Standard Operating Procedure

for

DATA MANAGEMENT

National Malaria Elimination Programme

Monitoring and Evaluation

Table of Contents

ACRONYMS

ACT	Artemisinin-based Combination Therapy
CORPS	Community Oriented Resource Persons
DCT	Data Collection Tools
DHIS	District Health Information System
DM	Data Manager
DPRS	Department of Planning, Research and Statistics
DQA	Data Quality Assessment
DSNO	Disease Surveillance Notification Officer
FMOH	Federal Ministry of Health
GF	Global Fund
GF R8	Global Fund Round 8
HF	Health Facility
LGA	Local Government Area
IDSR	Integrated Disease Surveillance and Response
IPT	Intermittent Preventive Therapy
LLIN	Long Lasting Insecticide Treated Nets
MSF	Monthly Summary Form
M&E	Monitoring and Evaluation
NGO	Non-Governmental Organization
NHMIS	National Health Management Information System
NMEP	National Malaria EliminationProgramme
PM	Programme Manager
PPMVs	Proprietary and Patent Medicine Vendors
PR	Principal Recipient
QA	Quality Assurance
QC	Quality Control
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test
RMC	Role Model Caregivers
SDP	Service Delivery Points
SMOH	State Ministry of Health
SOP	Standard Operating Procedure
SR	Sub Recipient
SP	Sulphadoxine-Pyrimethamine
VHW	Village Health Workers
WHO	World Health Organization

LIST OF CONTRIBUTORS

Dr. Perpetua Uhomoibhi	NMEP
Abimbola Abioye	NHMIS/DPRS
Dr. Lynda Ozor	WHO
Dr. Abimbola Olayemi	SuNMaP
Dr. Leslie Emegbuonye	CHAI
Dr. A.N Akpan	NMEP
Mr. Tim Obot	NMEP
Mr. Festus Okoh	NMEP
Dr. Olusola Oresanya	NMEP
Dr. Olufemi Ajumobi	NMEP
Dr. Nnaemeka Onugu	NMEP
Mr. Folorunso Adeosun	NMEP
Dr. Ibrahim Maikore	NMEP
Dr. Dinfa Longbap	NMEP
Dr. Aminu Mammud	NMEP
Dr. Musa-Booth Tolulope	NMEP
Mr. Omo-Eboh M.E	NMEP
Mrs. Adewumi A. Agbomola	NMEP
Mr. Abel Ajeigbe	NMEP
Miss Grace Adamu	NMEP
Mrs. Francisca Ekun	NMEP
Mr. Kehinde Oteju	Africare

Mr. Charles Ohikhuai	IHVN
Dr. Lazarus Eze	ARFH
Miss Ronke Olu-Bolaji	SHI
Mrs. Helen Nwokedi	FCT-SMCP
Ikenyi Uche	USAID
Muhammed Salihu	MAPS
Aisiri Adolor	MAPS
Niska Richard	USAID
Olabisi Ogunmola	SHI
Ifeyinwa Umeh	SHI
Cyril Ademu	IHVN
Abiamiri Chimaobi	SHI

FOREWORD

Malaria is one of the leading causes of illnesses and deaths in Nigeria. The effects of malaria have negatively impacted on different demographic and socio-economic groups particularly children under the age of 5 and pregnant women, who continue to bear the burden of infection. It accounts for over 60% of the case burden in health facilities, 11% of maternal deaths and 30% of child deaths in Nigeria. Findings from the 2010 Malaria Indicator Survey indicate that 52% of children under the age of 5 tested positive to malaria using Rapid Diagnostic Test Kits.

The economic burden of malaria for a population of 169 million (2012) at N7, 340 per head per year is estimated at N1,240,460,000,000 naira per year which has enormous, intolerable and devastating impact on economic growth. Nonetheless, in the past decade concrete efforts have been made towards reducing, considerably, the burden of malaria in Nigeria. There have been remarkable increases in funding support for malaria by partners and the government. The programme has experienced a massive scale up of interventions – use of Long Lasting Insecticidal nets (LLINs) and diagnostic testing and treatment of malaria for example.

While implementation across all intervention areas has increased substantially, the rate of reporting as well as the improvement in the quality of data have remained rather low. It is important to point out that there has been a gradual shift from paper-based to electronic data collection process. Successful harmonization and integration of data tools have been witnessed especially with the introduction of the National Health Management Information System (NHMIS). Massive training and capacity building activities at various levels of health system have also taken place.

The Standard Operating Procedure (SOP) is necessitated by the need to standardize the process of data collection at all levels by providing clear, concise and prescriptive procedures on the use of standard Data Collection Tools (DCTs) for the data collection, collation and aggregation. It will facilitate electronic data capture at all levels as well as minimise the ambiguities associated with effective data collection, collation and analysis

through quality assurance (QA) and quality control (QC) measures. It also provides procedures on data retrieval, updating, feedback and back-up processes associated with the national database.

I am confident that this document will serve as a useful guide to all who work with or are interested in malaria data. I also believe that strict adherence to the use of the SOP by all stakeholders at the various levels will improve, tremendously, the quality of data for malaria programme planning, implementation and evaluation.

Dr. Nnenna Ezeigwe

National Coordinator, National Malaria Elimination Programme.

ACKNOWLEDGEMENTS

This document is an effort by the National Malaria Elimination Programme, Department of Public Health, Federal Ministry of Health to improve on the process of malaria data collection, collation and aggregation in Nigeria. It identifies and describes the standard tasks and duties as well as the flow of data from the community level to the National Malaria Elimination Programme at the National level.

We are indeed grateful to the Honourable Minister of Health, Dr. Khaliru Alhassan, the Permanent Secretary, Mr. Linus Awute for their unwavering support to malaria elimination effort in Nigeria. My gratitude also goes to the Director of Public Health, Dr. Bridget Okoeguale. I wish to thank the National Coordinator, Dr Nnenna Ezeigwe who has been in the forefront of the malaria elimination programme in Nigeria.

My appreciation also goes to the malaria partnerships that have consistently supported efforts aimed at improving the quality of malaria data in Nigeria and gladly served in the technical team for the development of this important document. Many thanks also go to the staff of the Monitoring and Evaluation Branch for facilitating the development of this SOP document.

We appreciate all your efforts and hope that in the spirit of true partnership, we shall all contribute to sustainable implementation strategies for effective malaria control in Nigeria.

Dr. Perpetua Uhomoibhi
Head, M&E Branch.

a. INTRODUCTION

The National Malaria Elimination Programme has the mandate for policy development, implementation, monitoring and evaluation, as well as the overall coordination of all malaria control activities in the country. This it does by adopting a multipronged approach using globally acceptable strategies.

