Program Quality and Efficiency(PQE) in Active Case Finding

Experience Sharing Report

2023

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Executive Summary

This PQE-ACF Experience sharing report provides a brief on the pilot activities towards integrating the utilization of quality improvement principles in enhancing TB case finding at the health facility. In 2017 Kenya adopted ACF as an initiative to intensify case finding following the prevalence survey finding showing that 40% of cases were missed, what begun has as a pilot project with 13 counties in 2017 has been scaled up to involve all the counties to date.

The lessons learnt and challenges experienced over the 2017/2018 implementation of the facility active case finding prompted the program to review its implementation approach to leverage on the opportunities realised and build efficiency in the ACF activities at the health facility. With this background, the program has piloted a Program Quality and Efficiency (PQE) for ACF project in 2021/2022 with 10 counties involving 250 select health facilities. PQE is the application of a set of interrelated quality improvement principles to generate and provide solutions while maximising the available resources within the health facilities. The selection of the counties factored in geographical & contextual variability as well as regional balance. They include Nairobi, Kisumu, Homa Bay, Isiolo, Kakamega, Meru, Mombasa, Nakuru, Kiambu and Turkana.

Facility based Quality Improvement Teams (QITs) were capacity built to implement TB-ACF through the quality improvement cycle. A team of quality improvement coaches at the national and county level provided the QITs with continuous mentorship through Technical Assistance (TA) missions conducted by the national PQE-ACF task force team and quarterly mentorship by the PQE coaches/mentors from the counties. Representatives from these implementing facilities were converged in March 2023 to enable the teams to share experiences, and;

- Appreciate improvement ideas from each county
- Package any new and working ideas for adoption and spread across the counties
- Provide basic guidance on spreading and sustaining improvement ideas
- Document PQE-ACF achievements with an aim of extending to other areas of care in the TB program

During the experience-sharing workshop, eight counties out of the 10 implementing PQE-ACF showcased their work. Presentations from Homa Bay, Isolo, Kakamega, Meru, Mombasa, Nakuru, Nairobi, and Turkana were further reviewed to assess the milestones in implementing TB quality improvement (QI) interventions. A total of 31 PQE presentations were done out of which 23 PQE projects got assessed. Eight projects were excluded from the analysis because they were merged into two large sets that could not stand alone. These are the highlights from the experience-sharing workshop;

1. On PQE-ACF projects progress, in general, of the PQE-ACF projects that were assessed, 66% are implementing some aspects of QI initiatives. Components of problem identification were being implemented in 73% of the facilities, root cause analysis in 68%, activity planning and implementation at 62%, and quality improvement project monitoring at 57% in the health facilities.

2. These are some of the key lessons / best practices learnt;

    i.   Engaging specialised clinicians in various departments especially the Paediatric unit with established clinic days helped in the booking of all eligible children for sample collection from the referral facilities at designated facilities.

    ii. Inclusion of ACF targets in healthcare workers' annual performance indicators was useful in ensuring consistent and quality implementation and monitoring of ACF.

    iii. Customization of OPD card to support documentation on clinical evaluation outcomes

3. Case finding results from the facilities implementing the ACF-PQE pilot showed varied ACF Cascade outcomes. Cumulatively in 2022, a quarter-by-quarter case finding comparison with 2021 showed preliminary results of a 16% improvement in the TB case finding median performance, more than double the 6.7% case finding observed nationally[3] . This presents an opportunity to improve the yield of ACF activities with the scale up of PQE to the remaining 37 counties.

In view of these findings, the PQE-ACF taskforce recommends that the program leverage on the gains made in building the capacity of the health workers to apply quality improvement principles in TB-ACF by instituting mechanisms to;

    i.   Strengthen continuous PQE mentorship through sensitizations, training, virtual review meetings, technical assistance, and on-job training at all levels to enhance understanding of quality improvement approaches and strengthened implementation of ACF.

    ii. Integrating PQE ACF teams into other existing quality improvement structures in the counties to mainstream case finding in routine facility activities.

    iii. Enable routine monitoring, reporting and tracking of the PQE initiatives against program indicators through a QI reporting dashboard for the TB program.

    iv. Enhance regular sharing of experiences and feedback through the various platforms.

Acronyms and Abbreviations

ACF – Active Case Finding

CCC – Comprehensive Care Centre

CHV – Community Health Volunteer

DNLTP – Division of National Lung and Tuberculosis Program

EMR – Electronic Medical Record

GF – Global Fund

HF - Health Facility

HIV – Human Immunodeficiency Virus

HCWs – Health Care Workers

NSP – National Strategic Plan

OJT – On Job Training

PDSA – Plan Do Study and Act

PQE - Program Quality and Efficiency

QI – Quality Improvement

QIP – Quality Improvement Project

QITs – Quality Improvement Teams

RCA – Root Cause Analysis

SDP – Service delivery point

SMART – Specific Measurable Achievable Relevant Time-bound

TA – Technical Assistance

TB – Tuberculosis

WITs – Work Improvement Teams

Introduction to ACF-PQE Pilot

01

1.1 Background

Active case finding (ACF) systematically identifies presumptive Tuberculosis (TB) cases from a predetermined target group/population. This is conducted through symptomatic screening, detailed history taking, physical examinations, and further laboratory and/or radiological investigations to diagnose TB. The TB National Strategic Plan (NSP) 2019 - 2023 envisions that patients presenting to any service delivery point (SDP) be actively screened for TB. The intervention seeks to strengthen provider-initiated approaches to diagnosis, focusing on presumptive TB patients interacting with the health system and not being diagnosed or notified.

Kenya adopted ACF as an initiative to intensify case finding following the prevalence survey finding showing that 40% of cases were missed. This started as a pilot project among 13 counties in 2017 and was scaled up to involve all the counties in 2018. There was a steady increase in cases from 2016 to 2018 (Figure 1).
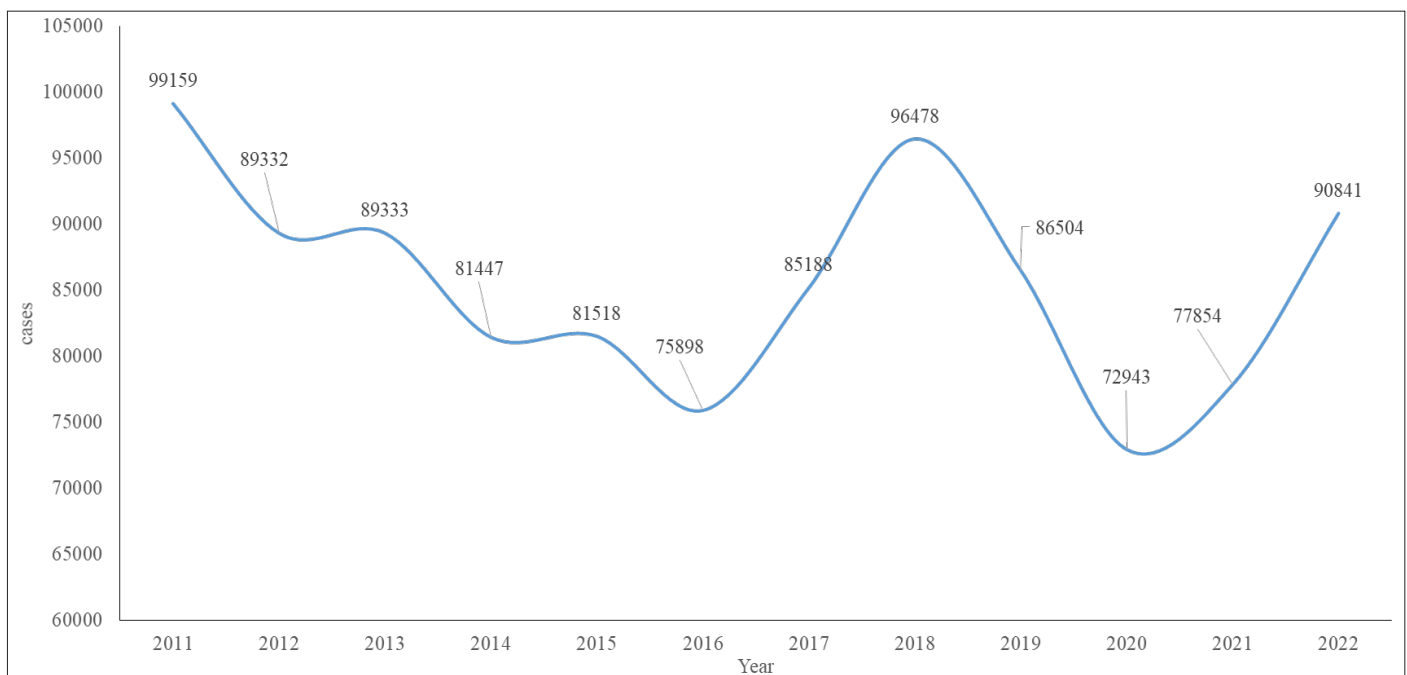
Figure 1: Case finding trends for drug-sensitive Tuberculosis in Kenya, 2011-2022

