GOVERNMENT OF SIERRA LEONE
MINISTRY OF HEALTH AND SANITATION

NATIONAL MALARIA CONTROL MONITORING AND EVALUATION PLAN 2016 - 2020

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REVISED SEPTEMBER 2017

Abbreviations

ACT	Artemisinin-based Combination Therapy
ADR	Adverse Drug Reaction
ANC	Ante-Natal Clinic
APR	Annual Program Report
BRAC	Bangladesh Relief Activity Cooperation
CBO	Community Based Organization
CBP	Community Based providers
CCMm	Community Case Management Malaria
CDC	Centre for Disease Control
CMS	Central Medical Store
CRS	Catholic Relief Services
DHIS	District Health Information System
DHMT	District Health Management Team
DHS	Demographic and Health Survey
DMO	District Medical Officer
DPC	Disease Prevention and Control
DPPI	Directorate of Policy and Planning
DSS	Demographic Surveillance System
EPI	Expanded Program on Immunization
F-ANC	Focus – Ante-Natal Care
GF	Global Fund
GFATM	Global Fund for AIDs , Tuberculosis and Malaria
HIS	Health Information System
HMIS	Health Management Information System
HMM	Home Management of Malaria
HMN	Health Metric Network
HR	Human Resource
ID	Identification number
IDSR	Integrated Disease Surveillance and Response
IEC	Information Education and Communication
IMNCI	Integrated Management of Newborn and Childhood Illness
IPTp	Intermittent Preventive Treatment in pregnancy
IPTi	Intermittent Preventive Treatment in infant
IRC	International Rescue Committee
IRS	Indoor Residual Spraying
IT	Information Technology
IVM	Integrated Vector Management
KAP	Knowledge Attitude and Practice
LFA	Local Funding Agency
LLINs	Long Lasting Insecticide treated Nets
LMIS	Logistic Management Information system
M&E	Monitoring and Evaluation

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MAL-P	Malaria indicator Prevention
MAL-T	Malaria indicator Treatment
MDG	Millennium Development Goal
MERG	Monitoring and Evaluation Reference Group
MESST	Monitoring and Evaluation System Strengthening Tool
MICS	Multi-Indicator Cluster Survey
MIP	Malaria In Pregnancy
MIS	Malaria Indicator Survey
MoHS	Ministry of Health and Sanitation
MRC	Medical Research Council
MSF	Medicine San Frontier
MTWG	Malaria Technical Working Group
NGO	Non-Governmental Organization
NMCP	National Malaria Control Program
NMSP	National Malaria Strategic Plan
PBSL	Pharmacy Board of Sierra Leone
PHU	Peripheral Health Unit
PMV	Patent Medicine Vendors
PSM	Procurement Supply Management
RBM	Roll Back Malaria
RDQA	Routine Data Quality Assessment
RDT	Rapid Diagnostic Test
RR&IV	Report Request and Issue Voucher
SLRC	Sierra Leone Red Cross
SoP	Standard Operating Procedure
SP	Sulphadoxine+Pyrimethamine
SR	Sub- Recipient
SSL	Statistic Sierra Leone
TA	Technical Assistant
TBA	Traditional Birth Attendant
TOT	Training Of Trainer
U5	Under Five
UMC	United Methodist Church
UNICEF	United Nations Children fund
WANMAT	Western Africa Network for Monitoring Antimalarial Treatment
WARN	West African Regional Network
WHO	World Health Organization

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Executive summary

This Monitoring and Evaluation (M&E) Plan was developed together with the National Malaria Strategic plan for the period 2016-2020. It is in line with the National Health Recovery and Resilient Plan of the Ministry of Health and Sanitation. It is a framework for monitoring and evaluating the level of implementation of the malaria strategic plan for the period 2016 – 2020. The specific M&E actions to be undertaken will generate information that will enable the National Malaria Control Programme (NMCP) to monitor the performance of the programme. In particular, this information will create knowledge for improving health care especially for malaria cases. It comprises of three (3) sections:

Firstly, there is an introduction that provides background information that allows the reader to understand the context of malaria control in the country.

The second section describes the goals of the National Health Recovery and Resilience Plan 2015-2020 including key definitions of malaria monitoring and evaluation, the M&E framework, the indicators, data collection methods and data quality checks among other things.

The third section describes how the M&E plan will be implemented, M&E budgeted activities to ensure that the necessary data are collected, analysed and disseminated to relevant stakeholders.

Impact-oriented monitoring and evaluation is most effective when stakeholders are involved in a creative process of learning how to improve the health systems on a continual basis. Therefore this M&E Plan was developed with the participation of Roll Back Malaria (RBM) stakeholders and reviewed by the national M&E technical working committee.

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Acknowledgements

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SECTION I INTRODUCTION AND BACKGROUND

1.0 Malaria situation and epidemiology:

Malaria is endemic in Sierra Leone with all the population at risk but pregnant women and children under five years are the most vulnerable. *Anopheles gambiae* still remains the predominant vector with a high proportion of *An. Gambiae sl*. *Plasmodium falciparum* is the dominant parasite responsible for all severe cases and over 90% of uncomplicated cases

According to 2016 routine data, over 40% of outpatient morbidity for all age groups is due to malaria, 60% in under-five children and accounts for 28% of all hospital admissions. Routine data on malaria cases and deaths is weak but available information indicates that they account for 25%of deaths in all ages and 38% among under-five children. The SLMIS 2016 reported the malaria prevalence rate of 40% as measured by microscopy with the prevalence higher in rural areas (49 %) than in urban areas (25 %).

1.1 Goals, Objectives, Target and Interventions of the National Malaria Strategic Plan 2016-2020

1.1.1 Goal:

By 2020, reduce malaria morbidity and mortality by at least 40% compared with 2015.

1.1.2 Objectives

To achieve the above goal, the following objectives have been identified:

1. **Objective 1a:** All suspected malaria cases should have access to confirmatory diagnosis
   Objective 1b: All malaria cases to receive effective treatment.
2. **Objective 2a**: Provide access to 100% of the population at risk with preventive measures by 2017
   Objective 2b: To protect at least 80 % of pregnant women and children under one year with IPT 3 by 2020
3. **Objective 3:** To provide knowledge to the population such that at least 80% practise malaria prevention and treatment measures by 2018.
4. **Objective 4:** By 2020, at least 95% of health facilities report routinely on malaria programme performance.
5. **Objective 5:** By 2020, maintain and strengthen capacity for program management, coordination and partnership to achieve malaria programme performance at all levels.

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1.1.3: Key intervention strategies and activities in the National Malaria Strategic Plan:

1.1.3.1: Effective Case Management

Objective 1a: Diagnosis - All suspected malaria cases should have access to confirmatory diagnosis

The MoHS endorses parasitological confirmation of malaria to be part of good clinical practice to improve the quality of care of patients. Before treatment is instituted, confirmation should be done using microscopy or Rapid Diagnostic Tests (RDTs) and prompt and effective treatment with ACTs.

The National Malaria Control Programme (NMCP) seeks to strengthen the capacity of health workers both in the public and private health sectors to implement the new Test, Treat and Track (T3) strategy by strengthening capabilities in prompt and targeted malaria case management; integration of quality assurance and quality control systems; incorporating malaria in pregnancy into the maternal and child health strategy; improving the procurement and supply chain for the commodities for malaria prevention and treatment; proactive engagement of the private sector in malaria control, as well as community participation in diagnosing, treating and reporting malaria cases.

Strategy 1.1a: Ensure provision of diagnostics at public, private and community levels

Procurement of RDTs and microscopy reagents and sundries for all health facilities will be done through the National Medicines Supply Agency (NMSA). To scale up diagnostic capacity in the private health sector, quality assured RDTs will be provided at a **FREE of COST** basis. Training of Health Workers (hospitals staff, Peripheral Health Unit staff and Laboratory technicians) on RDTs and microscopic diagnosis of malaria is ongoing. Additionally, Community Health Workers were also trained on malaria case management and use of RDTs.

Support supervision will be conducted at all levels including the districts, the private sector and at the community level to strengthen malaria diagnostic capacity.

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Objective 1b: Treatment - All malaria cases to receive effective treatment.

Strategy 1.1b: Ensure provision of effective treatment through the public and private sectors.

Health workers from the public and private health sectors will be trained and re-trained on the revised national treatment guidelines severe malaria management, with particular emphasis on adherence to test results and case management guidelines. The NMCP will ensure regular provision of antimalarials at all levels of the supply chain system.

Standard Operating Procedures, job aids and treatment algorithms will be produced and provided to health workers in the public and private health sectors and Community Health Workers (CHWs) during training and supportive supervision visits, using standard check lists.

Central level teams will routinely provide the District Health Management Teams (DHMTs) with mentorship and supportive supervision skills to support the health workers and the CHWs.
Improving quality of care is a key and as a result the DHMTs will be trained in supportive supervision skills. Trainings will be conducted nationwide.

Strategy 1.1c: Scale up and strengthen Community Case management of malaria

The Ministry of Health and Sanitation adopted a strategy for bringing treatment as close to the households as possible. Community Case Management of malaria (CCMm) was adopted nationwide to facilitate access to and reduce the treatment gap for malaria; The CCMm strategy includes using ACTs to treat malaria after confirmation with malaria RDTs. The NMCP will contribute to this strategy by producing appropriate training materials for the CHWs.

The CHWs will be supervised regularly by trained staff of the NMCP, implementing partners, civil society organisation personnel, DHMTs, PHU staff and community stakeholders. The NMCP ensures the supply of required RDTs and ACTs, medicines, equipment, registers, treatment algorithm and job aides in partnership with other implementing partners

Strategy 1.1d: Strengthen capacity of monitoring the antimalarial treatment efficacy and safety studies

The MOHS will routinely monitor the drugs of choice and alternative medicine to map out trends of drug resistance and safety by conducting regular efficacy and safety studies at established sentinel sites.

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Each established sentinel site should be monitored every two years to effectively map out treatment efficacy and safety trends for medicine of choice and alternative option. Taking cognizant of the aforementioned, there is need to set up baseline data for its efficacy and safety.

1.1.3.2: Multiple Prevention Methods:

Objective 2a: Provide access to 100% of the population at risk with preventive measures by 2017

This strategic plan proposes to use three vector control strategies; long lasting insecticide treated Nets (LLINs), indoor residual spraying (IRS) and larval source management (LSM) will be deployed according to the current risk stratification context. For LLINs, universal coverage for LLINs mass campaign is planned for by June 2017. Mass distribution campaigns will be repeated every three years and routine LLIN distribution through ANC and EPI will be done nationwide to maintain high levels of coverage during the entire period of the strategic plan. Strengthened Public-Private partnership will serve as an opportunity for resource mobilization to scale up implementation of IRS as recommended by WHO. Another crucial component of the Integrated Vector Management will focus on reduction of larval sources through larviciding and environmental management targeting the 14 health districts.

