NIGERIAQUAL TB CQI GUIDELINE

[Email address]

SECTION 1

INTRODUCTION

1.0 Background Information on NTBLCP

Tuberculosis, Leprosy and Buruli ulcer diseases constitute major public health problems in Nigeria. In addition, the social stigma associated with these diseases further compounds the problem. To combat these challenges, the NTBLCP has a working road map which is centred on demand creation, provision of access and ensuring social re-integration of those affected by these diseases into the community.

As part of its strategies, services are provided in a comprehensive manner which ensures that TB, Leprosy & Buruli ulcer services are integrated into the existing health system infrastructure and general health care services in all the 774 Local government Areas in Nigeria. These services are implemented in collaboration with the HIV/AIDS control programme at various levels of health care with the involvement of the public, private and the community health providers.

The program is scaling up the management of drug resistant TB activities nationwide as a mix model with both hospital and community-based care for the patients. Equally there are various capacities for diagnosis and treatment of multi drug resistance tuberculosis, with two national reference laboratories and 6 zonal reference laboratories.

VISION	Nigeria free of TB, expressed as “zero death, disease and suffering due to TB”
GOAL	End TB Epidemic in Nigeria

1.0.1 Global Epidemiology of TB

Tuberculosis (TB) has existed for millennia and remains a major global health problem. It causes ill-health in millions of people each year. TB was one of the top 10 causes of death worldwide in 2016 and the leading cause of death from a single infectious agent worldwide. There were an estimated 1.3 million TB deaths among HIV-negative people in 2016, and an additional 374,000 deaths resulting from TB disease among HIV-positive people. The End TB strategy aims to reduce TB deaths and incidence by 90% and 80% respectively by 2030.

In terms of cases, the best estimates for 2016 are that there were 10.4 million new TB cases of which 90% were adults and 65% were male. Despite the 2% fall in TB incidence globally, drug-resistant TB is a

continuing threat with 600,000 new cases reported with resistance to rifampicin. Early diagnosis and appropriate treatment are effective in averting deaths from TB (Global TB Report 2017).

1.0.2 National Epidemiology of TB

Nigeria, with an estimated population of 186 million[1] people (2016 estimate) is Africa's most populous country. The country has made considerable progress in its response to TB and HIV and in building resilient and sustainable systems for health (RSSH) in the last decade, including a reduction in HIV prevalence from 4.6 in 2008 to 3.0 in 2014. Nigeria presently has a global position of 4th and 8th largest burden of DSTB and DRTB respectively and is one of the 14 countries in the world that is categorised by the World Health Organization (WHO) as simultaneously having high burden of TB, multi-drug resistant TB (MDR-TB) and HIV-TB[2]. Nigeria has estimated TB Burden of 407,000 with 100,433 cases detected in 2016 and 63,000 of these cases reported to be HIV positive people. Estimated DRTB cases in 2016 was 5,200 of which 1,686 cases were diagnosed and 1,251 of these enrolled in treatment. The number of notified TB cases is higher among males compared to females, but the age distribution roughly follows the same pattern with progressive increase in cases from childhood till age group 25-34 years and then progressive decrease thereafter.

To build on her achievements and address the huge burden of TB and HIV needs, Nigeria has embraced ambitious global targets, including the goals of the End TB Strategy and the Global TB Plan, and the HIV 90-90-90 Fast-Track targets, and are reflected in her national disease response strategic documents (such as the National Strategic Plan for Tuberculosis -2015-2020 (Annex 1) and the National HIV and AIDS Strategic Framework – 2016)

The Federal Ministry of Health (FMoH) through National Tuberculosis, Buruli Ulcer and Leprosy Control Programme (NTBLCP) is responsible for the coordination of TB control interventions in Nigeria and has made great strides in addressing TB since it began implementing DOTS in 2004.

NTBLCP is structured along the three tiers of government i.e. Federal, State and Local Government. The Federal level is responsible for policy development, tertiary care, mobilization and development of human and material resources and provision of technical support to State programmes. The State TBL

[1] National population Commission (Nigeria). http://www.population.gov.ng/

[2]http://www.tbfacts.org/wp-content/uploads/2016/06/high_tb_burdencountrylists2016-2020-1.pdf Pg 19

3. Global Tuberculosis Report 2017. Available on: http://apps.who.int/iris/bitstream/10665/259366/1/9789241565516-eng.pdf?ua=1

programmes coordinate TB activities, provide secondary care and provide technical management to programme implementation at the Local government level. The LGA is the operational level (basic management unit) of the NTBLCP.

In 2016, a total of 6,579 health facilities provided treatment services for TB (DOTS Centres) and 2,193 health facilities were providing AFB sputum smear microscopy services. As at December 2017, the country has 27 treatment centres capable of treating DR-TB and new technologies are available to rapidly detect TB and TB-drug resistance. TB control interventions in the country are supported by the Global Fund to fight AIDS, TB and Malaria, and the United States Government.

There is growing trend of a relative low notification of smear-negative pulmonary TB suggesting under-diagnosis of clinical TB. This might be due to unawareness/skills among health care workers at out-patient-departments (OPDs), inadequate access to X-ray and poor supervisory capacity of the State and LGA program to recognize these problems and provide rectifying solutions.

1.1 Overview of the Nigeria Quality Management Programme (NigeriaQual)

Health care quality is defined as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge." [5] The WHO recommends that the health systems should seek to make improvements in the following six dimensions of quality: effectiveness, efficiency, accessibility, patient centeredness, equity and safety.

(A) Mission:

The FMoH is committed to promoting the delivery of health care services of acceptable quality across the Country. To uphold this commitment, the FMoH established the National Quality Management Programme (NigeriaQual). The overarching goal of the programme is to standardize the quality of services delivered in all disease programs across the Country. NigeriaQual will improve the quality of health care delivery services nationally by engaging Policy makers, Health service providers, State governments, Partners, NGOs and Communities.

NigeriaQual continues to emphasize the following components: development of standards used in clinical practice guidelines, performance measurement of clinical care, continuous quality improvement(CQI), capacity building for providers for quality improvement, quality improvement

coaching and consultation, and dynamic collaboration with clinical experts, stakeholders, Implementing Partners, ILEP and governments.

i. NigeriaQual HIV

Early attempts to implement quality improvement in the Nigerian health sector dates to 2008 when the FMoH in conjunction with Centre for Disease Prevention and Control (CDC) Nigeria and HEALTHQUAL piloted HIVQUAL-Nigeria and set the pace for thinking about quality in the context of HIV care and treatment. HEALTHQUAL was developed by the New York State AIDS Institute to drive the establishment of quality management (QM) programmes among federally funded grantees in the United States and beyond. However, the progress of HIVQUAL – Nigeria was punctuated by fragmented funding implementation, implementation disparities and other local contextual challenges.

The HIV Quality Improvement Programme (HIVQUAL-Nigeria) evolved in 2012 to National Quality Improvement Programme (NigeriaQual) through the support of PEPFAR and technical assistance from the University of Maryland – led Nigerian Alliance for Health Systems' Strengthening (NAHSS). The NigeriaQual HIV programme addresses quality of care in line with the 2014 consolidated national HIV/AIDS treatment guideline.

ii. NigeriaQual TB

NigeriaQual TB was proposed in the Global Fund Drug Resistant TB (GF DR TB) country grant as approved by the NTBLCP in 2015. The adoption of the NigeriaQual-TB programme by the NTBLCP will facilitate the routine collection of performance data and use these findings to improve quality of TB care and treatment services across the country. In addition, NigeriaQual TB will facilitate the development of local and regional quality improvement infrastructures, as well as create opportunities for providers to share best practices and successful improvement strategies.

(B) Vision:

The NigeriaQual programme aims to become a resource for anyone wishing to improve the outcomes of health services for patients and communities in Nigeria. The programme will be known for its expansive efforts, vitality, innovation, expertise, and support to improve care and quality of life for TB/HIV patients throughout Nigeria and hopes to facilitate improvements beyond TB/HIV services. It also has a vision of introducing the quality improvement strategies to other sectors in health and the non-health sectors.

1.2 Purpose of NigeriaQual TB

The overall goal of the NigeriaQual programme is to improve the standard of care and quality of health care service delivery across all disease programs using a tripod of quality improvement infrastructure, performance measurement and continuous quality improvement activities.

The specific goal of the NigeriaQual TB programme is to significantly reduce the burden, socio-economic impact and transmission of Tuberculosis, Leprosy and Buruli Ulcer in Nigeria.

Specific objectives are to:

- Establish a national quality management infrastructure to plan, implement and sustain QI efforts beyond funding provided by different development partners
- Promote, support and institutionalize quality improvement processes and activities at the facility, LGA, state and national levels beyond partner funding
- Regularly monitor specific quality of care indicators in all health programs services delivery points for improvements
- Institute and track quality improvement projects in facilities, service delivery points, LGAs and States
- Identify facility level characteristics and models of care that impact/ improve quality of care and treatment outcomes
- Promote and facilitate sharing and adoption of “best practices” and “models of care” to achieve the highest possible quality of care at all facilities in Nigeria
- Promote and encourage compliance on the use of various National guidelines and SOPs by service providers
- Extend the principles of CQI to other aspects of the health sector and non-health sector in Nigeria beyond the times when donor funds are available
- To reduce the prevalence of HIV/AIDs, Tuberculosis, Malaria and other diseases of public health importance to the level where they no longer constitute public health problems in the country

Expected outcomes

- Improved quality of care and clinical outcomes of patients at health facilities

- Improved access and availability of quality services to all consumers of health services
- Improved organizational effectiveness and efficiency with appropriate use of services and resources
- Improved client and staff satisfaction
- Strengthened care delivery systems in compliance with national guidelines
- Standardized methods of practice with minimal variation in clinical services
- Providers equipped with sustainable skills to monitor quality of service

Strategies for achieving NigeriaQual TB

- Early case finding
- Proper case management
- Integration of services into general health services
- Promoting Public-Private partnerships
- Behavioural change communication
- Collaborations (bilateral and multilateral partners)
- Functional commodities management system
- Human resource development

Section 2

QUALITY IMPROVEMENT CONCEPTS

2.0 Introduction

This section provides a brief on general QI concepts, principles and processes and borrows greatly from the publication by the National Quality Centre (NQC) [6]. The NQC facility www.nationalqualitycentre.org provides more materials to guide persons new to quality improvement.

2.1 Quality Improvement

2.1.0 Quality Improvement background

Improving the quality of care which will invariably improve the health outcome of clients is the overall aim of the health system. Quality of care refers to a process which adopts strategic choices in health systems. Put simply, it is the best health care given to a sick person. Quality health care usually enhances the satisfaction of a client and it also means doing the right thing at the right time in the right way for the right person and having the best possible result. Quality improvement (QI) seeks to continuously improve processes and health outcomes by focusing on system issues and engaging all those involved in processes to improve the underlying system of care.

2.1.1 Quality Improvement Principles

These are some key general principles that can help guide the quality improvement process:

Principle 1: “success is achieved through meeting the needs of those we serve”

Principle 2: “most problems are found in processes and systems, not in people”

Principle 3: “actions are based upon accurate and measured data”

Principle 4: “achieve continual improvement through small, incremental changes”

Principle 5: “infrastructure enhances systematic implementation of improvement activities”

Principle 6: “do not reinvent the wheel - steal shamelessly, share senselessly”

Principle 7: “Set priorities and communicate clearly”

2.2 Plan Do Study Act (PDSA) Cycles

The approach chosen for the NigeriaQual is the Model for Improvement (MFI) (see figure 2.1) which consists of three fundamental questions plus a Plan – Study – Do – Act (PDSA) Cycle to test and implement changes in real settings. These three fundamental questions are:

- What are we trying to improve?
- How can we know that a change is an improvement?
- What changes can we make that will result in improvement?

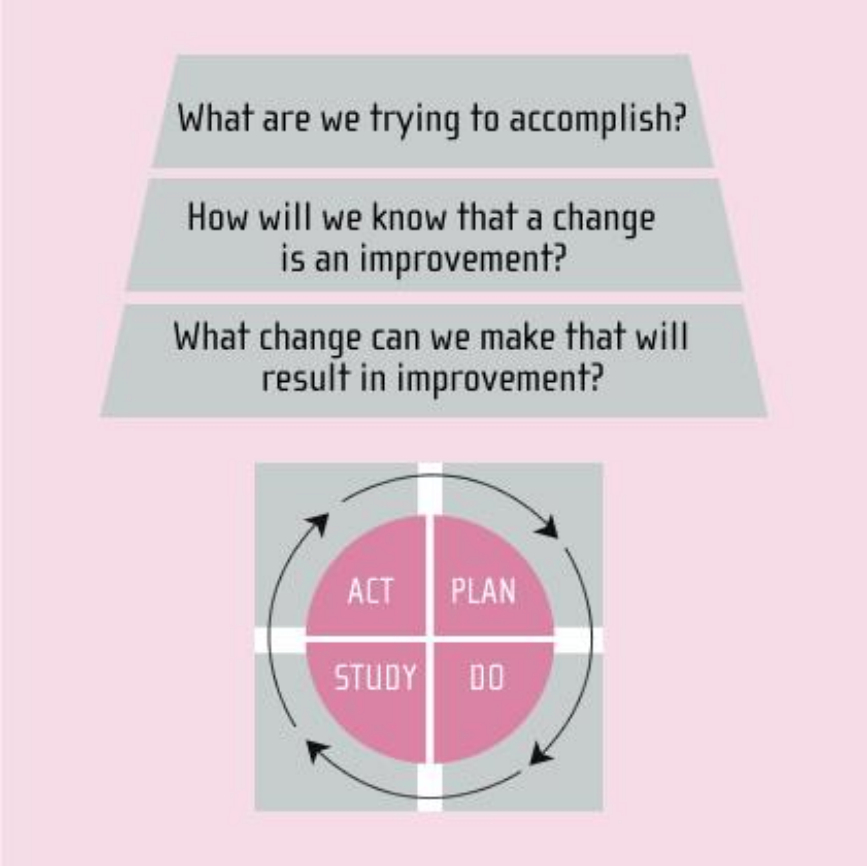

Figure 2.1: The PDSA Cycle - Model for Improvement

The PDSA cycle is a scientific approach used for action-oriented learning. It involves sequential tests each building on prior iterations, once one cycle of testing and learning is completed the next one begins. This

process allows health care providers to understand which changes worked and which changes need to be adapted or discarded. The knowledge gained in the first cycle is used to plan the next test.

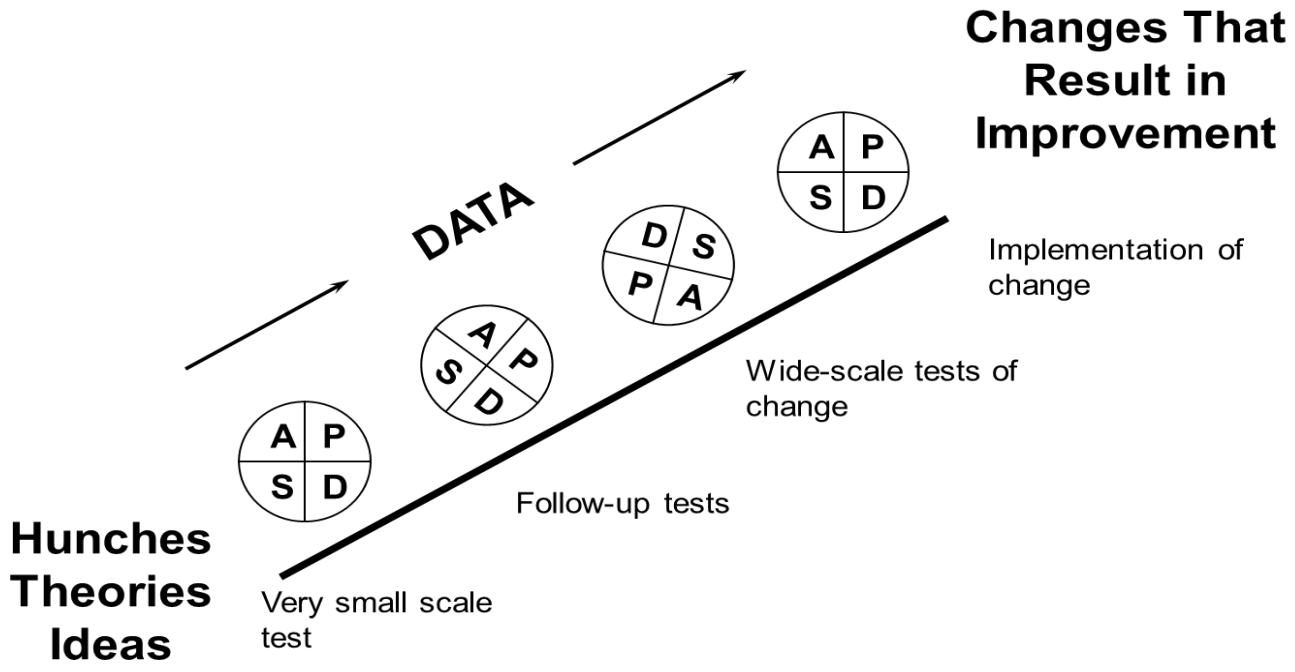

Figure 2.2: The PDSA Cycle Example

This process (Figure 2.2) is continued and used to refine a specific change until it is ready for broader implementation, whereby it effectively becomes a standard procedure formalized within the health system.