Though implemented with success in 2017/2018, challenges and lessons have been realized. The Global Fund (GF) conducted a mission to Kenya in 2019 to review the TB program implementation approach of the health facility ACF and discuss existing challenges and bottlenecks in implementation as well as opportunities to leverage. A key challenge among those identified by the GF mission was the inefficiencies in ACF activities. An actionable work plan

was developed to help improve the implementation of the health facility ACF in Kenya. The Ministry of Health then sent out a circular to the counties to revamp the ACF activities which resulted in the country gaining momentum in case finding in 1st quarter of 2020; however, this progress was curtailed by the unfavourable effects of the COVID-19 pandemic. (DNLTP 2021).

The End term report review of the National Strategic Plan (NSP) 2019 - 2023 observed that there is a general understanding of the process in the ACF cascade among Healthcare workers. However, the quality of screening in health facilities (HFs) remains suboptimal mainly due to over-reliance on community health volunteers (CHVs) in the implementation of symptomatic screening at outpatient departments (OPD), comprehensive care centres (CCC) and other service delivery point (SDP) in most health facilities.

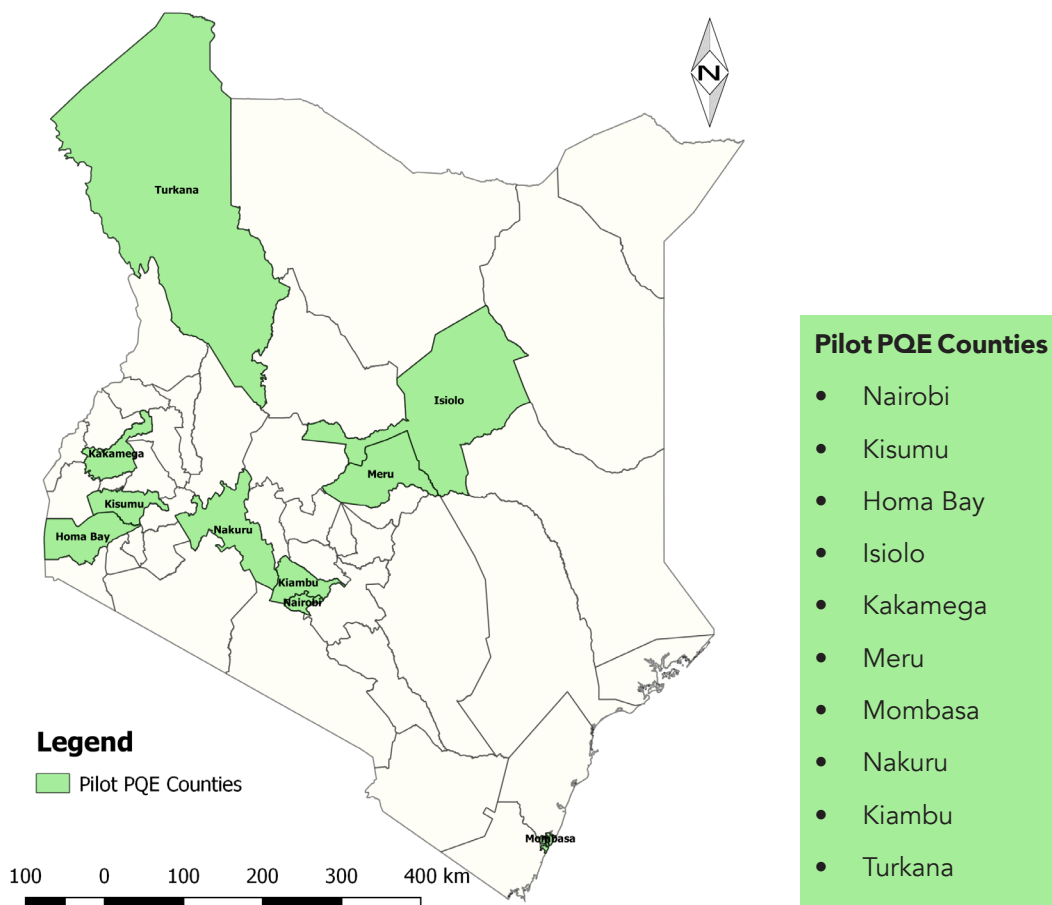## 1.2 Program Quality and Efficiency (PQE)

PQE is the application of a set of interrelated quality improvement principles, to generate and provide solutions while maximising the available resources within the health facilities. PQE for ACF in TB is an initiative aimed at improving case finding. The implementation of PQE-ACF entails the development of work improvement teams (WITs) and quality improvement teams (QITs). The teams are capacity built to implement the quality improvement cycle (from problem identification through the implementation of interventions) in the health facility.

In Kenya, PQE-ACF is being piloted in 10 counties involving 250 select health facilities. The selection of the 10 counties factored in geographical & contextual variability as well as regional balance. They include Nairobi, Kisumu, Homa Bay, Isiolo, Kakamega, Meru, Mombasa, Nakuru, Kiambu and Turkana.

Pilot PQE Counties
- Nairobi
- Kisumu
- Homa Bay
- Isiolo
- Kakamega
- Meru
- Mombasa
- Nakuru
- Kiambu
- Turkana

Legend

Pilot PQE Counties

100   0   100   200   300   400 km

A PQE implementation handbook was developed to guide the counties in the implementation process (TB PQE 2022). The participating health facilities enrolled in the PQE-ACF pilot were supported to establish TB-ACF WITs or integrated into existing QITs in the facility. The teams were provided with basic QI skills training and coaching, and paired with local QI mentors. The training was conducted and delivered through in-person physical training and webinar-based Zoom sessions covering the following areas;

i. Introduction to Kenya Quality Model for Health is the overarching framework for service delivery quality in the country.

ii. Introduction to PQE and key concepts of quality in healthcare.

iii. Problem Identification and Situation Analysis process in ACF-PQE; process maps and Pareto charts.

iv. Problem Root Cause Analysis Processes through Fishbone and Five Whys.

v. ACF-PQE Activity Planning and Implementation; Aim Statement, Driver Diagram, Prioritization Matrix, Model for Improvement.

vi. ACF-PQE Performance Measurement; Data Abstraction, Indicator Development, Run Chart.

Once the facility started the implementation of the PQE activities, they were expected to document the identified TB cases in TIBU and fill in the PQE-ACF reporting tools. Every month the facilities share the PQE reports with the national team for review and feedback. Continuous mentorship through Technical Assistance (TA) missions is conducted by the national team and quarterly mentorship by the PQE coaches/mentors from the counties.

Continuous quality improvement has been implemented and documented as a mainstay in improving key indicators/ outcomes in disease programs such as HIV/AIDS in Kenya[1],[2] but its implementation in the TB program has not been documented. To facilitate this, the 47 counties were brought together to share their ACF experiences and learn from the 10 counties that are implementing the PQE-ACF. The expected outcome of the experience sharing was to;

i. Appreciate improvement ideas from each county on ACF

ii. Package any new and working ideas for adoption and spread across the counties

iii. Provide basic guidance on spreading and sustaining improvement ideas

iv. Document PQE-ACF achievements with an aim of extending to other areas of care in TB program.

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1   Kenya Quality Model for Health. MoH

2   Kenya HIV Quality Improvement Framework. NASCOP

ACF-PQE Pilot Findings/Results

02

2.1 Background

In the last concluded PQE-ACF experience-sharing workshop, eight counties out of 10 that are implementing PQE showcased their work. Presentations from Homa Bay, Isolo, Kakamega, Meru, Mombasa, Nakuru, Nairobi, and Turkana were further reviewed to assess the milestones in implementing TB quality improvement (QI) interventions. A total of 31 PQE presentations were done out of which 23 PQE projects got assessed. Eight projects were excluded from the analysis because they were merged into two large sets that could not stand alone. The chapter, therefore, highlights the progress in PQE-ACF projects, presents selected QI projects in ACF, and a summary of the lessons and opportunities for improvement.