Strategy 2.1a: Universal Access to LLINs through mass distribution campaign;
Universal Access through routine LLINs (ANC and EPI)

Use of WHOPES approved long lasting insecticidal nets (LLINs) will be the primary method for preventing malaria countrywide. This strategic plan proposes to procure LLINs, distribution of the LLINs through mass campaigns and routine distribution through ANC and EPI. BCC for LLINs use and maintenance at households will be conducted prior to mass campaigns and continuously for routine distribution (See also Objective 3).

Furthermore, the NMCP will update and implement the malaria communication plan, monitor coverage and use of LLINs at household level through post distribution and utilization surveys. Scheduled MIS and DHS will provide country level information on LLIN utilisation.

Strategy 2.1b: Strengthen capacity in entomology, epidemiological surveillance, insecticide resistance monitoring and vector behaviour

Vector surveillance and insecticide resistance monitoring are fundamental components of resistance management strategy to ensure Sierra Leone implement a cost effective and efficient control strategy. This strategy will equip the NMCP, partners and the districts with knowledge and skills to implement an informed and evidence-led vector control program in order to achieve maximum impact. Four regional hubs consisting of six sentinel sites will provide annual information on vector composition, vector behaviour and susceptibility of

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local vectors to insecticides as well as information on LLIN longevity and effectiveness. Additionally, these sites will be linked to the antimalarial efficacy and safety studies.

Objective 2b: Intermittent Preventive Treatment (IPT) - To protect at least 80 % of pregnant women and children under one year with IPT 3 by 2020

Strategy 2.2b: Delivery of Intermittent Preventive Treatment in pregnancy (IPTp)

Malaria in pregnancy (MiP) prevention is integrated into in the overall basic ANC package for maternal health which includes the provision of IPTp, LLINs, prompt diagnosis and treatment of fever due to malaria and health education. WHO recommends that in areas of stable transmission, all pregnant women should receive at least three (3) doses or more IPTp-SP as early as possible in the 2nd (13 to 16 weeks) trimester during routinely scheduled antenatal visits. The adoption of this recommendation commenced in 2016 and administered as a directly observed therapy of three tablets each. *(National Guidelines and strategies for malaria prevention and control during pregnancy in Sierra Leone, Pgs. 6 and 7. March 2017)*

The MoHS/NMCP will be responsible for updating guidelines and job aids on IPTp, orienting health workers on updated IPT guidelines, producing integrated data collection tools for MIP, procuring SP for the public and private sector and mobilizing communities on antenatal care attendance in collaboration with the Directorate of Reproductive and Child Health.

Intermittent Preventive Treatment in Infancy (IPTi)

The Intermittent Preventive Treatment for Infants (IPTi) will be delivered through routine EPI services at health facilities.

SP-IPTi is the administration of Sulphadoxine+Pyrimethamine for infants at intervals corresponding to routine vaccination schedules for the second and third doses of Penta and Measles/Yellow fever vaccination usually at **10 weeks, 14 weeks** and **9 months** of age respectively.

Objective 3: To provide knowledge to the population such that at least 80% practice malaria prevention and treatment measures by 2018.

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Implementation and coordination of this multi-sectoral malaria control strategy by the Ministry of Health and Sanitation (MoHS) will require a more vibrant SBCC approach. Civil society organizations (CSOs) and community based organizations (CBOs) will empower and encourage communities to demand for services, know their health rights, and accountability from duty bearers therefore increasing utilization and value for money.
Advocacy, social behaviour and change communication (SBCC) will be driven by the understanding of changing models that emphasize engagement with various participant groups and strengthen empowerment of households and communities to adopt appropriate behaviour. Activities will seek to reduce malaria morbidity and related mortality by motivating every Sierra Leonean to take recommended actions to prevent, diagnose and treat the disease and to bring about sustainable social and individual behaviour change. It acknowledges challenges in the areas of prevention and vector control, malaria in pregnancy, in infants and case management and proposes strategies for effective communication with relevant stakeholders

Advocacy, Communication and Social Mobilisation (ACSM) to scale-up demand for malaria prevention and treatment services.

The Malaria communication strategy will be revised, updated and disseminated to address and track the control of policy and resource commitments to effective service delivery in communities using appropriate strategies. The national communication framework will build on current high levels of knowledge about malaria prevention to create awareness about appropriate case management and health care seeking behaviour, while addressing barriers to change in attitudes and practices identified in the Knowledge Attitude and Practices Survey (KAP 2012). Once the communication framework is developed, all partners will be able to buy in such that the communication is structured. This will also define the approaches that will be used to reach the targeted audience for maximum benefit and participation in malaria prevention, treatment and control

In order to increase awareness, knowledge and to stimulate demand for malaria prevention and treatment through Information, Education and Communication,(IEC) materials will be developed, deployed and disseminated to various groups throughout the country with the aim of creating demand, social and behaviour change. NMCP will develop, pre-test, print and disseminate approved IEC materials. Sierra Leone's approach will target social, individual and environmental and health systems levels through promotion of a supportive society at family, community and policy makers. Communication materials on malaria will be developed or updated and translated in to local languages for behaviour change, namely: (i) At the community levels to mobilize and strengthen community capacity and change social

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norms; (ii) At the level of engaging the individual and households for behaviour change (iii) At the policy level.

Strategy 3.2: Strengthen behavioural change for malaria at all levels

This strategy will focus on conducting community dialogues, promoting interpersonal communication, film shows, community theatres – containing integrated malaria message in each episode and engaging community institutions and religious organizations. Community Health Workers (CHWs) will be trained on malaria interventions and will conduct focused household visits-Interpersonal Communication (IPC). The MOH and CSOs / CBOs will conduct community dialogue forums, dramas and other social mobilization interventions to boost malaria control and treatment behaviour among the community. These will include strategic engagement of school pupils to champion malaria intervention messages and act as change agents at home and among peers. Social mobilization and peer mentoring techniques will also be used to facilitate integration of malaria talking points into the activities of the clergy, community leaders, policy makers and the heads of primary and secondary schools.

Objective 4: By 2020, at least 95% of health facilities report routinely on malaria programme performance.

This objective focuses on achieving at least 95% of health facilities routinely reporting on malaria programme performance. All districts are expected to routinely report on malaria programme performance. Currently, 14 out of 16 districts have DHIS2 software and District Monitoring and Evaluation Officers. At DHMT, level all data from health facilities including the community are compiled and inputted into computer using DHIS2 software which is electronically transmitted to the National level.

Secondly, most of the implementation of routine interventions takes place at the district level where activity reports are collected. Thirdly, partners implementing at district level should generate reports and submit them to the district. The district structures will be strengthened to ensure that all HMIS data and activity reports are collected, collated and analysed at all levels. All malaria policies will be guided by coordinated operational research on malaria. To monitor the progress attained and aide planning, regular monitoring through program reviews and surveys will be given a high priority

Strategy 4.1: Improve on malaria data collection and reporting through HMIS (public and community).

Generation, collection, collation and transmission of all health data is the mandate of the Ministry of Health and Sanitation. They collect routine malaria data, which are accessed through the DHIS2. This M&E plan will support training of staff in DHIS2, conduct revision and dissemination of HMIS tools. In addition the plan will strengthen the regular collection,

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collation, analysis and reporting of malaria data. The NMCP/MoHS will strengthen data collection, management and analysis capacity so that all districts are capable of timely reporting. The plan will also aim at harmonizing integrated supportive supervision tools before its nationwide scale up. In addition the plan will build capacity for M&E staff in data quality audits and routine data quality assessments.

Strategy 4.2 Improve on data demand and use at all levels

Data generation and use for programme planning is the core responsibility of the NMCP M&E. This M&E plan will support training of health workers in data use for decision-making and support capacity building for geographical information systems - GIS for use in malaria mapping and programming. Procurement of GIS equipment and software and training of relevant staff will be supported. The plan will support the development and provision of routine updates of malaria stratification maps using routine and survey data to enhance evidence based decision making at district level. The program will develop, disseminate and regularly update a grid of core indicators for regular monitoring of the malaria status in the country. The programme and the districts will also produce and widely disseminate quarterly and annual reports to all stakeholders, including the communities and the media.

Strategy 4.3 Conduct regular malaria surveys/evaluations

In order to assess the programme performance in line with the set outcome and impact indicators, in addition to the routine data, the programme together with the RBM partners will conduct periodic surveys and studies. This M&E plan will support the implementation of annual representative health facility (public and private) assessments for the quality of malaria care (uncomplicated and severe) and other surveys including: Service Availability and Readiness Assessments (SARA), Malaria Indicator Surveys (MIS), Demographic Health Survey (DHS) and impact evaluations

Strategy 4.4 Strengthen routine epidemiological, parasitological and entomological capacity for malaria surveillance

Epidemiological surveillance is fundamental in understanding the temporal and spatial distribution of malaria in Sierra Leone, while entomological surveillance enables the country to know the distribution of vectors so as to implement appropriate malaria control interventions. This M&E plan will guide the National Malaria Control Program and partners to conduct sentinel surveillance and train medical entomologists to boost the country's capacity in entomological surveillance. The plan will also guide the conducting of vector behaviour and bionomics studies, therapeutic efficacy and safety test studies of antimalarials at selected sentinel sites every two years (see also Objective 1), parasite prevalence surveys among children 6-59 months at representative sites nationwide every two years and insecticide susceptibility studies (see also Objective 2). In addition the NMCP in

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collaboration with the Pharmacy Board of Sierra Leone (PBSL) will support districts to established/strengthen functional systems for Pharmacovigilance of antimalarial drugs

Strategy 4.5: Develop and Implement Operational Research Agenda to generate evidence for decision making

It is through operations research that the country will adopt informed decisions in the control of malaria. In pursuit of this plan, strengthening research capacity to generate the evidence required for evidence-led policies, inform interventions and programmatic decisions will be a priority.

The NMCP in collaboration with Directorate of Research and Non Communicable and Post Graduate Studies, national and international academic institutions and other partners will define a malaria operational research agenda, maintain collaboration with local and international research institutions and provide a forum for research results dissemination. To support the national IVM strategy, the country will seek to conduct operational research evaluations to generate context specific evidence on the effectiveness and operational feasibility of alternative vector control interventions that may provide additional impact to LLIN and Insecticide Resistance.

Objective 5: By 2020, maintain and strengthen capacity for program management, coordination and partnership to achieve malaria programme performance at all levels.

The National Malaria Control Programme is expected to have more challenging issues that will need to be addressed during this period 2016-2020. Some of these include new innovative tools such as malaria vaccine that are expected to be introduced after recommendations are passed for implementation in the country. This will require a level of readiness for its adoption, if it is to be implemented. There are also other innovative tools in diagnosis, treatment and vector control that may be introduced during this period.

Strategy 5.1: Strengthen central, district and community levels advocacy for resource mobilisation across all sectors.