The implementation of these interventions is monitored at the community, health facility, LGA and state levels through routine and periodic data generation and management. In view of this, a standard operating procedure is required that outlines the specific processes of the data collection, collation, analysis, and use as well as the data quality assurance processes related to such data, from the point of generation through the hierarchical levels of aggregation.

This document provides the standard procedures that are followed at the various stages of the data management chain. It is a living document that is sufficiently flexible to meet the dynamic needs of the M&E system of the programme.

The purpose of this document is to provide guidelines for all implementers on the steps to take to ensure that the required data are collected and are of the appropriate quality.

b. Objectives

The objectives of this document are to:

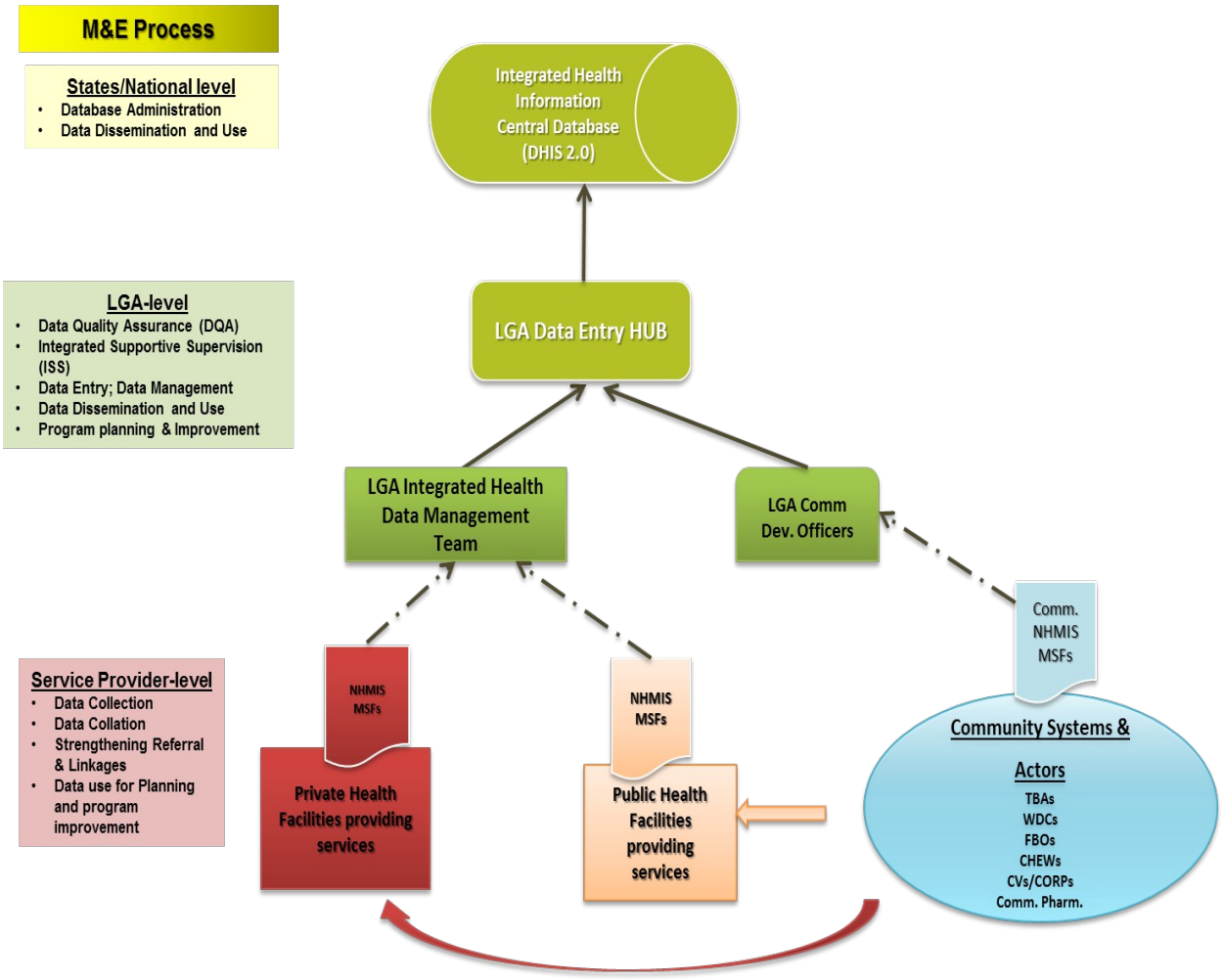
1. Facilitate and standardize data collection at all levels of service delivery by providing guidance and standard operating procedures (SOPs) on the use of standard Data Collection Tools (DCT) for the data collection, collation and aggregation.
2. Enable data to be captured electronically at the State, LGA and health facility levels.
3. Minimize the ambiguities/uncertainties associated with the data through quality assurance (QA) and quality control (QC) measures.
4. Outline the steps necessary to address the discrepancies observed in the reported data during the DQA processes; and
5. Provide guidelines on the data retrieval, updating and back-up processes associated with the national database.