2.2 The Assessment of PQE Projects

An 11-item checklist was used to uniformly assess the PQE-ACF projects. Items in the checklist were organized into categories to reflect the four-step approach to quality improvement (QI) (Annex I).

1. Step one includes identifying a problem, forming a team and writing an aim statement.
2. Step two involves analysing and measuring the quality of care.
3. Step three entails developing and testing changes.
4. Step four focuses on sustaining improvements.

A 12th item that encompasses the dimension in step four was not administered considering that the majority of the projects were in the initial stages of their first PDSA cycle.

To assess the PQE projects for items in the first step, a list of the improvement team (Q/WIT) or a photo of the team was sought. Background of the facility and a highlight of TB or ACF services in the facility or department of interest relating to the problem of the Quality Improvement project (QIP) was scored as part of the situation analysis. A problem statement was considered comprehensive if it included a description of when (month(s) and year) it was identified as an issue, where (e.g., department, register etc) it occurred, who were involved, and what requirement (standard) was not being met. The availability of baseline data in a chart or table and when it was collected was compared to the stated gap. A SMART aim statement was that which addressed who was involved in the gap, what was to be improved, by how much and over what timeframe. The hallmark of the second step was the capacity of the team to conduct root cause analysis (RCA) through any RCA tool (e.g., Five why's, fishbone, etc), stating countermeasures (change ideas) of the root causes, and prioritizing the change ideas to implement through a Plan Do Study and Act (PDSA) cycle.

A well-done RCA directly addressed the gap (problem statement), demonstrated cause and effect (actual cause(s) of the gap), and revealed multiple causes using a systematic approach. Further, presenting a comprehensive list of change ideas matching all the root causes in a visual matrix`, and illustrating the ranks of priority suggest a good grasp of how the team was focusing on the vital aspects of their PDSA. In the third step, the priority change idea(s) are cast into a driver diagram to provide an in-depth view of how the team envisages the manner in which their interventions will lead to the improvement they want to achieve. Putting the action points into a work plan confirms that the team has planned to implement their change(s). To ascertain that the plan was indeed implemented, the presence of evidence of which (a) statement(s) of accomplishment or milestone chart was looked for. The availability of photos related to the implementation process is also highly encouraged. Data in the form of a run chart or table over time is essential for monitoring a QIP. Properly labelling the axes and/or data points as well as showing pre and intervention periods is critical. By providing brief explanations of key data points (increases/drops), and annotating, the story behind the monitoring chart can be used to decide whether the changes being implemented are really leading to the improvement the Q/WIT is seeking. A highlight of the scoring guide is provided in Annex II of this report.

2.3 The Status of PQE Projects

In general, of the PQE-ACF projects that were assessed, 66% are implementing some aspects of QI initiatives. Components of problem identification were being implemented in 73% of the facilities, root cause analysis in 68%, activity planning and implementation at 62%, and quality improvement project monitoring at 57% in the health facilities. The corresponding assessment scores in the four steps were 6.6/9.0 for step one, 6.8/10.0 for step two, 3.7/6.0 for step three, and 2.7/5.0 in the final step. The general findings were that the focal persons of the Q/WITs did well in using the workshop template for PQE facilities to present their work. All the facilities confirmed that the work was being done by an improvement team. However, there was a disconnection between problem statements, aim statements, the problem of focus in their root causes, change ideas, and work plans.

The situation analysis was established in 65% of the facilities, with only 11 (48%) of these facilities adequately presenting the details of their contexts and the problem of focus. Whereas 72% of work had a problem statement, again, only 11 facilities properly documented this. Work that had satisfactorily presented baseline data was 65% (15) out of the 83% that reported the item. Only 39% of the work had well-done aim statements. About three-quarters of the work demonstrated the use of RCA tools and listed corresponding change ideas for their root causes, but just about 50% of the work properly used these tools or prioritized their countermeasures. Whereas all the ACF/PQE templates had a driver diagram and work plan to complete, at least 20% of the work did not have these tools. At least 30% of the work failed to provide a highlight of their implementation and the majority, 65%, did not sufficiently demonstrate QIP monitoring over time.

Possibly, the Sub/County QI teams and coaches will do well in systematically supporting ACF/PQE teams. By closely following the coaching guides for teams, and emphasizing a focus on PDSA, it is possible to guide the maturity of Q/WITs. Particular attention to establishing QI charters and QIP monitoring, a culture for contextual learning aimed at increasing the implementation of data-informed strategies will be realized. Annex III details the findings of the assessment.

2.4 Findings from Selected PQE ACF Facilities

The report writing team reviewed all the presentations that were done by the facilities that have been trained on PQE. Out of the 23 presentations that were assessed, six presentations stood out in a way to demonstrate the QI steps, tools, techniques, and/or results. Simply, these facilities demonstrated some level of understanding of each step of the QI cycle. Presented as case studies, the format information extracted from their presentations was the background of the facility, problem statement, prioritisation matrix, aim statement, root cause analysis and results.

2.4.1. Mlaleo CDF Health Centre

Mlaleo is a level 3 facility along the old Malindi road in Mjambere ward, Nyali sub-county, Mombasa county. It has a catchment population of 30,000 with 10 community units and 97 community health volunteers. It has a total of 17 service delivery points. The facility had a target to diagnose 11 TB cases per month in 2022. TB screening has been happening at the facility though not optimised in all their 17 departments between January and June 2022. The facility workload for the half year was 27,424 with only 44% (12,180) of those visiting the facility being screened for TB. Based on the baseline data, the facility came up with a problem statement of "Low TB Screening in Mlaleo HC between January and June 2022 across all the departments"

Baseline data

Indicator	2022 Q1	2022 Q2	Total	%
Facility workload (MOH– 717)	12,969	14,455	27,424	
Number of patients screened for TB	4,543	7,637	12,180	44%

After reviewing their data, the facility came up with an aim Statement "To scale up TB screening in all departments by the end of December 2022 from 44 % to 80%."

A fishbone diagram was done to identify the root causes of low TB screening in the facility. Some of the root causes identified were:

- Facility realised that there were missing ACF Stamps due to poor planning
- There was poor /incomplete documentation of the ACF Tools
- There were no TB focal persons to oversee the ACF activities at the facility
- Patient ignorance about TB and stigma
- Lack of SOPs and IEC materials
- Unconducive working conditions
- Occasional stock outs of cartridges due to understocking, poor planning

People
- Ignorance of TB
- Knowledge gap
- Patient
- stigma
- Staff
- High workload

Procedures
- Inadequate documentation
- Lack of proper patient flow
- Wrong data
- Non documentation of some data tools
- Delayed patient turn around time
- Poor planning

- Congested less spacious room
- Lack of SOPs and IEC materials.
- occasional stock outs of gene expert cartridges
- lack of ACF stamp
- .unconducive working environment at the TB clinic
- Under reporting
- No TB focal person to fast track availability of the said tools
- Poor planning

LOW TB SCREENING

Policies

Place(Environment)

Provisions(Materials/equipment)

The team prioritised the solutions to the different root causes as per below table.

Root Causes	Countermeasures	I	II	III	IV	V	VI
Missing ACF stamp and stamp pad	Procure ACF stamps and stamp pads	3	3	2	3	3	14
No TB focal person	Identify a TB focal person to oversee the completeness of documentation of TB tools as well as timely fast-track investigation and linkage to care of all Tb presumptive cases.	3	3	3	3	3	15
**Poor linkage from the community to the facility of contacts to the BC confirmed TB clients	Community screening for TB through outreaches	3	3	3	3	2	14
Incomplete/poor documentation of TB tools	Ensuring timely and complete documentation of presumptive TB registers of screened patients.	3	3	3	3	3	15

Key:

I = Importance, II = Urgency, III = Difficulty, IV = Time Consumption, V = Resource Availability, VI = Feasibility Score

** Poor linkage of contacts from the community to the facility was brought into the prioritisation matrix but it was not included in the fishbone.

NB- Not all gaps identified in the root cause analysis were included in the matrix for prioritisation.