2.3 Quality Improvement Infrastructure

a. Develop and Plan a Quality Improvement Programme

There are four basic steps in developing and planning a quality improvement programme. Quality Improvement programme are most successful when led and supported by the leadership of the healthcare organization at the facility, state or national level. This leadership provides an environment conducive to establishing changes at the respective levels. The four basic steps include:

- Identify Leaders and Key Stakeholders
- Form a Quality Improvement Committee

- Develop a Quality Management Plan
- Strategize Implementation of the Quality Improvement Plan

1. **Identify Leaders and Key stakeholders**

Leadership is an essential component of a quality programme. Leaders are those individuals who can formally and informally influence and inspire others providing a vision and direction for the quality programme. Leaders create the culture in which quality is both prized and promoted.

2. **Form a Quality Improvement Committee**

To build momentum for quality improvement activities, a group of individuals can be brought together –a multidisciplinary Quality Improvement Committee. These individuals build the capacity for quality improvement within the relevant institutions and should have specific roles and responsibilities. Some of the same people identified as leaders or key stakeholders may also serve on the quality committee. The composition of the committee can vary for different institutions based on existing structures. The major task of a Quality Improvement Committee is to help ensure everything is in place at the institution for the improvement efforts to succeed and be sustained over time. The Quality Improvement Committee plans and oversees all quality programme activities at the institution, particularly the quality improvement projects completed by individual project teams. Members of the Quality Improvement Committee have five main areas of responsibility:

- Strategic planning
- Facilitating innovation and change
- Providing guidance and reassurance
- Establishing a common culture that enhances quality care
- Allocating resources effectively and efficiently

3. **Develop a Quality Management Plan**

A quality Management plan serves as the blueprint for quality initiatives. It describes the overriding purpose of a health system's quality programme, the infrastructure that supports quality activities and its goals for the upcoming year. A quality management plan should be developed at the facility, state

and national levels and it serves as a reference tool for both current and future staff. Its components include:

- **Quality statement:** Describes the purpose of the health system's quality programme. It is the end to which all other programme activities are directed.
- **Quality Management infrastructure:** Describes how the programme is structured and staffed to get work done. This usually comprises of:

i. Leadership
ii. Quality committee structure
iii. Quality committee meeting frequency
iv. Quality committee reporting

- **Performance measurement:**

It is a method for identifying and quantifying the critical aspects of care within the health system against set criteria. In identifying aspects of care for performance measurement, keep in mind these four main criteria: Relevance (Impact on clients), Measurable (Considering health system resources), Accuracy (Should be based on accepted guidelines) and improvability. Sections 2.4 and 4 provide more details on the NigeriaQual performance measurement.

- **Annual quality goals:**

Quality goals are endpoints or conditions toward which the health system will direct its efforts and resources during project work. It will help programmes focus on improving aspects of care. States and facilities should have QI goals which may differ by level of organization depending on performance data, but all the goals should aim at overall quality. States, IPs and facilities should all work together to align their quality goals. The following three criteria can be helpful to a quality committee in prioritizing annual programme specific improvement goals:

i. Frequency: How many clients received and how many did not receive the standard of care?
ii. Impact: What will be the effect on client's health if they do not receive this care?
iii. Feasibility: Can something be done about this problem with the resources available?

- **Participation of stakeholders:**

For quality improvement activities to become a reality at any level of the health system, provisions need to be outlined in the quality improvement plan for:

1. Active engagement of staff and clients: Gaining staff and clients' support for quality improvements requires capturing and integrating their voices. Their needs and expectations should be understood, and their feedback reflected in the quality improvement management plan
2. Communicating information about quality improvement activities: A quality improvement plan should document how the health system will share information about its quality activities and project results.
3. Providing opportunities for learning about quality improvement: The quality improvement plan should describe how the health system intends to provide staff training and learning opportunities. As appropriate, these learning interventions could be shared with clients

- **Evaluation**

It is important to assess how efficiently the programme operates. There are two areas to consider in evaluation:

1. Quality improvement projects conducted during the year should be evaluated for relevance, cost and effect on the health systems quality of care. This should lead to improvement that are sustainable over time
2. Quality management plan should be evaluated for accessibility and effectiveness of the plan in providing the vision and organization required for the entire quality programme

4. Strategize Implementation of the Quality Plan

An annual work plan answers the questions of what, when, where and how a quality improvement plan is implemented. Figure 2.3 provides a sample work plan. It benefits the quality implementation efforts by:

1. Clearly documenting the necessary steps to implement the quality improvement plan

2. Assisting the quality improvement committee to allocate the appropriate resources essential for quality improvement activities, including project teams, staff training, data collection, and evaluation efforts
3. Effectively communicating quality improvement activities to staff and stakeholders
4. Creating a template to monitor the implementation process of the quality improvement plan

SAMPLE QUALITY IMPROVEMENT WORKPLAN																					
Goal 1: Improving patient retention in care																					
			Month 1					Month 2				Month 3					Month 4				
S/No	**Activity**	**Responsible**	**Wk 1**	**Wk 2**	**Wk 3**	**Wk 4**	**Wk 5**	**Wk 6**	**Wk 7**	**Wk 8**	**Wk 9**	**Wk 10**	**Wk 11**	**Wk 12**	**Wk 13**	**Wk 14**	**Wk 15**	**Wk 16**	**Wk 17**	**Wk 18**
1	Revise facility quality management plan	QI Committee																		
2	Develop annual quality workplan	QI Committee																		
3	Gather routine patient data, sample and use information to assess performance in service delivery	Records and M&E unit																		
4	Review results of assessment and identify areas (indicators) where	QI Committee																		
5	Review facility quality management plan. Make changes if needed	QI Committee																		
6	Develop and implement quality improvement (QI) plan to address poor performing indicators	QI Committee																		
7	Monitor implememtation of plan. Revise if needed	QI Committee																		
8	programme at Bimonthly meetings	QI Committee																		
9	Programme goals: Quarterly organisational assessment	QI Committee																		

Figure 2.3: Sample Quality Improvement Work plan

2.4 Performance Measurement (PM):

- Routine performance measurement separates what you think is happening from what is really happening and establishes a baseline, standardizes measures which allow for comparing performance across the health care sector; monitors improvement and prevents slippage and helps to compare performance against both internal and external standards.
- Balancing performance measurement with quality improvement activities: Measuring important aspects of care creates a valuable source of data regarding the health system's greatest areas of competence. It identifies those areas that require improvement and will produce the greatest benefit for clients and staff when adequately addressed. Performance measurement is intended

not only to evaluate the performance of a programme but also to stimulate or facilitate quality improvement effort. The goal is to use performance data results to improve health care system, balancing performance measurement and quality improvement. Measuring the quality of care alone is not quality improvement. Performance measurement does not conclude with a single measurement. It includes an evaluation of your process to determine whether it has worked and what improvements should be made the next time

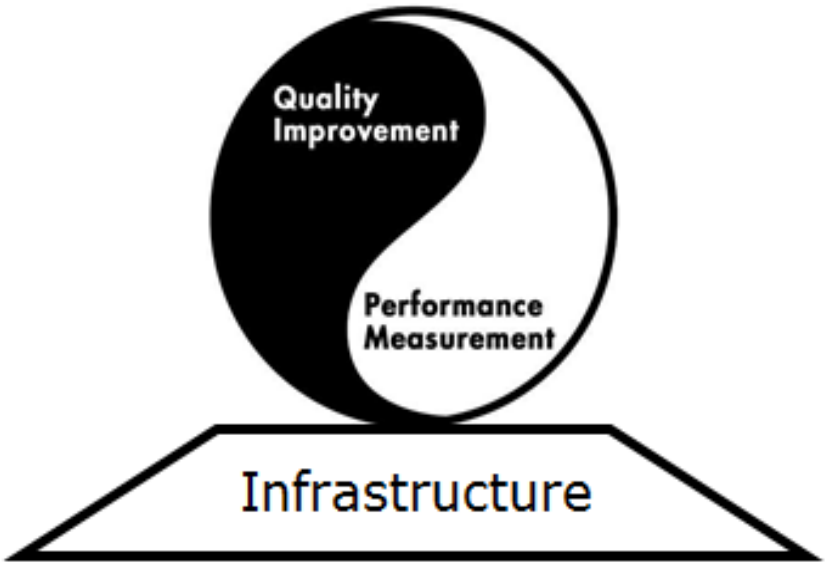

Figure 2.4: HealthQual Model for Quality Management

2.5 Definition of a sound Performance indicator

An indicator measures the value of change in meaningful units that can be compared to past and future units. A quality indicator is a tool to measure specific aspects of care and services that are optimally linked to better health outcomes while being consistent with current professional knowledge and meeting clients' needs. There are four main criteria to use in selecting a sound indicator:

- Relevance: The indicator should relate to a condition that occurs frequently or has a great impact on clients in the health system
- Measurability: The indicator should realistically and efficiently measure the health system's given resources

- Improvability: The performance rate associated with the indicator should realistically improve given the limitations of the health system
- Accuracy: The indicator should be based on accepted guidelines or developed through formal group-decision making methods

NigeriaQual routinely measures performance of health care services based on standardized indicators. This is to assess the quality of the health care system and effectively link performance data to accelerated improvements in health care. A 6-month reporting frequency of core national indicators is required. The methodology of the PM and relevant indicators are presented in section four of this guideline and the tools for data abstraction are provided in the appendix. Indicator selection was guided by relevant service delivery guidelines and would be reviewed periodically based on need.

2.6 Quality Improvement Activities

Quality improvement activities require people who have the relevant skills, knowledge, experience and perspective to solve multifaceted problems, make good decisions and deliver effective solutions. Steps in carrying out quality improvement activities include:

1. Setting up the quality Improvement committee;
2. Investigating the process;
3. Writing the Improvement Project Memo;
4. Conduct Plan-Do-Study-Act (PDSA) Cycles.

1. Setting up the Quality Improvement Committee

Quality improvement activities are termed projects and are carried out by Project Teams. Members of a project team can be drawn from the QI Committee or any other member not part of the CQI committee who can drive the project. These project teams are formed on a temporary basis to carry out focused interventions. The project team identifies the problems in the processes and proffer solutions that will bring about improvement; this is a continuous process towards quality improvement.

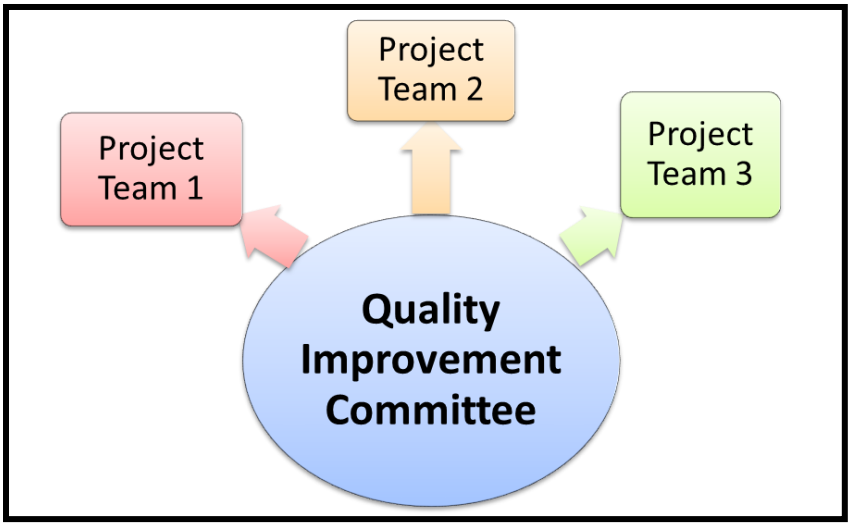

Figure 2.5: QI Team Chart

2. Investigate the Process

This involves evaluating existing processes in the health system, to diagnose potential quality problems and or opportunities for improvement. It also involves determining potential interventions for the processes that require improvement and defining performance measures.

3. Writing a Quality Improvement Memo

Quality improvement project memo is a blueprint which describes the "who, what, why, and how" of a quality improvement project written by the project team. It is written after carrying out the investigation. The elements of a project memo include:

a. Problem statement - the problem to be addressed
b. Improvement goal – end or condition towards which members direct their attention
c. Intervention – agreed upon strategies with which project team achieves their improvement goals
d. Project team - Department or functions involved in the process
e. Team leader – directs team activities towards set goals
f. Team members – actively participate and offer perspectives and ideas
g. Others (resources, authority, frequency of reporting).

4. Conduct Plan-Do-Study-Act (PDSA) Cycles

After writing a Quality Improvement Memo, the Quality Improvement Committee should carry out the agreed upon interventions using the PDSA Cycle, implement positive changes throughout the health system and sustain improvements thereby making quality improvement a culture in the health system.

Section 3

Nigeria's Quality Improvement Framework

3.0 Overview of Quality Improvement framework

A framework is a structure on which any programme design and implementation are built. The Quality improvement framework is the pillar on which NigeriaQual programme is being developed.

The goal of the NigeriaQual TB framework is to promote the delivery of TB services of acceptable quality across different control programmes (TB, HIV, Occupational Health, Infection Control etc.) in line with the standards set in National and International guidelines.

Strategic Objectives of the Framework

- To promote awareness of the importance of the delivery of high quality TB care and treatment services
- To provide guidance on the development and implementation of a TB Quality Management plan at national and sub-national levels.

Expected Results

- Increased awareness of the quality of TB service delivery expected at national, regional and international levels
- Increased awareness of National stakeholders on the steps required to carry out the TB Quality Management system
- FMoH with all relevant stakeholders undertakes steps to develop and implement a TB Quality plan with local and international support

3.1 Guiding Principles

The NigeriaQual framework is developed with the following guiding principles:

- Performance measurement lays the foundation for quality improvement
- Sound quality improvement infrastructure supports systematic implementation of quality improvement activities
- Indicators to measure performance are based on National Tuberculosis Leprosy and Buruli Ulcer Management and Control Guideline

- Continuous Quality Improvement (CQI) activities lead to improved patient outcomes
- Peer review of performance helps in dissemination of best practices
- Service providers involvement ensures cost effectiveness and sustainability
- Multidisciplinary approach ensures comprehensiveness when launching the national quality improvement activities

To ensure the successful implementation of this framework, all TB stakeholders in Nigeria are expected to participate in the programme roll out. In addition, all TB treatment centres must provide for the establishment of a quality improvement programme system to assess the extent to which TB health services provided to patients are consistent with the National Tuberculosis Leprosy and Buruli Ulcer Management and Control Guidelines.

State and local governments should foster collaboration across their constituencies to improve TB care. International Federation of Anti-Leprosy Association (ILEP) and IPs should support state and local government improvement activities in line with the overall national quality improvement framework. Finally, TB patients and people living with HIV/AIDS (PLHIV) are to participate in local, state and national quality improvement activities.

3.2 Strategic Goals for the Framework:

The NigeriaQual maintains the following long-term strategic goals:

1. Governance
2. Engagement of State and Local Government
3. Capacity building
4. Performance measurement
5. Stretch goals

1. Governance

Principle: The NigeriaQual structure is established to improve the quality of TB care, treatment outcomes, provider and client satisfaction nationally by engaging all relevant stakeholders. It is regularly reviewed and updated to be responsive and effective in an evolving environment of TB care, which may

be health facilities and/or communities. Health facilities in this case are the public, private, Faith Based Organizations (FBO), Non-Profit Organizations (NPO), Community Based Organisations (CBO) or any other form of health service delivery system.

Important steps include:

- Development of a National Quality Improvement Framework to clearly articulate the expectations of all stakeholders;
  - TB programme at all levels in Nigeria should have a sustainable quality improvement (QI) team in place, which routinely reports standardized quality indicators and conduct QI projects based on prioritized aspects of care.
  - State and local government should lead and facilitate quality improvement activities across their jurisdiction.
  - IPs should support State and Local Government in quality improvement activities.
- State and Local government supported by Global Fund Recipients (PRs and SRs), and other IPs should roll out quality improvement activities in their domains
- Development of a National Quality Improvement Team/committee under the leadership of the FMoH. It will have representatives of States and Local Government, health facilities, GF-PRs, IPs, CBOs and TB patients that will contribute their perspectives and advice the FMoH on the implementation of the programme.
- Development of a periodic Work Plan to implement the framework and monitor the progress over time.
- Outline key priorities for stakeholders and establish a blueprint of expectations and timelines

2. Engagement of State and Local Governments

Principle: State and local governments play a pivotal role in envisioning and implementing the National TB Quality Improvement Framework and need to be supported to implement the TB programme across their constituencies.