c. Scope of the Data Management Plan

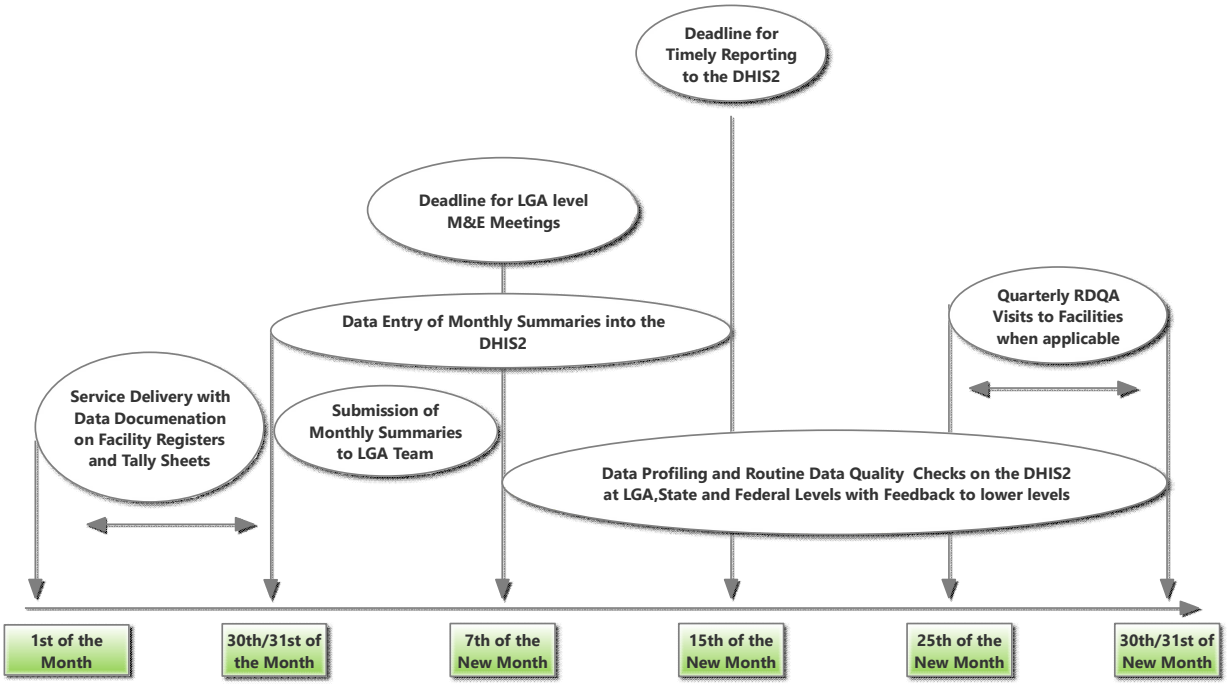
The scope of the data management activities addressed by this plan will include a description of the data flow using diagrams to illustrate the data collection processes and timelines, the definition of the staff roles and responsibilities, the specification of the SOPs for Data Quality Assurance/Supervisory visits, and the management of data discrepancies.

d. DATA COLLECTION PROCESSES AND TIMELINES

The chart below describes the data flow from the community to the national level. It shows the timelines for the data submission, levels of aggregation, the responsible persons at the different levels as well as the feedback mechanisms.



STANDARD REPORTING AND DATA MANAGEMENT TIMELINES



Community

The treatment and commodity utilization data related to children under five are generated at the community level in the public sector by Community Oriented Resource Persons (CORPs); e.g., the Role Model Caregivers (RMC) and private sector by Proprietary Patent Medicine Vendors (PPMVs), on a daily basis. In the public sector, these data are entered unto the DHIS platform by the LGA M&E officer while their private sector partners collect the same data from all participating PPMVs.

Health Facility

Treatment and preventive data are recorded at the health facility for all services provided, including malaria services, using the NHMIS registers (and other applicable recording tools for secondary and tertiary facilities); these are collated into the NHMIS monthly summary form (MSF) monthly. On a monthly basis, the officer-in-charge of the facility, or his designated representative, attends a data validation meeting at the LGA secretariat to which the MSF is submitted and verified.

For the secondary and tertiary facilities, a harmonised monthly summary form will be used to summarize their data as the current NHMIS registers fail to capture fully all of the services provided; moreover, specialized services are provided at this level of health care delivery.

The Department of Planning, Research and Statistics (DPRS) is in the process of rolling out this simplified tool that will enable these facilities to summarize and enter their data directly into the national instance. In the interim, to avoid missing data that are not currently being captured by the NHMIS tools used by these centres, such data from the secondary and tertiary facilities shall be collected from the Hospital Management Board (HMB) on quarterly basis.

LGA

At the LGA level, health facility data are collated by the LGA M&E officer and LGA Focal Persons for all disease programmes of which the data collated is then entered into the DHIS 2.0 Platform by the LGA M&E Officer. Presently data from private health facilities are not entered into the DHIS platform but plans are underway to ensure all health facility data (private & public) are collated and entered unto the DHIS platform on a monthly basis.

State

At the state level, upon the entry of data from all facilities by the LGA M&E Officer onto the DHIS, pivot table of programme data are generated and shared to enable the disease programme officers to analyze their data and apply it to the decision making at the state level. On a monthly basis, a data validation meeting convened by the DPRS at the State Ministry of Health involving all disease programmes is held, during which the issues related to health data for the month are discussed. Feedback is given to the reporting entities and decisions on the data quality and necessary improvements are also taken at this meeting. Once a consensus on the data for the month has been reached, the state data are then reviewed on the DHIS platform before the database for the month closes out.

National

At the national level, the Data clerk will access the national instance of the DHIS 2.0 and create a pivot table to analyze malaria related data for each month. The data quality (timeliness, completeness) and other indicators are also assessed, and reports produced. The data clerk will contact states/SRs that have not yet uploaded their reports, and those with incomplete reports to seek an explanation for the lateness and/or incompleteness of their reports. Such reasons and/or explanations shall be documented. Feedback on the status of the reporting will be sent to the Commissioners of Health/Directors of Public Health/Directors of Planning, Research & Statistics in States Ministry of Health every quarter. The Department of Planning Research and Statistics of FMOH is also copied. States consistently reporting late, not reporting at all or submitting incomplete reports without acceptable explanations will be shown alongside states that are performing well. The data manager checks the data for outliers, ambiguities and inconsistencies and provides feedback

to the reporting entities. A quarterly summary report is produced by the data manager and shared with all stakeholders.

e. ROLES AND RESPONSIBILITIES

The routine data capturing system includes data generation through sentinel surveillance systems, and integrated disease surveillance and response. Data are generated monthly from the six geo-political zones in the country on the entomology of the malaria parasites while data on signals of the emergence of possible treatment failures or parasite resistance to antimalarial medicines and parasite profiles is generated monthly from one site in each of the thirty-six plus FCT States (Malaria Parasite Sentinel Surveillance). Collation of monthly reports on the malaria treatment and preventive services from the health facilities is done using the harmonised NHMIS tools: this data is warehoused in the DHIS v2.0 national instance. Other data generated from sentinel surveillance sites, LLIN campaigns, IRS monitoring, and other malaria control/elimination interventions will, over time, be migrated onto the DHIS so that all the routine data can be accessed on the DHIS as approved by the 56th session of the National Council on Health.

i. Public & Private Health Facilities

- ***At the Health Facility level:*** Trained Health Facility Staff (Records Officers or designated staff) in each health facility, using the recommended harmonised tools for data reporting will collect routine data on fever, malaria cases, diagnosis and treatments. These data are summarised monthly into the NHMIS MSF for primary care facilities and the harmonised monthly summary form for secondary and tertiary care facilities, and are retrieved by the LGA M&E officer on a monthly basis. Although most of the private health facilities are not reporting through the NHMIS system presently, plans are underway to ensure that data from all health facilities (public and private) are captured through this system. A minimal analysis is made of malaria indicators by the health facility staff (see ***Appendix IB*** for indicators). Charts of the analysis done should be placed in a conspicuous place at the health facility; this analysis should also be used to inform decision making at this level.