The team identified a TB focal person to track all ACF activities, procured ACF stamps and ensured complete documentation was done. They observed an increase in TB screening from 44% (12,180 were screened out of a facility workload of 27,428) from January- June 2022 at baseline to 99% (31,253 screened out of a facility workload of 31,598) from July -December 2022.

2.4.2 AIC Kijabe Medical Centre

AIC Kijabe is in Naivasha sub-county, Nakuru County. After undergoing the training, they realised that they were not screening all their clients for TB, instead, they were only screening patients presenting with obvious symptoms associated with TB and these are the ones who were further evaluated and most would be diagnosed with TB. In addition, the team realised that the HIV clinic was the only service delivery point that was doing TB screening for every client at every visit.

The team did their root cause analysis using the 5 whys method and the following were the questions they developed;

- Why was screening not done for every client?

- Why was screening not done in all SDPs?

- Why was it difficult to screen all clients?

- Why are screening tools not availed?

They came up with the following aim statement "To increase TB screening to every client at the facility from **28%** to **80%** by **31st December 2022** and this was to be achieved by involving all SDPs." This was to be achieved by doing the following;

- Sensitising all healthcare workers on ACF

- Providing ACF screening and reporting tools including the adoption of an ACF stamp

- Provision of mentorship and OJT on PQE-ACF

Consequently, the team prioritised these 2 changes ideas; formation of PQE committee which will be meeting monthly or earlier in case of any emergency and sensitising all doctors, clinician, nurses and all health workers in the facility.

Before the implementation of the change idea, the facility conducted TB screening for 2,961 patients out of a total workload of 10,472. This was a 28% coverage, but, after implementing the PQE project, the team screened 4,448 out of a workload of 7,008 patients which was a 63% achievement.

2.4.3 Asumbi Mission Hospital- Homabay County.

Asumbi is a level 4 mission hospital in Rangwe sub-county, Homabay County. After PQE-ACF training, a TB WIT was formed whose membership was drawn from different departments and cadres. The team was integrated into the already existing facility QI team. They carried out data synthesis for the period (July-Sept 2022) using reports from the different MOH reporting tools and they realised that the main gap was low TB screening of 22% (345/1752) at the outpatient

Using the fishbone model to conduct a root cause analysis on why the screening rate was very low at the OPD. The team highlighted a number of causes among them;

1. Knowledge gap on TB screening process

2. High staff turnover

3. Negative staff attitude on TB Screening

4. Poor documentation on TB screening

5. Poor patient flow

6. Suboptimal TB clinical evaluation
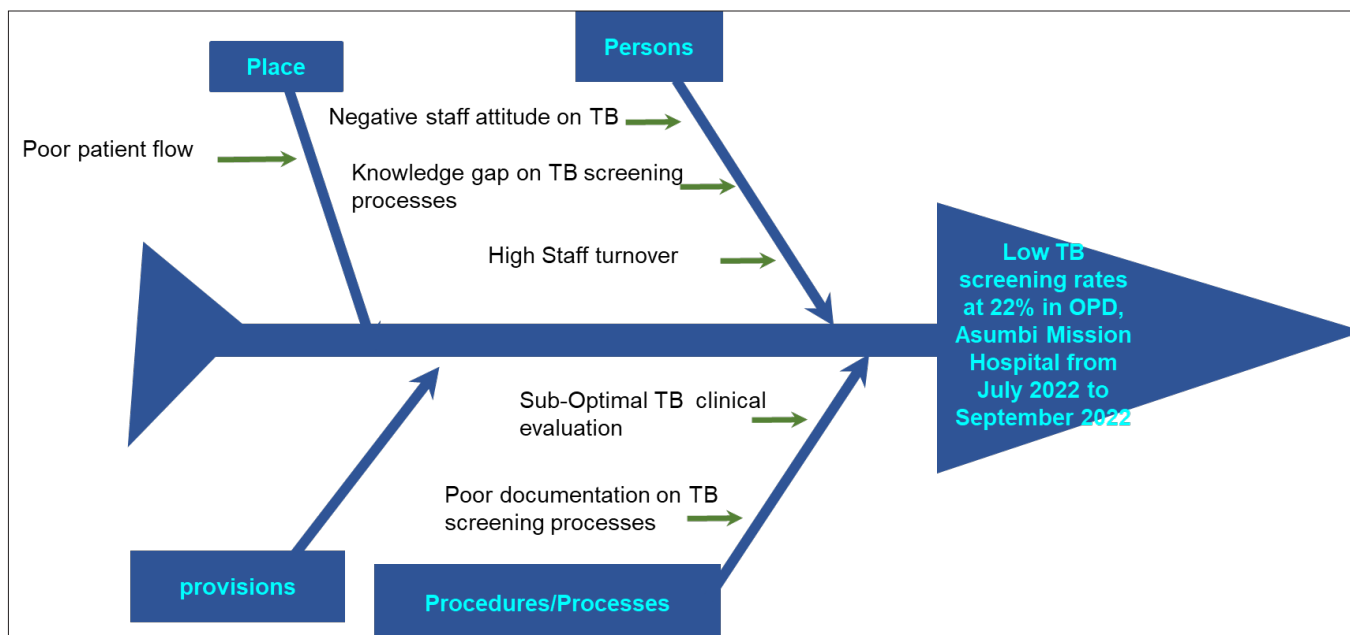
The implementation of PQE aimed to increase TB screening rate from 22% to 90% in the OPD from October to December 2022. To achieve this, a number of activities that aimed to address the root causes were identified, planned and implemented as highlighted in the prioritisation matrix below;

Prioritization matrix on the change ideas

Proposed change ideas for implementation consideration	Score the change ideas using the matrix below, highest ranked idea is prioritized for implementation on a scale of 1-3						
	T	R	I	U	D	Total	Ranking
1 Conduct Monthly CMEs on ACF	3	3	3	3	3	15	1
2 Redesign the OPD card to enable Clinicians to document the finding of the TB clinical evaluation outcome	3	2	3	3	3	14	2
3 Keep track of number of patients going though the TB screening	2	3	3	2	2	12	3
4 Weekly analysis of TB screening and TB clinical evaluation	2	2	3	2	2	11	4
5 Monthly TB screening and clinical evaluation feedback meetings with the relevant teams	2	2	2	2	2	10	5

Note
T – Time required to implement the change (Least time to implement the change idea ranks high)
R - Resources needed to implement the change (Less resources ranked high)
I - Importance of the change in improvement (More important ranked high)
U – Urgency to implement the change (very urgent gets a higher rank)
D - Difficult in implementing the change (Easy to implement ranks high while a change that is difficult to implement is ranked low)

Implementation of PQE started in October 2022 and from data a notable progressive improvement in TB screening rates was recorded up from 22% at baseline to 52% in week one of implementation and 89% in week eleven.