Important steps include:

- Advocacy and sensitization of state and local governments

- Articulation of the roles and responsibilities for each state government and how to locally implement the national framework:
  - Formation of a state QI team with stakeholders' representation
  - Reporting of TB programmes activities
  - Provision of technical assistance to the Local Government and facilities
  - Convening State QI meetings
  - Using data for local quality improvement activities
- Formation of Multidisciplinary Planning team
  - Engage empowered QI teams with organizational/financial management capacity to assume direct operation of QI Programmes in line with state strategic plan.
  - Enhance State coordination of logistics and forecasting capacities at the facility and community levels. It will also strengthen central distribution systems utilized for GoN commodities procurements.
  - Utilize "Blueprint for Transition Plan" inventory needs and leverage "indirect" assets (e.g., DOTS providers) for optimal impact on programme quality and outcomes
  - Integrated supportive supervision (ISS) at both State, Local Governments and facility levels
- State programmes, GF-PRs and IPs to expand NigeriaQual programme to as many facilities as possible in an incremental approach
  - Increase numbers of facilities able to conduct QI activities in the State and Local Government with the support of States, and IPs to reach all TB programmes in Nigeria.
  - State and Local Government QI teams to factor in local priorities to enhance local ownership

3. Capacity Building

Principle: TB service providers in Nigeria become proficient in using quality improvement tools and methodologies to advance TB care.

Important steps include:

- Development of a National quality improvement training plan and guideline

- Development of a quality toolkit for programmes that facilitate the initiation of improvement activities
- Capacity building of quality improvement champions from various stakeholders, including National, State and Local Governments, GF-PRs, and IPs to take on key roles when rolling out the National TB Quality Improvement Programme
- QI training activities to include National, State and Local Governments, GF-PRs, and IPs; identification of these representatives is needed to develop a local pool of QI champions.
- Support a pool of quality improvement coaches at all levels (National, State and Local governments, GF-PRs, and IPs) with step down quality improvement training opportunities.
- Individual facilities being supported by the facility leadership, Local Government, State and National governments, GF-PRs, and IPs.
- Initiation of a national training for coaches with concrete expectations to enable them:
  - Conduct QI trainings at State and Local Government QI meetings
  - Provide technical assistance to National, State, Local Government and Health facilities
- Gather, adopt and share best practices throughout the continuum of TB care to promote effective models of care that are responsive to the needs of patients;
  - presentations of facility-specific QI projects and successes at national meetings; call for national posters and presentations to highlight QI successes across Nigeria
  - Identify and develop paired learning and sharing opportunities for GF-PRs and IPs to elaborate collaboration at different levels.

4. Performance Measurement

Principle: Routine performance measurement based on standardized indicators and data submission methodologies is used to assess the quality of TB care in Nigeria and effectively link performance data to accelerated improvements in TB care.

Important steps include:

- Creation of a minimal set of data expected from all stakeholders in line with the national guidelines;

- A 6-monthly reporting of core national indicators which are standardized and approved by the FMoH
- Harmonization of performance measurement strategies, including indicators and data collection strategies, with existing data reporting systems, and standardization of data collection tools.
- Utilization and update of previously developed indicators to generate a prioritized list of core indicators with the flexibility to allow stakeholders to add their individual indicator priorities;
- Development of a data reporting platform/national database through which service delivery point (SDP) reports in a hierarchical order (Facility – To the Local Government then to the State Government and finally to the Federal Government).
- Pilot testing of newly developed indicators and data collection strategies/tools with selected programmes (those with EMR/without EMR)
- Coordination and integration of these indicators and data collection strategies in existing data systems
- Utilizing performance data results to initiate CQI activities
- Organizing a peer learning meeting among facilities for sharing best practices

5. Stretch goals

Principle: The measurement of quality of care has emerged as a key element of TB service delivery. Various stakeholders in the health sector and other sectors should be supported to institutionalize QI strategies in their respective programmes.

The following outlines may serve as a blueprint for the coming years:

- Over time the NigeriaQual should include a broad spectrum of services, which will potentially expand to non-TB/HIV disease programmes, non-health sectors and the private sector
- The formation of a national consumer advisory committee using existing consumer groups should be considered.
- A national forum for recognition of facility-specific QI projects should be developed to showcase and promote local quality champions and their successes.

Key elements of the NigeriaQual TB framework

1. **Resources:**

Principle: Every health services require resources as one of the key elements to function properly. Adequate plans for continuous resources mobilisation (including human and financial) and costing of activities and interventions are necessary to ensure the effective implementation of health care service delivery.

A. **Facilities and Safety**: All categories and levels of facilities will be involved in the provision of TB care and treatment services, regardless of the facility ownership. Services provided in facilities will vary depending on the level of facility; with all facilities providing advocacy, diagnostics for TB and therapeutics at the minimum. The higher the level of the facility, the more technical services they will provide.

Secondary and tertiary facilities will take charge of conducting monthly clinical review of patients. The Local Government TB officer and State TB control officer will oversee monthly and quarterly supervision of activities in facilities where applicable. A minimal level of safety will be provided at each level.

Every level will constitute an IPC committee, develop an IPC plan, appoint TBIC officers, implement FAST (Find actively, Separate and Treat) practices, develop educational materials, and ensure environmental safety and security of personnel including assigning properly naturally ventilated spaces for TB activities, provision of personal protective wears to service providers and ensuring proper disposal of waste.

b. Personnel: Depending on the facility level, CHOs, CHEWs, treatment supporters (such as family relatives), nurses, doctors, pharmacists, laboratory scientists, ward attendants and volunteers will be involved in the delivery of services.

The minimum cadre of staff to render TB services in the PHCs and primary levels are CHEW, environmental health officers and nurses. For secondary and tertiary health facilities, the minimum cadre of staff to render services are environmental health officers, nurses, doctors, laboratory scientists, pharmacists and volunteers.

Facility staff should be trained regularly on DOTS, logistics, recording and reporting tools, record keeping, use of equipment and infection control.

c. Equipment: Some equipment necessary to aid in TB management include GeneXpert for diagnosis, Chest X-Ray, light and fluorescence Microscope for sputum confirmation and audiometer, Electro-Cardiogram (ECG) machine etc. For reference laboratories line probe-assay equipment, culture equipment and alternative energy sources.

All equipment should be maintained frequently as prescribed by manufacturers. This maintenance should be done with support from the IPs, manufacturers and maintenance. Facilities should inform IPs and manufacturers when it is time for equipment maintenance. Adequate security should be provided to ensure equipment are secure.

Use of equipment will be limited to only trained personnel. Capacity of staff should be built on proper use of all equipment. The facility laboratory focal person is responsible for promptly notifying the state and IP for equipment maintenance. Relevant stakeholders in the state especially in the State Ministry of Health should be informed of all equipment provided to facilities and an memorandum of understanding (MoU) signed to ensure ownership and responsibility of those equipment.

d. Purchasing and Inventory: States are encouraged to take more responsibility in purchasing commodities although they are also encouraged to explore external sources of funding.

Supplies for diagnostic services including equipment and consumables should be prioritised as there is a need to test and properly diagnose patients. Machinery for alternative power sources including solar powered equipment should also be prioritised. Commodities that are either not already funded, poorly funded or highly demanded should be prioritised next.

Prior to purchasing commodities, a gap analysis should be conducted which should inform expenditure. Adequate security should be provided for all commodities procured and all procurements should comply with the national procurement guidelines and SOP. Periodic audits of supplies should be conducted to review the procurement process starting from bidding, price, specifications and quantity. The prices of commodities should be included in the SOP to ensure transparency and encourage competitive pricing. All supplies of commodities should be inspected and verified at point of delivery by user department before any payments are made. The user department will be held responsible for all faulty/wrong items delivered. An M.O.U. should be signed to ensure after sales services are available post-delivery of equipment and commodities.

2. **Processes:**

Principle: Whether a programme will yield its desired results and be successful or not is determined to a large extent by the processes put in place to guide programme implementation. Advocacy, coordination with partners and other relevant stakeholders, organisation is a very crucial process in ensuring the success of NigeriaQual TB implementation.

a. Organisation: An advocacy visit should be conducted to facility management, the SMoH, IPs and GF-Recipients to get their buy-in and support. Quality Improvement Teams constituted at all levels will be responsible for coordination of activities in each level. These teams will be led by the highest-ranking official at each level such as an appointee of DOTS Officer, the DR-TB FP or facility coordinator in treatment centres, Director of Public Health or appointee of the Honourable Commissioner for health.

Trainings should be provided for different levels of care providers and coordination meetings should hold every two weeks or every two months depending on the level. The LGTBLSs will conduct supervisory visits to the facility monthly while the STBLCP will supervise the LGAs and facilities quarterly.

Advocacy and sensitisation will be conducted to different stakeholders. This will be followed by the development of an implementation plan where annual quality goals will be set.

b. Process Management (Facility, LGA, State and National):

Several processes are required for the effective delivery of services at all levels of implementation. At facilities, focus should be contact tracing and management of cases to ensure that cases are identified and initiated on treatment promptly. State and LGA officers are to ensure that they visit facilities that provide TB services in their jurisdiction often for continuous monitoring and supportive supervision of activities being carried out in those facilities.

These supervisory visits to facilities are to be conducted by a multidisciplinary team from the State and LG to ensure high quality supervision. The supervision should start with advocacy to the head of facility and other facility management staff followed by provision of feedback, recommendations, action points and responsibilities at the end of each supervisory visit to staff and facility management. Capacity of State TBL Officers, LGA officers and other personnel should be built to ensure that they are able to oversee service implementation in their states and local governments.

c. Information Management:

Standard registers approved by the Federal Ministry of Health will be maintained at all facilities for records keeping. In treatment units, high burden facilities and LGAs, registers may be used in parallel with the National Electronic Tuberculosis Information Management System (NETIMS); an electronic medical records system. The NETIMS also known as e-TB Manager will grant access to officers at different levels depending on their level of clearance to view facility, LGA or state level reports.

Data will be transmitted from facility to LGA, LGA to state and state to National. Transmission will be done after data has been validated by the officer in charge at each level. A quarterly review meeting will be organised in each state to review data generated in each LGA while a national annual review meeting will be held to revise records from the states. The level of supervision provided is critical in ensuring the quality of data reported.

d. Non-Conforming Event Management:

Several non-conforming events including wrong diagnosis, transcription error and dosing errors are likely to occur during service delivery. National, state and LGA officers should regularly supervise facilities and provide feedback on findings from supervisions. When non-conforming events are identified, a root-cause analysis should be conducted (check personnel capability, sample collection and transportation procedures, documentation) to determine why these events are occurring.

External data quality assurance should be conducted regularly alongside continuous training and mentoring of facility personnel. Standard equipment which are functional and properly calibrated such as weighing scales should be made available to facilities, weight charts should be made available to care providers and TB patients should be weighed monthly.

3. Measurement and Improvement

a. Assessment:

Assessments of standardised indicators that monitor diagnosis, treatment and contact tracing in the three evaluation areas (Drug Susceptible TB, Drug Resistant TB and non-clinical areas). This assessment will occur every six months and staff at each level will take charge of the conduct of this activity.

Prior to the conduct of this service, staff will be trained on carrying out performance measurement, abstracting data, random folder selection, sample selection and other areas where training may be required.

b. Continual Improvement:

Results from performance measurement exercises will inform and drive continuous quality improvement. At the end of each performance measurement exercise, results will be reviewed, and quality gaps identified based on indicators measured and gaps prioritised to inform the development of quality improvement projects. Quality improvement projects will hold after the conduct of every performance measurement exercise.

During the implementation of quality improvement projects, processes will be monitored, and outcomes reported at different levels to guide implementation of future projects.

c. Customer satisfaction:

Both internal (service providers) and external (patients and their families) customers are important for efficient and effective service delivery. Surveys on services received in health facilities should be conducted regularly to assess customer satisfaction. This should be conducted by the facilities while the LGA and state officers can take charge of the conduct of external surveys of facilities.

3.3 Sustainability strategy

Definition of sustainability:

Sustainability is a widely used term that describes an entity's ability to be maintained at a certain rate or level. A process that ensures the needs of the present being met without compromising future needs [7]. The sustainability strategy and expansion plan will focus on the various actors' vis-a-vis Federal, State, LGA, facility, implementing partners and CQI team.

3.3.1 Key Themes of Sustainability:

An organization may have many questions when deciding to incorporate sustainability into their strategy, operations and decision-making criteria. Questions typically fall into three categories.

a. Improve our ability to fulfil our mission (institutional)
b. Secure support and funding (financial)
c. Educate and engage stakeholders (technical)

The NigeriaQual-TB sustainability strategy will be discussed for each level/actor along these 3 categories- Institutional, Technical and Financial. Table 3.1 below highlights the various responsibilities.

I. Facility level approach

a. Institution

Composition of facility QI team

- Every facility at all levels shall constitute a facility-level QI team
  - QI team shall be made up of facility staff
  - A multi-disciplinary team with staff from every thematic area. The number will depend on the facility.
  - Heads of facilities shall be responsible for the constitution of such a team at their respective facilities.
  - The head of facility shall appoint himself or any staff of the facility to head the team
  - Facilities that have an already existing multidisciplinary team shall leverage on such teams to carry out QI activities. For facilities with already existing QI-teams for HIV, the TB focal person(s) from the different units should be co-opted into these quality improvement teams.

b. Financial

- The head of facility shall provide resources (Financial and Logistics) where available for the activities of the committee to ensure that it remains functional
- The head of facility shall ensure that QI activities are included in the facility work-plan and budgeted for in the annual budget.

c. Technical

- Every State Team and Local Government TBL Supervisors (LGTBLS) shall be trained in QI principles and methodology to possess the required capacity to carry out QI activities
- Each LGTBLS shall mentor DOTS facility staff and carry out periodic QI onsite trainings as the need arises in the facilities
- Each facility shall have a copy of the NigeriaQual TB guideline and every relevant document to guide QI processes at the facility.

II. LGA Level approach

a. Institution

Composition of LGA QI team

- Members shall include representatives of different units of the LGA health department.
- The PHC Director or whoever heads the LGA health department shall head the LGA QI committee or appoint any other LGA health department staff where necessary.

b. Financial

- The Commissioner, Ministry of Local Government and Chieftaincy Affairs shall provide resources (Financial and Logistics) where available for the activities of the committee especially related to monitoring and evaluation to ensure that it remains functional.
- The Director PHC shall ensure that QI activities are included in the annual LGA work-plan and budget.

c. Technical

- Each LGA QI team member shall be trained in QI principles and methodology to possess the required capacity to carry out supervisory/mentoring of QI activities at facilities in the LGA.
- Every trained LGA QI team members shall serve as mentors to hub and facility staff and carry out periodic QI trainings and supervisory/mentoring visits to hubs and facilities in the LGA.

III. State Level approach

a. Institution

Composition of state QI team

- The Director Public Health or Director PHC/DC or his representative will head the state QI committee.
- Membership of the state Quality Improvement team shall include but not limited to representatives from SMoH, STBLCP, Ministry for Local Government and Chieftaincy Affairs (MLGCA), SPHCDA, HMB, SASCP, CSO, ILEP and IPs.
- States that have an existing multi-disciplinary team in charge of the HIV programme should leverage on such a team and ensure that TB-QI is included in their TOR to prevent duplication.

b. Financial

- The SMoH shall provide resources (Financial and Logistics) for the activities of the committee to ensure that it remains functional
- The STBLCP should ensure that QI activities are captured in their work-plan and budgeted for in their annual budget.

c. Technical

- Each state QI team member shall be trained in QI principles and methodology in order to possess the required capacity to carry out supervision and monitoring of QI activities at LGAs and facilities.
- Every trained state QI team member shall serve as a mentor to LGA and facilities staff and carry out periodic QI trainings and supervisory and monitoring visits in his/her domain.

IV. National Level approach

a. Institution

The National QI team shall be domiciled in the NTBLCP, Department of Public Health.

Composition

- The Director of Public Health or his appointed designate shall be the head of the National QI committee.
- Membership shall include: heads of different thematic areas of NTBLCP or their representatives and the QI desk officers in NTBLCP with representatives from other Ministries, Departments and Agencies (MDAs) within and outside FMOH. Others include: IPs and GF-PRs

b. Financial

- The FMoH and relevant donor agencies (where available) shall provide resources for the activities of the committee to ensure that it remains functional
- NTBLCP shall ensure that QI activities are budgeted for in its annual budget.

V. Implementing Partners

Composition

Each IP shall have a QI team in charge of its organization's QI activities

Responsibilities of the IPs' QI team include but not limited to the following:

- Shall act as a support to the national QI programme.
- Shall provide logistics, technical, supervisory and capacity building support at all levels
- Shall provide additional resources where necessary.

3.3.2 Strategies to Motivate CQI Teams at all Levels

- Appropriate composition and constitution of CQI teams
- Clear Terms of Reference for CQI teams
- Opportunities to showcase CQI team success
- Adequate support for implementation of CQI activities
- Management/institutional support for the TOR
- Appraisal and feedback on team performance
- Continuous capacity building of QI team members on relevant areas.