- ***At the LGA level:*** The LGA malaria focal person in collaboration with the LGA M&E Officer will collate data submitted by all health facilities within the LGA using the harmonised NHMIS MSF for primary care facilities and the harmonised monthly summary form for

secondary and tertiary care providers; the data is entered unto the national instance of the DHIS platform by the LGA M&E officer. Malaria data will be pulled out from the DHIS for analysis by the LGA malaria focal person in conjunction with the LGA M&E officer. Analyses of the data using agreed indicators (see ***Appendix IA*** for indicators) are used to inform decision making at this level.

- ***At the State Level:*** the State Malaria Control Program Manager, with the State Malaria M&E officer carries out validation of data entered on the DHIS and provides feedback to the LGAs and facilities. The State Malaria M&E Officer is also expected to do a comparative analysis on the data using agreed indicators (see ***Appendix IA***). Analysis done should inform decision-making at this level.The State Malaria M&E Officer will analyse the state-level malaria-specific data on the DHIS for trends in malaria incidence, morbidity & mortality, and stock-out reports across LGAs and facilities in the state; the reporting rates and data validity using validation rules in the DHIS will also be checked. The sites with low reporting rates and data quality issues will be highlighted to be visited during the next DQA exercise for follow up of identified data quality and reporting issues. Follow up analysis, after validation rule analysis, on DHIS should also be done by the State Malaria M&E Officer.

- ***At the National Level,*** all States, implementing partners, relevant stakeholders as well as other NMEP branches submit their data to the M&E Branch of the National Malaria Elimination Program. The data, together with other malaria programmatic information from the Epidemiology Division and data on the DHIS, are analysed quarterly based on the predetermined indicators as outlined in the indicator matrix (See NMSP M&E Plan, pg. 37), then shared with the RBM Partners and other stakeholders to be used for decision making. Feedback on data analysed will also be given to all stakeholders by NMEP on quarterly basis.

- Implementing entities shall:

    - Provide hands-on mentoring for the health facility staff who handle the data.

    - Be responsible for ensuring that the data submitted from the Service Delivery Points (SDPs) in each state where they work are of the highest quality (completeness, timeliness, validity, integrity, precision).

    - Receive monthly field reports from the malaria focal persons in each LGA and collate the monthly report which feeds into the quarterly report.

    - Ensure that all the data from HFs are entered electronically on the DHIS v2.0.

- Support the national health management information system and reporting into DHIS in each state where they work.

ii. Community Outlets (CORPS, PPMVs, Pharmacies, etc)

- ***At the community level:*** Trained CORPs (e.g. RMCs and Village Health Workers) and other community outlets will collect routine information on fever, malaria cases, diagnoses and treatment, among others. They will complete the community data monthly summary forms and report to the LGA M&E Officer, in line with the procedures outlined by the FMOH Department of Planning Research & Statistics.

- The LGA M&E Officer and LGA Malaria focal persons, with support from other private sector partners (GF PR for the private sector), will collect data from the PPMVs, Pharmacies, and other community sources. Such data will be entered at the LGA level in line with the procedure outlined by the FMOH Department of Planning Research & Statistics (DPRS). The aggregated data will be analysed at the State level, and shared with relevant stakeholders (including the private sector) at the State monthly meetings. At the National level, the national M&E team pools the data from both the public and private sectors to generate a national report. All malaria related data are archived in the national M&E database for referencing.

f. DATA MANAGEMENT SYSTEMS DESCRIPTION

This section provides information on the data management procedures to be followed by the NMEP and its implementing entities.

i. Database Set Up and Administration

The DPRS FMOH is responsible for the set up and administration of the national instance of the DHIS platform. NMEP sources malaria data from the DHIS 2.0 platform while other data sources not captured on the DHIS platform are currently being archived in an excel database format. This is customized with formulae that are preloaded onto the sheets for ease of aggregation and analysis. It is hoped that over time, all the routine and surveillance data will be available on the DHIS platform, in line with the National Council on Health directive.

The Data Manager oversees the database under the supervision of the Head of Surveillance and Data Management sub-unit of the M&E branch. The Data Manager is responsible for:

1. Ensuring limited and only authorized access to the database
2. Providing routine backup of the database and the documentation of such
3. Conducting routine data validation on data uploaded on the DHIS 2.0 platform.
4. Following up on data quality issues identified during data validation checks.
5. Performing routine virus checks on incoming and outgoing data
6. Preparing monthly, quarterly and annual data reports to share
7. Developing ad hoc reports, as necessary
8. Consulting with staff about data coding problems and assists with developing the means to solve such problems

ii. Data Security Procedures

Data should be stored in a secure location with login and password protection. Access to the database will be controlled by username and password, and limited to staff approved by the appropriate authority (National Coordinator, Head of M&E Branch, SMEP PM, etc). Files received from any reporting entity will be scanned for common viruses using industry-

standard, current virus protection programs. The databank computer must be running current virus protection software, with automatic virus signature updates.

iii. Data Back-up

Data shall also be backed up on other computers in addition to the actual databank computer. Copies of the password-protected backup shall be kept on site on the computers of the Data Manager and the Database Administrator as well as off-site on external hard drives by the same Officers. This shall be done for folders containing data sets received directly from the implementing entities on a monthly basis.

iv. Data Recovery Guidelines

The Database Administrator shall develop a detailed recovery plan using the following guidelines:

1. Obtain a top management commitment
2. Establish a planning committee
3. Perform a risk assessment
4. Establish priorities for processing an operation
5. Determine recovery strategies
6. Collect data
7. Organize and document a written plan
8. Develop testing criteria and procedures
9. Test the plan
10. Obtain plan approval

v. Archiving of Data Source Documents

All data source documents (e.g., registers, tally sheets, vouchers, training attendance sheets, summary reports) should be properly archived at the point of generatione.g. NHMIS registers and back up (pink) MSF copies to be archived at the facility; original MSF (white) copy to be archived at the LGA etc. These should be available for verification during DQA visits. Such documents should be retained for at least seven years after the data were collected. It is important that these are safeguarded from fire, theft, accident, flood or any other natural disaster.

g. DATA QUALITY ASSURANCE SYSTEMS

To ensure the maintenance of standards, a complete audit trail of the information flow must be implemented, as and when due. The DQA process described below shall be in place until such a time when an integrated DQA can be conducted where data from all disease programs can be audited at the same time. Data quality assessments on malaria data shall be conducted quarterly using the standard NHMIS DQA on reported data checklist for the quarter under review as part of the quarterly supervisory visits which have the following objectives:

1. To provide clear guidance on how to conduct a data record review/DQA for aggregated health services data from different points of service delivery
2. To describe how to use the NHMIS (malaria) DQA checklists when performing routine data quality assurance.
3. To document the DQA findings and proffer corrective action plans for data quality improvement.
4. To analyze and provide feedback to the relevant stakeholders.