Proportion of pts with a documented TB Screen

	WEEK ONE	WEEK TWO	WEEK THREE	WEEK FOUR	WEEK FIVE	WEEK SIX	WEEK SEVEN	WEEK EIGHT	WEEK NINE	WEEK TEN	WEEK ELEVEN	WEEK TWELVE
Value	52	67	88	80	81	86	80	83	81	83	89	
Median	81	81	81	81	81	81	81	81	81	81	81	81
Target	90	90	90	90	90	90	90	90	90	90	90	90
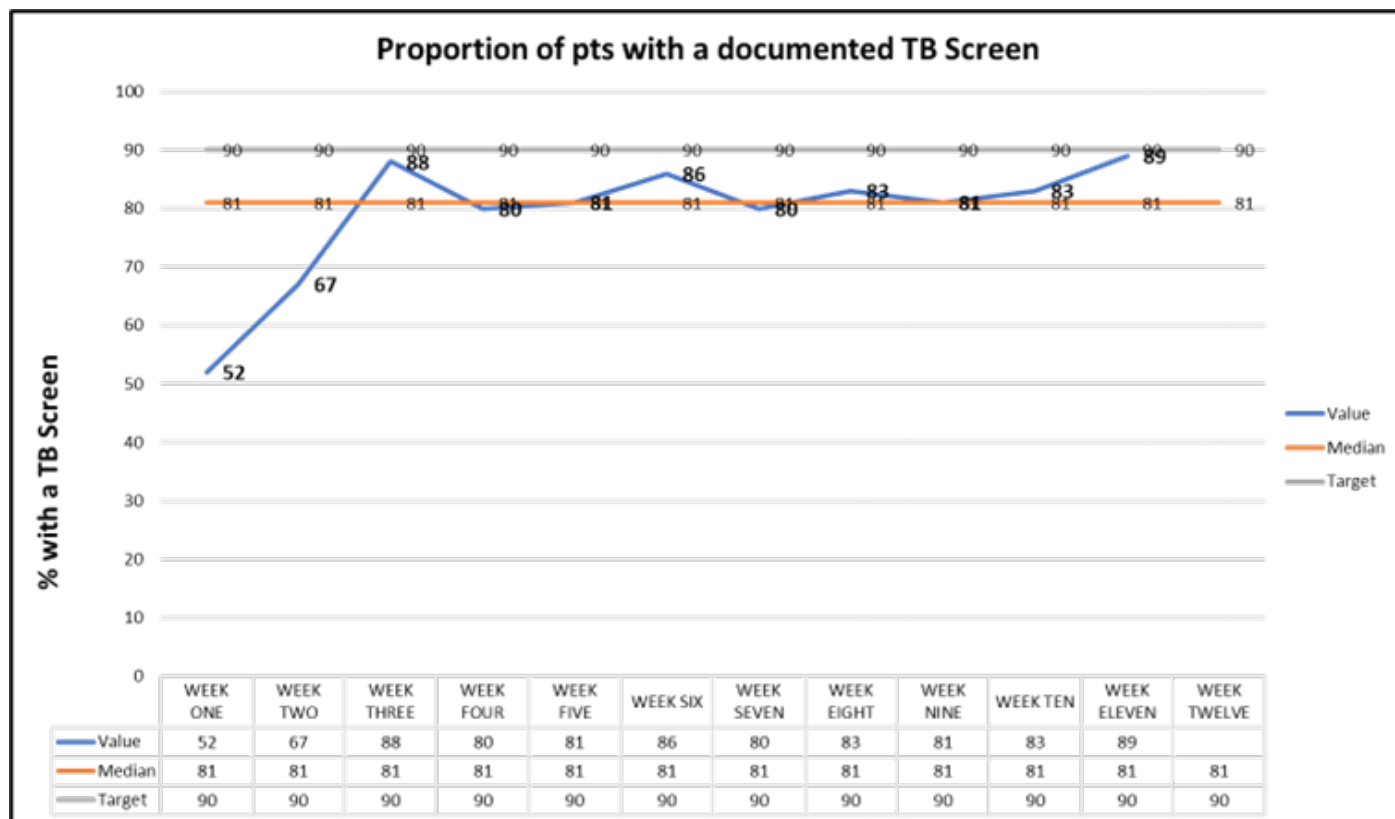
2.4.4 Kariobangi South Clinic

Kariobangi south clinic is a level 2 public facility in Embakasi West sub-county, Nairobi County with a catchment population of 35,363. The Work Improvement Team (WIT) reviewed the data for the last 6 months and noted that only 11% (1,253/10,970) of patients were screened for TB compared to the facility workload.

The aim statement was "to increase the proportion of patients screened for TB from 11% to 60% at Kariobangi South Clinic by March 2023"

Using both the Fishbone and 5 Whys root cause analysis tools, the Work Improvement team identified the following as the root causes for low TB screening in the facility;

- No waiting areas for Coughers.
- No TB laboratory in the facility
- TB clinic services offered once a week
- Lack of awareness on the importance of TB screening among the HCWs
- Knowledge Gap on TB screening-Lack of training, CMES
- Insufficient ACF tools
- Delay in sample transportation and processing

KARIOBANKI SOUTH CLINIC   FISHBONE DIAGRAM

People

-Lack of awareness on the importance of screening
-Few health talks on TB
-No scheduled health talks

-Inadequate personnel
-Knowledge gap
- No training
No scheduled CMEs

Provision

-Inadequate tools/supplies
-No lab on site

Inadequate supplies
Delay in sample processing

Place

-No waiting area for coughers
-Lack of definitive area for screening

No TB lab in the facility
- Inappropriate infrastructure

The low number of clients screened for TB

Clients get lost on the way as they take specimens

-Strict policies on specimen collection

Results not returned from the external laboratory
Long turn around time for the results

-Strict policies on specimen collection

Procedures

Policy

Kariobangi South Clinic Root course analysis – 5 years

DEFINE THE PROBLEM	Define problem here – why do we have clients/patients screened for TB?
WHY IS THIS A PROBLEM	**PRIME COURSE** Why is it happening?
	1. It is happening because – Knowledge gap on the importance of screening in all SDP
	Why is that?
	2. It is happening because – staff have not been sensitized on the importance
	Why is that?
	3. It is happening because – CME schedule not available
	Why is that?
	4. It is happening because – not being prepared
	Why is that? **Root course**
	NOTICE: If the final "Why" has no controllable solution, return to previous "Why" **5.** It is happening because – not seen as important
CORRECTIVE ACTION TAKE	Corrective action
	The facility will prepare a CME schedule covering different topics on TB and conduct TB screening in all service delivery points, as well as strengthen sample networking

Party responsible: Mary Njode

Date action to begin: July 2022

Date to complete: March 2023

The team formulated change ideas and subjected them to the prioritisation matrix as shown below;

#	Proposed change ideas for implementation consideration	Scoring of change ideas						
		T	R	I	U	D	TOTAL	Rank
1	Sensitization for team members through CME and Mentorship	4	4	5	5	3	21	1
2	Preparation of PQE meeting schedule	4	4	5	4	3	20	2
3	TB Screening in all service delivery points	4	3	5	4	3	19	3
4	Printing of PQE tools, purchase, of manila papers to monitor progress	4	3	4	4	3	18	4
5	Lobby for sample networking with other facilities	3	3	5	4	2	17	5
6	Engage rider for prompt sample transportation	3	3	4	4	2	16	6

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As shown in the table below, TB screening improved from 11% to 52% by December 2022. There was also a slight increment in TB presumptive cases from 1% to 2%, Investigation rates went up to 85% from 44% and the ultimate TB case finding increased 2 folds.

Indicator	Work load	Screening	Respiratory conditions	Presumptive	Investigated	Bact confirmed	Clinical dx	Linked to treatment
BASELINE PERIOD Jul –Dec 2021	10,970	1,253(11%)	6585	50(1%)	22(44%)	4	3	7
PQE – PROJECT July-Dec 2022	15,094	7,964(52%)	7,627(95%)	156(2%)	133(85%)	12	2	14

2.4.5 Vikwatani Outreach Centre

Vikwatani outreach centre started in 2019 as a satellite serving as a Level 3 Health facility. It is located in Kisauni Sub-county, Mombasa County, serving a catchment population of 30,000 persons. The facility has had three ACF sensitizations done to all six service delivery points. Two of them are actively doing ACF in the facility. This led to low TB case finding at the facility posing a high risk of TB transmission in both community and facility staff. The team reviewed facility data for April to September 2022. They found out that based on the facility workload, the case notification target was 11 cases per month but the facility identified 9 cases in the six months(April 4, May 1, June 0, July 0, August 0, and September 4). They came up with an aim statement **"To increase TB case finding from 14% to 38% by 31st March 2023"**

The team used a fishbone diagram to do their root cause analysis as shown below;

VIKWATANI OUTREACH CENTRE — FISHBONE DIAGRAM OF CAUSE AND EFFECTS

People
- Lack of ownership
- The attitude of patients on TB
- Stigma

Policies
- Lack of SOPs and guidelines on on screening clients

The attitude of staff toward TB
- Lack of knowledge – Not trained
- Fatigue of staff - High workload

- No TB lab in the facility
- Inappropriate infrastructure

Low TB case Finding

- Lack of biosafety hood in the lab
- Inadequate TB lab register and reagents
- Lack of quality sputum collection from the patients
- No airtime allowance

Poor documentation of presumptive register
- Lack of ownership
- Lack of knowledge
- Lack of OJT
- Competing tasks
- Shortage of staff