During the implementation of the 2016-2020 SLMSP, advocacy will continue for the elevation of the position of the NMCP through advocacy meetings with line ministries, Rollback Malaria Partnership and other key stakeholders. This strategic plan aims to rapidly scale up cost effective interventions in a synchronized manner to national scale to achieve impact. In order to mobilize additional resources that will be required to implement the strategic plan, the programme will hold advocacy meetings and engage all potential funders (public and private) to mobilize resources for malaria prevention and control. The NMCP will develop concept notes, proposals, and work plans for resource mobilization from the government, development partners and the corporate private sector

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Strategy 5.2: Strengthen human resource development capacity and management to deliver malaria control interventions at all levels

In order to effectively implement the 2016-2020 SLMSP, the overall national health system needs to be strengthened. This will entail strengthening the national and districts capacity to deliver malaria control services at all levels. Capacity needs assessment will be conducted and the identified gaps used to advocate for the recruitment of staff to fill the vacant and new positions at all levels and also to address infrastructure (office space and equipment) gaps. The NMCP will encourage districts to hold monthly coordination meetings with partners implementing malaria control activities and will participate in DHMT/PHU In-Charges meetings where feedback is provided and key issues relating to malaria control are discussed. The NMCP will support annual district integrated health sector planning to include key malaria interventions in their work plans, and conduct regular integrated supportive supervision. Malaria policies, guidelines and job aids will be reviewed, updated and disseminated to the districts

Strategy 5.3: Strengthen procurement and supply chain management of malaria commodities

The quantification of malaria pharmaceuticals and non-pharmaceuticals is the primary responsibility of NMCP working in collaboration with Directorate of Drugs and Medical Supplies (DDMS). The supply of ACTs at health facilities has improved over time with the increase in commodity availability and improvement in national forecasting of supplies. Supply of antimalarials from health facilities to Community Health Workers still remain a challenge. To boost health worker and community confidence in health care interventions, consistent and timely supply of antimalarial commodities is essential. Currently, procurement of antimalarials is through the Global Fund supported Pooled Procurement Mechanism (PPM) system.

However, it is proposed that National Medicines and Supply Agency (NMSA) will take over procurement and distribution these commodities to all levels of care through both the ‘pull’ and ‘informed push’ system. The NMCP, DDMS and the DHMTs will conduct integrated supportive supervision and verification of the supply and distribution process in the public, private, private-not-for-profit sectors and community levels. During supportive supervision, the teams will ensure the availability, update and correct use of tracking tools (Inventory Control Card, Report, Request and Issue Voucher (RRIV) for each level of care, will be supplied by the supervising teams. The NMCP will also hold quarterly review meetings to assess and resolve the PSM challenges and bottlenecks.

Strategy 5.4: Strengthen coordination and partnership

The NMCP is mandated to coordinate all malaria prevention and control activities by all stakeholders in the spirit of the ‘three ones’. This strategic plan aims at strengthening the coordination role of the NMCP by conducting malaria partner mapping to identify and define

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their activities and geographical scope. The NMCP will streamline malaria control efforts to ensure the delivery of a comprehensive package of interventions to targeted populations and avoid duplication.

In addition, the Programme will ensure that regular Programme meetings; thematic group meetings, RBM in-country partnership coordination meetings, quarterly, annual and bi-annual review and planning meetings are held. Beyond national coordination, the NMCP will organize and participate in cross border malaria activities and meetings with neighbouring countries in the region.

In line with the targets of the Ministry of Health and Sanitation stipulated in the Public-Private partnership strategy frame work drive, the NMCP commits to spearhead a strong partnership through coordination meetings with the private sector specifically to address effective malaria treatment and prevention strategies. This plan has embraced a multi-sectoral approach to ensure implementation and lobbying for support from the private sector. The national malaria control programme will conduct monthly/quarterly coordination meetings and joint supervisions with other ministries and government departments including implementing partners. The NMCP will develop/adapt appropriate supportive supervision and monitoring tools for private health providers. In order to fully capture data from the private sector where a sizable population first seeks care, the NMCP is working towards creation of platform for private drug shops and pharmacies to report on malaria HMIS indicators.

Strategy 5.5: Strengthen national capacity for developing evidence based malaria programming

The country will adopt informed decisions through operational research in the control of malaria. In pursuit of this plan, strengthening research capacity to generate the evidence required for evidence led policies, informed interventions and programmatic decisions will be a priority. This plan will establish strong collaborative initiatives with research/academia and other national and international research institutions. The NMCP in collaboration with research/academic institutions and other partners will define a malaria operational research agenda and provide a forum for research result dissemination/sharing. The Programme will also mobiles the required funding for the research agenda.

In addition, this strategy will see to the introduction of a malaria vaccine following WHO recommendation for its adoption and rolling out.

Strategy 5.6: Rapid adaptation of programme preparedness and response in complex crises or unstable contexts

Sierra Leone experienced the first outbreak of Ebola Virus Disease (EVD) on the 25th of May, 2014 in the Eastern part of the country[1]. Since then, the Ebola outbreak continued to ravage the country, and as of 28th March 2015, a total of 8,588 confirmed cases; and 3,535

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confirmed deaths of Ebola was reported in all districts throughout the country. The most affected districts were Bombali and Port Loko Districts in the Northern Province and in rural and urban zones of Western Area.

In response to the Ebola outbreak, the Ministry of Health and Sanitation (MoHS) Task force, in collaboration with its partners, developed a National Ebola Operational Plan to stop transmission of EVD in the affected districts and beyond. The responses includes setting up or strengthening of the following: i) coordination, finance and logistics at all levels; ii) surveillance and laboratory support for early detection, reporting and referral of suspected cases; iii) prompt case management and infection prevention and control including psychosocial support; and iv) social mobilization and public information including restriction of movement and house-to-house active case detection (e.g. Western Area Surge Operations).

Support systems
Effective Programme Management

The National Malaria Control Programme structure and human resources:

Malaria Control Programme is a unit in the Directorate of Disease Prevention and Control of the Ministry of Health and Sanitation (MoHS) and is a major component of the National Health Recovery and Resilience Plan 2016-2020. The NMCP is headed by a Manager supported by a Programme Administrator and Fifteen technical staff, One Project Accountant, one Finance Officer, twelve support staff and two Secretaries.

The mandate is to plan, facilitate the implementation, coordination, supervision, and monitoring of malaria control activities within an integrated disease control strategy. The MoHS has a specific budget line item for Malaria Control that supports the implementation and monitoring of various control interventions such as LLINs, prompt, effective and appropriate management of cases. In-order to fulfil its role, the NMCP is organised into seven (7) thematic areas as shown in figure 1 below:

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NMCP Organogram.

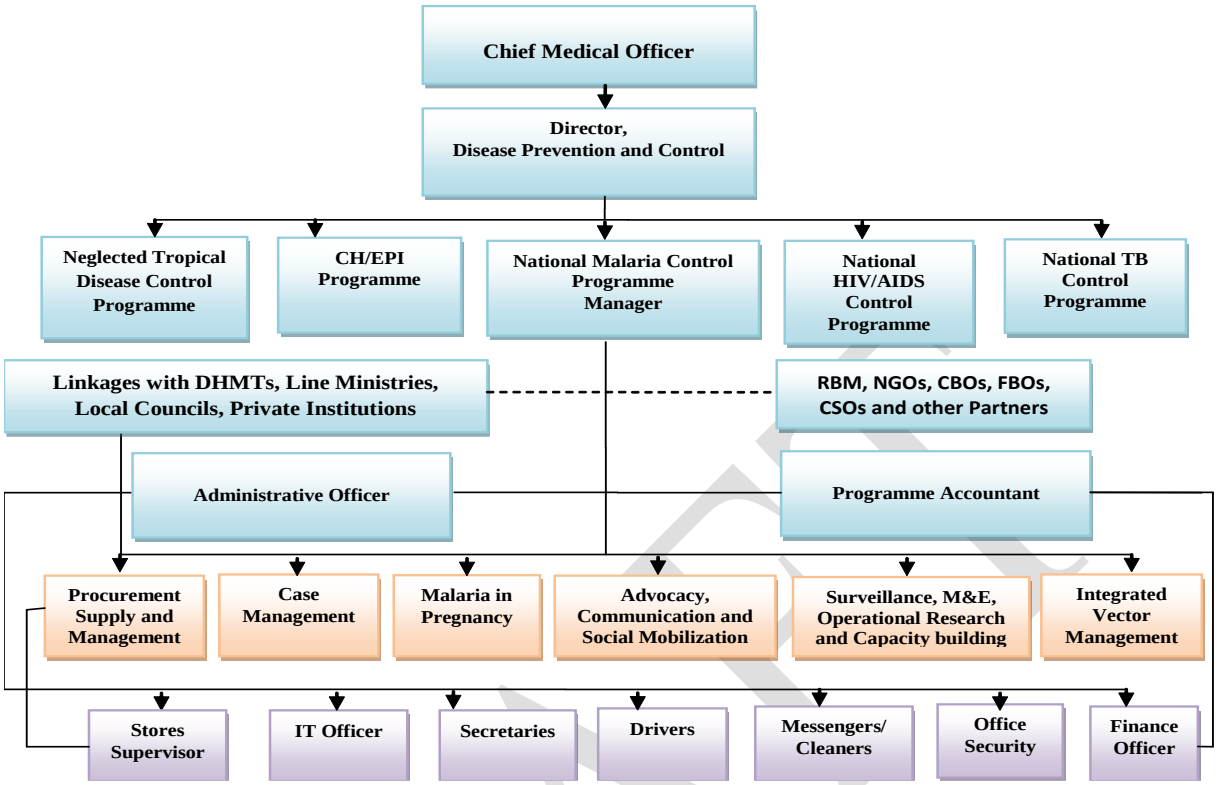

Figure 1: NMCP organogram

Human Resource Development & Management

There is a general shortage of trained manpower at all levels of the health system. In a bid to improve the situation, the Sierra Leone government has embarked on a programme of expanding the current training institutions to produce more qualified trained health staff and is also re-employing staff who have retired from the public service. Government has also created improved salary and incentive schemes.

Strategies:

- Ensure that there is a well-established planning and forecasting framework for projecting human capacity needs and related costs across all cadres and levels of the health system.
- Provide planning support to districts to manage temporary staffing pools for rapid scale up of malaria control efforts.
- Invest in health workforce training capacity for improved development of supply of health care providers as well as to professional progress members of the health workforce.

Financing and Resource Mobilization:

The scaling up of malaria programme intended to reduce the burden of malaria in the country, brings with it, issues of developing and institutionalising the capacities not just for malaria programme, but the health system as a whole, on the methodological, analytical and practical issues relating to the economics and financing of malaria and other health programming. The

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cost of malaria programme is a function of the targets, level and extent of the interventions. The interventions are themselves a function of the technology and the cost of the technology, especially in relation to effective case management, whereby the medicines and diagnostics may involve considerable costs. Furthermore the mere strategy of scaling up itself, requires more resources and better management of those resources.

The NMCP financial management system is synchronised with that of the MoHS. All levels of the health system have financial planning and management plans inclusive of malaria prevention and control related requirements. A financial forecasting and costing framework is in place that provides timely data for planning and budgeting purposes given programme priorities.

