your CCC is registering an average of 200 new PLHIV cases per quarter, about 10% of those translating to 20 cases will be co-infected with TB in the course of the year and need to be found and put on treatment and notified

People with diabetes mellitus also have high likelihood of developing TB disease compared to the general population. In 12 studies that screened diabetes patients for TB, the rates of TB ranged from 2% to 36%, depending on where the screening was conducted (WHO Guidelines on systematic screening for active TB 2013)

Example: If a Diabetes clinic is managing an average of 1000 diabetes cases annually, using the WHO estimate of 2.8% TB disease in this cohort: expected TB cases in this clinic will be about 28 persons with diabetes have active TB of the total registered cases) and need to be found put on treatment and notified

Doctors and other clinicians attending PLHIV, DM and other high-risk TB client groups should:

- Ensure health education is provided in the waiting area and during the support group sessions
- Provide simple reading materials to clients on TB to improve their awareness about TB including the treatment
- ***Ensure that the triage nurse/officers conduct routine TB screening***

on all clients in CCC, PMTCs and diabetes clinics during every visit.

- Ensure that good quality sputum samples are collected from all CCCs, PMTCs and diabetes patients who screen positive for TB and these samples are delivered in good time to the lab for Xpert MTB/RIF testing
- Demand and use Sputum Xpert results from the laboratory to review CCCs, PMTCs and diabetes clients and prescribe appropriate treatment & advice. Clinician may order another Xpert test, CXR or other tests if patient symptoms continue and initial Xpert was negative
- Ensure all newly diagnosed TB co-infected patients to TB clinics for treatment and follow up

7 Steps to increase TB cases detection in among clients		
STEP	ACTION	DESCRIPTION
1	Target setting	Number of New = Clients X NNS
2	Health education session	<ul style="list-style-type: none"> • TB disease, TB/HIV, TB/diabetes, importance of active TB screening, IPT to PLHIV, reduction of TB transmission
3	Screen for TB (every visit)	Clients with any of the following symptoms: <ul style="list-style-type: none"> • Fever • Cough of any duration • Night sweats • Weight loss Blood stained sputum
4	Separate	<ul style="list-style-type: none"> • Fast track presumptive TB cases to be reviewed by clinician

5	Investigate for TB	<ul style="list-style-type: none"> • Fill lab request and ask clients to collect sputum • The triage nurse shall send sputum specimen to a TB diagnostic centre Xpert TB testing • The lab to use the automatic online Xpert results disseminating system to relay result to clinician and notify the client to come to hospital for their results • Clinician shall reassess those with Xpert negative result for pulmonary and extra pulmonary TB using other investigations and clinical assessment to make final diagnosis
6	Treat	<ul style="list-style-type: none"> • Escort all newly diagnosed TB cases to TB clinic for treatment and notification • Provide IPT to all eligible PLHIV adult and children
7	Notify	<ul style="list-style-type: none"> • Record, update and report TB screening information in presumptive TB register • Use monthly data to plot a bar graph to note the trend to determine if your health facility of SDP is on course to meet the quarterly or annual target

4.4. Approaches to Increase TB case Detection in the Wards & Clinics Serving Children

It is a well-documented fact that every child infected with TB is as result of transmission from adult contact with active TB disease. In children, risk of progression from TB infection to disease is higher in the younger children, HIV infection, nutrition status and other diseases that lower the immunity of the child such as measles. Making a diagnosis of TB in a young child (under 5 years) is challenging due to non-specific clinical symptoms, signs and CXR features. Since young children under 5 years are not able to provide sputum

sample for lab investigation, effort to collect either gastric lavage or bronchial washing should be considered. Sample for all children should be subjected to Xpert MTB/RIF test. In the case of uncertainty of TB disease, doctors should use clinical assessment and the national diagnostic protocol to aid TB diagnosis in a child.

Screening in children aged younger than 10 years

Step 1: An interview to determine whether the child is known to be HIV-positive or has had recent contact with someone who has TB, in either case go to step 2

Step 2: Screening children who are living with HIV or who are contacts of someone with TB:

- ✓ Symptom-based screening should be done to identify those with cough, fever, failure to gain weight or failure to thrive, and reduced playfulness of any duration
- ✓ Children with any symptom should be investigated for TB: Where possible CXR; an abnormality suggestive of TB should be investigated further (sputum test for TB)
- ✓ TB specimen (sputum, gastric lavage, bronchial washing) from children should be submitted to the lab for Xpert MTB/RIF
- ✓ Treat all children who test positive for TB. NB: a clinician may make a clinical diagnosis of TB from clinical assessment, abnormal CXR and history of contact with TB index case
- ✓ Children without symptoms: put all asymptomatic children who are contacts of TB patient on IPT as per the national guidelines

Step 3: Screening HIV Negative children with no recent history of contact with TB case is limited to symptom-based screening:

- ✓ Symptom-based screening should be done to identify those with cough, fever, failure to gain weight, failure to thrive or fatigue/reduce playfulness of any duration

Doctors and other clinicians providing care for children in health facilities should:

- Ensure that the triage nurse/officer conduct routine screening for TB

in all children presenting in all the SDPs of the health facility (OPDs, RCH, CCCs, PMTCS, IPDs Paediatric wards, surgical wards) with any complaints using TB screening chart for children

- Take detailed history on TB contact and HIV status of the child:
 - a) **Take detailed history: Interview child and mothers (care givers) on the following:**
 - 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
 - b) **Interview mother/ care giver on the HIV status of the child**
 - Ask to see the mother and baby book for the child (Check PMTCT related information)
 - Ask how many ANC clinics the mother attended
 - Ask if baby was born in a health facility
 - Confirm from care giver if the HIV status of the child is known
 - If HIV status is unknown offering HTC
- Ensure integration of systematic screening for active TB in all Paediatrics clinics, well-baby clinic, Immunisation/MCH and Paediatric wards
- Conduct gastric aspiration to obtain specimen from children under five years, to obtain quality specimen for laboratory diagnosis of TB

CHAPTER 5: STRENGTHENING TB LABORATORY SERVICES

Biological assessment (smear microscopy, DNA technology and culture & DST) of Sputum specimen for MTB is the corner stone for TB diagnosis. In the target hospitals **Xpert MTB/RIF** will be the first line diagnostic investigation. Clients need proper guidance/instruction and where possible supervision to collect adequate sputum samples for laboratory investigation. It is the responsibility of health workers to make sure that clear explanation and instructions are given to TB presumptive clients on how to produce and collect good quality sputum.

5.1. Organising TB Case Detection in the Laboratory

5.1.1. Methods and approaches to improve TB diagnosis in the labs

The following are the usual laboratory tests used to diagnose TB in Kenya.

Laboratory methods:

- Conventional light smear microscopy
- Fluorescence light smear microscopy such as LED Microscopy
- Molecular diagnostic methods
 - ✓ GeneXpert MTB/Rif – for TB diagnosis and detection of Rifampicin resistance
 - ✓ Line Probe Assay such as HAIN
- Culture of MTB:
 - ✓ On solid media (LJ)
 - ✓ In liquid media (MIGT)

Other less specific investigations used to diagnose TB

- X-ray for diagnosis of smear negative and or extra-pulmonary TB (EPTB)
- Tuberculin skin test (TST) – mainly for children

Other supporting tools used to assists clinicians make TB diagnosis

- TB diagnosis algorithm
- CXR interpretation guide (SOP) or
- CXR interpretation software

5.1.2. Approaches for increasing TB diagnosis in Laboratories

To ensure reliability of the of TB lab result, Health facility management should ensure the laboratory has adequate skilled HR, adequate supplies, working space, and have and follow the correct diagnostic algorithms. Specifically the following steps are vital to increase reliability of TB lab results:

- *Laboratory sputum request forms* are available and are properly filled to facilitate traceability of the patient including physical address and mobile phone number
- Collection and submission of good quality sputum specimen (**spot or morning specimens**)
- Ensure quality sputum and other specimens collected:
 - ✓ Provide simple & clear instructions to the patient on how to collect good quality sputum in a safe manner and location
 - ✓ Where possible supervise sputum collection to ensure quality and adequacy of samples sent to the laboratory
- Availability of adequate laboratory supplies and commodities
- Use of Xpert machine to test sputum specimen for MTB
- Procure a lab equipment maintenance contract to ensure regular service and maintenance of TB diagnostic equipment. (**Usually provided by the NTLD-Program**)
- Ensure a functional laboratory quality assurance system (IQC and EQA)
- Ensure the most current TB diagnostic algorithms (SOPs) are available and used
- Ensure that sputum test results (Microscopy and/or Xpert) are available to the requesting clinician within 24 hours of sample receipts
- Deliver all TB test results from to the referring clinician within 24 hours. (NO test result should be given directly to any patient)
- Ensure the laboratory records, analyses and uses TB test data to advance patient care; specimen receipt, test results, date and time of result release
- Coordinated with the chest clinic team to update **all smear positive results recorded with District TB number** to make sure that patients with positive results have been put on treatment
- Laboratory quarterly reports are completed, utilised at the local level and submitted to CMLT & CTLC on time

5.1.3. TB laboratory Quality control:

Health facilities should ensure the following in the laboratory in order to ensure quality of laboratory services and reliability of TB diagnostic test results:

- Ensure that all the SOPs required are available and used to processes specimen
- Ensure that appropriate Job Aids / SOPs are displayed at relevant diagnostic test processing points in the laboratory
- Required infection control SOPs and protocol are available and consistently used to protect staff
- Ensure that both 'internal Quality Control' and 'External Quality Assessment' activities for TB microscopy and GeneXpert 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.
- For quality control of GeneXpert,
 - ✓ Ensure it is set up by the appointed dealer of manufacture
 - ✓ That calibration is done on time
 - ✓ That all errors are reported to the manufacture or technical agent for action
- Ensure that lab results turnaround time is maintained within 24 hours
- Ensure that the CMLT coordinates external quality assurance as per the national guidelines
- Provide regular continuing medical education (CME) to lab staff to build their capacity to use new lab technologies to improve quality and timeliness of TB tests