Inadequate TB screening
Stamps and presumptive register not utilized fully

-Lack of well-ventilated place to do TB screening

The room is too small to do sputum tests

Procedures/Provision

Place

Driver diagram – Vikwatani

To increase active TB case finding from 14% to 38%

- Staff sensitization of the importance of ownership of work
  - Availability of CMEs resources & schedules
    - Develop CMEs schedule and conduct CMEs once a month
  - Availability of TB focal persons
    - Appointment of TB focal person
- Daily health talk within the facility
  - Availability of staff to give health talk routinely
    - Develop a TB CME schedule
- Positive attitude by staff towards TB presumption
  - Sensitization of staff on TB
    - Regular sensitization meeting by fecal person
  - First priority given to patients with TB
    - Develop SOPs on TB priority identification
- Arrangement of duties by staff
  - Availability of staff
    - Development of duty Rota
- Use of TB screening stamp at the reception
  - To purchase and utilize TB screening stamp at CWC, ANC & FP clinics
    - Development of budget by management
- Training of staff on documentation in registers
  - Counter-check registers twice a month
    - Develop Checklist for every month
- Lab staff to educate patients on sputum production
  - Availability of IEC materials
    - Deliver health talk schedule
- Re-sensitize Clinicians on pediatric TB diagnosis
  - Avail TB diagnostic algorithms, with a focus on pediatrics
    - CME schedules / OJT
- Purchase of hood & reagents in Lab
  - Draw a budget
    - Install a biosafety hood in the Lab

The team formulated change ideas and subjected them to the prioritisation matrix as shown below;

S/NO	Root Cause	Proposed change ideas	Importance	Urgency	Difficulty	Time Consumption	Resources	Feasibility
1	Lack of ownership	Develop CMEs schedule and Conducting TB CMEs once in a month.	3	3	3	3	3	
		Appointment of in charge of TB issues.	3	3	3	2	1	
2	Attitude of patients/lack of awareness and sensitization.	Develop TB CMEs for daily talks by CHVs	3	3	2	1	1	10
3	Attitude of staffs towards TB	Regular sensitization meeting of staffs by the focal person towards TB.	3	2	2	2	2	
		Develop SOPs on TB priority identification	3	3	1	1	2	10
4	Staff burnout	Task sharing	3	3	1	1	1	9
5	Lack of TB screening stamp	Avail and utilize the TB screening stamp	3	1	2	2	3	
6	Poor documentation of presumptive register	Develop checklist for every month to counter-check registers	3	3	2	2	2	
7	Lack of quality sputum production by patients	Lab staffs to develop health talks schedule	3	3	2	1	1	10
8	Low Pediatric case finding.	Develop CME schedule	3	3	3	2	1	
9	Lack of Hood in the lab and TB reagents.	Install biosafety hood in the lab	3	1	2	2	2	10

Activity planning and implementation plan were formulated as shown below;

| COUNTERMEASURES	WHO	WHAT	WHERE	BY WHEN	WHY	HOW	MONITORING OF PROGRESS When and by who	
Development of CMEs schedule and Conducting TB CMEs once in a month.	TB Focal Person	Do CMEs for sensitization	MCH ward	10th every month	To increase knowledge on TB ACF	Conducting CMEs	15th every month	QI focal person
Appointment of TB focal Person	QIT members	To appoint TB focal person	Pediatric ward	18th ,Sep,2022	To coordinate all TB activities such as report writing and checking of presumptive registers	Ensuring timely report writing and filling registers.	30th every month	TB Focal Person
Avail TB screening stamp	management	To Purchase	Administration	10th Oct,2022	To increase TB ACF	By stamping the six Tb screening questions in the patient books.	15th ,Jan ,2023	Medical Superintendent
Develop and avail M&E checklist	QI focal person	To counter-check TB activities	TB Clinics and SDP	10th every month	To ensure proper and complete documentation	Checking through the registers	10th every month	HRIO I/C
Re-sensitize the clinicians on TB diagnosis alogarthm among peadiatric	TB focal person	To collect septum from children	Causality	Every time when client is available	To increase ACF in children	Collecting the septum for every child suspect	On going	TB Focal Person
Regular sensitization meeting of staff by the focal person towards TB.	TB focal person	To sensitize staffs on TB ACF	MCH	Every month	To increase staffs knowledge on handling TB patients	Continuous education	Every month	QI focal person

As shown in the table below screening for TB increased from 30% to 40%, and the proportion of the presumptive cases who were investigated also increased from 71% to 85%, however, the case finding dropped from 17 to 14 cases.

| Indicator	Seen	Screened	RTIs	Presumed	Tested	Bact TB	Clinical TB	Treated
Baseline period	14572	4412 (30%)	1511 (10%)	55 (4%)	39 (71%)	11 (28%)	6 (15%)	17 (100%)
PQE - Project	14194	5639 (40%)	740 (5%)	171 (23%)	145 (85%)	12 (8%)	2 (1%)	14 (100%)

2.4.6 Avi Matercare Hospital

Avi Matercare Hospital is a faith-based health facility in Isiolo County that was established in 2009 to offer only maternal and child health services. Before sensitization on PQE-ACF in June 2022, clients who required TB diagnostic and treatment services were referred to other facilities.

Following the sensitization, the facility resolved to establish a TB clinic. The team used the 5 Whys method to undertake a root cause analysis as outlined below:
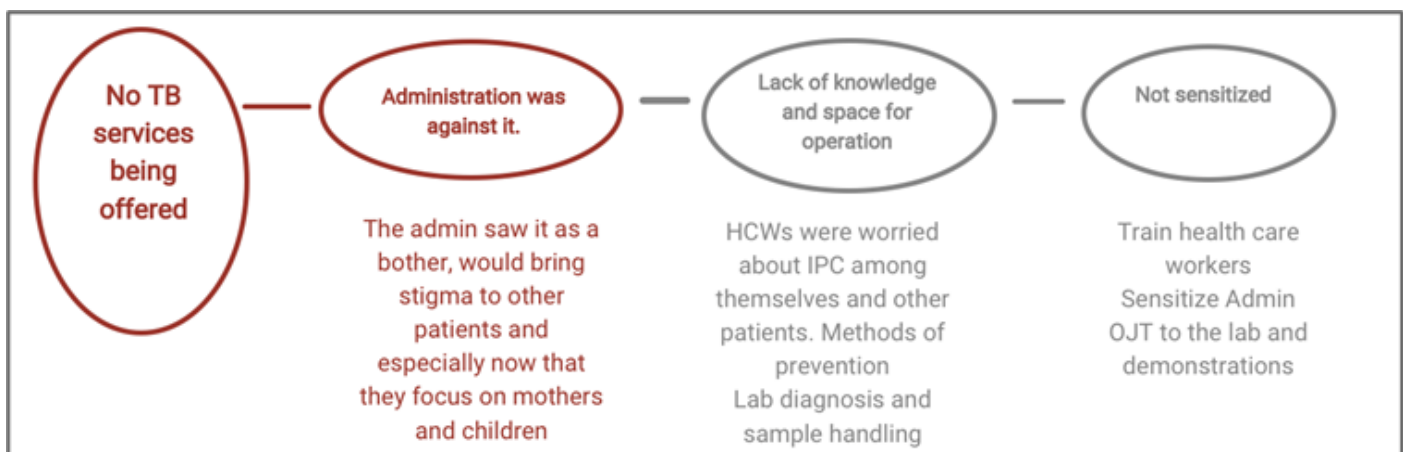