Users of the DQA

- National Malaria Elimination Programme Officers
- State Malaria Elimination Programme Officers
- LGA RBM Officers
- Health Facility Officer/Health Record Officers
- Implementing Partners
- Donors

Records to be reviewed

- NHMIS Registers, as applicable to the health facility
- Harmonised (NHMIS) monthly summary form
- DHIS

Structure of the Checklist

The checklist has three sections, which are aligned with the most common types of data quality errors found in the facilities. A brief description of each is provided below:

Data availability – This refers to the availability of data filled into the registers and summary forms for the period under review (are the registers & summary forms available at the facility?

are the data fields completely filled? is the MSF signed?. It is the most fundamental data quality issue, and refers primarily to gaps in the data. If fields are missing or records cannot be located, then it is difficult to ascertain whether the required services, as reported, were or were not delivered. Gaps in the data limit the ability to conduct an analysis, and can result in the mismanagement of patients and under-reporting of the results.

Data consistency – This refers to the process of data transfer from one record/data collection tool to another. In all patient care-related activities, there is a flow of patient data collected at service points between a number of data collection and recording tools, either for aggregation or patient management purposes. This requires careful attention on the part of the health care providers and/or medical records staff during the transcription of data from one form to another. A failure to transfer information accurately from one record/tool to another coupled with incorrect aggregation and misalignment of data between different tools can result in the inadequate care and mismanagement of patients, together with the incorrect aggregation and misalignment of data between different tools. During the DQA exercise, there should be a review of the data uploaded onto the DHIS with the LGA monthly summary forms and facility registers.

Data validity – This is also known as accuracy. Even if data are available and consistent, the final type of check necessary is related to the aggregation of data. Data validity in this context can be in the form of simple calculation errors, or failing to correctly sum the data from the registers and lower-level data entry tools into monthly summary forms. The monthly summary forms and reported data on the DHIS are the main source of data used to assess progress in the service provision, and feed into government and donor reports. It is not feasible to assess all possible errors, so this tool is focusing on verifying a selection of variables that directly measure the quantity of the performance outputs.

Expected Period for Data Quality Checks

The Data Quality Assurance (DQA) Exercise is to be carried out on health facilities by the Local Government Area (LGA) RBM Team and State RBM team, including implementing partners working within the state/LGA, on a quarterly basis. A DQA for a particular quarter is carried out in the following quarter of the year. For example, if a DQA exercise is conducted in May, the quarter under review will be January-March of the same year. It is also expected that the National Malaria Elimination Programme shall conduct an external DQA of selected facilities in States on a quarterly basis applying the same tools.

Selection of Facilities

As the DQA is aimed at assessing a cross section of the facilities in selected LGAs, it is important that the selection of facilities is done according to these guidelines:

1. A minimum of 10% of the facilities must be assessed per quarter. The DQA visits conducted by the National, State and LGA DQA shall sum up to this 10%.
2. Facilities visited previously are not to be chosen unless there is a special need.
3. Facilities with ambiguous figures or inconsistent data should be given priority and, where these are absent, facilities with large volumes of data reported should be selected.

Scoring the Checklist

The 3 sections of each checklist (Data Availability, Consistency and Validity) are to be completed for each health facility.

Data Availability

This section consists of 25 questions, assessing the monthly malaria data on DHIS, monthly summary forms and registers. A month under review is selected in the quarter and indicated on the Month heading. Each question has 2 available options - Yes or No. Only one option should be selected (circled) for each question. A score of '1' is given for each 'Yes' selected and '0' for a 'No' option. Comments can also be made when relevant for each question.

Sample of a correctly-completed DQA Section:

1. DATA AVAILABILITY MONTH___MAY_____

	Score			Comments
NHMIS monthly summary form	Yes	No		
a. Is month's site-copy of the NHMIS monthly summary form available?	1	0	N/A	
b. Is month's site-copy of the NHMIS monthly summary form duly signed?	1	0	N/A	
c. Are all the data entry fields completely filled out? *(probe if not)*	1	0	N/A	

Data Consistency

This section consists of 6 questions, assessing each individual patient entry on the register. This section also assesses a month in the quarter under review, which must be stated in the month field. Three patient entries shall be selected and questions applied to the register. The maximum score attributable to each question is 3. When only 2 entries fulfill the required criteria, the mark will be 2 and the same applies for 1 entry. This is accounted for in the overall scores.

Sample of a correctly-completed section

2. DATA CONSISTENCY MONTH APRIL

Results of checks on three randomly selected hospital numbers based on individual patient recordsand the following tools/records: *(Numbers are to be selected randomly from the registers below)*	Score					Comments
Daily general attendance register						
a. How many of the three clients had their age and sex correctly transcribed from the daily general attendance register to the individual patient record?	0	1	2	3	N/A	
Daily antenatal care register(for all women attending ANC)						
c. How many of the three clients were correctly categorized as either a new or follow up clientsin the **daily antenatal care register?**	0	1	2	3	N/A	

Data Validity

The section assesses the error margin between the recorded events and the aggregated data made available on the Monthly Summary Forms (MSF) and the DHIS. It is expected that the LGA Team shall generate a Dataset Report on the DHIS for the facilities under review before embarking on the exercise.

The section reports the figures obtained from the Registers, captured on the MSF and the DHIS. Each figure is entered separately in the columns provided. ALL months in the quarter under review are evaluated in this section. Accuracy ratios are then calculated for figures between the recounted register values and the Monthly summary form.

Accuracy ratios are calculated for each data element for each month using the Excel Template or the DHIS. An average accuracy ratio is then derived for each facility. Weighted

scores are also assigned to each facility and recorded in the summary section alongside availability and consistency.