5.2. Standard Operation Procedures (SOPs) for Collection of Sputum Specimen

- Ensure that a sputum AFB request form is available and is duly filled with all required information
- Ensure that all suspect cases submit 2 sputum specimens; **spot –Spot or (spot & Morning)** for diagnosis
- Guide patient on the procedure of sputum sample collection
 - Label two sputum containers on the side and the lid with patient OPD/IPD or lab number
 - Provide clear & simple instruction the patient on collect the specimen in an open isolated space away from other patients
 - Ask patient to breathe deeply several times, then cough and bring up the sputum from the throat into the container
- Demonstrate to the patient how to produce sputum, put in the container and close tightly
- A specimen mainly containing blood should be examined and the patient immediately referred to the doctor for assessment and management
- 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
- 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 containing sputum
- Ideal sputum volume should be about 3-5mls
- If, for any reason, health personnel have to manipulate a sputum sample, they must wear disposable gloves and working the safety hood in the laboratory
- 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
- Decontaminate all waste contaminated with sputum in 10% Sodium hypochlorite/ JIK solution for 30 minutes before discarding them into the biohazard waste bin

5.3. Checklist for Laboratory Staff Working to Improve Quality of TB Diagnosis

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

- **Recording and Reporting–**
 - Ensure availability of TB lab register
 - Check that entries into the TB registration are recorded correctly and completely for all specimen
 - Check examination request form (TB05) are available and correctly & completely filled
 - Check if all slides are stored well for future rechecking during EQA visits
 - Check that lab results for both new and follow-up sputum examinations have been recorded accurately
 - Check that test results and laboratory identification numbers have been accurately recorded in the TB treatment register at the Chest/DOT clinic
- **Logistics** – Check availability of reagents and other lab materials (reagents)
 - Quantify and order reagents and other lab materials (reagents)
 - Check the amount of reagents available; are they adequate based on the workload?
 - Check that lab receives reagents supply for 6 months

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

- **Bio-safety-**Check following points;
- Check to confirm that the safety cabinet is available and functional; Ensure lab has a space for smear preparation, general cleanliness of the lab,
Review disposal procedure of contaminated materials, disinfectant used, condition of disposal place,

Availability and utilisation of Personal protective devices (N95 masks), gloves, eye goggles, dustcoats

Availability of appropriate hand washing facilities

- **Microscopy** - Check the condition of microscopy for AFB examination; maker, (Brand name), storage, lens cleanness, protection measure from high humidity
- **Others** - Check availability of NTLD-Program lab manual, internal QC in place and performed, effective communication between lab and other persons at the facility
- **Smear examination** - (by a technical person from the lab) – Check examined slides (both positive and negative). Please sample both negative and positive AFB slides for rechecking by a different technician off-site. (EQA)

CHAPTER 6: 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, utilise the data for planning and problem solving and report on key TB case detection indicators. Monthly and quarterly review of indicators is key in monitoring performance against the set SDP and health facility targets.

The National tool shall be used in all health facilities for routine recording and reporting key indicators in the usual frequency. In Kenya, the following tools will be used to monitor ACF in addition to the usual NTLD-Program M&E tools:

- DHIS2 workload reports (SDP work load records/registers)
- Presumptive TB register
- TB patient Contact register
- IPT register

These standardised registers, tools and health information databases that will be used to record and store data. The information collected will be analysed, interpreted and utilised monthly by the HMT to make management decisions health facility level. Quarterly the same information will further be analysed at County and National level to inform both levels on the next steps.

6.1 Activities to increase TB case detection related to Data

- 2-weekly HMT review of SDP performance and challenges
- Monthly supportive supervision and mentorship on TB case detection by CTLC/National level TA team
- Quarterly inter-Health facilities information exchange meeting to discuss TB screening program
- Quarterly, HF work plan adjustments to improve performance
- Consistent recording of all TB suspect in the presumptive TB register
- Disseminate TB case finding quarterly progress report to staff and Hospital board of management
- Display performance trends graphs on case finding in the hospital Notice board, Boardrooms and other prominent

6.2 Monitoring and Evaluation Plan

Monitoring and evaluating systematic screening will be incorporated into the monitoring and evaluation programs used within the national TB program. Targets will be set for the expected yield, the NNS and costs in relation to benefits. Targets for these indicators will be set after conducting the baseline assessment. The guiding target for each intervention site/ health facility will be 30% increase in TB case detection compared to 2015 data.

6.3 Quantitative TB Case Detection Indicators

The following formula based on “number needed to be screened”(NNS) to diagnose one TB case in different risk groups as describe in the WHO guideline on systematic screening for active TB (Table No.5; page 48).

Table 2 below summaries the NNS for the common TB risk groups in Kenya:

Risk group	Numbers needed to be screened to identify One TB case: (TB prevalence >300/100,000 pop)	%
Gen pop*	100	0.6
Health Care Workers (HCWs)	2.4% (4 X 0.6*)	2.4
Prisoners	100	1
In-Patients	100	1
OPD	100	1
Pregnant mothers	36	2.78
Diabetes	35	2.86
VCT clients	37	2.70
PLHIV (newly diagnosed-not virally suppressed)	10	10%

** Estimated TB prevalence for Kenya 2016 (NTLD-Program published Prevalence survey report)*

Using the estimates NNS listed above the health facility ACF committee and

CTLC will be able to calculate the annual targets for the hospital, and the various SDPs within each health facility.