Reporting

Following data collection, entry and analysis, the information derived from the data are interpreted and summarized into quarterly, semester and annual reports which the NMCP shares with the stakeholders including RBM partners. The NMCP shares the reports with RBM stakeholders during the monthly RBM stakeholders' meetings, bi-annually and yearly ministry of health review meetings. The reports are also used to give feedback to the NMCP, District Health Management Teams (DHMT) and or Malaria Focal Persons and health workers on their performance with regard to malaria activities. Often this report/feedback is given by way of on-the-job training during supervision visits to the health facilities and/or communities with the desired outcome to improve service provision and utilization.

Global Fund specific technical reports are submitted to the Global Fund for AIDS, Tuberculosis and Malaria (GFATM) Principal Recipient(s) (PR) who then share it with the Country Coordinating Mechanism (CCM) for their information and action. Other avenues for report sharing are annual sub regional meetings of the West Africa Regional Network (WARN). Reports from evaluation and research activities such as antimalarial therapeutic efficacy and safety studies and pharmacovigilance will be published in relevant peer review journals.

Financial reporting

Ministry of Health and Sanitation receives funding from the Government of Sierra Leone through the Ministry of Finance in accordance with financial regulations and budgeting allocations made to the MoHS. Expenditure of funds disbursed to the NMCP are reported to the MoHS which is in turn reports to the Ministry of Finance. Funds from other donor sources are reported to MoHS and expenditure of all such funds are controlled in accordance with letters of agreement signed with MoHS and the respective donor agencies. Expenditure of all funds are checked by an internal auditor system as well as professional auditing firms.

Programme Planning and Design

Invest in evidence-based programme planning capacity at all levels of the health system.

Outputs

- Strategic, implementation, business and annual work plans will be developed based on sound scientific and operations data.

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- All levels of the health system have access to programme performance data and rationale for best practices from which to make sound programme implementation decisions.

Partnership Strengthening and Programme Management Support

The Government of Sierra Leone considers partnership with other institutions, ministries, CSOs and the private sector as a cornerstone of all its undertakings. With regard to service delivery, the private sector shall be seen as complimentary to the public sector with respect to increasing geographical access to health services (scope and scale). Efforts shall be made towards joint planning, monitoring and evaluation between the GoSL and other institutions, ministries, CSOs and the private sector in an effort to strengthen accountability, participation and transparency.

The overall goal of this intervention is to improve performance of the NMCP. The private and informal sectors will be encouraged among other partners to play increasing roles in RBM.

Recent Development in the Health Sector

The National Malaria Control Programme is under the Directorate of Disease Prevention and Control (DPC) of the Ministry of Health and Sanitation (MoHS). The programme is well integrated at all levels of the health care delivery system.

The Directorate for Policy Planning and Information (DPPI) at the MoHS is responsible for capturing health information countrywide. There has been considerable progress made with M&E investments within the MoHS in the past few years. Since 2007, one important milestone has been the successful collaboration with Health Metrics Network (HMN) on the introduction and rolling out of the District Health Information System (DHIS2). This information system has enhanced the ministry's capability to generate and harness health information for use for health planning, implementation and monitoring.

The MoHS/ DPPI now collate district data through an electronic District Health Management Information System (DHIS2). This HMIS software captures all relevant disease indicators including those related to malaria. Other relevant malaria indicators are captured in the IDSR, MIS and other appropriate methods such as supervisory visits.

Current efforts are expended to ensure information on a primary set of selected input, process and output indicators are made available. Mechanisms are being put in place to improve data collection and flow mechanisms to ensure quality, valid, and accurate data.

This National Malaria Control M&E Plan is in line with the National Health Recovery and Resilient plan 2015-2020. It describes the context of M&E, defines the indicators and data collection methods as well as provides a fully costed M&E plan activity.

It is envisaged that the implementation of this document will guide the direction of malaria control activities in the country which will lead to the attainment of the goals and objectives as spelt out in the SLMSP 2016-2020.

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SECTION II – REVIEW OF THE EXISTING M&E SYSTEMS

2.0 Situation analysis:

Monitoring and evaluation in the health sector is characterized by a multiplicity of frameworks fostered under multilateral and bilateral donors, United Nations agencies and Non-Governmental Organizations (NGOs). The health sector is making efforts to create a unified M&E system, through the use of integrated data collection tools, establishment of a District Health Information System in all districts, producing quarterly/semester bulletins and sharing data with stakeholders.

Despite the efforts made over the years to strengthen the M&E system there are areas that need improvement:

- coordination of M&E systems across programs at national and district levels;
- fragmentation of M&E system at national and program levels;
- motivation and retention of M&E staff at national and district/ hospital levels; Inadequate logistics and maintenance supports (computers and accessories)
- Capacity building in data collection and reporting
- Capacity building in Geographic Information System (GIS)

Goal and Objectives of National Malaria Monitoring and Evaluation Plan 2016-2020

Goal

To contribute in strengthening the performance of the health care services at all levels of administration through the provision of necessary and sufficient information needed by policy planners and decision makers, the NMCP and other RBM stakeholders to plan, monitor and evaluate their activities.

Objectives

The general objective is to monitor the implementation and provide information for the evaluation of the SLMSP (2016 – 2020) by objective, strategy and activity.

Specific objectives

1. To systematically monitor the implementation of malaria prevention and control interventions in the country;
2. To strengthen the capacity of the NMCP and other RBM M&E staff for data collection, management and analysis as well as for dissemination and use at community, district and national levels;
3. To improve on the use of malaria data by all stakeholders in the health sector for planning and decision-making including policy development and corrective action;
4. To evaluate the outcomes and impact of malaria prevention and control implementation in the country;
5. To contribute in establishing a well-integrated M&E system in the health sector.

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Framework for monitoring and evaluation of the National Malaria Strategy plan 2016-2020

Monitoring is the *routine tracking* of the key elements of programme performance through record keeping, regular reporting, surveillance systems and periodic surveys. At the national and district levels of implementation, monitoring of inputs (human resources, financing supplies), processes (procurements and training) and outputs (services delivered) is essential for assessing program performance. Programme monitoring, therefore, assesses the extent to which the implementation of planned activities is consistent with the project or programme design and will contribute greatly to evaluation.

Evaluation is the *periodic assessment* of the change in targeted results that can be attributed to an intervention. It attempts to link a particular outcome or impact directly to a particular intervention after a period of time. It helps determine the value or worth of a particular programme. Evaluation is mostly done through surveys and surveillance to determine outcomes and impact. One may also use specialised techniques to systematically investigate a programme's effectiveness and the extent to which the invested resources have yielded the expected results.

The indicators used are classified as input, process, output, outcome and impact.

Input indicators are the resources needed to implement the system.

Process indicators are used to monitor and track implementation of the planned activities which are critical for attaining the desired outputs.

Output indicators are measures of the immediate results of activities.

Outcome indicators are measures of the quality of the programme (interventions being implemented) and the extent to which the set objectives are achieved.

Impact indicators are measures of the extent to which the overall objectives of the system are being achieved.

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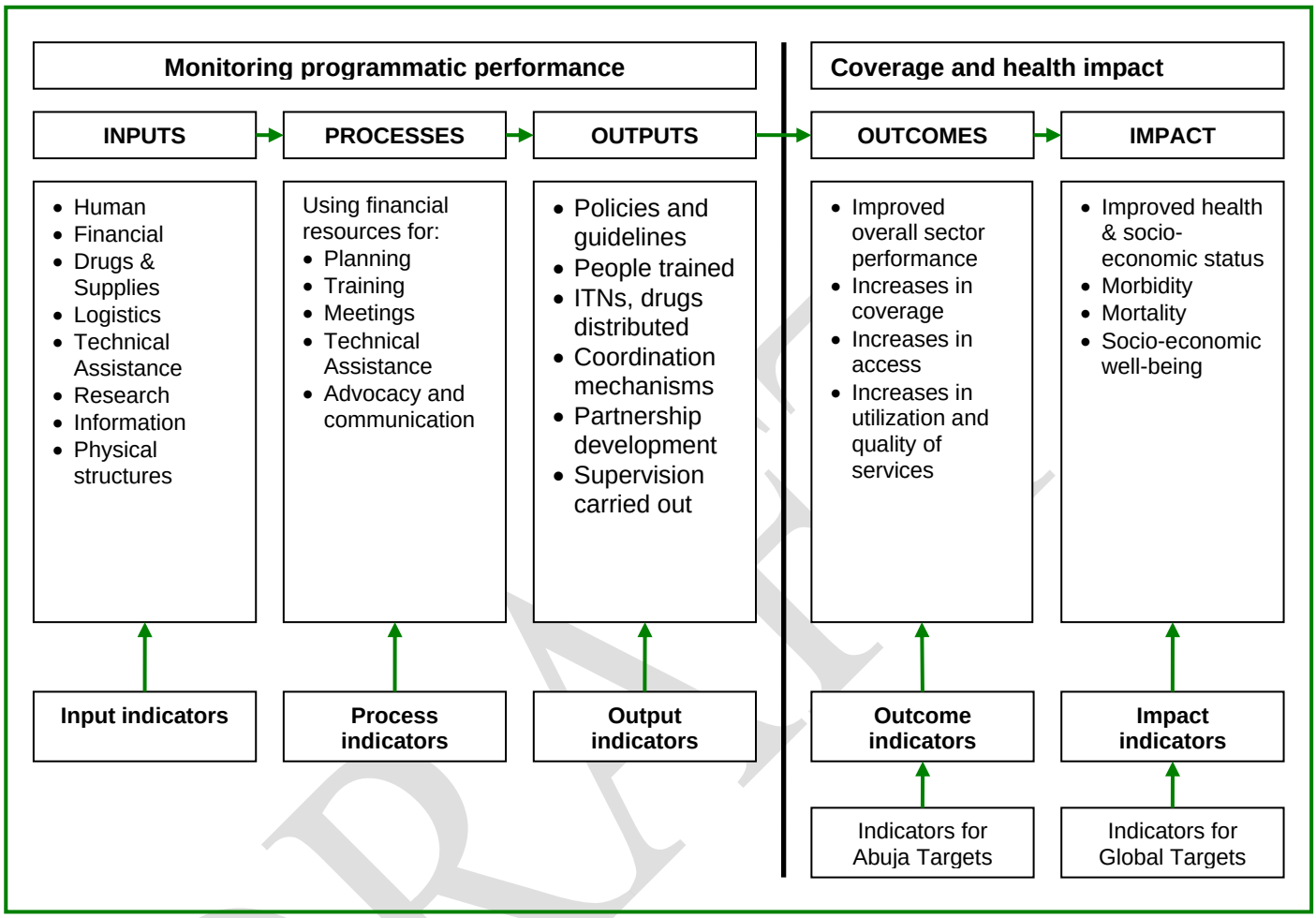
Figure 2: The basic malaria M&E framework with the proposed inputs, outputs, processes, outcomes and impact measures:

Adopted from the RBM M&E Framework



Source: *Sierra Leone Malaria Strategic Plan 2011-2015*

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PERFORMANCE FRAMEWORK FOR THE MALARIA STRATEGIC PLAN

GOAL: By 2020, reduce malaria morbidity and mortality by at least 40% compared with 2015.