Accuracy ratio	Interpretation	Weighted Score
<0.85	Under Reporting	0
0.85 - 1.15	Normal	10
>1.15	Over Reporting	0

Sample of completed validity section

3. DATA VALIDITY

For Data elements/indicators, compare the data from the NHMIS registers in use in the health facility with the data reported in the NHMIS monthly summary form and on DHIS

	Data Elements	Months	Register	MSF	DHIS
1	HF attendance for aged 12 - 59 months Males	APRIL	10	11	11
		MAY	10	10	10
		JUNE	8	12	13
2	Antenatal first visit total				
3	Deliveries taken by a skilled birth attendant				

Operational procedure for NHMIS data records review

A. Preparation for the on-site visit

A.1. Decide team composition

A team composed of the following shall carry out data record review/DQA activities:

- National Malaria Program officers
- State RBM team
- Implementing partners

- NMEP M&E field officers
- LGA RBM team
- Donors

A.2. Pre-visit Meeting to Review Previous Data

- Review and extract data from the DHIS for the months to be reviewed during the DQA
- Review the previous month's LGA NHMIS summary form and compare with data from DHIS for data quality issues
- Note any issues or outliers on the trend of the malaria data for discussion and follow up at the site
- Confirm the appointment with the State/site manager for the facility visit

B. Conducting the visit

B.1. Introduction/Advocacy at the State Level

- The national officer on arrival, shall pay an advocacy visit to the gate keepers (State Commissioner, Permanent Secretary, Director Primary Health Care, or Director DPRS SMOH)
- Malaria Focal Persons shall be informed of the LGAs/health facilities to be visited
- Complete State DQA checklist

B.2. Introduction/briefing with the facility in-charge and facility team

- Introduce the team, the purpose of the visit and the procedure
- Acquaint the facility team with the assessment tool
- Request the active participation of the record officer and/or facility in-charge
- Arrange a debriefing with the site manager following the DQA assessment

B3. Obtain the necessary forms and registers

- NHMIS register, as applicable to the facility
- NHMIS monthly summary form
- Harmonised monthly summary form for secondary and tertiary facilities

B.4. Administer the checklist

- If the team is large, assign different people to different sections of the DQA tool
- Obtain the necessary records and go through the checklist. For each item on the checklist, tick yes or no, as applicable

- Where the necessary records are missing, indicate 'no' for each checklist item referring to that record
- Write comments in the 'Comments' column if necessary (when follow up issues are noted, recognize good practices, when the score allocation is unclear)
- When completing each section, add the number of 'yes' scores together and enter the total score where indicated

C. Wrapping up the assessment

- The summary page at the front of the tool is the historical record of the DQA assessment. One summary page should be generated per visit
- Transfer the summary scores from each section of the tool to the summary page
- Transfer significant comments to the *follow up recommendations* on the summary page. If a number of issues are noted, the team leader should decide on the main issues which need to be transferred to this page
- Conduct a debriefing with the site coordinator or head of the facility, LGA RBM officer and State RBM team on the findings of the assessment (it is unnecessary to discuss or share the scores)
- For each recommendation on the summary page, develop a corrective action plan together with the site manager and LGA RBM officer on how to address the deficiencies including the resources/support needed, responsibilities and timeline
- Fill the summary report into the supervisory feedback form, enter the scores into an Excel database and follow up prior recommendations during subsequent visits
- Facilitate data quality improvement by providing ongoing support to the site manager in order to address any deficiencies.

Dealing with Data Discrepancies

Where discrepancies are noted, these should be documented in the DQA checklists and the health facility staff designated to the data collation & reporting notified. Also, the Officer in charge of the Health facility, LGA M&E Officer (and Malaria focal person), State M&E/HMIS officer (and Malaria M&E officer and RBM manager) should be notified so that necessary corrections can be made on the database where necessary.

The summary of the DQA checklist (electronic version/copies) will be shared with all relevant stakeholders at the different levels of data management e.g. state HMIS unit and RBM unit; national HMIS unit and NMEP.

h. APPENDICES

i. Appendix IA: Indicators to be analysed at national/state/LGA levels

S/N	Category	Indicator	Calculation	Level of Analysis
1	**Treatment**	Proportion of persons (under 5 and above 5) treated with ACTs based on clinical diagnosis only	**Numerator**: number of persons (under 5 and above 5) treated with ACTs based only on clinical diagnosis of malaria **Denominator:** number of persons (under 5 and above 5) clinically diagnosed with malaria	National/State/LGA
2		Proportion of persons (under 5 and above 5) with confirmed uncomplicated malaria treated with ACTs	**Numerator**: number of persons (under 5 and above 5) with confirmed uncomplicated malaria treated with ACTs **Denominator:** number of persons (under 5 and above 5) with confirmed uncomplicated malaria	National/State/LGA
3		Proportion of persons (under 5 and above 5) with confirmed uncomplicated malaria treated with other antimalarial medicines	**Numerator**: number of persons (under 5 and above 5) with confirmed uncomplicated malaria treated with other antimalarial medicines **Denominator:** number of persons (under 5 and above 5) with confirmed uncomplicated malaria	National/State/LGA
4	**Diagnosis Diagnosis**	Proportion of persons (under 5 and above 5) with fever tested with RDT	**Numerator**: number of persons (under 5 and above 5) with fever tested with RDT **Denominator:** number of persons (under 5 and above 5) with fever	National/State/LGA
5		Proportion of persons (under 5 and above 5) with fever tested positive with RDT	**Numerator**: number of persons (under 5 and above 5) with fever tested positive with RDT **Denominator**: number of persons (under 5 and above 5) with fever tested with RDT	National/State/LGA
6		Proportion of persons (under 5 and above 5) with fever tested with microscopy	**Numerator**: number of persons (under 5 and above 5)with fever tested with microscopy **Denominator:** number of persons (under 5 and above 5) with fever.	National/State/LGA

7	**Prevention**	Proportion of persons (under 5 and above 5) with fever tested positive for malaria with microscopy	**Numerator**: number of persons (under 5 and above 5) with fever tested positive for malaria with microscopy **Denominator**: number of persons (under 5 and above 5) with fever tested with microscopy	National/State/LGA
8		Proportion of pregnant women who received LLIN	**Numerator**: number of pregnant women who received LLIN **Denominator:** number of pregnant women who attended ANC	National/State/LGA
9		Proportion of fully immunized children under 5 who received LLIN	**Numerator**: number of fully immunized children under 5 who received LLIN **Denominator:** number of fully immunized children under 5	National/State/LGA
10		Number of pregnant women who received at least 3 doses of IPT (IPT3)	**Numerator**: number of pregnant women who received IPT3 **Denominator:** number of pregnant women who attended ANC	National/State/LGA

ii. Appendix IB: Indicators to be analysed at facility level

S/N	Category	Indicator	Level of analysis
1	**Treatment**	Number of persons (under 5 and above 5) treated with ACTs based on clinical diagnosis only	Health Facility
2		Number of persons (under 5 and above 5) with confirmed uncomplicated malaria treated with ACTs	Health Facility
3		Number of persons (under 5 and above 5) with confirmed uncomplicated malaria treated with other antimalarial medicines	Health Facility
4	**Diagnosis**	Number of persons (under 5 and above 5) tested with RDT	Health Facility
5		Number of persons (under 5 and above 5) tested positive with RDT	Health Facility
6		Number of persons (under 5 and above 5) tested by microscopy	Health Facility
7		Number of persons (under 5 and above 5) tested positive by microscopy	Health Facility
8	**Prevention**	Number of pregnant women who received LLIN	Health Facility
		Proportion of fully immunized children under 5 who received LLIN	
9		Number of pregnant women who received at least 3 doses of IPT (IPT3)	Health Facility

iii. Appendix II: Checklist for Data Quality Assessment

I. Availability

II. Consistency

III. Validity

NATIONAL MALARIA ELIMINATION PROGRAM
Checklist for Data Quality Assurance (DQA) of Malaria Specific data