The facility came up with the driver diagram below:
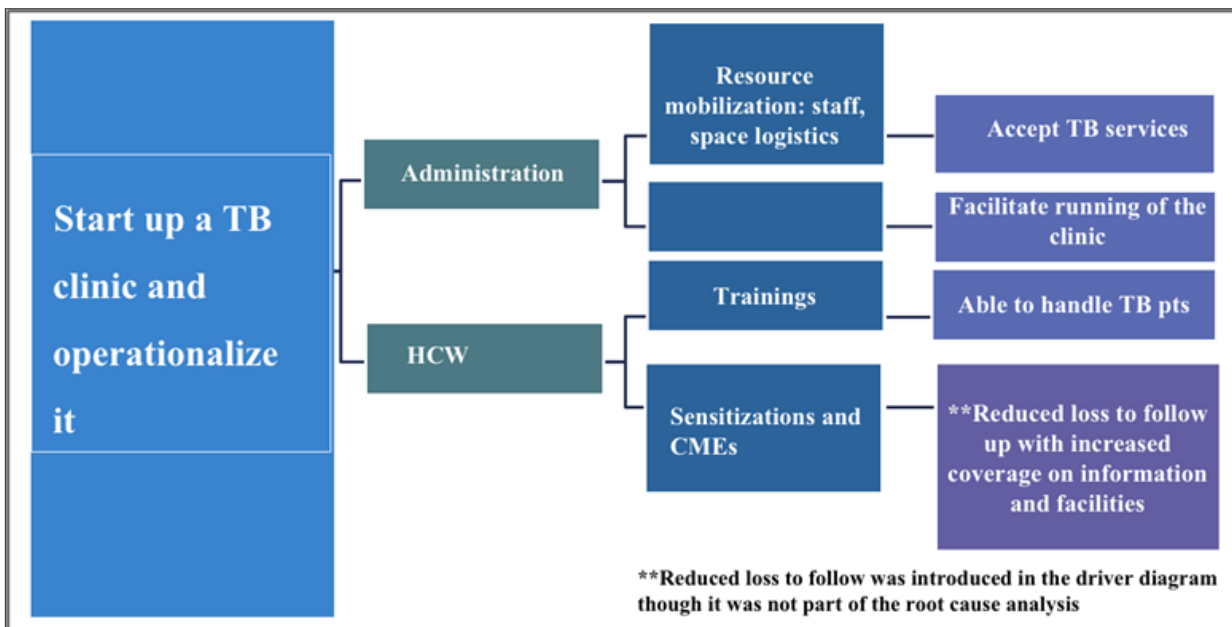
The facility identified the following three change ideas:

1. Set up a TB clinic
2. Capacity building of select healthcare workers on TB
3. Continuous sensitization of the rest of the health facility staffs

After the implementation of the change ideas, TB screening increased from 102 in Q1 to 624 in Q4. Further, the facility reported 15 TB cases between July and December 2023, from a baseline of zero, with 13% being paediatrics.
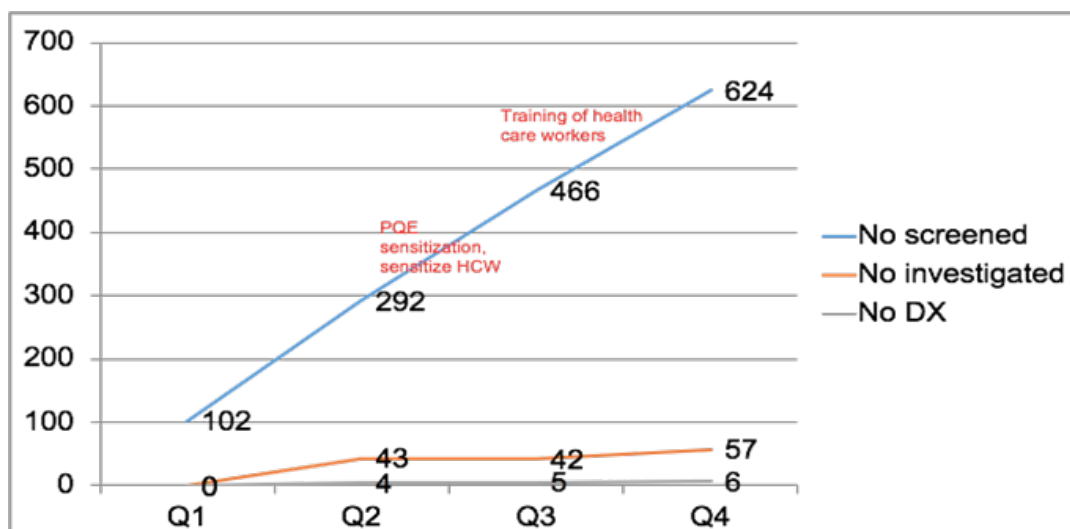
2.5 Preliminary ACF-PQE Case Finding Outcomes

With eight out of the 10 PQE pilot counties sharing their experiences, to asses' case finding outcomes in view of the national PQE pilot, the case finding report from the 250 health facilities was further reviewed. The 250 health facilities participating in the ACF-PQE collaborative registered varied ACF Cascade outcomes. Cumulatively in 2022, a quarter-by-quarter case finding comparison with 2021 showed preliminary results of a 16% improvement in the TB case finding median performance, more than double the 6.7% case finding observed nationally[3].
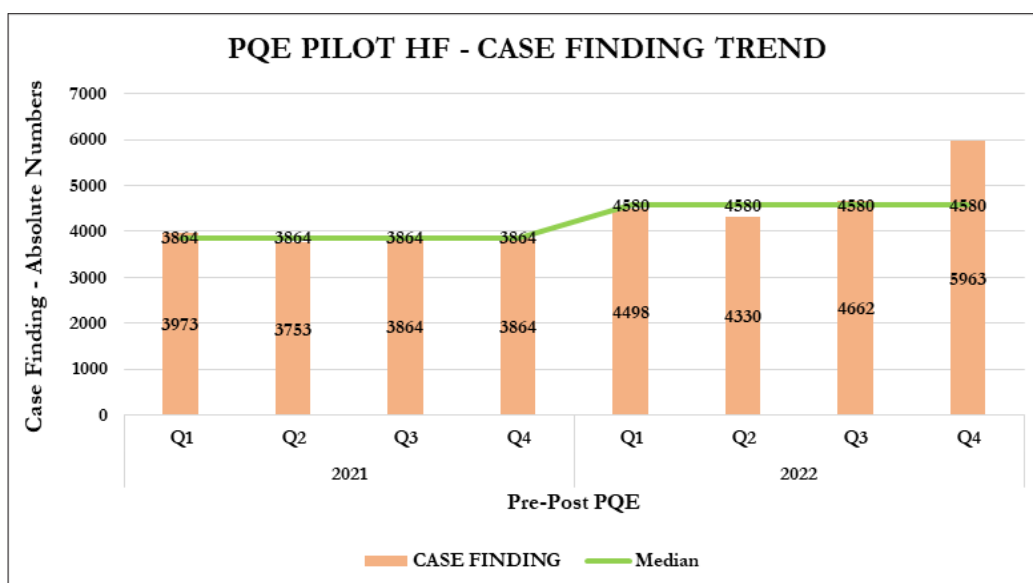

Figure 2: PQE Pilot Facilities' Case Finding Report, 2021-2022

2.6 Best Practices

The experience sharing week brought with it plenty of engaging ways that the health facilities have put in place to facilitate and enhance case finding activities, these are some of these initiatives that should be encouraged for adoption and adaptation across the TB treatment units;

i. Engaging specialised clinicians in various departments especially the Paediatric unit with established clinic days helped in the booking of all eligible children for sample collection from the referral facilities at designated facilities.

ii. Inclusion of ACF targets in healthcare workers' annual performance indicators was useful in ensuring consistent and quality implementation and monitoring of ACF.

iii. Customization of OPD card to support documentation on clinical evaluation outcomes

iv. Issuing appointment dates to patients on treatment for respiratory tract infections for further investigation after completion of treatment enabled identification of TB among patients who may otherwise have been missed to enable follow-up for screening.

v. Introducing sub-county WhatsApp groups where facility ACF data was shared weekly per department helped to track progress in the TB care cascade and ensured challenges were identified and addressed in time.

vi. Engaging linkage assistants to support clients in navigating various health facility departments while seeking TB services helped minimise leakages in the cascade.

vii. Incorporating ACF sensitization during staff orientation and induction was critical in the institutionalisation of ACF at health facilities ensuring all staff fostered interest and understood ACF.

2.7 Lessons learnt

PQE-ACF implementation being in its early phase with this pilot presented lessons that would a great resource to learn from on how to strengthen scale up to other counties. While not exhaustive, these are some of the lessons from the pilot worth building on;

i. Continuous support to WITs and QITS through PQE technical assistance, mentorships and coaching enhanced understanding of quality improvement approaches and strengthened implementation of ACF.

ii. Institutionalised school health education programs with clear linkages to health facilities for diagnosis and treatment yielded results.

iii. Flexibility in working with change ideas is necessary for target achievement.

iv. Incorporating PQE ACF teams into other existing QITs improves the understanding of the QI concept and enhances the uptake of the intervention.

v. TB data use can help health facilities better understand their implementation gaps.

vi. Proper documentation at health facilities was key for the availability of quality data for decision-making.

vii. PQE implementation in the facilities has helped staff to utilise data for decision making.