See the following example for Kakamega County referral hospital

Risk Group	2015 Work load	Estimated TB Prevalence	TB Target (2017)
Gen OPD	139,322	1%	1,393
IPD	18,089	1%	181
CCC	3,677	10%	368
Diabetes	500	2.80%	14
ANC	9,915	2.70%	268
Under 5 contacts	91	6%	5
Total	171,594		2,229

The following are the proposed list of quantitative indicators required for monitoring and evaluating ACF in Kenya:

- A. Number of people eligible for screening (All clients seeking health care visiting a given SDP during the period under review)
- B. Number of people screened (Number of clients asked the cardinal TB question and result recorded)
- C. Number of presumptive TB patients identified
- D. Number of people tested/evaluated for TB
- E. Number of people diagnosed with TB
- F. Number of TB patients initiated on treatment
- G. Number of TB patients successfully completing treatment

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

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

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

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

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

Indicator 6: Proportion of notified cases of all diagnosed TB cases

Indicator 7: Proportion of people initiated on treatment among those

diagnosed (F/E)

Indicator 8: Proportion of patients successfully completing treatment among those initiated (G/F)

6.4 Qualitative indicators for TB case detection

The following indicators should be collected at health facility level:

- **Indicator 9:** Existence of a TB focal person
- **Indicator 10:** Number of staff trained/oriented on increased TB case detection
- **Indicator 11:** Existence of functional health facility TB/HIV Team or IPC (ACF task force)
- **Indicator 12:** Number of health facility TB/HIV Team (ACF task force) meetings conducted
- **Indicator 13:** Availability of TB case detection toolkit in all the service delivery points in the health facility
- **Indicator 14:** Availability and use of job aids for improving TB case detection in all SDPs

- **Indicator 15:** Presence and use of TB algorithms, wall posters and TB screening tools

Table 7.1: Qualitative indicators of ACF

Indicator	Source	Monitoring tool	Frequency	Responsible
Existence of the TB focal person	Baseline & TA reports	Supervision	Quarterly	HMT
Number of staff trained/oriented in increased early TB case detection.	Training reports	Supervision	Quarterly	HMT
Existence of functional Health facility TB/HIV Team	Baseline & TA trip reports	Supervision	Quarterly	HMT
Number of HFTB meetings conducted	Minutes of HFTB meetings	Supervision	Quarterly	HF-TB Focal person
Presence and use of toolkit and job aids for improving TB case detection in all designated/ important departments of health facility	TBFP monthly reports	Supervision	Quarterly	Head of each SDP
Presence and use of TB algorithms, wall posters and TB screening tools	TBFP monthly reports	Supervision	Quarterly	HF-TB Focal person
Rate of TB (suspects) Presumptive Identified	TB presumptive register /TB Laboratory/ AFB register	Case finding report	Quarterly	HT-TB Focal person

ACF Toolkit Annex: **List of Job AIDS & SOPS for the ACF toolkit**

1. Roles and Responsibilities of Key TB Case Detection Actors:

Roles and responsibilities HMT and Health facility in-charge:

- Shift the responsibility of case finding management from Chest clinic staff to the health facility in-charge or manager
- Establish & support functional/HIV teams (as technical working group on & HIV management in each Health facility)
- Appoint a focal person in each health facility- an officer with power and influence over both and HIV clinics
- Ensure development and implementation of quarterly work plans for;
- Capacity building of HCWs on cases detection & management through training, mentorship and patient management
- Involvement of **all health care providers in the health facility in active screening**
- Ensure availability of functional patient investigation equipment and laboratory supplies in the health facilities (Microscopes, Xpert machines, X-ray machines)
- Ensure availability of adequate numbers of qualified staff to perform laboratory diagnosis
- Availability of laboratory supplies including reagents and other commodities
- Ensure the client can access quality Chest X-ray imaging
- Ensure the CXR are interpreted by qualified and experience specialist on site or remotely
- Rewarding to SDPs and/or staff who perform in active screening at the HF with certificate of recognition, refresher training, support them to provide TA & experience with other HFs).
- Regular supportive supervision and mentorship where possible monthly

Roles and responsibilities of health facility ACF team: (TB/HIV or IPC):

To ensure active detection activities are conducted systematically and to the expected standard in the health facility, the TB/HIV team duties include:

- Develop the quarterly HF /HIV work plans and budgets
- Support the focal person to implement the *quarterly ACF work plans*
- Support and supervise the activities of the *focal person*
- Hold monthly coordination meetings to review progress and resolve challenges
- Ensure availability and utilisation of required materials such as SOPs, flow charts, algorithms, job aids, and wall posters in every SDP
- Optimise referral linkages between various SDPs/clinics in the clients care pathway
- Ensure that ACF related data is correctly and completely recorded in the appropriate registers and reported in a timely manner:
 - ✓ Weekly and monthly SDPs case detection reports to HMT
 - ✓ Quarterly case finding & treatment outcome reports to CHMT & NTLD-Program
- The chair person to prepare & present the monthly and quarterly case detection progress and challenges reports to the HMT/MedSup
 - ✓ Use the information derived from these report to inform the HMT for regular reviews and adjustments of strategies to achieve the set case detection targets
 - ✓ Ensure case detection, related topics are discussed once a month in the clinical meetings and the CMEs
- ***Ensure consistent use of the diagnostic algorithms (SOPs) to systematically screen all clients and follow through to investigate all patients who screen positive***

Roles and responsibilities of Health facility focal person: (TB case finding champion)

- Coordinate case detection and management capacity building activities among HF staff

- Distributing/Ensuring that all Service Delivery Points (SDPs) in the health facility have all the necessary materials & tools (SOPs, Tally sheet, presumptive register IEC posters) on daily basis
- Support and supervise CHVs and other staff to ensure clients are all screened and recorded as appropriate
- Ensure that sputum specimen is collected from all clients with presumptive TB
- Ensuring clinicians are using the updated Diagnostic algorithm to investigate & diagnose
- Ensuring daily collection of lab results and proper recording
- Ensuring timely contact by the clinic staff (by phone) all patient diagnosed with TB (as soon as lab results are available)
- Preparing weekly, monthly and quarterly case detection report for the health facility
- Presenting the monthly and quarterly case detection progress and challenges reports to the /HIV team

Roles and responsibilities of CTLC & SCTL : (TB coordinators)

The officer's main function is to coordinate case notification, treatment, M&E, frontline health workers capacity building and activities to increase demand creation in the catchment population. Specifically, their activities include:

- i. Monthly updates of case finding, treatment data in the TIBU system (Case notification and follow up data)
- ii. Preparing Quarterly and annual notification and treatment outcome reports and present the same to the CHMT and NTLD-Program
- iii. Provide clinical services in health facilities where they are domiciled
- iv. Coordinate the following control activities in their County or Sub-county:**
 - a. Treatment defaulters tracing and retrieval
 - b. Training and orientation of local leaders and traditional healers on case detection
 - c. Community sensitisation to raise awareness and improve health seeking behaviour
 - d. Distribution and dissemination of IEC materials in the community (e.g. posters in work places: Industries, market

- places etc.)
- e. Involvement of community leaders' e.g. chiefs and religious leaders to sensitise community on services during community forums and social gatherings to lower stigma
 - f. Tracing all children contacts of adults with bacteriologically confirmed cases and ensuring eligible children are started on IPT or treatment
 - g. Outreach services to the community such as: provision of health education on, contact tracing and screening in the community and in congregate settings such as prisons every quarter
 - h. Coordinate selection of Peer Educators supporting Key populations such as IDUs, FCSW, & MSM to conduct regular health education, conduct symptom screening and collect sputum for diagnosis

Roles and responsibilities of TB notification & treatment clinic nurse/ staff

NB: we have proposed re-naming of Chest clinic to TB notification & treatment clinic to reflect the true role of this vital structure in the fight to End TB.

The TB treatment clinic also referred to as the DOTs clinic has five main functions:

- a. Case notification office in each health facility, the staff in this SDP record and maintain records of all patient put on treatment in that HF
- b. Provide DOT treatment and follow up of patients during the entire treatment period, they assess progress:
 - o Order lab test to confirm to document TB treatment progress & cure
 - o Drug adherence counselling
 - o Default identification and Organise tracing of defaulters using available mechanism (PHOs, CHEWS or CHVs)
 - o Health education
 - o Collect and submit sputum for DST for eligible
 - o Issue TB medicine to patients

- Order drugs from the hospital pharmacy and maintain inventory of drugs
- Conduct TB contacts invitation and screening
- Initiate IPT for eligible contacts (under 5 years without TB symptoms)
- Identify and manage TB patients with minor adverse drug reactions to the anti-TB medicines
- c. Nutrition assessment, counselling and support
- d. Refer complicated TB patients to the specialist doctors or clinical team:
 - Recording and reporting adverse drug reactions (ADRs)
 - Screening patients for high risk comorbidities such as HIV and diabetes
- e. Participate in TB & HIV capacity building activities such as:
 - Prepare and present difficult clinical cases to senior consultants for specialised management
 - The monthly CMEs