Table 3.1: Roles and responsibilities of NigeriaQual TB Stakeholders

	Role Description	National	States	LGAs	Partners	Facilities
1	**Coordination**	Coordinate the QI programme at the respective levels through an appropriately constituted multi-disciplinary team composed of all relevant stakeholders/departments/units				
2	**Develop and disseminate relevant documents (NigeriaQual TB Framework, Protocol and Training Documents**	Develop, disseminate and distribute relevant documents that guide the quality improvement programme	Disseminate relevant documents that guide the quality improvement programme at each respective level			Implement relevant documents that guide the QI programme
3	**Stakeholders Engagement**	Engage State governments, implementing partners, and consumers through advocacy and sensitization on QI and clearly articulate the expectations for all stakeholders involved	Engage IPs and consumers through advocacy and sensitization on QI and clearly articulate the expectations for all stakeholders involved		Engage State governments, implementing partners, and consumers through advocacy and sensitization on QI and clearly articulate the expectations for all stakeholders involved	Engage consumers through advocacy and sensitization on QI and receive feedback.

4	**Work Plan Development**	Develop a costed national work plan to implement the QI programme which will be embedded into existing programme work plan	Develop a costed state work plan to implement the QI programme which will be embedded into existing programme work plan	Develop a costed LGA work plan to implement the QI programme which will be embedded into existing programme work plan	Develop a costed IP work plan to implement the QI programme which will be embedded into existing programme work plan	Develop a costed facility work plan to implement the QI programme which will be embedded into existing programme work plan
5	**QI Training Plan Development**	Develop a national QI training plan	Develop a state QI training plan	Develop a LGA QI training plan	Support National/ State/LGA/Facility to develop QI training plan	Develop a facility QI training plan
6	**Capacity building**	Build the capacity of relevant stakeholders on QI – (trainings, QI infrastructure, supervision, etc.)				
7	**QI Indicator Development**	Develop minimum QI indicators for all stakeholders	Implement minimum QI indicators			
8	**Performance Measurement**	Develop performance measurement strategies: (quality indicators; data collection strategies; standardization of data collection tools)	Implement performance measurement strategies: (quality indicators; data collection strategies; standardization of data collection tools)			
9	**Data Reporting Platform**	Develop data reporting platform and ensure access to data for all stakeholders	Support the use of data reporting platform and ensure access to data to all stakeholders			
10	**Use of QI data**	Routinely aggregate national data and use the findings to monitor quality of TB/HIV care at all levels	Routinely aggregate state data and use the findings to monitor quality of TB/HIV care at State, LGA and facility levels	Routinely aggregate LGA data and use the findings to monitor quality of TB/HIV care at LGA and facility levels	Routinely aggregate data and use the findings to monitor quality of health services at all levels	Routinely collect and report performance data and use these findings to improve TB/HIV care
11	**Sharing best practices and lessons learnt**	Create opportunities for relevant stakeholders to share best practices and successful improvement strategies (review meetings, conferences, task team meetings, exchange visits)	Support and create opportunities for relevant stakeholders to share best practices and successful improvement strategies in the state (review meetings, conferences, task team meetings, exchange visits)			Share best practices and successful improvement strategies (review meetings, conferences, task team meetings, exchange visits)
12	**Scaling up of QI activities**	Support the expansion of QI to all facilities providing TB/HIV services	Support the expansion of QI to all facilities providing TB/HIV services in the state			Support the involvement of

				all staff in QI activities
13	**Sustainability strategies**	Identify and support the implementation of strategies that would enhance the sustainability and expansion of QI efforts in the health sector	Identify and support the implementation of strategies that would enhance the sustainability and expansion of QI efforts in the health sector	Identify and support the implementation of strategies that would enhance the sustainability and expansion of QI efforts in the health facility

Explanatory Notes on Roles and Responsibilities of NigeriaQual TB Stakeholders

1. Coordinate the QI programme such as trainings, meetings, small test of change (STOC) through an appropriately constituted team (Multidisciplinary team)
2. FMoH will develop and disseminate relevant documents such as NigeriaQual TB Framework, Protocol, training document and guideline that guide the quality improvement programmes to State, LGA, and Implementing Partners. All the relevant documents will be distributed by the state with support from IP to LGA and this will further be distributed to facilities where the implementation takes place.
3. FMoH will engage State governments, Implementing Partners, and consumers through advocacy and sensitization on quality improvement and clearly articulate the expectations for all stakeholders involved. State government and IPs will be working together in engaging facility and LGA while facility will work directly with consumers and get feedback to improve on the processes.
4. State, LGA, IP and facility will develop costed work plan respectively to implement the QI programme and embed the budget into existing national programme work-plan
5. FMoH will develop a national QI training plan. Facility, State and LGA will also develop their training plan with support from the supporting IP.
6. FMoH will conduct trainings, supervisions, QI infrastructure to build the capacity of relevant stakeholders on QI activities, this training will be stepped down by state with support from IPs partners to LGA and facility.

7. FMoH will develop minimum QI indicators for all stakeholders. State/ IP will help and support the implementation of the QI indicators at the facility
8. FMoH will develop performance measurement strategies: quality indicators, data collection strategies, standardization of data collection tools. Implementation will take place at state/facility level with support from IPs.
9. FMoH will develop data reporting platform and ensure access to data to all stakeholders. All IPs will have access to their data, Facility will have access to their data and state will have access to all the data within their states. IP, state, LGA and facility will render their support to the data reporting platform developed by FMoH.
10. FMOH shall routinely aggregate national data and use the findings to monitor quality of TB/HIV care at all levels
11. Different levels shall create opportunities for relevant stakeholders to share best practices and successful improvement strategies such as review meetings, conferences, task team meetings, exchange visits
12. States shall support the expansion of QI to all facilities providing health services
13. FMOH with support of other levels shall identify and support the implementation of strategies that would enhance the sustainability and expansion of QI efforts in the health sector

3.4 Expansion Strategy and Institutionalisation

Targets

- To leverage on existing funding mechanisms (USG and GF) to ensure that all 36+1 states in the country are engaged in and implementing the NigeriaQual TB programme by 2019.

Implementation of the NigeriaQual TB programme will commence in 12 states (Benue, Plateau, Kaduna, Kano, Bauchi, Taraba, Oyo, Ogun, Imo, Ebonyi, Rivers and Cross River). Expansion of the programme will be rapid, and it is expected that by the end of 2019, all 36+1 states should have commenced implementation of the programme. This is subject to funding.

In ensuring expansion to 36+1 states in Nigeria, existing structures on ground including NigeriaQual-HIV, Global Fund, CDC and USAID amongst others should be leveraged upon. The NigeriaQual-HIV programme

is already established in 14 states out of which 7 are part of the 12 NigeriaQual-TB programmes. The Global Fund to Fight AIDS, TB and Malaria already supports implementation of either DR-TB or DS-TB programmes in different states in the country. This support is provided through GF Principal Recipients and Sub-Recipients who already have structures in almost every state in the country. The table below shows the distribution of IPs currently implementing TB control programmes in different states.

To ensure that all GF supported IPs engage in the programme, a top-bottom approach will be employed in the conduct of advocacy to partners. Focus will initially be on GF-PRs who will ensure that quality improvement programmes are captured in the budget and work plan while mandating their SRs to adopt the NigeriaQual programme.

The GoN through the NTBLCP should conduct further advocacy and engage different partners to the programme including states and donors. While the GoN is advocating to stakeholders, states are expected to take ownership of the programme and engage partners already present in the state in the implementation of quality improvement activities. Advocacy will be focused on funding and technical support from partners to the different tiers of government and levels of implementation.

State health insurance scheme should be explored as a fund-raising avenue.

Table 3: Disaggregation of States by NigeriaQual Programme Implementation and Global Fund Support

SN	NGQ-TB	NGQ-HIV	DFB	GLRA	NLR	TLMN
1	Benue	Benue				Benue
2	Plateau	Plateau			Plateau	
3	Kaduna	Kaduna				
4	Kano				Kano	
5	Bauchi				Bauchi	
6	Taraba				Taraba	
7	Oyo	Oyo	Oyo			
8	Ogun	Ogun	Ogun			
9	Imo			Imo		Kogi
10	Ebonyi					
11	Rivers			Rivers		
12	Cross River	Cross River		Cross River		
13		Akwa Ibom		Akwa Ibom		
14		Niger				Niger
15		Rivers				
16		Nasarawa				Nasarawa
17		Edo	Edo			
18		Enugu		Enugu		
19		FCT				FCT
20		Lagos	Lagos			
21			Ondo			
22			Osun			
23			Delta			
24			Kwara			
25			Ekiti			
26				Bayelsa		
27				Abia		
28				Anambra		
29					Borno	
30					Yobe	
31					Jigawa	
32					Gombe	
33					Adamawa	
34						Sokoto
35						Kebbi
36						Zamfara
37						Katsina

Facility-Community Approach

Hub-Spoke approach

This Promotes Decentralization and Health Systems integration. In addition, it:

- Support patient centred quality TB care
- Expand capacity for cost-effective treatment access
- Strengthen Health facilities by developing state QM programs and infrastructure that empowers incremental capacity building of GHCW that supports quality TB care.

Hub-Spoke-Cluster model for decentralization

- Hubs are oversubscribed but stronger clinically and infrastructurally
- PHCs have fewer resources but proximity and community linkage to patients for service access and patient centred quality TB care.
- Decentralization links oversubscribed Hub sites to Health facilities.
- Hub-Spoke-Cluster model for integrated service delivery; Capacity building of spokes for service delivery
- Hub-Spoke-Cluster model for State CQI implementation
    - Engage "Network QI Teams" comprised of representatives from hub and spokes
    - Engage QI coaches within networks for mentoring

The FMoH ART hub-spoke model already in existence in the states shall be adapted for the NigeriaQual expansion strategy.

Expansion to 36 + 1 States

Targets

- To reach 36 states and FCT in 3 years (from 2017) and to ensure that the CQI culture has been imbibed in the states by the 4th year.
- FMoH, IHVN, UMB and other partners shall train the states on NigeriaQual TB. Each state team that is trained shall conduct step-down trainings in their respective states within 4 weeks of conclusion of training.

Strategy for reaching the state involves

- The FMoH and partners shall sensitize key officials of states to get state buy-in.
- Organise a ToT on CQI for state (SAPC, M&E, Logistics officer who should be a Pharmacist) and IP officials.
- Form and train state CQI teams within facilities with support from the SMoH (where the state cannot fund this, the IP can support).
- State officials to liaise with IP to train the facilities in the state.
  - Training the LGA QI teams and hubs first
  - Utilize the trained pool of LGA and hub staff to train spoke staff

Each hub shall constitute a CQI team with a representative from each spoke as a member.

Targets

- Every quarter the state shall train some LGAs and hubs
- Every quarter, the LGA and hub shall train some spoke facilities.

Strategies for integrating NigeriaQual TB into country systems

State processes

- Advocacy to key stakeholders of the State to take ownership and drive the NigeriaQual TB programme
- Leverage on existing structures and processes in the State to carry out QI activities or support states to constitute a multidisciplinary team to coordinate quality improvement activities in the State.
- Utilize already existing State mentoring and monitoring teams and committees to supervise facilities
- Leverage on the National council on Health meetings to showcase and emphasize the importance and benefits of NigeriaQual TB. This is to facilitate the incorporation of NigeriaQual TB activities into health processes within the States.
- Leverage on Quarterly meeting of comprehensive facility coordinators where it exists or any other high-level state review meetings at the SMoH to show case the benefits of QI.

- There shall be an annual State review meeting to showcase the gains of QI activities in the quality improvement programme in the State. This activity shall be funded by the SMoH with support from the IP.
- Incorporate QI activities into the State Strategic Plan

Facility processes

- Advocacy to facility key officials and policy makers to take ownership of the programme and support it
- Leverage on existing structures and processes in the facility e.g. utilize SERVICOM where it exists to ensure quality service delivery
- Utilise already existing facility teams to facilitate QI activities in the facility
- Leverage on facility review meetings to showcase the importance and benefits of QI activities at the facility
- Incorporate QI activities into each facility's annual work-plan
- Integrate QI processes into other disease programmes e.g. HIV, Immunisation, Reproductive Health etc. at the facility

3.5 SWOT Analysis on Establishment of NigeriaQual TB

A SWOT analysis to determine the feasibility of integrating NigeriaQual TB into State processes revealed the following findings:

Strengths	**Weakness**	**Opportunity**	**Threat**
- Leveraging on existing structures - QI teams are multi-disciplinary and can easily get the buy in of different programme areas - QI team members are skilled to implement QI activities	- Weak political commitment - Work over-load - Inequitable distribution of manpower - Inadequate funding of health care - Poor documentation	- Technical assistance from IPs - Trained staff - Improving existing Infrastructure - Improving existing service delivery processes	- Government bureaucracy - Territorialism - Staff attrition: frequent change in management - None release of funds for health activities - Work interruption by industrial disharmony

3.6 NigeriaQual TB Programme Focus

NigeriaQual TB would focus on four major service delivery components namely: Drug Susceptible TB, Drug Resistant TB, Paediatric TB and Non-clinical audit. These four components consist of 20 indicators (6, 6, 3, 5 respectively). Section four discusses details on the developed components.

3.7 Work Plan Implementation:

A technical working group (NigeriaQual TB TWG) under the leadership of the NTBLCP/FMoH was established with representatives from the NTBLCP, HIV/AIDS Division, USG-IPs, UMB, NACA, GF PRs and SRs, STBLCP, and other key stakeholders. The primary goal of this committee is to make key decisions required to guide the effective implementation the NigeriaQual TB Programme.

The roadmap of NigeriaQual TB for the first year includes:

- Advocacy to FMOH
- Stakeholders engagement
- Establishment of NigeriaQual TB TWG
- Selection of States and Facilities for Implementation
- Advocacy to Facilities and States
- Inauguration of Facility and State CQI teams
- Development of NigeriaQual TB framework and guideline
- Indicator development, definition and Update
- Development of NigeriaQual TB Data Collection Tools
- Development of NigeriaQual TB software module
- Development of NigeriaQual TB Training materials
- Training of Trainers/QI coaches
- Conducting of step-down Trainings
- Conducting the bi-annual data collection cycles
- Review of performance measurement result
- Development of an Expanded Selection of Facilities and States

NigeriaQual TB programme implementation will be conducted as follows:

- There will be two data collection cycles in each year, in January and July
- The domains to be evaluated will depend on the disease area for which performance measurement is conducted e.g. for TB program, DS TB, DR TB, Paediatric TB and Non-clinical evaluation areas; for HIV program; adult care, paediatric care, PMTCT, HTS, logistics, financial and organizational management;
- All IPs are encouraged to involve all supported eligible facilities in data collection cycles.
- Data collection tools and a database for reporting the performance data will be developed with considerations for EMR and Non EMR facilities; integration into existing data systems will be explored.
- Policy documents for the National Quality Improvement Programme will be developed.
- A national quality improvement committee was formed and will meet regularly.
- Strategies on how to engage States in the National Quality Improvement Programme will be developed and implemented;

Evaluation:

In tandem with national and global TB targets, the NigeriaQual TB TWG will work collaboratively throughout the year and conduct a year-end evaluation. An assessment tool that has been developed by HealthQual for the national quality programmes will be used to assess the effectiveness of its programme and the overall success of the annually established quality improvement goals. The NigeriaQual TB TWG reviews the evaluation findings and recommends a plan for improvement, allowing learning from past performances and integration into future quality improvement plans.

Section 4

National Quality Improvement Measurement and Metrics

4.0 Introduction

This section focuses on the procedures for the performance measurement and evaluation. It covers the following:

i. Implementation teams

ii. Methods and Materials for evaluation

   a. Design and procedure

   b. Sampling techniques

   c. Performance data collection processes

   d. Performance indicators and definitions

iii. Data Analysis, interpretation, sharing, dissemination and information use (NigeriaQual data use policy)

4.1 Implementation Teams

Five levels of teams will be involved in implementation of the evaluations, namely facility-based, IP, LGA, state and national QI teams. All teams will be multidisciplinary to reflect the various thematic areas of services. The teams will be adequately trained to iteratively identify quality shortfalls in programme implementation and service delivery, brainstorm for root causes of the problems identified, test and evaluate improvement initiatives/small tests of change (STOCs) to fill the gaps using the PDSA (Plan-Do-Study-Act) model. Facility QI teams will be responsible for the development and implementation workplan for chart abstraction within the specified period. The implementing partners QI teams will also provide technical and logistics support to facilities before and during evaluations as well as technical support and guidance to states and facilities for the utilization of evaluation reports for QI purposes. State QI teams will work with Partner teams to coordinate and supervise evaluations within each State. State QI teams will collate reports of evaluations within the state for identifying cross-cutting gaps requiring above-site intervention in TB care and treatment facilities (See Table 3.1 for stakeholder roles on performance measurement, data reporting and use of QI data).