2.8 Challenges

Being an initiative that is meant to encourage teamwork and inclusivity in TB case finding at the facility, the national PQE-ACF taskforce, county PQE mentors and implementing teams at the facility shared various experiences that might have slowed the momentum in one way or the other. The PQE-ACF taskforce took note of some experiences that will need to be mainstreamed for better results;

i. Sub-optimal departmental screening: Assumption by HCWs that TB screening should be done at the chest clinic hence no screening is done during night shifts, CHV screening clients in the facilities and lack of well-structured screening tool in all service delivery points.

ii. Low index of suspicion and Sub-optimal TB clinical evaluation among Health Care workers.

iii. Incomplete/ suboptimal documentation and reporting of TB data.

iv. Inadequate supply of ACF Tools and some facilities using EMR systems lack TB screening modules.

v. Undefined patient pathway leading to Presumptive patients not reaching the Lab to give samples

vi. Limited knowledge on specimen collection in children Poor quality sputum samples from patients. Imaging cost and accessibility.

vii. Limited patient support e.g Transport, airtime etc.

viii. Inadequate leadership and management support Lack of triaging area

Conclusions, Recommendations and Program Implication

03

3.1 Conclusion

The PQE-ACF has built the capacity of the health workers on quality improvement. Through the PQE-ACF implementation, facilities have documented positive changes in various TB care cascade indicators. There are variations in the application of the QI processes across the different facilities despite undergoing the same training package. In the implementation process, there are gaps in linking the various steps of the QI process e.g. linking the root causes to the priority matrix and the countermeasures.

3.2 Recommendations

The PQE-ACF taskforce recommends that for the program to optimize the gains realized during the pilot phase, there is a need to:

i. Strengthen continuous mentorship through sensitizations, training, virtual review meetings, TAs, and OJTs at all levels

ii. Monitor implementation frequently

iii. Enhance regular sharing of experiences and feedback through the various platforms

3.3 Program implication

In view of TB disease burden that result from delay in diagnosis, the ACF-PQE pilot has demonstrated how the engagement of facility based HCWs in improving efficiencies in case finding processes can be harnessed. The PQE approach presents an opportunity for the TB program to address the quality of screening deficiency and there is need to plan for the roll out of the initiative to all the counties should be put in place, as the team-based approach of implementing PQE will require additional resources to;

i. Train healthcare workers and coaches

ii. Print QI tools such as the TB-QI Framework and the PQE Implementation handbook among others

iii. Provide ongoing technical assistance to facility based PQE teams

iv. Conduct quarterly facility mentorship by the coaches/mentors

v. Conduct facility monthly PQE review meetings

vi. Develop a QI reporting dashboard for the TB program to enable reporting and tracking of the PQE initiatives against program indicators

Annexes

Annex I: QI Assessment Checklist

Step	#	Requirement	Means of Verification	Score
1	1	Team Formation	List or Photos of Members/ Membership Numbers	1
	2	The team has described the situational analysis	Facility/departmental context	2
	3	The team has a well-defined problem statement	When, Where, Who What and should not include the How	2
	4	The team has a baseline data	(Run-chart or a table over a period of time)	2
2	5	The team has formulated a SMART Objective	A SMART objective	2
	6	The team has done a root-cause analysis	At least one RCA tool	5
	7	The team has formulated countermeasures/ change ideas	Countermeasures list	2
3	8	Prioritization of change Ideas	Prioritization matrix	3
	9	Planning	Workplan	1
			Drivers Diagram	1
	10	Description of the implementation process	Progress activities undertaken	2
			Pictorial evidence	2
4	11	QI project monitoring	Data on key measures indicators are collected on a table or a run chart	5
	12	QI data demonstrates the impact of countermeasure(s)	At performance not a random event (Shift, Trend, Astronomical performance, Run)	
Total score			**Maximum Score**	**30**

Annex II: Scoring Guide

RCA Tool Scoring Guide	Score		Baseline data Scoring Guide	Score
RCA tool addresses the gap identified	1		Baseline Data shown in a table or a chart/ Description	1
RCA demonstrates Cause effect	2		Data plotted/ shown over time	1
Reveals multiple causes using a system	2		**Maximum Score**	**2**
Maximum Score	**5**			
Project Monitoring (Charts)	**Score**		**Aim Statement**	**Score**
Measure of central tendency (Mean, Median)	1		Who – population/persons involved	0.5
Data plotted over time to show trends	1		What – The Process	0.5
Well labelled (Axis, Legends, Indicators, Data points)	1		How much-Amount of desired improvement	0.5
Compares pre and intervention period	1		By When-time over which improvement will occur	0.5
Annotations Present	1		**Maximum Score**	**2**
Maximum Score	**5**			
Prioritising Change Ideas	**Score**		**Scoring the Problem Statement**	**Score**
Presence of a visual Prioritization Matrix	2		When – period of occurrence	0.5
Does the Matrix reference to the Change ideas formulated	2		Where – place of occurrence	0.5
Comprehensive list of change ideas that matches the root causes	1		Who – population/persons involved	0.5
Maximum Score	**5**		What – the requirement that isn't met	0.5
			Maximum Score	**2**
Pictorial Evidence	Hit/Miss			
Team Formation	Hit/Miss			
Workplan	Hit/Miss			
Drivers Diagram	Hit/Miss			

Annex III: Assessment Results

Dimension & Item	Score	Weight	% Facilities	% Well done
Problem Identification				
Listed QI Members	1.0	1	100.0%	100.0%
Situation Analysis	1.3	2	65.2%	47.8%
Problem Statement	1.4	2	71.7%	47.8%
Baseline Data	1.7	2	82.6%	65.2%
SMART Objective	1.2	2	60.9%	39.1%
Root Cause Analysis				
Root Cause Analysis	3.6	5	71.3%	26.1%
Change Ideas	1.5	2	76.1%	65.2%
Prioritized Change Ideas	1.7	3	56.5%	43.5%
Planning and Implementing				
Workplan with Change Ideas	0.8	1	78.3%	78.3%
Drivers Diagram	0.9	1	87.0%	87.0%
Highlights on Project Implementation (PDSA)	1.4	2	69.6%	47.8%
Photos for the QI project/team	0.7	2	34.8%	34.8%
QI Project Monitoring				
Data on QI monitoring	2.7	5	53.0%	56.5%
Dimensions	**Score**	**Weight**	**% Score**	
Problem Identification	6.6	9.0	73.4%	
Root Cause Analysis	6.8	10.0	67.8%	
Planning and Implementing	3.7	6.0	62.3%	
QI Project Monitoring	2.7	5	53.0%	
Overall Score	*19.8*	*30.0*	*65.9%*	

Annex IV: County-Specific ACF-PQE Assessment Results

Assessment Criteria	Criteria Score	County A	County B		County C		County D					County E					County F		County G			County H		
	Health Facility	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20	F21	F22	F23
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	2	1	1	2	1	0	2	2	2	2	2	2	2	1	1	2	1	1	0	0	1	0	2	2
3	2	1	0	2	1	2	2	1	2	2	1	1	2	2	1	1	2	1	1	1	2	1	2	2
4	2	1	2	1	1	2	2	1	2	1	2	2	2	2	1	2	2	1	1	2	2	2	2	2
5	2	0	2	1	0	2	2	0	2	1	2	1	1	1	2	1	1	1	1	0	2	1	2	2
6	5	2	5	3	2	3	5	3	3	4	5	5	5	3	4	3	3	1	3	4	4	4	3	5
7	2	0	2	0	1	1	2	2	2	2	2	2	2	2	2	1	2	0	1	2	2	2	1	2
8	3	0	3	0	0	1	1	3	3	0	0	3	2	3	3	0	3	0	2	2	3	3	1	3
9a	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1
9b	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	1	1	1	1	1	1
10a	2	0	1	1	2	0	1	2	2	1	1	1	2	2	2	2	1	1	1	1	2	2	2	2
10b	2	0	0	0	0	0	0	2	2	2	2	0	0	0	0	0	2	0	0	0	2	0	2	2
11	5	2	3	2	1	2	2	2	3	3	3	4	4	3	3	3	4	1	3	2	2	2	3	4
Max. Score	**30**	**8**	**21**	**13**	**10**	**16**	**21**	**20**	**25**	**20**	**22**	**23**	**23**	**21**	**20**	**17**	**23**	**7**	**15**	**15**	**24**	**19**	**22**	**28**

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