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Table 1: Performance Framework for the Malaria Strategic Plan 2016-2020

Indicators	Indicator Definition	Numerator/Denominator	Data Source	Approach/ Method	Tools For Collecting Information	Methods And Tools For Data Analysis	Responsible Body/Entity	Frequency of Data Collection
Impact and Outcome Indicators								
All-cause under-5 mortality rate (Total)	The number of deaths of children under 5 years of age per 1000	**Numerator:** The number of deaths of children <5 yrs. of age x 1000 **Denominator:** Estimated Mid-year children <5yrs population	DHS, MICS	Population Based Survey	Structured Questionnaires	Descriptive and Inferential statistics (Appropriate software)	SSL/MOHS	Every 4- 5 years
All-cause under-5 mortality rate (Male)	The number of deaths of children under 5 years of age per 1000.	**Numerator:** The number of deaths of children <5 yrs. of age (males) x 1000 **Denominator:** Estimated Mid-year children <5yrs population (males)	DHS, MIS	Population Based Survey	Structured Questionnaires	Descriptive and Inferential statistics (Appropriate software)	SSL/MOHS	Every 4-5 years
All-cause under-5 mortality rate (Female)	The number of deaths of children under 5 years of age per 1000.	**Numerator:** The number of deaths of children <5 years of age (females) x 1000 **Denominator:** Estimated Mid-year children <5yrs population (females)	HMIS	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Inpatient malaria deaths (Total)	Number of malaria inpatient deaths per 100,000	**Numerator:** Number of malaria inpatient deaths x 100,000 **Denominator:** Estimated national mid-year population	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)

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Indicators	Indicator Definition	Numerator/Denominator	Data Source	Approach/ Method	Tools For Collecting Information	Methods And Tools For Data Analysis	Responsible Body/Entity	Frequency of Data Collection
Inpatient malaria deaths (<5yrs)	Number of malaria inpatient deaths (<5yrs) per 100,000	**Numerator:** Number of malaria inpatient deaths (<5yrs) x 100,000 **Denominator:** Estimated national mid-year population (<5yrs)	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Inpatient malaria deaths (<5yrs)- Male	Number of malaria inpatient deaths (<5yrs)- Male per 100,000	**Numerator:** Number of malaria inpatient deaths (<5yrs)- Male x 100,000 **Denominator:** Estimated national mid-year population (<5yrs)- Male	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Inpatient malaria deaths (<5yrs)- Female	Number of malaria inpatient deaths (<5yrs)- Female per 100,000	**Numerator:** Number of malaria inpatient deaths (<5yrs)- Female x 100,000 **Denominator:** Estimated national mid-year population (<5yrs)- Female	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Inpatient malaria deaths (>5yrs)	Number of malaria inpatient deaths (>5yrs per 100,000	**Numerator:** Number of malaria inpatient deaths (>5yrs) x 100,000 **Denominator:** Estimated national mid-year population (>5yrs)	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Inpatient malaria deaths (>5yrs)- Male	Number of malaria inpatient deaths (>5yrs)- Male per 100,000	**Numerator:** Number of malaria inpatient deaths (>5yrs)- Male x 100,000 **Denominator:** Estimated national mid-year population (>5yrs)- Male	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Inpatient malaria deaths (>5yrs)- Female	Number of malaria inpatient deaths (>5yrs)- Female per 100,000	**Numerator:** Number of malaria inpatient deaths (>5yrs)- Female x 100,000 **Denominator:** Estimated	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)

Indicators	Indicator Definition	Numerator/Denominator	Data Source	Approach/ Method	Tools For Collecting Information	Methods And Tools For Data Analysis	Responsible Body/Entity	Frequency of Data Collection
		national mid-year population (>5yrs)- Female						
Inpatient malaria deaths (>5yrs)- Female	Number of malaria inpatient deaths (>5yrs)- Female per 100,000	**Numerator:** Number of malaria inpatient deaths (>5yrs)- Female x 100,000 **Denominator:** Estimated national mid-year population (>5yrs)- Female	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Inpatient malaria deaths (Male)	The number of malaria inpatient deaths (males) per 100,000	**Numerator:** Number of malaria inpatient deaths (males) x 100,000 **Denominator:** Estimated national mid-year population (males)	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Inpatient malaria deaths (Female)	The number of malaria inpatient deaths (females) per 100,000	**Numerator:** Number of malaria inpatient deaths (females) x 100,000 **Denominator:** Estimated national mid-year population (females)	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Confirmed Malaria cases (Microscopy or RDTs) per 1000 persons per year	The number of confirmed (microscopy and/or RDT) malaria cases per 1000	**Numerator:** Number of confirmed (microscopy and/or RDT) malaria cases x 1000 **Denominator:** Estimated National Mid-year Population	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Malaria incidence (Confirmed & Probable Malaria Cases) All Ages	The number of confirmed (microscopy and/or RDT) and probable malaria cases per 1000	**Numerator:** Number of confirmed (microscopy and/or RDT) and probable malaria cases x 1000 **Denominator:** Estimated National Mid-year Population	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)

Indicators	Indicator Definition	Numerator/Denominator	Data Source	Approach/ Method	Tools For Collecting Information	Methods And Tools For Data Analysis	Responsible Body/Entity	Frequency of Data Collection
Malaria incidence (Confirmed & Probable Malaria Cases)(<5yrs)	The number of confirmed (microscopy and/or RDT) and probable malaria cases (<5yrs) per 1000	**Numerator:** Number of confirmed (microscopy and/or RDT) and probable malaria cases (<5yrs) x 1000 **Denominator:** Estimated National Mid-year Population (<5yrs)	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Malaria incidence (Confirmed & Probable Malaria Cases)(>5yrs)	The number of confirmed (microscopy and/or RDT) and probable malaria cases (>5yrs) x 1000	**Numerator:** The number of confirmed (microscopy and/or RDT) and probable malaria cases (>5yrs) x 1000 **Denominator:** Estimated National Mid-year Population (>5yrs)	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Malaria incidence (Confirmed & Probable Malaria Cases)(>5yrs)-Male	The number of confirmed (microscopy and/or RDT) and probable malaria cases (>5yrs)- Male per 1000	**Numerator:** The number of confirmed (microscopy and/or RDT) and probable malaria cases (>5yrs)- Male x 1000 **Denominator:** Estimated National Mid-year Population (>5yrs)- Male	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Malaria incidence (Confirmed & Probable Malaria Cases)(>5yrs)-Female	The number of confirmed (microscopy and/or RDT) and probable malaria cases (>5yrs)- Female per 1000	**Numerator:** The number of confirmed (microscopy and/or RDT) and probable malaria cases (>5yrs)- Female x 1000 **Denominator:** Estimated National Mid-year Population (>5yrs)- Female	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Indicators	**Indicator Definition**	**Numerator/Denominator**	**Data Source**	**Approach/ Method**	**Tools For Collecting Information**	**Methods And Tools For Data Analysis**	**Responsible Body/Entity**	**Frequency of Data Collection**

Malaria incidence (Confirmed & Probable Malaria Cases)- Male	The number of confirmed (microscopy and/or RDT) and probable malaria cases (male) per 1000	**Numerator:** The number of confirmed (microscopy and/or RDT) and probable malaria cases (male) x 1000 **Denominator:** Estimated National Mid-year Population (male)	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Malaria incidence (Confirmed & Probable Malaria Cases)- Females	The number of confirmed (microscopy and/or RDT) and probable malaria cases (female) per 1000	**Numerator:** The number of confirmed (microscopy and/or RDT) and probable malaria cases (female) x 1000 **Denominator:** Estimated National Mid-year Population (female)	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Annual Parasite Index	The number of positive tests per 1000	**Numerator:** The number of positive tests X 1000 **Denominator:** Estimated National Mid-year population	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Annual Parasite Index (<5yrs)	The number of positive tests in children <5yrs per 1000	**Numerator:** The number of positive tests in children <5yrs X 1000 **Denominator:** Estimated National Mid-year population children <5yrs	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Annual Parasite Index (>5yrs)	The number of positive tests in children >5yrs per 1000	**Numerator:** The number of positive tests in children >5yrs X1000 **Denominator:** Estimated National Mid-year population children >5yrs	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Indicators	**Indicator Definition**	**Numerator/Denominator**	**Data Source**	**Approach/ Method**	**Tools For Collecting Information**	**Methods And Tools For Data Analysis**	**Responsible Body/Entity**	**Frequency of Data Collection**

Annual Parasite Index (>5yrs)	The number of positive tests in children >5yrs per 1000	**Numerator:** The number of positive tests in children >5yrs X1000 **Denominator:** Estimated National Mid-year population children >5yrs	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Annual Parasite Index (>5yrs)	The number of positive tests in children >5yrs per 1000	**Numerator:** The number of positive tests in children >5yrs X1000 **Denominator:** Estimated National Mid-year population children >5yrs	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Annual Parasite Index (Males)	The number of positive tests in Females per 1000	**Numerator:** The number of positive tests in Females X 1000 **Denominator:** Estimated National Mid-year female population	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Annual Parasite Index (Females)	The number of positive tests per 1000	**Numerator:** The number of positive tests X 1000 **Denominator:** Estimated National Mid-year population	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Slide Positivity Rate	The number of positive tests per 100 **persons**	**Numerator:** Number of positive tests x 100 **Denominator:** Number of tests examined	MIS	population based survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Slide Positivity Rate (<5yrs)	The number of positive tests <5yrs per 100 **persons**	**Numerator:** Number of positive tests <5yrs x 100 **Denominator:** Number of tests examined <5yrs	MIS	population based survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Indicators	**Indicator Definition**	**Numerator/Denominator**	**Data Source**	**Approach/ Method**	**Tools For Collecting Information**	**Methods And Tools For Data Analysis**	**Responsible Body/Entity**	**Frequency of Data Collection**

Slide Positivity Rate (>5yrs)	The number of positive tests >5yrs per 100 persons	**Numerator:** Number of positive tests >5yrs x 100 **Denominator:** Number of tests examined >5yrs	MIS	population based survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Slide Positivity Rate (Males)	The number of positive male tests per 100 persons	**Numerator:** Number of positive male tests x 100 **Denominator:** Number of male tests examined	MIS	population based survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Slide Positivity Rate (Females)	The number of positive female tests per 100	**Numerator:** Number of positive female tests x 100 **Denominator:** Number of female tests examined	MIS	population based survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Malaria Test Positivity Rate	The number of positive tests by Microscope and /or RDTS	**Numerator:** Number of positive tests by Microscope and /or RDTS **Denominator:** Number of tests examined by Microscope and /or RDTS	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	SSL/MOHS	Every 2-3 years
Parasite prevalence: Proportion (Percentage) of children aged 6-59 months (<5 years of age) with malaria infection	The number of confirmed parasite infections in sampled children 6-59 months(<5 years of age)	**Numerator:** Number of confirmed parasite infections in sampled children 6-59 months (<5 years of age) **Denominator:** Number of sampled children 6-59 months (<5 years) screened for parasite infections	MIS	population based survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Indicators	**Indicator Definition**	**Numerator/Denominator**	**Data Source**	**Approach/ Method**	**Tools For Collecting Information**	**Methods And Tools For Data Analysis**	**Responsible Body/Entity**	**Frequency of Data Collection**