4.2. Methods and Materials

i. Facilities:

All facilities that have provided TB care and treatment services for **at least one** year prior to the beginning of the review period for DS-TB facility and for **at least 2 years** for DR-TB facility will be eligible for participation in each NigeriaQual TB performance measurement cycle.

ii. Patient populations:

Adults and children who are diagnosed TB cases will be included in the evaluations. Patient eligibility for inclusion in the evaluations will vary for the Drug Susceptible, Drug Resistant and Paediatric audits.

iii. Gender:

There will be no gender considerations as data abstraction will involve all folders that tally with any randomly selected patient identifier number. It is expected that the sample size that is randomly generated will approximate the true male: female ratio in each participating facility.

iv. Age:

For DS -TB audit area, data will be abstracted for adult patients who will be regarded as patients 15 years and above

4.3. Design and Procedure

NigeriaQual TB is a biannual retrospective program evaluation that measures the quality of care (QoC) provided to patients in a 6-month review period. The data collection for performance measurement will happen biannually (every January and July). The January exercise reviews the QoC provided between July and December of the previous year. The July exercise reviews the QoC provided between January and June of the same year.

The duration of NigeriaQual TB evaluations at facilities from abstraction /extraction of data to submission of reports will span approximately 6 weeks.

The activities that constitute implementation of the evaluation exercise are broadly categorized into three:

i. Pre-implementation activities

ii. Data collection for core indicators

iii. Data transmission and Reporting

Pre-implementation activities will occur at the National, State and Implementing Partner levels. These will happen before the evaluation's abstraction /extraction date for each biannual period.

- At the National level, pre-implementation will involve;
  - ✓ Planning and relevant stakeholders' engagement
  - ✓ Notification of IPs
  - ✓ Review of data abstraction tools, protocols, database and training materials (as may be necessary)
  - ✓ Training updates (as may be necessary)
- At the State, LGA and IP levels, pre-implementation will involve;
  - ✓ Planning and internal stakeholders' engagement
  - ✓ Facility notification
  - ✓ Facility preparation
  - ✓ Ensure computer availability at each participating facility
  - ✓ Facility CQI team validation and reconstitution where applicable
  - ✓ State/IP-level data collection refresher trainings of facility teams
  - ✓ Supporting facilities to generate RNLs
- At facility level, pre-implementation will involve:
  - ✓ Advocacy to facility leadership
  - ✓ Step down training to facility QI teams
  - ✓ Development of work plan with clearly communicated targets and timelines for the exercise
  - ✓ Hardware and software servicing
  - ✓ Generation of RNLs

4.4. Sampling techniques

Components of NigeriaQual-TB performance evaluation/measurement

The performance evaluation has 4 major components at present:

a. Drug Susceptible TB (DS-TB)

b. Drug Resistant TB (DR-TB) including MDR TB

c. Paediatric

d. Non-Clinical Indicators

Each of these audits is described in detail below under the following sub-headings:

- Overview of the Audit type
- Inclusion and Exclusion criteria
- Sampling Strategy and Sample size
- General Observations on Methodology
- Indicators

NigeriaQual TB Quality of Care Indicators:

The twenty-core TB quality of care indicators tracked in the audit is presented in Table 4.1.

Targets:

- To detect at least 70% of the estimated all forms of TB cases by 2020
- To achieve a treatment success rate of at least 90% for all new bacteriologically confirmed TB cases by 2020
- To eliminate TB as a public health problem (<= 1/1,000,000 population) by 2050

4.4.1. Drug Susceptible TB Quality of Care Audit

Overview

This evaluates the quality of TB care and treatment provided to patients enrolled in TB care and treatment center in a specified 6-month review period. The audit uses a tool designed to track selected indicators on the quality of TB care and treatment services provided to all patients. It measures facility-level specific quality of care indicators and is conducted at TB care and treatment (DOTS) center that have provided TB treatment to programme enrolees for at least one year. Sampled patients are expected to have fulfilled specified criteria. Trained hospital staff at facilities providing TB services will abstract the required information using the tool and following specified sampling procedures. Data on pre-defined care and treatment service delivery indicators are collected for a pre-specified review period, usually corresponding to the review period or earlier. These data are abstracted/extracted from the existing

patient medical records where clinical information is documented by service providers. Abstracted data would be entered into NigeriaQual TB software for analysis and report generation. The audit is expected to be conducted biannually.

Inclusion and Exclusion Criteria DS-TB

Evaluation for DS-TB clinical audit will have two categories of individuals assessed during each review period depending on the date of commencement of treatment. The two categories are:

- Patients identified during the 6-month review period
- Patients identified within the 6 months prior to the beginning of the review period

Inclusion Criteria

Medical records from the following are eligible for inclusion in the audit:

- Patients who were diagnosed as DS-TB cases during the review period
- Patients who started treatment for DS-TB 6 months prior to the beginning of the review period
- Children under 6 years of age identified as contacts of smear positive DS-TB cases 6 months prior to the beginning of the review period
- Children under 15 years of age identified as presumptive DS-TB cases within the review period

Exclusion criteria

- Patients whose treatment cards are missing at the time of the evaluation

Sampling Strategy (DS TB)

The DS-TB audit consists of two sampling frames

i. patients with a confirmed diagnosis of TB within the review period
ii. patients started on TB treatment in the 6-month period prior to the beginning of the review period

For instance, if the 6-month period under review in each NigeriaQual TB data collection cycle is January 1st, 2017 to June 30th, 2017, then all patients

a. with a confirmed diagnosis of DS TB between January 1st, 2017 to June 30th, 2017 **AND**
b. started on TB treatment between July 1st and December 31st, 2016 will be eligible for sampling.

Sampling Methods

Sampling method **will differ** between TB treatment center and **will depend** largely on the **existing medical record systems** in use, that is paper or electronic and the capacity of the electronic data base. Three methods are described here, and participating facilities will use the sampling method that fits their existing system.

a. **Sampling Method #1:** Facilities with electronic medical records system (EMR) e.g. eTB manager (which includes patient IDs, up-to-date clinical and other follow up information) for all adult patients will write codes which randomly select the required number of patient records (equivalent to the sample size recommended in the TB sampling guide) meeting the specified inclusion and exclusion criteria. Through a data exchange module, a data set containing the data elements in the NigeriaQual TB audit tool will then be imported to the NigeriaQual TB software in the required format. Sampling will be done in the following steps:

    1. Write codes to determine total number of eligible patients for each category (i-ii) of DS TB patients in the facility e-TB manager using the specified inclusion and exclusion criteria (i.e. Xi-Xii)
    2. Determine sample size for each category i-ii i.e. (Yi-Yii) from the HIVQUAL sample size chart
    3. Write codes using the appropriate database schema, which will be used to pull out the data elements from e-TB manager required by the NigeriaQual TB software module for calculating DS TB indicators for several patients equivalent to the sample size determined in step 2
    4. Run the script of codes to facilitate importation of data into the NigeriaQual TB software module
    5. Generate the DS TB reports as required
    6. Upload the data to the NigeriaQual web application
    7. Keep hard and electronic copies of the random number lists

Sampling Method #2: Facilities with an electronic medical record system listing of ALL patients' LGA TB numbers but with incomplete or no follow-up information will electronically generate a sample size based on the HIVQUAL sample size chart. Sampling will be done in 5 steps:

1. Determine total number of eligible TB patients in each category (i-ii) from the facility e-TB manager (Xi-Xii)
2. Determine sample size for each category (i-ii) i.e. (Yi-Yii) from the HIVQUAL sample size chart
3. Randomly generate the eligible patients list (Xi-Xii) for each category and enter the IDs as presented into a Random Number List (RNL)
4. Serially review charts using the RNL, excluding patients that meet the exclusion criteria, until you reach the sample size (Yi-Yii) for each category of patients.
5. Keep hard and electronic copies of the TB random number lists

Sampling Method #3: Facilities with no existing electronic database but have a serial record or line listing of patients who attend clinic daily (E.g. Facility TB treatment register, clinic attendance registers, daily listing of IDs of patient charts/folders pulled or filed by medical records etc.) should manually generate sample size from such records based on the HIVQUAL sampling methodology. Sampling will be done in these steps:

1. Determine the total number of eligible TB patients in each category i-ii i.e. (Xi-Xii) in the 6 months reference period for each category.
2. Determine sample sizes (Yi and Yii) from the HIVQUAL sample size chart based on the total number of patients in each category i.e. Xi-Xii
3. Randomly generate the eligible patients list i.e. (Xi-Xii) for each category and enter the IDs as presented into a Random Number List (RNL)
4. Serially review charts from the RNL, exclude patients that meet the exclusion criteria, until you reach the number equivalent to the sample size (Yi-Yii) for each category.
5. Generate the DS TB reports as required
6. Upload the data to the NigeriaQual web application
7. Keep hard and electronic copies of the random number lists

Table 4.1: NigeriaQual DS TB Audit Tool	
DRUG-SUSCEPTIBLE TB	**Indicator Narratives**
Indicator I – Contact Tracing	Proportion of new index TB cases within the review period who had their contacts traced.
Numerator	Number of new index TB cases within the review period who had their contacts traced.
Denominator	Number of new index TB cases within the review period
Purpose	- To ensure that all presumptive TB cases from contacts of new bacteriologically confirmed TB cases are identified. - To assess gaps in identifying all presumptive TB cases from contacts of new bacteriologically confirmed TB cases
Applicability	Applicable at all the participating facilities that provide DS-TB services
Data collection frequency	Monthly for 6 months
Source Document	TB treatment register, Contact tracing register
Measurement tool	DS-TB audit form
Indicator II – Symptomatic Contact Evaluation	Proportion of symptomatic contacts of new index TB cases identified within the review period evaluated for TB using GeneXpert/AFB.
Numerator	Number of symptomatic contacts of new index TB cases identified within the review period evaluated for TB using GeneXpert/AFB.
Denominator	Number of symptomatic contacts of new index TB cases identified within the review period.
Disaggregation	NONE
Purpose	- To ensure that all symptomatic contacts of bacteriologically confirmed index cases have access to diagnostics services (G-Xpert/AFB) - To evaluate gaps in access to diagnostic services by symptomatic contacts of bacteriologically confirmed TB cases
Applicability	Applicable at all the participating facilities that provide DS-TB services
Data collection frequency	Monthly for 6 months
Source Document	Contact tracing register, Presumptive register
Measurement tool	DS-TB Audit tool

Indicator III – Sputum smear microscopy monitoring DS-TB	Proportion of DS-TB cases with baseline sputum-smear/Genexpert started on treatment in the 6 months prior to the review period with documented follow-up sputum smear AFB within the recommended time frame (2, 5 & 6 months)
Numerator	Number of DS-TB cases with baseline sputum-smear/Genexpert started on treatment in the 6 months prior to the review period with documented follow-up sputum smear AFB within the recommended time frame (2, 5 & 6 months)
Denominator	Total number of DS-TB cases with baseline sputum-smear/Genexpert started on treatment in the 6 months prior to the review period.
Purpose	- **To ensure good case management.**
Applicability	Applicable at all the participating facilities that provide DS-TB services
Data collection frequency	**Monthly for 6 months**
Source Document	**TB Treatment register, Treatment card**
Measurement tool	**DS-TB Audit tool**
Indicator IV – Sputum Smear result	Proportion of new DS-TB patients whose sputum specimen for AFB or GeneXpert were received in the lab within the review period and had their results released within 72 hours of sputum specimen receipt.
Numerator	Number of new DS-TB patients whose sputum specimen for AFB or GeneXpert were received in the lab within the review period and had their results released within 72 hours of sputum specimen receipt.
Denominator	Number of new DS-TB patients whose sputum specimen for AFB or GeneXpert were received in the lab within the review period.
Purpose	National target is to detect 70% of cases and achieve treatment success rate of 90%. This will help check effectiveness of interventions in line with National and global standards (Not for this indicator)
Applicability	Applicable at all the participating facilities that provide DS-TB services
Data collection frequency	Monthly for 6 months
Source Document	Presumptive Register, lab register
Measurement tool	DS-TB Audit tool
Indicator V – Treatment Initiation (DS-TB)	Proportion of bacteriologically confirmed TB cases diagnosed within the review period that have initiated treatment for TB within two days of diagnosis.

Numerator	Number of bacteriologically confirmed TB cases diagnosed within the review period that have initiated treatment for TB within two days of diagnosis.
Denominator	Number of bacteriologically confirmed TB cases diagnosed within the review period.
Purpose	National guidelines recommend treatment initiation within two days of diagnosis
Applicability	Applicable at all the participating facilities that provide DS-TB services
Data collection frequency	Monthly for 6 months
Source Document	TB Register, Treatment card
Measurement tool	DS-TB Audit tool
Indicator VI – Documentation (DS TB)	Proportion of DS-TB patients started on treatment within the 6-month review period with complete documentation in the following data collection tools: DS-TB treatment register, Treatment cards and Medical consultations in patient folders.
Numerator	Number of DS-TB patients started on treatment within the 6-month review period with complete documentation in the following data collection tools: DS-TB treatment register, Treatment cards and Medical consultations in patient folders.
Denominator	Number of DS-TB patients started on treatment within the 6-month review period
Purpose	To ensure that care and treatment provided to clients are based on documented clinical results
Applicability	Applicable at all the participating facilities that provide DS-TB services
Data collection frequency	6 Monthly
Source Document	DS-TB treatment register, Treatment cards and Medical consultations in patient folders
Measurement tool	DS-TB Audit tool

4.4.2. Drug Resistant TB Quality of Care Audit

Overview

This evaluates the quality of TB care and treatment provided to patients enrolled in DR TB care and treatment centres in a 6-month review period. The audit uses a tool designed to track selected indicators on the quality of DR TB care and treatment services provided to all patients. It measures facility-level specific quality of care indicators and is conducted at DR TB care and treatment centre that have provided TB care and treatment services to programme enrolees **for at least two years**. Sampled patients are expected to have fulfilled specified criteria. Trained hospital staff at facilities providing DR TB services will abstract the required information using the tool and following specified sampling procedures. Data on pre-defined care and treatment service delivery indicators are collected for a pre-specified review period, usually corresponding to the review period or earlier. These data are abstracted/extracted from the existing patient medical records where clinical information is documented by service providers. Abstracted data would be entered into NigeriaQual TB software for analysis and report generation. The audit is expected to be conducted biannually.

Inclusion and Exclusion Criteria for DR-TB

Inclusion Criteria

All patients selected to be evaluated for DR-TB must be patients discharged to facilities and communities within the state. Evaluation for DR-TB clinical audit will have three categories of individuals assessed during each review period depending on the date of commencement of treatment. The 3 categories are

- Patients started on second-line drugs during the review period
- Patients started on second-line drugs 3-12 months prior to the beginning of the review period
- Patients started on second-line drugs 18-24 months prior to the beginning of the review period

Exclusion criteria

- Patients whose treatment cards are missing at the time of the evaluation

Sampling Strategy (DR TB)

The DR-TB audit consists of three sampling frames;

i. Patients started on second-line drugs during the review period

ii. Patients started on second-line drugs 3-12 months prior to the beginning of the review period

iii. Patients started on second-line drugs 18-24 months prior to the beginning of the review period

For instance, if the 6-month period under review in each NigeriaQual TB data collection cycle is January 1st, 2017 to June 30th, 2017, then all patients:

a. started on second-line drugs between January 1st, 2017 to June 30th, 2017
b. started on second-line drugs between January 1st, 2016 to September 30th, 2016
c. started on second-line drugs between January 1st, 2015 to June 30th, 2015 will be eligible for sampling.

Sampling Methods

Sampling method will differ between TB treatment centres and will depend largely on the existing medical records systems in use, that is paper or electronic and the capacity of the electronic data base. Three methods are described here, and participating facilities will use the sampling method that fits their existing system.