2. SOP on systematic screening for active TB in Adults and children over 10 years

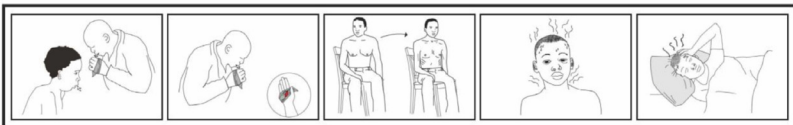
Steps to increase case detection in adults and children over 10 years		
STEP	ACTION	DESCRIPTION
1	Diagnosis approach	Any symptom followed by sputum for Xpert MTB/RIF test
2	Target setting	Annual client new attendances (Workload) x 1% Expected TB cases= Active TB Disease
3	Health education session	Disease, in children contacts of open cases, & Malnutrition, importance of active screening, IPT to children contacts of patient, reduction of transmission
4	Screen for every visit	Consider presumptive in a child with any: <ul style="list-style-type: none"> • Cough of any duration • Fever of any duration • Night sweats • Weight loss • Low BMI (18 or lower)
5	Separate and fast track safely	<ul style="list-style-type: none"> • Isolate for the general waiting area to a separate area, educate on how to collect quality sputum. • Collect sputum specimen • Then Fast track presumptive cases to the consultation room.
6	Investigate for TB	<ul style="list-style-type: none"> • Fill lab request and deliver the sputum to the laboratory diagnosis (Xpert M/RIF test) • If the lab diagnosis is not available on site, then refer the sputum specimen to a diagnostic centre with Xpert machine • Request client to come for review in the clinic after 3 days /once lab results available. • Reassess those with Xpert negative result for pulmonary and extra pulmonary TB using diagnostic algorithm.
7	Treat	<ul style="list-style-type: none"> • Escort all newly diagnosed cases to clinic for treatment initiation and Notification to NTLD-Program • Provide screening for Diabetes and testing for HIV

8	Notify	<ul style="list-style-type: none"> Record, update and report screening information in presumptive register. Use the monthly data to plot a bar graph to note the trend to determine if your unit is on course to meet the quarterly or annual target.
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3. Diagnostic algorithm for adults and children of 10 years and older

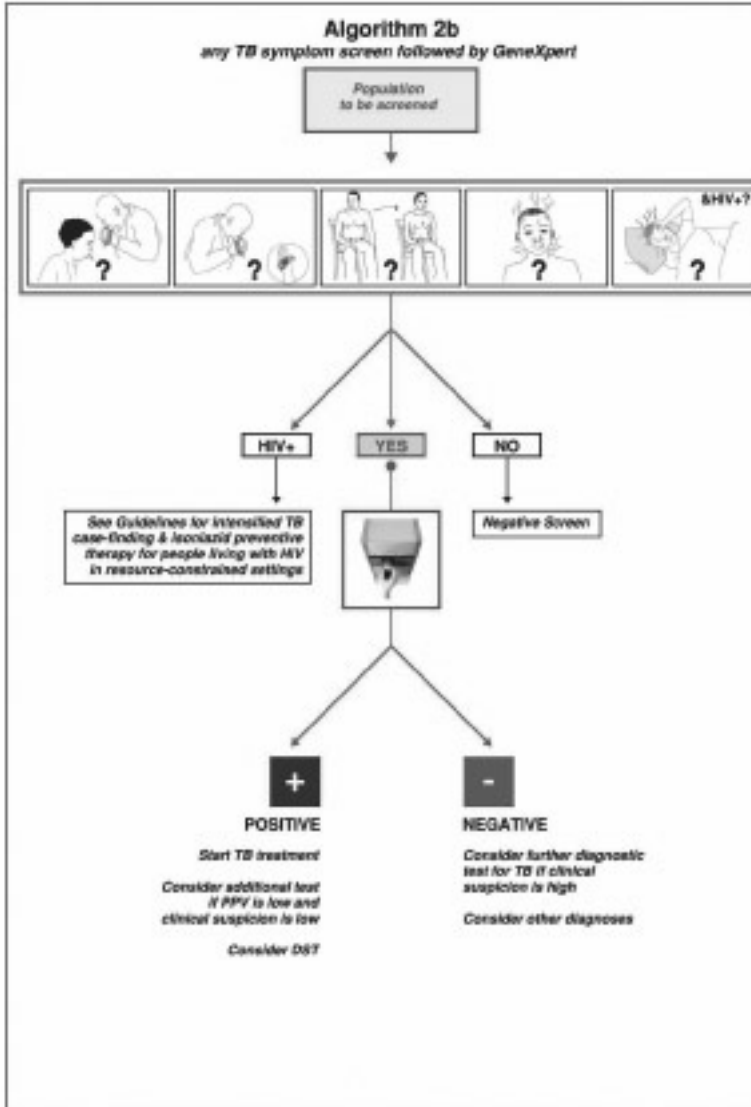
The Nurse/CHV or any other HCW who is the first contact with clients in the health facility shall conduct an effective Triage that includes: symptomatic screening and interview on HIV status:

- If unknown or HIV status is negative please offer HIV testing and counselling
- Next screen for: **Screening for any symptom compatible with, including –**
 - **Cough** of any duration
 - **Weight loss**
 - **Fever** of any duration
 - **Night sweats** of any duration
 - **Chest pain** not associated to physical injury



- **Client who screen positive for TB symptoms:**
 - Explain to the clients the need to collect sputum for test
 - Fill out completely the test lab request form
 - Provide then client with a sputum cap
 - Explain to them how to produce good quality sputum
 - Where possible; Guide them to a safe open space to collect sputum
 - Collect sputum sample and deliver to the lab

- Give client a specific return date (where possible within 3 days)



Adopted from the WHO guideline on systematic screening for active Tuberculosis disease www.who.int/tb/tbscreening