Proportion of households with at least 1 ITN/LLIN per two people	The number of households having at least one LLIN per two people per 100	**Numerator:** Number of households having at least one LLIN per two people x 100 **Denominator:** Total number of households sampled	MIS	Population Based Survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Proportion of households with at least 1 ITN/LLIN	The number of households surveyed with at least one ITN	**Numerator:** Number of households surveyed with at least one ITN **Denominator:** Total number of households surveyed	MIS DHS MICS	Population Based Survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Proportion of population that slept under ITN/LLIN the previous night	The number of individuals who slept under an ITN the previous night	**Numerator:** Number of individuals who slept under an ITN the previous night **Denominator:** Total number of individuals who spent the previous night in surveyed households	MIS DHS MICS	Population Based Survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Proportion of children under-fives who slept under LLINs the previous night	The number of children <5yrs who slept under an ITN the previous night	**Numerator:** Number of children <5yrs who slept under an ITN the previous night **Denominator:** Total number of children <5yrs who spent the previous night in surveyed households	MIS DHS MICS	Population Based Survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
The proportion of pregnant women who slept under ITN/LLIN the previous night	The number of pregnant women who slept under an ITN the previous night	**Numerator:** Number of pregnant women who slept under an ITN the previous night **Denominator:** Total number of pregnant women who spent the previous night in surveyed households	MIS DHS MICS	Population Based Survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Indicators	**Indicator Definition**	**Numerator/Denominator**	**Data Source**	**Approach/ Method**	**Tools For Collecting Information**	**Methods And Tools For Data Analysis**	**Responsible Body/Entity**	**Frequency of Data Collection**

The proportion of population using ITN/LLIN among those with access to ITN/LLIN		**Numerator:** The number of population using ITN/LLIN among those with access to ITN/LLIN **Denominator:** The number of the population having access to an ITN/LLIN	MIS DHS MICS	Population Based Survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Proportion of children under five with fever for whom the caretaker sought prompt care		**Numerator:** Number of children under five with fever for whom the caretaker sought prompt care **Denominator:** The number of caretakers with children under five with fever	MIS DHS MICS	Population Based Survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Proportions of quarterly malaria reports produced and disseminated to 13 districts as part of a disease decision support network.		**Numerator:** Number of quarterly report produced and disseminated to 13 districts **Denominator**: Target number of district reports	MIS DHS MICS	Population Based Survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Proportion of annual and mid-term review recommendations disseminated to partners and stake holders.	The number of annual and mid-term review recommendations disseminated to partners and stake holders	**Numerator:** Number of annual and mid-term review recommendations disseminated to partners and stake holders **Denominator:** Targeted annual and mid-term review recommendations.	Annual report	Routine	Training Records	Tabulation	NMCP	Every 3 months (Quarterly)

OUTPUT INDICATORS								
OBJECTIVE 1a: All suspected malaria have access to confirmatory diagnosis								
Proportion of suspected malaria cases tested in children under five years according to national guidelines in the public sector.	The number of suspected malaria cases tested in children under five years according to national guidelines in the public sector	**Numerator:** Number of suspected malaria cases tested in children under five years according to national guidelines in the public sector. **Denominator:** Total number of suspected malaria cases in children under five years tested in the public sector	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Proportion of suspected malaria cases tested in people above five years according to national guidelines in the public sector.	The number of suspected malaria cases tested in people above five years according to national guidelines in the public sector	**Numerator:** Number of suspected malaria cases tested in people above five years according to national guidelines in the public sector. **Denominator:** Total number of suspected malaria cases in people above five years in the public sector	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Proportion of suspected malaria cases tested in children under five years according to national guidelines in the private sector.	The number of suspected malaria cases tested in children under five years according to national guidelines in the private sector.	**Numerator:** Number of suspected malaria cases tested in children under five years according to national guidelines in the private sector. **Denominator:** Total number of suspected malaria cases in children under five years in the private sector	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)

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OUT PUT INDICATORS								
Proportion of suspected malaria cases tested in people five years and above according to national guidelines in the private sector	The number of suspected malaria cases tested in people five years and above according to national guidelines	**Numerator:** Number of suspected malaria cases tested in people five years and above according to national guidelines in the private sector. **Denominator:** Total number of suspected malaria cases in people five years and above in the private sector	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Proportion of suspected malaria cases tested in children under five years according to national guidelines in the community.	The number of suspected malaria cases tested in children under years according to national guidelines in the community.	**Numerator:** Number of suspected malaria cases tested in children under years according to national guidelines in the community. **Denominator:** Total number of suspected malaria cases in children under five years tested in the community	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Proportion of suspected malaria cases tested in people above five years according to national guidelines in the community.	The number of suspected malaria cases tested in people above five years according to national guidelines in the community.	**Numerator:** Number of suspected malaria cases tested in people above five years according to national guidelines in the community. **Denominator:** Total number of suspected malaria cases in people above five years in the community sector	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Proportion of health facilities/communities with no stock out of diagnostic commodities within the reporting period.	The number of suspected malaria cases tested in people above five years according to national guidelines in the community.	**Numerator:** Number of health facilities/communities with no stock out of diagnostic commodities. **Denominator:** Total number of health facilities / communities within the reporting period.	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)

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OUTPUT INDICATORS								
Proportion of health staff trained on malaria diagnosis	The number of health staff trained on malaria diagnosis	**Numerator:** Number of health staff trained on malaria diagnosis **Denominator:** Total number of health staff	Training report	Routine	Training Records	Tabulation	NMCP	Every 3 months (Quarterly)
Proportion of CHWs trained on malaria diagnosis	The number of CHWs trained on malaria diagnosis	**Numerator:** Number of CHWs trained on malaria diagnosis **Denominator:** Total number of Community Health Workers	Training report	Routine	Training Records	Tabulation	NMCP	Every 3 months (Quarterly)
Objective 1b: All malaria cases receive effective treatment								
Proportion of uncomplicated malaria cases in children under five years treated according to national guidelines in the public sector.	The number of uncomplicated malaria cases in children under five years treated according to national guidelines in the public sector.	**Numerator:** Number of uncomplicated malaria cases in children under five years treated according to national guidelines in the public sector. **Denominator:** Total number of uncomplicated malaria cases in children under five years treated in the public sector	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Proportion of uncomplicated malaria cases in people five years and above treated according to national guidelines in the public sector.	The number of uncomplicated malaria cases in people five years and above treated according to national guidelines in the public sector	**Numerator:** Number of uncomplicated malaria cases in people five years and above treated according to national guidelines in the public sector. **Denominator:** Total number of uncomplicated malaria cases in people five years and above treated in the public sector	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)

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OUTPUT INDICATORS								
Proportion of uncomplicated malaria cases in children under five years treated according to national guidelines in the private sector.	The number of uncomplicated malaria cases in children under five years treated according to national guidelines in the public sector.	**Numerator:** Number of uncomplicated malaria cases in children under five years treated according to national guidelines in the public sector. **Denominator:** Total number of uncomplicated malaria cases in people five years treated in the public sector	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Proportion of uncomplicated malaria cases in people above five years treated according to national guidelines in the private sector.	The number of uncomplicated malaria cases in people above five years treated according to national guidelines in the private sector.	**Numerator:** Number of uncomplicated malaria cases in people above five years treated according to national guidelines in the private sector. **Denominator:** Total number of uncomplicated malaria cases in people above five years treated in the private sector	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Proportion of uncomplicated malaria cases in children under five years treated according to national guidelines in the community.	The number of uncomplicated malaria cases in children under five years treated according to national guidelines in the community.	**Numerator:** Number of uncomplicated malaria cases in children under five years treated according to national guidelines in the community. **Denominator:** Total number of uncomplicated malaria cases in children under five years treated in the community.	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Proportion of uncomplicated malaria cases in people above five years treated according to national guidelines in the community	The number of uncomplicated malaria cases in people above five years treated according to national guidelines in the community.	**Numerator:** Number of uncomplicated malaria cases in people above five years treated according to national guidelines in the community. **Denominator:** Total number of uncomplicated malaria cases in people above five years treated in the community	HIMS	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)

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OUTPUT INDICATORS								
Proportion of health facilities with no stock out of ACTs at any time during reporting period.	The number of health facilities with no reported stock out of ACTs at any time during the reporting period	**Numerator**: Number of health facilities with no reported stock out of ACTs at any time during the reporting period **Denominator**: Total number of health facilities reported.	MIS	Health Facility Based Survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Proportion of health communities with no stock out of ACTs at any time during reporting period.	The number of health facilities with no reported stock out of ACTs at any time during the reporting period	**Numerator**: Number of health facilities with no reported stock out of ACTs at any time during the reporting period **Denominator**: Total number of health facilities reported.	MIS	Population Based Survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Objective 2a: Provide access to 100% of the population at risk with preventive measures by 2017								
Number of LLINs distributed to the population through mass campaigns	Total number of targeted population for mass distribution who receive LLIN.	**Numerator:** Total number of targeted population for mass distribution who receive LLIN. **Denominator:** Total number of population targeted for distribution.	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Number of LLINs distributed to pregnant women through ANC and children under one year through EPI (Routine distribution)	Total number of pregnant women and children under one year targeted for routine distribution who received ITN/LLIN	**Numerator:** Total number of pregnant women and children under one year targeted for routine distribution who received ITN/LLIN **Denominator:** Total number of pregnant women and children under one targeted for ITN/LLIN distribution	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Objective 2b: To protect at least 80% of pregnant women and children under one year with IPT3 by 2020								