Sampling Method #1: Facilities with electronic medical records system (EMR) e.g. National Electronic TB Information Management System (NETIMS) (which includes patient IDs, up-to-date clinical and other follow up information) for all adult patients will write codes which randomly select the required number of patient records (equivalent to the sample size recommended in the HIV sampling guide) meeting the specified inclusion and exclusion criteria. Through a data exchange module, a data set containing the data elements in the NigeriaQual DR TB audit tool will then be imported to the NigeriaQual TB software in the required format. Sampling will be done in 4 steps

1. Write codes to determine total number of eligible patients for each category (i-iii) of DR TB patients in the facility e-TB manager using the specified inclusion and exclusion criteria (i.e. Xi-Xiii)
2. Determine sample size for each category i-iii i.e. (Yi-Yiii) from the HIVQUAL sample size chart
3. Write codes using the appropriate database schema, which will be used to pull out the data elements from e-TB manager required by the NigeriaQual TB software module for calculating DR TB indicators for several patients equivalent to the sample size determined in step 2 for each category

4. Run the script of codes to facilitate importation of data into the NigeriaQual TB software module
5. Generate the DR TB reports as required
6. Upload the data to the NigeriaQual web application

Sampling Method #2: Facilities with an electronic medical record system listing of ALL patient LGA TB numbers but with incomplete or no follow-up information will electronically generate a sample size based on the HIVQUAL sample size chart. Sampling will be done in 5 steps:

1. Determine total number of eligible TB patients in each category (i-iiI) from the facility eTB manager (Xi-Xiii)
2. Determine sample size for each category (i-iii) i.e. (Yi-Yiii) from the HIVQUAL sample size chart
3. Randomly generate the eligible patients list (Xi-Xii) for each category and enter the IDs as presented into a Random Number List (RNL)
4. Serially review charts using the RNL, excluding patients that meet the exclusion criteria, until you reach the sample size (Yi-Yiii) for each category
5. Generate the DR TB reports as required
6. Upload the data to the NigeriaQual web application
7. Keep hard and electronic copies of the random number lists

Sampling Method #3: Facilities with no existing electronic databases but have a serial record or line listing of patients who attend clinic daily (E.g. Facility TB treatment register, clinic attendance registers, daily listing of IDs of patient charts/folders pulled or filed by medical records etc.) should manually generate sample size from such records based on the HIVQUAL sampling methodology. Sampling will be done in these steps:

1. Determine the total number of eligible TB patients in each category i-iii i.e. (Xi-Xiii) in the 6 months reference period for each category.
2. Determine sample sizes (Yi-Yiii) from the HIVQUAL sample size chart based on the total number of patients in each category i.e. Xi-Xiii
3. Randomly generate the eligible patients list i.e. (Xi-Xiii) and enter the IDs as presented into a Random Number List (RNL) up to a number equivalent to the sample size (Yi-Yiii) in each category

4. Serially review charts from the RNL, exclude patients that meet the exclusion criteria, until you reach the number equivalent to the sample size of Yi-Yiii for each category.
5. Generate the DR TB reports as required
6. Upload the data to the NigeriaQual web application
7. Keep hard and electronic copies of the random number lists

Table 4.2: NigeriaQual DR TB Audit Tool	
DRUG RESISTANT TB	**Indicator Narratives**
Indicator VII – Baseline Test Documentation	Proportion of patients started on second-line TB treatment during the 6 moths review period who have their baseline (SL-LPA, audiometry, X-ray, AFB, HIV test, EUCr, Pregnancy Test, LFT, TFT, FBS, culture, DST, FBC, HBV, HCV, Urinalysis, ECG (shorter regimen & new drugs) results documented after 12 weeks of sample collection
Numerator	Number of patients started on second-line TB treatment during the 6 moths review period who have their baseline (SL-LPA, audiometry, X-ray, AFB, HIV test, EUCr, Pregnancy Test, LFT, TFT, FBS, culture, DST, FBC, HBV, HCV, Urinalysis, ECG (shorter regimen & new drugs) results documented after 12 weeks of sample collection
Denominator	Number of patients started on second-line TB treatment during the 6 moths review period
Purpose	To ensure that care and treatment provided to clients are based on documented clinical results
Applicability	Applicable at all the participating facilities that provide DR-TB services
Data collection frequency	6 Monthly
Source Document	DR-TB treatment register and folder
Measurement tool	DR-TB Audit tools
Indicator VIII – Follow-up examinations	**Proportion of patients started on second-line TB treatment 12 months prior to the beginning of review period (i.e.12 months after the closing day of the cohort) who have their follow-up examinations (AFB, culture, E/U/Cr, audiometry [if on STR, ECG]) done monthly during the intensive phase within the review period**
Numerator	Number of patients started on second line TB treatment 12 months prior to the beginning of review period (i.e.12 months after the closing day of the

	cohort) who have their follow-up examinations (AFB, culture, E/U/Cr, audiometry [if on STR, ECG]) done monthly during the intensive phase within the review period
Denominator	Number of patients started on second line TB treatment 12 months prior to the beginning of the review period
Purpose	To ensure that all patients started on second line TB treatment have had their monthly follow up examination done as required during the intensive phase
Applicability	Applicable at all the participating facilities that provide DR-TB services
Data collection frequency	Monthly for 6 months
Source Document	DR TB treatment register, treatment card and patient folder
Indicator IX – <u>Treatment Initiation (DR-TB)</u>	Proportion of all DR-TB cases diagnosed during the review period who initiated treatment for DR TB **within two weeks of** diagnosis
Numerator	Number of all DR-TB cases diagnosed during the review period who initiated treatment for DR TB **within two weeks** of diagnosis
Denominator	Number of all DR-TB cases diagnosed during the review period
Purpose	To ensure timely enrolment of all newly diagnosed DR-TB patients
Applicability	Applicable at all the participating facilities that provide DR-TB services
Data collection frequency	Monthly for 6 months
Source Document	DR TB central register, Presumptive TB register
Measurement tool	DR-TB Audit tools
Indicator X - Comorbid Conditions	Proportion of patients started on second line TB treatment within the 6 months review period with documented assessment for **at least one**

	comorbid condition (Diabetes Mellitus, Hypertension, Renal disease, Liver disease, Thyroid disease).
Numerator	Number of patients started on second line TB treatment within the 6 months review period with documented assessment for at least one comorbid condition (HIV, Diabetes Mellitus, Hypertension, Renal disease, Liver disease, Thyroid disease etc.).
Denominator	Number of patients started on second line TB treatment within the 6 months
Purpose	To ensure that all patients are assessed for comorbidity and properly documented
Applicability	Applicable at all the participating facilities that provide DR-TB services
Data collection frequency	Monthly for 6 months
Source Document	TB treatment cards and Patient folders
Measurement tool	DR-TB Audit tool
Community DR-TB Care	
Indicator XI – Community DR-TB Care	Proportion of DR TB patients started on second-line TB treatment 24 months prior to the beginning of the review period, managed by treatment supporters at the community who are declared cured or treatment completed
Numerator	Number of DR TB patients started on second-line TB treatment 24 months prior to the beginning of the review period, managed by treatment supporters at the community who are declared cured or treatment completed.
Denominator	Number of DR TB patients started on second-line TB treatment 24 months prior to the beginning of the review period, managed by treatment supporters at the community.

Purpose	To ensure that all the patients managed by treatment supporters achieve good case holding
Applicability	Applicable at all the participating facilities that provide DR-TB services
Data collection frequency	Monthly for 6 months
Source Document	DR TB Treatment register, patient treatment card, improved treatment supporter notebook/treatment card
Measurement tool	DR-TB Audit tool
Indicator XII – Documentation (DR TB)	Proportion of DR-TB patients started on treatment within the 6-month review period with complete documentation in the following data collection tools: DR-TB treatment register, Treatment cards and Medical consultations in patient folders.
Numerator	Number of DR-TB patients started on treatment within the 6-month review period with complete documentation in the following data collection tools: DR-TB treatment register, Treatment cards and Medical consultations in patient folders.
Denominator	Number of DR-TB patients started on treatment within the 6-month review period
Purpose	To ensure that care and treatment provided to patients are based on documented clinical results
Applicability	Applicable at all the participating facilities that provide DR-TB services
Data collection frequency	6 Monthly
Source Document	DR-TB treatment register, Treatment cards and Medical consultations in patient folders
Measurement tool	DR-TB Audit Tool

4.4.3. Paediatric TB Quality of Care Audit

Overview

This evaluates the quality of TB care and treatment provided to children < 15 years of age enrolled in TB care and treatment centres in a 6-month review period. The audit uses a tool designed to track selected indicators on the quality of TB care and treatment services provided to children < 15 years. It measures facility-level specific quality of care indicators and is conducted at DS TB care and treatment centres that have provided TB care and treatment services to programme enrolees **for at least one year**. Sampled patients are expected to have fulfilled specified criteria. Trained hospital staff at facilities providing TB services will abstract the required information using the tool and following specified sampling procedures. Data on pre-defined care and treatment service delivery indicators are collected for a pre-specified review period, usually corresponding to the review period or earlier. These data are abstracted/extracted from the existing patient medical records where clinical information is documented by service providers. Abstracted data would be entered into NigeriaQual TB software for analysis and report generation. The audit is expected to be conducted biannually.

Inclusion and Exclusion Criteria for Paediatric-TB

Evaluation for Paediatric-TB clinical audit will have three categories of individuals assessed during each review period depending on the date of commencement of diagnosis or treatment. The three categories are:

- Under 6 contacts of index DS TB cases with a confirmed diagnosis of TB within the review period
- Presumptive TB patients under 15 years identified within the 6-month review period
- TB patients under 15 years started on treatment within the 6-month review period

Inclusion Criteria

Medical records from the following are eligible for inclusion in the audit:

- Children under 6 years of age who are contacts of confirmed DS TB index cases who were diagnosed during the review period
- Children under 15 years of age who are Presumptive TB cases identified within the 6-month period review period

- Children under 15 years of age who started TB treatment within the 6-month period review period

Exclusion criteria

Medical records from the following are not eligible for inclusion in the audit:

- Patients whose treatment cards are missing at the time of the evaluation
- Patients above 15 years of age who are either diagnosed or started on treatment during the review period

Sampling Strategy (Paediatric TB)

The Paediatric-TB audit consists of three sampling frames;

- Under 6 contacts of index DS TB cases with a confirmed diagnosis of TB within the review period
- Presumptive TB patients under 15 years identified within the 6-month period review period
- TB patients under 15 years started on treatment within the 6-month period review period

For instance, if the 6-month period under review in each NigeriaQual TB data collection cycle is January 1st, 2017 to June 30th, 2017, then

- all children under 6 years of age who are identified contacts of confirmed DS TB patients diagnosed between January 1st, 2017 to June 30th, 2017
- all children under 15 years of age who are presumptive TB cases identified between January 1st, 2017 to June 30th, 2017
- all children under 15 years of age started on TB treatment between January 1st, 2017 to June 30th, 2017 will be eligible for sampling.

Sampling Methods

Sampling method will differ between TB treatment centres and will depend largely on the existing medical records systems in use, that is paper or electronic and the capacity of the electronic data base. Three methods are described here, and participating facilities will use the sampling method that fits their existing system.

Sampling Method #1: Facilities with electronic medical records system (EMR) e.g. e-TB manager (which includes patient IDs, up-to-date clinical and other follow up information) for all paediatric patients will write codes which randomly select the required number of patient records

(equivalent to the sample size recommended in the HIV sampling guide) meeting the specified inclusion and exclusion criteria. Through a data exchange module, a data set containing the data elements in the NigeriaQual TB Paediatric audit tool will be then be imported to the NigeriaQual TB software in the required format. Sampling will be done in 4 steps

1. Write codes to determine total number of eligible patients for each category (i-iii) of Paediatric TB patients in the facility e-TB manager using the specified inclusion and exclusion criteria (i.e. Xi-Xiii)
2. Determine sample size for each category i-iii i.e. (Yi-Yiii) from the HIVQUAL sample size chart
3. Write codes using the appropriate database schema, which will be used to pull out the data elements from eTB manager required by the NigeriaQual TB software module for calculating DR TB indicators for several patients equivalent to the sample size determined in step 2 for each category
4. Run the script of codes to facilitate importation of data into the NigeriaQual TB software module
5. Generate the Paediatric TB reports as required
6. Upload the data to the NigeriaQual web application
7. Keep hard and electronic copies of the random number lists

Sampling Method #2: Facilities with an electronic medical record system listing of ALL patient LGA TB numbers but with incomplete or no follow-up information will electronically generate a sample size based on the HIVQUAL sample size chart. Sampling will be done in 5 steps:

1. Determine total number of eligible paediatric TB patients in each category (i-iiI) from the facility eTB manager (Xi-Xiii)
2. Determine sample size for each category (i-iii) i.e. (Yi-Yiii) from the HIVQUAL sample size chart
3. Randomly generate the eligible patients list (Xi-Xii) for each category and enter the IDs as presented into a Random Number List (RNL)
4. Serially review charts using the RNL, excluding patients that meet the exclusion criteria, until you reach the sample size (Yi-Yiii) for each category
5. Generate the Paediatric TB reports as required
6. Upload the data to the NigeriaQual web application

7. Keep hard and electronic copies of the random number lists

Sampling Method #3: Facilities with no existing electronic databases but have a serial record or line listing of patients who attend clinic daily (E.g. Facility TB treatment register, clinic attendance registers, daily listing of IDs of patient charts/folders pulled or filed by medical records etc.) should manually generate sample size from such records based on the HIVQUAL sampling methodology. Sampling will be done in these steps:

1. Determine the total number of eligible TB patients in each category i-iii i.e. (Xi-Xiii) in the 6 months reference period for each category.
2. Determine sample sizes (Yi-Yiii) from the HIVQUAL sample size chart based on the total number of patients in each category i.e. Xi-Xiii
3. Randomly generate the eligible patients list i.e. (Xi-Xiii) and enter the IDs as presented into a Random Number List (RNL) up to a number equivalent to the sample size (Yi-Yiii) in each category
4. Serially review charts from the RNL, exclude patients that meet the exclusion criteria, until you reach the number equivalent to the sample size of Yi-Yiii for each category.
5. Generate the Paediatric TB reports as required
6. Upload the data to the NigeriaQual web application
7. Keep hard and electronic copies of the random number lists

Sample size

Review period dates will differ with each cycle so that trends and improvements over time can be observed. The sample size for each facility, that is 'the number of patients' medical records to be audited per facility is based on the HIVQUAL 95% confidence interval sampling; an estimation that allows an error margin of 0.8 and a width of 1.6. Using this guide, facilities with 5,000 or above enrolees audit 150 medical folders. See Appendix 8 for HIVQUAL sample size chart.

Table 4.3: NigeriaQual TB Paediatric Audit Tool	
Paediatrics	
Indicator XIII - Under 6 IPT Completion	**Proportion of under 6 contacts placed on IPT 6 months prior to the review period who completed therapy.**
Numerator	**Number** of under 6 contacts placed on IPT 6 months prior to the review period who completed therapy.
Denominator	Total Number of under 6 contacts placed on IPT 6 months prior to the review period
Purpose	**To ensure that all eligible under 6-year-old contacts of bacteriologically confirmed TB patients placed on IPT are assessed for completion.**
Applicability	Applicable at all the participating facilities that provide DS-TB services
Data collection frequency	
Source Document	**INH register, INH card**
Measurement tool	
Indicator XIV – <u>Paediatric Diagnosis</u>	Proportion of presumptive paediatric TB cases under 15 years identified within the review period who had access to either chest X-ray and/or GeneXpert depending on the age
Numerator	**Number** of presumptive paediatric TB cases under 15 years identified within the review period who had access to either chest X-ray and/or GeneXpert depending on the age
Denominator	**Total number** of presumptive paediatric TB cases under 15 years identified within the review period
Disaggregation	**None**
Purpose	**To ensure that all identified presumptive paediatric TB cases are evaluated for diagnosis**
Applicability	Applicable at all the participating facilities that provide DS-TB services
Data collection frequency	**Monthly for 6 months**
Source Document	Presumptive TB Register, Lab register, under 6 contact registers , X-ray request form
Measurement tool	**Paediatric audit tool**
Justification	

Additional Information	
Indicator XV – Documentation (Paediatrics)	Proportion of Paediatric TB patients started on treatment within the 6-month review period with complete documentation in the following data collection tools: Paediatric TB treatment register, Treatment cards and Medical consultations in patient folders.
Numerator	Number of Paediatric TB patients started on treatment within the 6-month review period with complete documentation in the following data collection tools: Paediatric TB treatment register, Treatment cards and Medical consultations in patient folders.
Denominator	Number of Paediatric TB patients started on treatment within the 6-month review period
Disaggregation	None
Purpose	To ensure that care and treatment provided to paediatric clients are based on documented clinical results
Applicability	Applicable at all the participating facilities that provide DS-TB services
Data collection frequency	6 Monthly
Source Document	DS-TB treatment register, Treatment cards and Medical consultations in patient folders, under 6 contact register
Measurement tool	**Paediatric audit tool**
Justification	

General Observations on Methodology

Random enrolment numbers are entered on a document called the "Random Number List" (RNL) see appendix 7 for sample. The RNL is an important tool in this performance evaluation exercise and must be prepared and available to all members of the facility QI team at the participating facilities at the beginning of the audit. The RNL for each participating treatment facility is generated from patient IDs preferably at the facility level. The RNL has the IDs or patient enrolment numbers of all patients sampled and other important columns. These columns include patient hospital registration numbers, folder audit status (audited or not audited), reason for exclusion (missing folder, dead, transferred or lost to follow up (LTFU) before review period). The number of patient IDs on the RNL may be up to 1 – 3 times the sample size number required for audit, depending on the sampling methodology adopted by the facility, to allow for missing patient folders and folders that will be excluded for various reasons. Facility teams will audit adult folders corresponding to IDs on the RNL in a serial manner, excluding only folders that are confirmed missing or meet the criteria for exclusion. Reasons for exclusion of any folder must be documented on the RNL in accordance with guidelines for completing the RNL. The proportion of missing folders will also be a performance indicator of facility medical records' effectiveness. Facility teams are not allowed to preferentially select (cherry-pick) folders and emphasis is placed on serial audit of the patient IDs on the RNL.