State_____ Quarter/Month_____

LGA_____

Data availability – LGA level

NHMIS Monthly Summary Form (MSF)	Months	Yes	No	
1. Is month's LGA-copy of the NHMIS monthly summary form available?		1	**0**	
		1	**0**	
		1	**0**	
2. Is month's LGA-copy of the NHMIS monthly summary form duly signed?		1	**0**	
		1	**0**	
		1	**0**	
3. Are all the data entry fields completely filled out?		1	**0**	
		1	**0**	
		1	**0**	

Health facility 1 _____ Quarter/Month_____

1. Data availability – Health facility

NHMIS monthly	Months	Yes	No	Comm

summary form				
1. Is month's site-copy of the NHMIS monthly summary form available?		1	**0**	
		1	**0**	
		1	**0**	
2. Is month's site-copy of the NHMIS monthly summary form duly signed?		1	**0**	
		1	**0**	
		1	**0**	
Daily antenatal and postnatal attendance register	**Months**	**Yes**	**No**	**Comm**
3. Are last month's sheets available?		1	0	
		1	0	
		1	0	
4. Are all the bio-data fields completely filled out?		1	0	
		1	0	
		1	0	
7. Does each month start on a fresh page in the register?		1	0	
		1	0	
		1	0	
10. Are all entries in the sheets within the month of reporting?		1	0	
		1	0	
		1	0	
13. Do the '**Antenatal clinic attendance'** columns **(**columns 13) have single entries (a tick) within each row?		1	0	
		1	0	
		1	0	
16. Are all entries in the **'no. of antenatal clinic visits to date'** column (15) completely filled out		1	0	
		1	0	
		1	0	
Monthly Immunization Summary Register		**Yes**	**No**	
19. Is the monthly		1	0	

summary sheet available?		1	0	
		1	0	
22. Are all the fields completely filled out?		1	0	
		1	0	
		1	0	
		1	0	
25. Is the column for LLIN filled out?		1	0	
		1	0	
		1	0	
Health Facility Daily out-patient Register	**Months**	**Yes**	**No**	
28. Are the month's sheets available		1	0	
		1	0	
		1	0	
31. Are all the bio-data fields completely filled out?		1	0	
		1	0	
		1	0	
34. Does the month start on a fresh page in the register?		1	0	
		1	0	
		1	0	
37. Are all entries in the sheets within the month of reporting?		1	0	
		1	0	
		1	0	
40. Does the column 'Confirmed uncomplicated malaria' (column 20) have single entries within each row?		1	0	
		1	0	
		1	0	
Health facility Daily in-patient care Register		Yes	No	
43. Are the month's sheets available?		1	0	
		1	0	
		1	0	
46. Are all the bio-data fields		1	0	
		1	0	

completely filled out?		1	0	
49. Does the month start on a fresh page in the register?		1	0	
		1	0	
		1	0	
52. Are all entries in the sheets within the month of reporting?		1	0	
		1	0	
		1	0	
Total score				**Maximum score: 60**

2. Data Consistency

Results of checks on three randomly selected clients'/patients from the relevant health facility registers: *(Patients' serial numbers are to be selected randomly from the registers mentioned below)*	**Month**	**Score**	**Com**
Daily antenatal care register (for all women attending ANC)			

1. How many of the three clients were correctly categorized as either ANC or PNC **(column 11)** in the daily antenatal care register?		0	2	3	
		0	2	3	
		0	2	3	
4. How many of the three clients had LLIN status correctly documented in 'LLIN given' **(column 21)** during ANC visits in the daily antenatal care register?		0	2	3	
		0	2	3	
		0	2	3	
7. How many of the three clients had their **IPT information (column 22)** correctly filled out in the daily antenatal care register?		0	2	3	
		0	2	3	
		0	2	3	

	Health facility Daily out-patient register (for all clients'/patients with malaria diagnoses)				
10. How many of the three clients with diagnosis of malaria had their ages **(column 11)** tallied correctly with the age dis-aggregation **(columns 18-22**)?		0	2	3	
		0	2	3	
		0	2	3	
13. How many of the three clients with confirmed uncomplicated **(columns 20**) had a malaria test done **(column 19)**		0	2	3	
		0	2	3	
		0	2	3	
16. How many of the three clients with clinically diagnosed malaria **(column 18)** did not have malaria test **(column 19**) done		0	2	3	
		0	2	3	
		0	2	3	
Total Score					**Maximum Score:**

3. DATA VALIDITY

Enter data recorded in the relevant NHMIS registers specified (in bracket) for the each data e below. Record figures reported in the NHMIS Monthly Summary Form (MSF) and on DHIS fo review in the appropriate columns below. Score 10 if Reported (on DHIS) tallies with Actual (NH if it does not.

S/n	Data Elements/Indicators	Month/Year	NHMIS Register (Actual)	NHMIS MSF	Yes
1	Total OPD attendance (OPD)				
2	Total No of fever cases in Health Facility (OPD)				
3	Total No of RDT/Microscopy carried out (OPD/IPC)				
4	Total No of children under 5 years that received RDT/Microscopy (OPD/IPC)				
5	Total No of persons tested positive for malaria using RDT/Microcopy (OPD/IPC)				
6	No of children under 5 with confirmed uncomplicated malaria (OPD)				
7	No of persons 5 years and above with confirmed uncomplicated malaria (OPD)				
8	No of children under 5 with confirmed uncomplicated malaria treated with ACTs (OPD)				
9	No of persons 5 years and above with confirmed uncomplicated malaria treated with ACTs (OPD)				

10	Total No of severe malaria cases reported (OPD/IPC)				
11	Total ANC attendance (ANC)				
12	No of pregnant women who received IPT 1 (ANC)				
13	No of pregnant women who received IPT 2 (ANC)				
14	No of pregnant women who received IPT 3 (ANC)				
15	No of pregnant women who received LLIN (ANC)				
16	No of children fully immunized <1yr (Immunization register)				
17	No of children under 5 who received LLIN (immunization summary)				
18	Did health facilities experience stock out of ACTs for 7 days consecutively in the past one month				