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Objective 3: To provide knowledge to the population such that at least 80% practice malaria prevention and treatment measures by 2018								
Percentage of pregnant women who received at least two doses of IPTp2 for malaria during their last pregnancy	The number of pregnant women who receive at least two doses of SP for IPTp2.	**Numerator:** Number of pregnant women who receive at least two doses of SP for IPTp2. **Denominator:** Total number of pregnant women surveyed	MIS	Health Facility Based Survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-3 years
Percentage of pregnant women who received at least three doses of IPTp3 for malaria during their last pregnancy	The number of pregnant women who receive at least three doses of SP for IPTp3	**Numerator:** Number of pregnant women who receive at least three doses of SP for IPTp3. **Denominator:** Total number of pregnant women surveyed.	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Percentage of children under one year who receive at least three doses of IPTi3 through EPI services	The number of children under one year who receive at least three doses of SP for IPTi3.	**Numerator:** Number of children under one year who receive at least three doses of SP for IPTi3. **Denominator:** Total number of children under one year targeted for IPTi 3 dose.	**HIMS**	Routine	HMIS Tools	Descriptive and Inferential statistics (Appropriate software)	DPPI/NMCP	Every 3 months (Quarterly)
Proportion of women of child bearing age (15-49 years) that report mosquito bite as the cause of malaria	The number of women of child bearing age (15-49 years) that report mosquito bite as the cause of malaria	**Numerator:** Number of women of child bearing age (15-49 years) that report mosquito bite as the cause of malaria **Denominator:** Total number of women (15-49 years) surveyed	MIS, MICS, DHS	population based survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-5 years
Proportion of women of child bearing age (15-49 years) that report fever as a symptom of	The number of women of child bearing age (15-49 years) that report fever as a symptom of malaria	**Numerator:** Number of women of child bearing age (15-49 years) that report fever as a symptom of malaria **Denominator:** Total number of women (15-49 years) surveyed	MIS, MICS, DHS	population based survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-5 years

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OUTPUT INDICATORS								
malaria								
Proportion of women of child bearing age (15-49 years) who know that vomiting everything is a sign of severe illness (malaria).	The number of women of child bearing age (15-49 years) who know that vomiting everything is a sign of severe illness (malaria)	**Numerator:** Number of women of child bearing age (15-49 years) who know that vomiting everything is a sign of severe illness (malaria) **Denominator:** Total number of women (15-49 years) surveyed	MIS, MICS, DHS	population based survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-5 years
Proportion of women of child bearing age (15-49 years) who have the correct knowledge of preventive measures for malaria	The number of women of child bearing age (15-49 years) who have the correct knowledge of preventive measures for malaria	**Numerator:** Number of women of child bearing age (15-49 years) who have the correct knowledge of preventive measures for malaria **Denominator:** Total number of women (15-49 years) surveyed	MIS, MICS, DHS	population based survey	Structured Questionnaires	Descriptive and Inferential statistics Appropriate software	SSL/MOHS	Every 2-5 years
Number of functional community health clubs mobilized to deliver BCC outreach activities		Number of functional community health clubs	HMIS	Routine	HMIS Tools	Descriptive and Inferential statistics Appropriate software	DPPI/NMCP	Every 3 months (Quarterly)
Number of functional school health clubs mobilized to deliver BCC outreach activities.		Number of functional school health clubs	HMIS	Routine	HMIS Tools	Descriptive and Inferential statistics Appropriate software	DPPI/NMCP	Every 3 months (Quarterly)

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OUTPUT INDICATORS								
Number of people in the community reached through sensitization activities (CHCs)		Number of people in the community reached	HMIS	Routine	HMIS Tools	Descriptive and Inferential statistics Appropriate software	DPPI/NMCP	Every 3 months (Quarterly)
Number of in-school youth reached through sensitization activities (SHCs)		Number of in-school youth reached	Training report	Routine	Training Records	Tabulation	NMCP	Every 3 months (Quarterly)
Objective 4: By 2020, at least 95% of Health facilities report routinely on malaria Programme performance								
Percentage of PHU and hospital staff supervised by NMCP using supervisory checklist from National to district level	The number of PHU and hospital staff supervised by NMCP using supervisory checklist from National to district level	**Numerator:** Number of PHU and hospital staff supervised by NMCP using supervisory checklist from National to district level **Denominator: T**argeted number of PHU and hospital staff in the districts.	Supervision report	Routine	Supervision checklist	Tabulation	DPPI/NMCP	Every 3 months (Quarterly)
Percentage of health workers and community health workers supervised by DHMT and Partners.	Number of health workers and community health workers supervised by DHMT and Partners	**Numerator:** Number of health workers and community health workers supervised by DHMT and Partners **Denominator:** Number of targeted health workers and community health workers.	Supervision report	Routine	Supervision checklist	Tabulation	DPPI/NMCP	Every 3 months (Quarterly)
Percentage of community health workers supervised by PHU staff and Partners	The number of community health workers supervised by PHU staff and Partners	**Numerator:** Number of community health workers supervised by PHU staff and Partners **Denominator:** Number of targeted community health workers	Supervision report	Routine	Supervision checklist	Tabulation	DPPI/NMCP	Every 3 months (Quarterly)

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OUTPUT INDICATORS								
Proportion of districts conducting data quality audits and verification on HMIS for completeness on malaria indicators	The number of districts conducting data quality audits and verification on HMIS for completeness on malaria indicators	**Numerator:** Number of districts conducting data quality audits and verification on HMIS for completeness on malaria indicators **Denominator:** Total **t**argeted districts	DQA Report	Routine	Supervision checklist	Tabulation	DPPI/NMCP	Every 3 months (Quarterly)
Objective 5: By 2020, maintain and strengthen capacity for Programme management, coordination and partnership to achieve malaria Programme performance at all levels.								
Number of functional Technical Working Groups holding quarterly meetings		Number of Meetings held at National level on Malaria prevention and control related activities.	Minutes of meeting	Routine	Minutes	Tabulation	DPPI/NMCP	Every 3 months (Quarterly)
Number of RBM partnership coordination meetings held		RBM meetings held at National level on Malaria prevention and control related activities.	HMIS	Routine	HMIS Tools	Descriptive and Inferential statistics Appropriate software	DPPI/NMCP	Every 3 months (Quarterly)

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Table 2: Monitoring and Evaluation Indicator Matrix

Indicator	Operational Definition	Level of Implementation	Data Source	Frequency of Collection	Baseline	Target					
						2016	2017	2018	2019	2020	2021
Impact and Outcome Indicators											
All-cause under-5 mortality rate (Total)	**Numerator:** The number of deaths of children <5 years of age x 1000 **Denominator:** Estimated Mid-year children <5yrs population	National	DHS, MICS (2013)	Every 4- 5 years	156			119			
All-cause under-5 mortality rate (Male)	**Numerator:** The number of deaths of children <5 years of age (males) x 1000 **Denominator:** Estimated Mid-year children <5yrs population (males)	National	DHS, MICS (2013)	Every 4- 5 years	186			141			
All-cause under-5 mortality rate (Female)	**Numerator:** The number of deaths of children <5 years of age (females) x 1000 **Denominator:** Estimated Mid-year children <5yrs population (females)	National	DHS, MICS (2013)	Every 4- 5 years	164			125			
Inpatient malaria deaths (Total)	**Numerator:** Number of malaria inpatient deaths x 100,000 **Denominator:** Estimated national mid-year population	National	HMIS (2014)	Yearly	45	41	38	34	31	27	24
Inpatient malaria deaths (<5yrs)	**Numerator:** Number of malaria inpatient deaths (<5yrs) x 100,000 **Denominator:** Estimated national mid-year population (<5yrs)	National	HMIS (2014)	Yearly	NA	64	56	52	48	44	40
Inpatient malaria deaths (<5yrs)- Male	**Numerator:** Number of malaria inpatient deaths (<5yrs)- Male x 100,000 **Denominator:** Estimated national mid-year population (<5yrs)- Male	National	HMIS (2014)	Yearly	NA	64	56	52	48	44	40
Indicator	**Operational Definition**	**Level of**	**Data**	**Frequency**	**Baseline**	**Target**					

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		Implementation	Source	of Collection		2016	2017	2018	2019	2020	2021
Inpatient malaria deaths (<5yrs)- Female	**Numerator:** Number of malaria inpatient deaths (<5yrs)- Female x 100,000 **Denominator:** Estimated national mid-year population (<5yrs)- Female	National	HMIS (2014)	Yearly	NA	64	56	52	48	44	40
Inpatient malaria deaths (>5yrs)	**Numerator:** Number of malaria inpatient deaths (>5yrs) x 100,000 **Denominator:** Estimated national mid-year population (>5yrs)	National	HMIS (2014)	Yearly	NA	50	46	43	39	36	33
Inpatient malaria deaths (>5yrs)- Male	**Numerator:** Number of malaria inpatient deaths (>5yrs)- Male x 100,000 **Denominator:** Estimated national mid-year population (>5yrs)- Male	National	HMIS (2014)	Yearly	NA	50	46	43	39	36	33
Inpatient malaria deaths (>5yrs)- Female	**Numerator:** Number of malaria inpatient deaths (>5yrs)- Female x 100,000 **Denominator:** Estimated national mid-year population (>5yrs)- Female	National	HMIS (2014)	Yearly	NA	50	46	43	39	36	33
Inpatient malaria deaths (Male)	**Numerator:** Number of malaria inpatient deaths (males) x 100,000 **Denominator:** Estimated national mid-year population (males)	National	HMIS (2014)	Yearly	NA	41	38	34	31	27	24
Inpatient malaria deaths (Female)	**Numerator:** Number of malaria inpatient deaths (females) x 100,000 **Denominator:** Estimated national mid-year population (females)	National	HMIS (2014)	Yearly	NA	41	38	34	31	27	24
Impact and Outcome Indicators											

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Indicator	Operational Definition	Level of Implementation	Data Source	Frequency of Collection	Baseline	Target					
						2016	2017	2018	2019	2020	2021
Malaria incidence (Confirmed & Probable Malaria Cases) All Ages	**Numerator:** Number of confirmed (microscopy and/or RDT) and probable malaria cases x 1000 **Denominator:** Estimated National Mid-year Population	National	HMIS (2014)	Yearly	346	318	291	263	235	208	180
Malaria incidence (Confirmed & Probable Malaria Cases)(<5yrs)	**Numerator:** Number of confirmed (microscopy and/or RDT) and probable malaria cases (<5yrs) x 1000 **Denominator:** Estimated National Mid-year Population (<5yrs)	National	HMIS (2014)	Yearly	185	171	157	144	133	122	111
Malaria incidence (Confirmed & Probable Malaria Cases)(<5yrs)-Male	**Numerator:** Number of confirmed (microscopy and/or RDT) and probable malaria cases (<5yrs)- Male x 1000 **Denominator:** Estimated National Mid-year Population (<5yrs)	National	HMIS (2014)	Yearly	NA	171	157	144	133	122	111
Malaria incidence (Confirmed & Probable Malaria Cases)(<5yrs)-Female	**Numerator:** Number of confirmed (microscopy and/or RDT) and probable malaria cases (<5yrs)-Female x 1000 **Denominator:** Estimated National Mid-year Population (<5yrs)	National	HMIS (2014)	Yearly	NA	171	157	144	133	122	111
Malaria incidence (Confirmed & Probable Malaria Cases)(>5yrs)	**Numerator:** The number of confirmed (microscopy and/or RDT) and probable malaria cases (>5yrs) x 1000 **Denominator:** Estimated National Mid-year Population (>5yrs)	National	HMIS (2014)	Yearly	175	160	148	136	125	115	105
Indicator	**Operational Definition**	**Level of Implementation**	**Data Source**	**Frequency of Collection**	**Baseline**	**Target**					
						2016	**2017**	**2018**	**2019**	**2020**	**2021**