The mode of data abstraction and entry will depend on the type of medical record systems in use. For facilities with paper records, data may be abstracted from facility registers and/or patient folders unto the appropriate Audit tool and subsequently data is entered from the tools into the NigeriaQual TB software for analysis. Facilities with multiple electronic data entry platforms (e.g. desktops, laptops), may enter data directly from patient records into the software. Facilities with electronic medical record systems may generate the required dataset and import directly into the software. For facilities using a sampling method according to the HIVQUAL Sample Size Chart, the highest possible number of folders to be audited is 150. For such facilities that will audit this maximum, a team of 4 persons will audit approximately 38 folders each. At an audit rate of 2 folders/hour, a team working 4 hours/day will complete the exercise in less than 5 days. Abstracted data will be inputted into the NigeriaQual TB software. Regardless of the method employed, it is strongly recommended that data abstraction/entry be done as a team.

The audit tools to be used for data abstraction are designed to collect information on all QI indicators tracked in the NigeriaQual TB Program e.g. the DS TB tool collects data required for calculating 6 indicators, the DR TB audit tool collects data for 6 indicators, the Paediatric TB audit tool collects data for 3 indicators while the non-clinical audit collects data for 5 indicators. The tools also collect other information on patient demographic and other baseline clinical and laboratory information that would allow for secondary analysis related to quality of patient care, programme implementation and patient outcomes. See appendix 1 for audit tools.

4.4.4 Facility Audit

a) Overview

Facility audit process is external to core service provision but directly or indirectly impact the quality of clinical and other wrap-around services provided.

All facilities eligible for and participating in evaluations will be audited using standardized audit tools **(See Appendices 4, 5 and 6).**

Audits will be strictly observatory and by facility staff interviews and carried out by a team comprising of State/LGA officials, Lead IP, IP representatives and facility QI teams (where appropriate) who will be present at the facility at the time of the evaluations. Data for the facility audit will be collated at the State and IP level and shared with State, IP and respective facility leadership for improvements, corrective action and health systems strengthening**.**

b) Facility Performance indicators

Table 4.4: NigeriaQual TB Facility Audit Tool	
Non-Clinical Indicators	
Indicator XVI – Infection Prevention and Control (IPC)	Proportion of infection control strategies in place at the facility (i.e. IPC plan and policy, IPC guidelines, IPC focal person, IPC committee [meeting minutes], IEC materials, evidence of use of IPC checklist to monitor implementation monthly).
Numerator	Number of infection control strategies in place at the facility (i.e. IPC plan and policy, IPC guidelines, IPC focal person, IPC committee [meeting minutes], IEC materials, evidence of use of IPC checklist to monitor implementation monthly).
Denominator	Number of infection control strategies (i.e. IPC plan and policy, IPC guidelines, IPC focal person, IPC committee [meeting minutes], IEC materials, evidence of use of IPC checklist to monitor implementation monthly)
Purpose	**Ensure that all IPC strategies are put in place and being implemented**
Applicability	**Applicable in all the participating facilities**
Data collection frequency	**Monthly for 6 months**
Source Document	**IPC Checklist, IPC plan and policy, IPC guidelines, IPC focal person's report, IPC committee (check mins of meeting), IEC materials, IPC checklist**
Measurement tool	**Non- clinical audit tool**
Indicator XVII – Supervision	Proportion of routine supervisions conducted within the 6 months review period (evidence of supervisory reports with 3 key elements: key findings in facilities, recommendations and action plan).
Numerator	Number of routine supervisions conducted within the 6 months review period (evidence of supervisory reports with 3 key elements: key findings in facilities, recommendations and action plan).
Denominator	Number of months in the review period.
Purpose	To ensure that routine supportive supervisions are conducted
Applicability	All participating facilities
Data collection frequency	6 monthly
Source Document	Visitor's register and TBL supervision register
Measurement tool	None clinical audit tool
Indicator XVIII – Capacity Development	Proportion of TB service providers (lab and pharmacy inclusive) who received any relevant trainings (DOT, HTS, TB/HIV, AFB, GeneXpert, LMIS, PMDT) at least 1 year prior to the beginning of the review period

Numerator	Number of TB service providers (lab and pharmacy inclusive) who received any relevant trainings (DOT, HTS, TB/HIV, AFB, GeneXpert, LMIS, PMDT) at least 1 year prior to the beginning of the review period
Denominator	Number of TB service providers (lab and pharmacy inclusive)
Purpose	**To ensure that staff providing TB services are adequately trained and well informed**
Applicability	**Applicable in all the participating facilities**
Data collection frequency	**Monthly for 6 months**
Source Document	, Training Log, Training Certificate, Training reports, Duty Roster/staff list
Measurement tool	**Non- clinical audit tool**

Non-Clinical Management	
Supply Chain Management	**Indicator Narratives**
Indicator XIX – Availability medicines	**Proportion of months within the 6-month review period during which no stock out of any anti-TB drugs was recorded.**
Numerator	Number of months within the 6-month review period during which no stock out of any anti-TB drugs was recorded.
Denominator	Number of months within the 6-month review period
Purpose	**To assess the availability of adequate anti-TB medicines in the facility**
Applicability	**Applicable in all the participating facilities**
Data collection frequency	**Monthly for 6 months**
Source Document	**Stock cards**
Measurement tool	**Non- clinical audit tool**
Justification	Good commodity management is essential in ensuring that patients get diagnosed early to commence treatment and management of their health condition promptly.
Indicator XX – Availability of Reagents/Consumables	Proportion of months within the 6-month review period during which no stock out of any TB lab reagents/consumables (including cartridges for GeneXpert) for microscopy was recorded
Numerator	Number of months within the 6-month review period during which no stock out of any TB lab reagents/consumables (including cartridges for GeneXpert) for microscopy was recorded
Denominator	Number of months within the 6-month review period
Purpose	Good commodity management is essential in ensuring that patients get diagnosed early to commence treatment and management of their health condition promptly.

Applicability	**Applicable in all the participating facilities**
Data collection frequency	**Monthly for 6 months**
Source Document	Stock card, delivery vouchers
Measurement tool	**Non- clinical audit tool**

4.5. Data Collection, Analysis and Reporting

This phase is implemented concurrently at all participating facilities and has a national timeline of 4 weeks. The success of the evaluation largely depends on the quality of the activities in this phase. As such, targeted quality assurance measures have been embedded within this activity.

Training of personnel involved in the data collection or chart abstraction process is important to enhance the quality of data that is collected. Supervision of the process is also very critical. All implementing partners should work with the management of facilities they support to ensure that all materials needed for data collection, analysis and reporting including Data Collection Tools (DCTs), functional computers and internet facilities are available to the facility QI team for the performance measurement exercise.

4.5.1. Use of the Random Number List:

The random number list (RNL) will guide selection of patients' folders for abstraction and is a very important tool in the chart abstractions for quality of care evaluation process. This is because the quality of the data and success of the exercise is dependent on proper use and completion of this tool. Members of the supervising team must ensure that the rules of the RNL are well adhered to during the exercise. Chart reviews will start with the first number on the RNL and continue serially until the required number of eligible folders has been audited, excluding only folders that meet pre-set exclusion criteria. As soon as the required number of folders has been audited, a line is drawn to indicate completion of the exercise and the remaining unaudited IDs are disregarded. In the rare event that a randomly selected folder is not found, the folder that corresponds to the next randomly selected patient identifier number will replace the missing folder. Folders belonging to patients who died, transferred out or voluntarily discontinued care before the beginning of the review period are excluded from the audit. The proper

use of the RNL helps maintain randomness in sample selection and auditing and reduces the chances of preferential selection (folder cherry-picking). Data for folders corresponding to acceptable IDs as guided by the RNL is abstracted by trained facility-based Continuous Quality Improvement (CQI) teams using the standardized evaluation data collection tools.

4.5.2. Data Entry and Analysis

Data from all audits may be entered during chart abstraction into the NigeriaQual TB software directly or into the paper copy of the tools before entry into the software. In facilities without Electronic Medical Records (EMR), data from chart abstraction and surveys undergoes final review by the team supervisor for completeness and validity. Facilities with EMR will export data to the software. The software will track the progress of data entry and indicate completed sections. The software will also minimize errors in data entry using validation rules. After data entry/import is completed, the software will analyze the data and display indicator report as numerators, denominators, percentages and charts. Data analysis will also involve estimation and comparison of proportions of patients in each facility that meets specified quality of care criteria. Trend analysis will also be formed from the data. Data may be exported to other statistical package to determine associations.

4.5.3. Data Transmission and Generation of Reports

Facility Level: Facilities with internet access should synchronize their data with the state database using web-based application of the software. Facilities without internet access may generate their facility reports and synchronize as soon as they get internet access.

LGA Level:

- Collate/generate all NigeriaQual TB indicator reports for all the facilities and geographic clusters within the LGA
- States with internet access should synchronize their data with the National database using web-based application of the software

State level:

- Collate/generate all NigeriaQual TB indicator reports for all the facilities and geographic clusters within the State

- States with internet access should synchronize their data with the National database using web-based application of the software

Federal level:

- Collate/generate all NigeriaQual TB indicator reports for all the states and geographic clusters within the country

Implementing Partner (IP) Level:

Each IP will have access to data from only facilities that they support. All IPs will have access to state reports through the State Ministry of Health.

All facilities are required to synchronize their data with the central database using the web-based application of the software. This would be done either on or off facility depending on internet availability. Aggregate level reports, which do not include IP reports, would be made public following approval of the data by the FMOH.

4.6 Results Dissemination

Reports for all audits e.g. *DR TB, DS TB*, Paediatric and Non-Clinical Indicators - constitute a facility's complete report. Graphic results will be presented to facility leadership and management as well as members of the TB/HIV care team, through the facility CQI committees or QI Teams within 2 weeks of report preparation. Additionally, reports will be shared with IP leadership and relevant stakeholders at the state and federal levels. IP QI teams will support state MP teams to share state-specific reports with the state leadership. To promote engagement of leadership, trends showing improvement may be displayed at the state and facility level using dashboards. Results will also be shared at state-wide meetings involving facilities within the states. Results are also expected to be shared at conferences and via publications.

4.7 Risks, Benefits and consents

Ensure minimal risk as stated in the NigeriaQual TB data evaluation protocol (this is another document that has received ethical clearance). No patient contact is expected during the evaluation/auditing. All completed chart abstraction forms should be filed in the patients' folders and treated with the same level of confidentiality as their other medical records. Electronic data would be stored in password

protected databases available to only selected programme staffs that have also been trained in confidentiality procedures. Information in the completed database will be linked to patient identifiers.

By identifying quality shortfalls for service delivery, necessary steps to address the issues should be developed within programmes; the quality of care received by the clients as well as their health outcomes should be improved. It will also facilitate improving current standard of care by providing clinicians and other care providers with information on the gaps in TB care. This has the prospect of improving public health and future patient outcomes in a targeted fashion, facilitating programme improvements and sharing of best practices in a cost-effective manner.

No patients should be recruited for the DS, DR, Paediatric or Non-Clinical Indicator. Only retrospective abstraction/extraction of routine patient records will be done.

4.8 Data Security

There will be no data with patient identifiers. Data from all participating facilities will be stored in the database. Information being collected comes from patient medical records and hospital registers. During data abstraction/extraction the information with linkages of unique identifiers to study subjects is kept under lock and key at the hospital facilities until records are returned to the medical records room. No records will be left on desks or in any public place at any time. Privacy of patients' information will be protected, and confidentiality maintained. Only de-identified information on study subjects will leave the hospital facilities and used for data analysis and synchronizations.

Only trained QI staff will have access to the information with linkages of unique identifiers to patients at the level of abstraction / extraction. Access to data will be regulated by passwords. Facility users will have access to data for their facilities only. Facility software administrators will have access to analysis, editing, updating, reporting and synchronization functions for their facilities only.

In an event where access to the internet is unavailable at a facility, data for that facility shall be entered into the software and saved in an encrypted desktop format which can be copied onto a thumb drive and taken to a system with internet connection for uploading/ reporting to the NigeriaQual TB web interface. Accessibility to the NigeriaQual TB software will be unique to each facility i.e. a staff from facility 'A' cannot access data from facility 'B'.

All data abstraction will be performed in secure areas of the facility. All individuals carrying out data analyses and data abstraction will be trained on the ethical implication of their work and would be made to sign relevant documents that prevent them from engaging in unethical actions. The personnel with responsibility on the performance measurement protocol must obtain the Collaborative Institutional Training Initiative (CITI) human subjects certification and be trained in confidentiality procedures. The data base used to store patient management and monitoring data resides on a secured password protected network maintained at the country offices of Implementing Partners, State Ministries of Health and the FMoH Department of Health Planning and Research Statistics. Access to the dataset where analyses will be carried out is limited to select QI programme staff. Facility feedback and publication or dissemination of results and analysis will not contain any unique patient identifiers and so information will not be traceable to any patients.

4.9. NIGERIAQUAL TB DATA USE AND POLICY

The data use policy seeks to describe the entire processes guiding the NigeriaQual TB project in data collection, data management and data use to strengthen the overall Health systems in Nigeria. The data use policy provides a common approach for assessing and improving overall data quality of all the facilities to verify the quality of reported data for key indicators in the states and health facilities. This section will also implement measures with appropriate action plans for strengthening data recording, use, management and reporting system as well as improving data quality.

Thus, the aim of the section is to:

- To serve as a guide for NigeriaQual TB data access and usage between FMoH, UMB, SMoH, IPs and all the facilities supported by various IP's.
- To describe how, where and what the data will be used for.
- To give a clear-cut limit and limitations in the use and management of data.
- To formally establish the implications of a breach of the data use policy by the parties involved.

Definitions of Terms

i. **Data Collection Tools (DCT):** Refers to the medium used to collect data, such as a paper questionnaire or a computer assisted interviewing system. For the project, a paper questionnaire is used to extract information from patient folder/file or other relevant source documents for the five thematic areas of the project.

ii. **Confidentiality:** Refers to the procedures in place to prevent disclosure of personal data, including rules applying to staff, aggregation rules when disseminating data, providing access to unit records, etc.

iii. **Documentation:** All records in any form (written, electronic, scanned) that describe or record the methods, conduct, results or factors affecting the project and the actions taken.

iv. **Quality Assurance (QA):** Quality assurance is an organization's guarantee that the service/ product it offers meet the accepted quality standards.

v. **Source Documents:** Original documents, data and records e.g. hospital records, charts, laboratory notes, ANC registers, patients' folders, pharmacy dispensing records.

vi. **Baseline Data:** Data that serves as the starting point for measuring the performance of a programme and describes the situation to be addressed by the programme. This is used to determine the results and accomplishments of an activity and serves as an important reference for evaluation.

vii. **Data Analysis:** Data analysis is the process of transforming raw data into usable information, often presented in the form of an analytical article, to add value to the statistical output.

The use of data emanating from the NigeriaQual TB performance measurement process would be properly guided by the FMoH and in line with the Nigeria's Statistical Act 2007 which guides use of all data emanating from Nigeria. Under the FMoH data policy and Statistical Act, the confidentiality of clients' data is assured and the roles and responsibility of actors well defined.

Use of data by the facility for quality improvement activities and analysis of data for state and national performance status are all primary purpose for which performance data is collected. Aggregate performance data would therefore be made available for facilities, state and national levels for all stakeholders at various fora and disseminated through publications. Access to patient level data would, however, be highly restricted. Secondary level analysis based on data from performance measurement and publications are encouraged by groups and individuals for academic and programme management purposes. The procedures set by the FMoH in line with its data use policy for accessing data, ensuring

data security, and obtaining ethical clearance for study among other obligations must be fulfilled to access de-identified patient level data.

The FMoH has an ethical review board (Nigeria Health Research and Ethics committee) which would review all protocol applications for secondary level analysis using the performance measurement data. Approval by the board is a part requirement for obtaining patient level data for secondary analysis. The data use policy highlights in detail the process of obtaining FMoH data for secondary analysis.

4.9.1. *Level of users*

i. Facility users will have access to only the reports generated for their facility.
   After data abstraction and entry is complete, reports for each site shall be generated and shared with relevant stakeholders.

ii. LGA users will have access to data reports from all the facilities within their LGA without patient identifiers. The LGA software administrator will have access to analysis, reporting and synchronization functions for their LGA only. LGA users will be able to aggregate data for all, sub-sets or clusters of faciliteis within their LGA.

iii. State users will have access to data reports from all facilities and all LGAs within their state without patient identifiers. The state software administrator will have access to analysis, reporting and synchronization functions for their states only. State users will be able to aggregate data for all, sub-sets or clusters of facilities within their states.

iv. IP users will have access to data from all facilities that they support. IPs will have access to patient-level data from each supported facility for secondary analysis

with electronic concurrence from the individual facilities. IP users will be able to aggregate data for all, sub-sets or clusters of facilities within their supported states.

v. FMoH/National Level users will have access to data from all facilities and states in the country. The FMoH level administrator/data manager will have access to all patient-level data from all facilities, and states in Nigeria. Donors/Implementing partners will have access to all facilities within their domain. Other National level users will have access to multi-facility patient-level data and states in Nigeria after electronic concurrence from the FMoH. Access to patient-level data for any other purposes will be granted through a defined procedure. Request for data will be sent to the FMoH and data will be released after the necessary approvals.