- Then isolate and fast track clients with presumptive to be attended by the clinician to reduce their staff stay/contact with staff & other patients. (Minimise transmission)

4. Illustrated TB diagnostic algorithm for ACF in Kenya.

5. Systematic Screening for active TB among children under 10 years

--Steps to increase cases detection in children:		
STEP	ACTION	DESCRIPTION
1	Diagnosis approach	Any symptom followed by Xpert M/RIF test
2	Target setting	Annual client new attendances (Workload) x 1% Expected TB cases=.....X 1%
3	Health education session	Disease, in children contacts of open cases , & Malnutrition, importance of active screening, IPT to children contacts of patient, reduction of transmission
4	Screen for every visit	Consider presumptive in a child with any: <ul style="list-style-type: none"> • Cough of any duration • Fever of any duration • Night sweats • Wight loss/ failure to gain weight • Reduced playfulness • History of contact with a known patient or an adult with chronic cough
5	Separate and fast track safely	<ul style="list-style-type: none"> • Isolate for the general waiting are to a separate area, educate on how to collect quality sputum • Collect sputum specimen • Then Fast track presumptive cases to the consultation room

6	Investigate for TB	<ul style="list-style-type: none"> • Fill lab request and deliver the sputum to the laboratory diagnosis (Xpert M/RIF test) • If the lab diagnosis is not available on site, then refer the sputum specimen to a diagnostic centre with Xpert machine • Request client to come for review in the clinic once lab results available. • Reassess those with Xpert negative result for pulmonary and extra pulmonary using diagnostic algorithm.
7	Treat	<ul style="list-style-type: none"> • Escort all newly diagnosed cases to clinic for treatment and Notification • Provide IPT to all eligible children (contacts of patients)
8	Notify	<ul style="list-style-type: none"> • Record, update and report screening information in presumptive register. • Use the monthly data to plot a bar graph to note the trend to determine if your unit is on course to meet the quarterly or annual target.

6. Key consideration for diagnosing active TB in Children under 10 years of age (Clinicians copy)

The diagnosis of TB in children usually relies on a combination of clinical and epidemiological features;

- A thorough and accurate **contact history is a very important diagnostic** tool;
- Sputum should be examined in all presumptive cases whenever available;
- Chest radiography is an important tool for the assessment of suspected pulmonary;
- Other investigations will depend on site of disease;
- HIV test should be routine in the assessment of children with presumptive TB;
- Clinically ill child with presumptive TB where possible should be admitted proper investigation (Gastric aspirate)
- **Accurate measure and plotting of weight is a very important tool in diagnosis and management;**
- Children with presumptive case that are difficult to diagnose, investigate or manage should be referred to Paediatrician for specialised attention
- All children diagnosed with TB should be recorded in the HF chest clinic treatment register and notified to the NTLD-Program

Improving Tuberculosis diagnosis in children:

- **Screen all children for (symptomatic questions + weight monitoring)**
- **Improving collection of samples**
 - Sputum induction yield usually higher than gastric aspirate
 - Two specimens better than one
 - Sputum induction can be done as outpatient
- **Improving laboratory diagnosis**
 - Use Xpert/RIF to test all specimen
- **Combine CRX and gastric aspirate test result to investigate in for all children under 5 years with presumptive**
 - Chest X-ray is important for these very young children

7. A Guiding Check List to Improve Laboratory Diagnosis for Tuberculosis

Key activities to improve laboratory performance in diagnosing tuberculosis

- Availability of laboratory supplies and commodities
- Use of sensitive laboratory techniques and sensitive laboratory algorithms
- Regular service and maintenance of diagnostic equipment
- Internal quality assurance procedures are implemented as per the SOP
- External quality assurance is conducted as per the national guideline
- Adequate qualified lab staff
- Annual refresher training and conducted to ensure staff skills & knowledge is current
- Good quality sputum other test specimens
- Immediate inspection of sample on delivery; rejected unsuitable samples & provide clear instructions to the patient
- *Laboratory sputum request forms* are available and are properly filled for each specimen.
- Collection and submission of two sputum specimens (**spot, morning specimens**) for admitted patients
- Xpert M/RIF results available within 24hrs after receiving the sputum in the laboratory
- Use updated Xpert M/RIF procedures to ensure reliable test results (Use SOP)
- All test result delivered directly to the treating clinician office/clinic or ward (No results should be issued by the lab to patient)
- All test results recorded in the lab register immediately the results are available.
- Laboratory Quarterly reports are completed, and utilised at the local level and submitted to the CMLT and NTLD-Program

8. SOP to Improve the Quality of Sputum Specimen Collected

The detection of *Mycobacterium tuberculosis* is dependent on the quality of the specimen provided. Therefore, proper specimen collection and prompt transportation to the laboratory are important in ensuring quality results. If an additional specimen is required this can be collected at least an hour later or preferably in the morning of the following day:

- Sputum collection occurs in a well-ventilated area or outside, but in private and without others watching
- The collection must be supervised, the supervisor should NOT stand in front of the patient
- The patient must be informed and understand the instructions for sputum collection:
 - Ask the patient to rinse out their mouth with water
 - Advise the patient to be very careful and direct the sputum into the container so as not to contaminate the outside of the container
 - Give the patient the container, without the lid
 - Demonstrate a deep cough from the bottom of the chest, beginning with deep breathing
 - Be ready to replace the lid on the container immediately
- Once the specimen is in the container, securely close the lid by pressing down on the centre of the lid until a click is heard
- Securely package the samples ready to send to the lab
- Wash your hands after handling the sputum specimen

9. Client Preparation and Collection of Quality Gastric Aspirate from Children for TB Lab Test

CLINICAL RATIONALE:

Gastric aspiration is a technique used to collect gastric contents that can be used in the diagnosis of tuberculosis. Tuberculosis continues to be a problem and children are more affected than adults, in part because they are more likely to get sick when they are infected with the TB organism. The increase in drug-resistant strains of TB makes it very important to try to culture and identify each patient's organism.

Since many young children have difficulty in expectorating sputum, gastric aspirates are frequently required to culture the organism in a Paediatric patient. When children with pneumonia sleep, their muco-ciliary mechanism sweeps mucus up their airways into their throat. They swallow the mucus and unless the stomach empties, a pool of mucus in the stomach may be a source of the organism.

Ideally, the patient being prepared for an early morning gastric aspirate should sleep for at least six hours without interruption. They should not eat or drink anything overnight to prevent the stomach from emptying.

PATIENT PREPARATION:

1. Patient to be NPO after midnight
2. The family should come to the clinic first thing in the morning. Any family members who could possibly have active TB disease should wear masks to prevent transmission to health care workers
3. Place NG tube inpatient. Do NOT use any bacteriostatic tube such as **surgilube**. Use as large a bore NG tube as is comfortable (minimum 10fit). Avoid too deep a placement to prevent passage through the pylorus

SAMPLE COLLECTION:

1. Aspirate the stomach contents. If less than about 10 cc of mucus is aspirated, instil 20–30 cc of sterile water into the tube and quickly withdraw. (Note: the organism is most viable when not exposed to saline or preservatives; the kind of sterile water used for infant feeding is fine). Reposition the tube and/or the patient to maximise the yield of gastric contents.
2. Place the gastric aspirates in a special bicarbonate-containing gastric aspirate tube or regular specimen cup.
3. Transport the specimen to the microbiology lab. If special bicarbonate containing tube or cup is not available, the lab must neutralise the stomach acid with bicarbonate within 1/2 hour.

Adapted from: Francis J. Curry National Tuberculosis Centre

10. Proposed OPD patient's record card

Proposed Adult OPD cards				
County: _____ _____	Facility: _____			
Date: _____	OPD No. _____			
Patient Name: _____	Age: _____	_____ (Yrs.)	Gender: M	
Phone Number: _____				F
Screening guide				
How long have you been coughing?	..... days	.....weeks	N/A	Any Yes: 1. Record in Presumptive TB Register 2. Order Sputum test (Xpert MBT/ RIF) 3. Fast track client
How long have you been experiencing this hotness of body?	..... days	.....weeks	N/A	
Do you sweat a lot at night?	YES		NO	
Has your recent weight reduction required adjustment of your belt or position of buttons on your trouser or skirt?	YES		NO	
At home or work place is anyone having persistent cough for weeks/ months or is on TB treatment?	Yes		No	
Chest pain.... Not associated with trauma	Yes		No	
Vital signs	Temp			
	Pulse rate			
	BP			
	R/R			

11. Proposed OPD patient's record card for children under 10 years

Proposed Child OPD card				
County: _____	Facility: _____			
Date: _____	OPD No. _____			
Patient Name: _____	Age: _____	____(Months)	Gender:	M
Guardian Name: _____				F
Guardian Phone Number: _____				
Screening guide				
How long has the child been coughing?	..... days	.....weeks	N/A	Any Yes: 1. Record in Presumptive TB Register 2. Order Sputum test (Xpert MBT/ RIF) 3. Fast track client to clinician
How long have you been experiencing this hotness of body?	..... days	.....weeks	N/A	
Has this child been sweating a lot at night?	YES		NO	
Does the child complain of unusual tiredness or have you observed reduced playfulness?	YES		NO	
Look at the child road to health card: Has the child failed to gain weight as expected or lost weight?	Yes		No	
At home or school is anyone having persistent cough for weeks/ months or is on TB treatment?	Yes		No	
Vital signs	Temp			
	Pulse rate			
	BP			
	R/R			

List of reference

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2. Implementing the end TB strategy: the essentials. ISBN 978 92 4 150993 0. (NLM classification: WF 200). © **World Health Organisation 2015**
3. The benefits to communities and individuals of screening for active tuberculosis disease: a systematic review: K. Kranzer,* H. Afnan-Holmes,* K. Tomlin,* J. E. Golub,† A. Shapiro,† A. Schaap,‡ E. L. Corbett,‡ K. Lönnroth,§ J. R. Glynn*: **INT J TUBERC LUNG DIS 17(4):432–446 ©**
4. www.who.int/tb/tbscreening

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