Note on **No.** 16: To retrieve figures from register on children that are fully immu
comment section of the birth month for the preceding 9 months e.g. No of child
April, May, June 2013 will feed into DQA Jan, Feb, March 2014 respectively

NAME OF HEALTH FACILITY IN-CHARGE_____

SIGNATURE & DATE: _____

LGA FOCAL PERSON _____

SIGNATURE & DATE _____

Health facility 2_____Quarter/Month_____

1. **Data availability – Health facility**

NHMIS monthly summary form	Months	Yes	Comments
4. Is month's site-copy of the NHMIS monthly summary form available?		1	
		1	
		1	
5. Is month's site-copy of the NHMIS monthly summary form duly signed?		1	
		1	
		1	
Daily antenatal and postnatal attendance register	**Months**	**Yes**	**Comment**
6. Are last month's sheets available?		1	
		1	
		1	
55. Are all the bio-data fields completely filled out?		1	
		1	
		1	
58. Does each month start on a fresh page in the register?		1	
		1	
		1	
61. Are all entries in the sheets within the month of reporting?		1	
		1	
		1	
64. Do the '**Antenatal clinic attendance'** columns **(**columns 13) have single entries (a tick) within each row?		1	
		1	
		1	
67. Are all entries in the **'no. of antenatal clinic visits to date'** column (15) completely filled out		1	
		1	
		1	
Monthly Immunization Summary Register		**Yes**	
70. Is the monthly summary sheet available?		1	
		1	
		1	
73. Are all the fields completely filled out?		1	

76. Is the column for LLIN filled out?		1	
		1	
		1	
		1	
		1	
Health Facility Daily out-patient Register	**Months**	**Yes**	
79. Are the month's sheets available		1	
		1	
		1	
82. Are all the bio-data fields completely filled out?		1	
		1	
		1	
85. Does the month start on a fresh page in the register?		1	
		1	
		1	
88. Are all entries in the sheets within the month of reporting?		1	
		1	
		1	
91. Do the columns 'Confirmed uncomplicated malaria' (column 20) have single entries within each row?		1	
		1	
		1	
Health facility Daily in-patient care Register		Yes	
94. Are the month's sheets available?		1	
		1	
		1	
97. Are all the bio-data fields completely filled out?		1	
		1	
		1	
100. Does each month start on a fresh page in the register?		1	
		1	
		1	
103. Are all entries in the sheets within the month of reporting?		1	
		1	

		1	
Total score			**Maximum score: 60**

2. Data Consistency

Results of checks on three randomly selected clients'/patients from the relevant health facility registers: *(Patients' serial numbers are to be selected randomly from the registers mentioned below)*	**Month**	**Score**	**Comments**			
Daily antenatal care register (for all women attending ANC)						
19. How many of the three clients were correctly categorized as either ANC or PNC **(column 11)** in the daily		0	1	2	3	
		0	1	2	3	
		0	1	2	3	

antenatal care						
22. How many of the three clients had LLIN status correctly documented in 'LLIN given' **(column 21)** during ANC visits in the daily antenatal care register?		0	1	2	3	
		0	1	2	3	
		0	1	2	3	
25. How many of the three clients had their IPT information **(column 22)** correctly filled out in the daily antenatal care register?		0	1	2	3	
		0	1	2	3	
		0	1	2	3	
Health facility Daily out-patient register (for all clients'/patients with malaria diagnoses)						
28. How many of the three clients with diagnosis of malaria had their ages **(column 11)** tallied correctly		0	1	2	3	
		0	1	2	3	
		0	1	2	3	

with the age dis-aggregation						
31. How many of the three clients with confirmed uncomplicated **(columns 20**) had a malaria test done **(column 19)**		0	1	2	3	
		0	1	2	3	
		0	1	2	3	
34. How many of the three clients with clinically diagnosed malaria **(column 18)** did not have malaria test **(column 19**) done		0	1	2	3	
		0	1	2	3	
		0	1	2	3	
Total Score			**Maximum Score: 54**			

3. DATA VALIDITY

Enter data recorded in the relevant NHMIS registers specified (in bracket) for the each data element o Record figures reported in the NHMIS Monthly Summary Form (MSF) and on DHIS for the months un appropriate columns below. Score 10 if Reported (on DHIS) tallies with Actual (NHMIS Register) and 0 if it do

SN	Data Elements/Indicators	Months/Year	NHMIS Register (Actual)	NHMIS MSF	
					Yes
1	Total OPD attendance (OPD)				10
					10
					10

2	Total No of fever cases in Health Facility (OPD)				10
					10
					10
3	Total No of RDT/Microscopy carried out (OPD/IPC)				10
					10
					10
4	Total No of children under 5 years that received RDT/Microscopy (OPD/IPC)				10
					10
					10
5	Total No of persons tested positive for malaria using RDT/Microcopy (OPD/IPC)				10
					10
					10
6	No of children under 5 with confirmed uncomplicated malaria (OPD)				10
					10
					10
7	No of persons 5 years and above with confirmed uncomplicated malaria (OPD)				10
					10
					10
8	No of children under 5 with confirmed uncomplicated malaria treated with ACTs (OPD)				10
					10
					10
9	No of persons 5 years and above with confirmed uncomplicated malaria treated with ACTs (OPD)				10
					10
					10
10	Total No of severe malaria cases reported (OPD/IPC)				10
					10
					10
11	Total ANC attendance (ANC)				10
					10
					10
12	No of pregnant women who received IPT 1 (ANC)				10
					10
					10
13	No of pregnant women who received IPT 2 (ANC)				10
					10
					10
14	No of pregnant women who received IPT 3 (ANC)				10
					10
					10

15	No of pregnant women who received LLIN (ANC)				10
					10
					10
16	No of children fully immunized <1yr (Immunization register)				10
					10
					10
17	No of children under 5 who received LLIN (immunization summary)				10
					10
					10
18	Did health facilities experience stock out of ACTs for 7 days consecutively in the past one month				10
					10
					10

Note on **No.** 16: To retrieve figures from register on children that are fully immun
comment section of the birth month for the preceding 9 months e.g. No of childr
April, May, June 2013 will feed into DQA Jan, Feb, March 2014 respectively

NAME OF HEALTH FACILITY IN-CHARGE_____

SIGNATURE& DATE: _____

LGA FOCAL PERSON _____

SIGNATURE & DATE: _____