4.9.2 Data quality assurance, validity and integrity

The NigeriaQual TB software is embedded with validation rules to ensure that only valid data is entered and analyzed.

- The NigeriaQual TB software employs the use of carefully developed tables and linkages to prevent duplication.
- The software ensures that for each component of the audit, data entry must be complete by breaking the components into compulsory sections with a few questions.
- A "save/resume" function in the software allows for data entry continuation while also preventing duplication.
- The software also links related variables in the audit to improve data entry.
- While allowing for unavailability of information/data, the software also ensures that key information needed for analysis be entered.

4.9.3 Data review, analysis and reports

- After data entry is completed for each facility, the NigeriaQual TB software will generate results for that facility
- Data entered for each facility are to be uploaded to the online web version (server) of the NigeriaQual software.
- Following accessibility options available for each stakeholder, reports and analysis can be accessed through the NigeriaQual website.
- Reports generated for each facility are to be shared only with relevant authorities in the facility to guide quality improvement initiatives.
- IPs, States and the Federal Ministry of Health will only share reports generated with relevant authorities for the implementation of quality improvement initiatives.
- Reports from each facility are to be submitted according to the timelines specified in the National Guideline for the NigeriaQual TB.

4.10. Ethical Issues in Standard Operating Procedure

The data use policy will comply with all policies and procedures guiding similar data use in Nigeria and as seen in the gazette on Nigeria's statistical report. In view of this, the policy is designed to address the

following ethical principles such as respect for persons, beneficence/beneficiaries and justice, individual autonomy, minimize harm and maximize benefits and equitably distribute risks and benefits by using procedures that are consistent with sound data use and policies that takes the issues below into consideration.

- **Confidentiality: All the data collected for use will be reported in aggregate form:** No individual respondent will be identified.
- **Staff ethical training:** All the participatory staff and supervisors will be carefully trained on human subjects' protection, especially the importance of privacy and confidentiality.
- **Data collection procedures:** Personal names will not be used in coding the collected data to ensure privacy and confidentiality. This will establish that collected data will be treated as anonymous and that individual response in the collected data will not be linked to identifying information.
- **Data collection and management supervision:** Collected data will be used under strict supervision by the relevant authority and explain how the data use will benefit the target groups, stake holders and the society at large
- **Benefits:** (Maximizing Benefits and Minimizing Harm)

  Benefits of the study

  a) This project provides facilities, LGAs, IPs, States and the Federal Ministry of Health with reliable information to guide quality improvement initiatives and fiscal planning to improve quality of care provided to patients.
  b) The project will highlight areas in the management of DS-TB, DR-TB, Paediatrics TB, organizational/financial management, logistics/supply change management that require additional effort to strengthen services delivered to patients.

4.11. Data use and Ownership

The NigeriaQual project is for primary analysis, evaluation and improvement purposes only. However, there exists the risk of unauthorized use of data collected from the NigeriaQual performance measurement for secondary/research analysis purposes. The Federal Ministry of Health shall constitute a committee / review board which will reserve the right of authorization for research using the

NigeriaQual data in and out of the country. No individual or organization shall unilaterally use the NigeriaQual data for publication/presentation of any form without FMoH approval.

The **Terms of Reference** for such a committee shall be as follows:

Constitution and composition

- The Federal Ministry of Health shall constitute an appropriate committee to oversee all issues regarding the use of NigeriaQual performance measurement data for secondary analysis.
- This committee shall be headed by the Federal Ministry of Health and shall include one representative each from all the IPs that participated in the NigeriaQual project.
- The management of each Implementing Partner shall nominate one staff to serve on the committee as a member.
- Other members from related agencies (e.g. NACA, NHREC and other relevant agencies and units in FMoH) may be nominated by the ministry as members of the committee.

Functions and Responsibilities

- Anyone that wishes to use the data collected during the NigeriaQual performance measurement for secondary analysis will have to obtain clearance from the national committee.
- This committee shall provide a template for such clearance including guidelines for submission of concept sheet and even protocols to committee before submission to an ethical committee/ board for clearance.
- Every researcher shall submit a protocol describing in detail the purpose of the research, the specific research questions to be answered, a clear description of the benefits of the study, how the data will be used and how results will be disseminated.
- The committee will evaluate the protocol for relevance, originality and inclusiveness. The committee may suggest a review of the study team/investigators to align with the scope of the study.
- Upon agreement with the protocol and topic for research, the committee shall give the approval for submission of the protocol to an ethics committee/Institutional Review Board for ethical clearance if required. This should clearly state the time allowed for the study, timelines for routine reports of study and terms and conditions upon which the study shall be terminated and approval of topic withdrawn.

- After receiving committee approval, the investigators shall send the protocol through an Institutional Review Board for approval.
- Upon receipt of necessary ethical clearance, the investigator shall then proceed with the study.
- This committee will suggest/nominate co-authors for every study in line with the facilities/partners where the study is conducted.

Table 4.7: Levels of reporting and feedback

		USER LEVELS					
LEVEL	**REPORT TYPES**	**Site**	**IP**	**LGA**	**State**	**National**	**Source Level**
1	Site-specific Report (individual charts and grouped histograms)	√	√	√	√	√	Desktop
2	Multi-site IP-specific Reports (Grouped by sites and indicators)			√	√	√	Web
3	*LGA-wide Reports (grouped by sites and indicators.*			√	√	√	Web
4	State-Wide Reports (Grouped by Sites, Indicators and districts)				√	√	Web
5	Nation-Wide Reports (Grouped by States, IP, Funding agency, geopolitical zone)					√	Web
6	National Summary Reports and feedback to stakeholders on sites specific, multisite, State-wide and Nationwide QI and performance data	√		√	√	√	Web

Level 1 Reports: Site-specific reports

A user with site-level access should be able to generate and view pie charts or histograms of individual indicators as well as indicator reports grouped by evaluation areas e.g. *DS TB indicators* grouped in one histogram. This will be at the site/facility level.

Level 2 Reports: Multi-Site IP-specific Reports

A user with access to Level 2 reports should be able to generate and view reports of facilities that are supported by a specific IP. This user should have the option of viewing site-based reports (as the site user will view it), IP-wide reports and reports grouped by indicators, States or Zones. By indicator, this user can view reports for each *Indicator* on one histogram for all facilities they support, all facility in each state or region.

Level 3 Reports: LGA Report

A user with access to Level 3 reports should be able to generate and view reports of all facilities in a specific LGA. This user should have the option of viewing facility-based reports (as the facility user will view it), LGA-wide reports and reports grouped by indicators. By indicator, this user can generate and view reports for each *Indicator* on one histogram for all facilities in an LGA or facilities in different districts. At a glance, pictorial representation of each indicator result on LGA map should tell this user which facilities are low performing and stronger in the LGA.

Level 4 Reports: State Reports

A user with access to Level 4 reports should be able to generate and view reports of all facilities in a specific State. This user should have the option of viewing site-based reports (as the site user will view it), state-wide reports and reports grouped by indicators. By indicator, this user can generate and view reports for each Indicator on one histogram for all facilities in a State or facilities in different districts. At a glance, pictorial representation of each indicator result on a state map should tell this user which facilities are low performing and stronger in the state.

Level 5 Reports: National Reports

A user with access to Level 5 Reports should be able to generate and view reports as the facilities, IPs and States will view (Site-based, State-wide, IP-wide). In addition, this user will have access to national reports disaggregated by indicators, indicator and funding agency (PEPFAR vs Global Fund), indicator and

State, (indicator and geopolitical zone). At a glance, pictorial representation of each indicator result on a national map should tell this user where the low performing states or zones are.

Level 6 Reports: National Summary Reports and feedback on facilities specific, multisite, State-wide and Nationwide

There will be reports for feedback from each level down to the lower levels so that the information on any level such as site, state wide/ nation-wide performance will be available to all for use, through this, the public can have access to the programme performance. These will be accessible regularly on the webpage using a feedback tab.

Use of NigeriaQual data and reports

The generation of the NigeriaQual report will be twice a year and will be used for programmatic and service delivery improvement.

Every organization is expected to have a CQI team made up of the core CQI officers and officer responsible for development of policies/service models and those responsible for the delivery of services. Once the analyzed results of the thematic indicators are ready, it is expected to reflect the programme's performance.

The mode of sharing involves the SI/HSS unit or CQI team's disseminating the findings to the leadership of the institution and the relevant officers responsible for the service delivery and policy formulation. The dissemination will involve all the spectrum of performance score from the best to the worst. Some of the methods of dissemination involves publications, development of wall charts, meetings- monthly, quarterly and biannual, re-measurement of the tracking Indicators will be repeated to assess improvement every six months.

Section 5

NigeriaQual TB Software System

5.0 Overview

To aid uniform analysis of performance data generated and use of the data for quality improvement activities by the facilities and the tracking of service quality and policy decisions by relevant stakeholders, the FMOH commissioned the development of a software. The software which has both a desktop and web components is expected to enhance the achievement of this goal. This section introduces the software which was referenced in earlier sections of this document. It provides basic information that would guide the use of the software and technical pre-requisites for computer systems for all that need to use the software irrespective of their existing medical records management system. More detailed reference and help on the software may be obtained on the user manual/guidebook which is available online via www.nigeriaqual.ng

5.1 Software Background

The Software system is made of two components:

A desktop version: This is a compact Microsoft Windows application which runs on a MS SQL Server Compact edition database engine.

The Web reporting interface version: This is a Microsoft.NET web application which runs on a SQL Server 2012 Database engine hosted on a dedicated server.

By deliberate design, the Desktop software will ONLY run on MS windows computers.

On the other hand, the Web Interface will run on any browsers, PCs and hand-held devices that include smart phones.

Both components of the software permit data capturing using data entry screens that correspond to the data collection tools (DCTs) for all evaluation areas/domains, namely DS-TB, DR-TB, Paediatric TB and Non-Clinical evaluation area. As much as possible the data entry screens mimics' the paper version to aid work flow. A different Tab is to be used to access each form or domain. Data that are captured are saved using the save button on each section of the form and may be edited for errors. It is advisable to save all data captured as we work to prevent loss of data. The NEXT or PREVIOUS buttons helps to navigate across the sections while completing the forms. Reports for indicators can be generated for

use following data capture for the various domains. In addition to the performance data that is to be captured, details of the facility, facility users and implementing partner would be captured. These are essential information for setting up the software and ensuring appropriate storage of data captured.

The unique features for the desktop application require that the **pre-requisite** be installed prior to installing the application. The individual facility and users would then need to be setup. After every data collection cycle, the administrator for each facility will be expected to upload the evaluation data to the central database for aggregation and central reporting. This is achieved by accessing the menu – ADMINISTRATION > DATA UPLOADS > FACILITY DATA UPLOAD. This process requires internet connectivity.

The use of the web Reporting Interface version requires connectivity to the internet to accessing the URL, logging in and logging out. Since work is already online, there is no requirement for uploading, it is important that all data capture be saved to prevent loss of data.

5.2 Software Requirements

5.2.1 System and environmental requirements listing for the desktop software Version 1.0, Build Version 8.8.8

Operating System:

This version of the desktop software will work with Windows Vista and above. Due to the possibility of Microsoft phasing out support for older systems, it is recommended that this software is deployed on Windows 7 and higher.

Pre-Requisite facilities:

Microsoft.NET Framework 4.5.1

Microsoft SQL Server Compact Edition 4.0

Hardware:

Desktop/Laptop display with 15 inches or higher for best results

RAM: Minimum of 1GB memory

Processor: Intel, with minimum of 1MHz Speed

5.2.2 System and environmental requirements listing for the Web Software Version

Connection to the internet is the only critical requirement.

5.3 Training Requirement

The software is user friendly. A one-day orientation is required for new users who are computer knowledgeable. For computer naïve users, a few days (2-3days) practice should suffice. The training should also be facility-based to minimize training cost. Sample tools for data capture is useful for hands on experience. The secret to using the software is practice, practice, practice.

5.4 User Defined Access

Various level of user level access definition obtains for data security purpose. Access to data capture and editing obtain at facility level only and by specified personnel. Report generation and viewing access would depend on the category of access of the user which is password controlled. The category of expected users and the functions they can execute are summarized in Table 5.1

Table 5.1: Software Users (Web) and Access Capacity

	Users	Data capture and editing	Analysis	Report generation	View standard reports	Analysis and report generation using patient level data
1	Facility	Yes	Yes	Yes	Yes	Specific to facility
2	States	No	Yes	Yes	Yes	Specific to states
3	Federal	No	Yes	Yes	Yes	All facilities and states
4	Implementing partners	No	Yes	Yes	Yes	Specific to facilities /states supported
5	Donors	No	Yes	Yes	Yes	Specific to facilities states supported
6	Public	No	No	No	Yes	Only through request

Section 6

Implementing Quality Improvement Activities

6.0 Overview

This section, in addition to section 2.6 focuses on how to enhance the development of CQI projects and improved service delivery in the NigeriaQual TB programme. Generally, CQI is built on the principle of three tripods:

i. Quality infrastructure- Leadership, political will, manpower, and systems (This forms the base of the tripod)

ii. Performance Measurement-Periodic evaluation of levels of quality of care and services

iii. Quality Improvement Activities- Actual activities and decisions that lead to improved quality of care.

The CQI tripod Principle will c will guide on how to initiate improvement activities in response to data results. It will introduce decision making tools and how to use data/information for decision making and project designs including CQI projects.

6.1 Developing QI Activities. The development of QI activities involves the following steps:

A. Quality Improvement Tools

At every level of QI project designs, QI tools should be used to make decisions that will impart positively on quality of care. These will be fully elaborated during NigeriaQual TB training focusing on the use of performance measurement data for quality improvement.

Categories of tools that can be used are:

- Performance measurement tools
  - Chart abstraction tools/software, prioritization matrix, reporting tools
- Problem analysis tools
  - Flow charts
  - Cause –effect analysis tools: fish bone or Ishikawa diagram, problem tree/but- why analysis
- Activity planning tools
  - Improvement matrix
  - Work plan template

An integral part of performance measurement involves:

– Summarizing of problems/performance gaps

– Clarifying each problem to generate a shared understanding amongst all QI Committee members

– Prioritization (criteria) Matrix

B. Process analysis (Flow chart): Graphic representation of how a process works, showing, at a minimum, the sequence of steps. Flow chart uses a set of standard symbols. This helps to clarify how things are currently working and how they could be improved. It also assists in finding the key elements of a process, while drawing clear lines between where one process ends and the next one starts.

C. Root Cause Analysis (RCA): Class of problem solving methods aimed at identifying the root causes of problems or incidents. Based on the theory that problems are best solved by attempting to correct or eliminate root causes, as opposed to merely addressing the immediately obvious symptoms. By directing corrective measures at root causes, it is hoped that the likelihood of problem recurrence will be minimized. Since prevention of recurrence by a single intervention is not always possible, RCA is often viewed as an iterative process, and considered to be a tool of continuous improvement. RCA Techniques examples are Ishikawa (fishbone) diagram and the Tree diagram

D. Cause-Effect Analysis: A cause-and-effect analysis generates and sorts hypotheses about possible causes of problems within a process by listing all the possible causes and effects for the identified problem

6.2 Project Design and Management:

A project is directed at specific goal. It Involves coordination of interrelated activities and has limited duration- a beginning and an end. It should have a balance between cost, time and quality. The NigeriaQual QI projects should satisfy these criteria. Since it is Continuous Quality Improvement, the projects should continuously build on preceding successes.

Good project management considers:

- What needs to be done
- The standard to guide its implementation

- Who will do it
- How much it will cost
- Who pays for it/who sponsors it
- Outcome/impact on the people

To develop/implement a successful QI project, it should have the following qualities:

- Clearly defined & achievable objectives
- Effective leadership
- A plan that manages and measures progress
- Management commitment and support
- Stakeholders should agree on the project's goals
- Continuous communications
- Stakeholders are appropriately involved

Three fundamental areas of skill needed by all CQI project managers are;

- Planning – The ability to plan the use or organizational resources of time, personnel, budget etc. to achieve organizational objectives
- Technical - The specific professional technical skills needed for a project
- Leadership/management - The ability to manage and motivate people who will implement the project activities, communicate effectively with stakeholders and resolve conflicts and interpersonal problems

6.2.1 Recommended steps in developing a QI project

Initiate and Define

1. Select project & define scope

Plan

2. Define project activities
3. Determine task dependencies

4. Develop schedule

5. Allocate resources

6. Create plan to address risks

7. Create plan to communicate with stakeholders

Implement and Control

8. Implement the project

9. Monitor & take corrective action

Close

10**.** Close out and document progress/findings/lessons learnt

6.3 Conclusion:

The concepts above will guide development of QI projects that will lead to CQI. The approach of implementation should be in line with the PDSA already discussed in section 2. The topics discussed in this section are part of the training modules for the NigeriaQual. Every organization involved in NigeriaQual is expected to key into the processes and strategies as outlined in the guideline and framework, and the required trainings as being organized in NigeriaQual program.