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Malaria incidence (Confirmed & Probable Malaria Cases)(>5yrs)- Male	**Numerator:** The number of confirmed (microscopy and/or RDT) and probable malaria cases (>5yrs)- Male x 1000 **Denominator:** Estimated National Mid-year Population (>5yrs)- Male	National	HMIS (2014)	Yearly	NA	160	148	136	125	115	105
Malaria incidence (Confirmed & Probable Malaria Cases)(>5yrs)- Female	**Numerator:** The number of confirmed (microscopy and/or RDT) and probable malaria cases (>5yrs)- Female x 1000 **Denominator:** Estimated National Mid-year Population (>5yrs)- Female	National	HMIS (2014)	Yearly	NA	160	148	136	125	115	105
Malaria incidence (Confirmed & Probable Malaria Cases)- Male	**Numerator:** The number of confirmed (microscopy and/or RDT) and probable malaria cases (male) x 1000 **Denominator:** Estimated National Mid-year Population (male)	National	HMIS (2014)	Yearly	NA	180	175	161	148	137	127
Malaria incidence (Confirmed & Probable Malaria Cases)- Females	**Numerator:** The number of confirmed (microscopy and/or RDT) and probable malaria cases (female) x 1000 **Denominator:** Estimated National Mid-year Population (female)	National	HMIS (2014)	Yearly	NA	180	175	161	148	137	127
Annual Parasite Index	**Numerator:** The number of positive tests X 1000 **Denominator:** Estimated National Mid-year population	National	HMIS (2014)	Yearly	270	248	355	321	287	252	219
Annual Parasite Index (<5yrs)	**Numerator:** The number of positive tests in children <5yrs X 1000 **Denominator:** Estimated National Mid-year population children <5yrs	National	HMIS (2014)	Yearly	828	761	701	645	593	546	500
Indicator	**Operational Definition**	**Level of Implementation**	**Data Source**	**Frequency of Collection**	**Baseline**	**Target**					
						2016	**2017**	**2018**	**2019**	**2020**	**2021**
Impact and Outcome Indicators											

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Annual Parasite Index (<5yrs)- Male	**Numerator:** The number of positive tests in children (<5yrs)- Male X 1000	National	HMIS (2014)	Yearly	NA	761	701	645	593	546	500
Annual Parasite Index (<5yrs)- Female	**Numerator:** The number of positive tests in children (<5yrs)- Female X 1000 **Denominator:** Estimated National Mid-year population children (<5yrs)- Female	National	HMIS (2014)	Yearly	NA	761	701	645	593	546	500
Annual Parasite Index (>5yrs)	**Numerator:** The number of positive tests in children >5yrs X1000 **Denominator:** Estimated National Mid-year population children >5yrs	National	HMIS (2014)	Yearly	192	176	162	149	137	126	116
Annual Parasite Index (>5yrs)	**Numerator:** The number of positive tests in children >5yrs X1000 **Denominator:** Estimated National Mid-year population children >5yrs	National	HMIS (2014)	Yearly	NA	176	162	149	137	126	116
Annual Parasite Index (>5yrs)	**Numerator:** The number of positive tests in children >5yrs X1000 **Denominator:** Estimated National Mid-year population children >5yrs	National	HMIS (2014)	Yearly	NA	176	162	149	137	126	116
Annual Parasite Index (Males)	**Numerator:** The number of positive tests in Females X 1000 **Denominator:** Estimated National Mid-year female population	National	HMIS (2014)	Yearly	NA	510	505	465	428	394	363
Annual Parasite Index (Females)	**Numerator:** The number of positive tests X 1000 **Denominator:** Estimated National Mid-year population	National	HMIS (2014)	Yearly	NA	510	505	465	428	394	363
Slide Positivity Rate	**Numerator:** Number of positive tests x 100 **Denominator:** Number of tests	National	HMIS (2014)	Yearly	56%	52%	48%	44%	40%	37%	33%
Indicator	**Operational Definition**	**Level of Implementation**	**Data Source**	**Frequency of Collection**	**Baseline**	**Target**					
						2016	**2017**	**2018**	**2019**	**2020**	**2021**
	examined										

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Slide Positivity Rate (<5yrs)	**Numerator:** Number of positive tests <5yrs x 100 **Denominator:** Number of tests examined <5yrs	National	HMIS (2014)	Yearly	63.4%	59%	54%	50%	46%	42%	38%
Slide Positivity Rate (>5yrs)	**Numerator:** Number of positive tests >5yrs x 100 **Denominator:** Number of tests examined >5yrs	National	HMIS (2014)	Yearly	52.8%	48%	44%	41%	38%	35%	32%
Slide Positivity Rate (Males)	**Numerator:** Number of positive male tests x 100 **Denominator:** Number of male tests examined	National	HMIS (2014)	Yearly	NA	58%	53%	49%	45%	42%	38%
Slide Positivity Rate (Females)	**Numerator:** Number of positive female tests x 100 **Denominator:** Number of female tests examined	National	HMIS (2014)	Yearly	NA	58%	53%	49%	45%	42%	38%
Parasite prevalence: Proportion (Percentage) of children aged 6-59 months (<5 years of age) with malaria infection	**Numerator:** Number of confirmed parasite infections in sampled children 6-59 months (<5 years of age) **Denominator:** Number of sampled children 6-59 months (<5 years) screened for parasite infections	National	MIS (2013)	Every 2 years	43%	40%			33%		
Reported malaria cases - presumed and confirmed	Number of confirmed (microscopy and/or RDT) and probable malaria cases	National	HMIS, 2016	Yearly	2,484,202	2,758,420	2,992,686	3,266,904	3,299,598	3,330,281	2,798,961
Malaria test positivity rate	**Numerator:** The number of positive tests X 1000 **Denominator:** Estimated National Mid-year population	National	HMIS, 2015	Yearly	58%	56%	51%	46%	41%	36%	31%
Outcome Indicators											
Proportion of households with at least one insecticide-treated net* for every two	**Numerator:** Number of households having at least one LLIN per two people x 100 **Denominator:** Total number of households sampled	National and District	MIS (2013)	Every 2 years	17%	50%			50%		

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people											
Proportion of households with at least 1 ITN/LLIN	**Numerator:** Number of households surveyed with at least one ITN **Denominator:** Total number of households surveyed	National and District	MIS (2013)	Every 2 years	62%	90%			95%		
Proportion of population that slept under ITN/LLIN the previous night	**Numerator:** Number of individuals who slept under an ITN the previous night **Denominator:** Total number of individuals who spent the previous night in surveyed households	National and District	MIS (2013)	Every 2 years	39%	80%			50%		
Proportion of children under-fives who slept under LLINs the previous night	**Numerator:** Number of children <5yrs who slept under an ITN the previous night **Denominator:** Total number of children <5yrs who spent the previous night in surveyed households	National and District	MIS (2013)	Every 2 years	69%	75%			85%		
The proportion of pregnant women who slept under ITN/LLIN the previous night	**Numerator:** Number of pregnant women who slept under an ITN the previous night **Denominator:** Total number of pregnant women who spent the previous night in surveyed households	National and District	MIS (2013)	Every 2 years	76%	75%			85%		
Proportion of population using an insecticide-treated net* among the population with access to an insecticide-treated net	**Numerator:** The number of population using ITN/LLIN among those with access to ITN/LLIN **Denominator:** The number of the population having access to an ITN/LLIN	National and District	MIS (2016)	Every 2 years	63%	70%			80%		
Proportion of households with at least one	**Numerator:** Number of households having at least one LLIN per two people x 100	National and District	MIS, 2013	Every 2 years	17%	50%			50%		

insecticide-treated net* for every two people	**Denominator:** Total number of households sampled										
Proportion of children under five with fever for whom the caretaker sought prompt care	**Numerator:** Number of children under five with fever for whom the caretaker sought prompt care **Denominator:** The number of caretakers with children under five with fever	National	MIS (2013)	Every 2 years	63%	70%			80%		
Proportions of quarterly malaria reports produced and disseminated to 13 districts as part of a disease decision support network.	**Numerator:** Number of quarterly report produced and disseminated to 13 districts **Denominator**: Target number of district reports	National	Report (2014)	Annually	100%	100%	100%	100%	100%	100%	100%
Proportion of annual and mid-term review recommendations disseminated to partners and stake holders.	**Numerator:** Number of annual and mid-term review recommendations disseminated to partners and stake holders **Denominator:** Targeted annual and mid-term review recommendations.	National	Report (2013)	Annually	50%	100%	100%	100%	100%	100%	100%
Case Management											
OBJECTIVE 1a : All suspected malaria cases have access to confirmatory diagnosis											
Proportion of suspected malaria cases tested in children under	**Numerator:** Number of suspected malaria cases tested in children under five years according to national guidelines in the public sector.	National and District	HMIS	Annually	79.40%	100%	100%	100%	100%	100%	100%

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five years according to national guidelines in the public sector.	**Denominator:** Total number of suspected malaria cases in children under five years tested in the public sector				(HMIS, 2014)						
Proportion of suspected malaria cases tested in people above five years according to national guidelines in the public sector.	**Numerator:** Number of suspected malaria cases tested in people above fives years according to national guidelines in the public sector.	National and District	HMIS	Annually	44.60%	100%	100%	100%	100%	100%	100%
	Denominator: Total number of suspected malaria cases in people above five years in the public sector				(HMIS, 2014)						
Proportion of suspected malaria cases tested in children under five years according to national guidelines in the private sector.	**Numerator:** Number of suspected malaria cases tested in children under five years according to national guidelines in the private sector.	National and District	HMIS	Annually	36.80%	50%	60%	70%	80%	90%	90%
	Denominator: Total number of suspected malaria cases in children under five years in the private sector				(MHIS, 2014)						
Case Management											
Proportion of suspected malaria cases tested in people five years and above	**Numerator:** Number of suspected malaria cases tested in people five years and above according to national guidelines in the private sector.	National and District	HMIS	Annually	98.70%	100%	100%	100%	100%	100%	100%

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according to national guidelines in the private sector.	**Denominator:** Total number of suspected malaria cases in people five years and above in the private sector				(MHIS, 2014)						
Proportion of suspected malaria cases tested in children under five years according to national guidelines in the community.	**Numerator:** Number of suspected malaria cases tested in children under years according to national guidelines in the community.	National and District	HMIS	Annually	92%	100%	100%	100%	100%	100%	100%
	Denominator: Total number of suspected malaria cases in children under five years tested in the community				(HMIS, 2014						
Proportion of suspected malaria cases tested in people above five years according to national guidelines in the community.	**Numerator:** Number of suspected malaria cases tested in people above five years according to national guidelines in the community.	National and District	HMIS	Annually	91.60%	100%	100%	100%	100%	100%	100%
	Denominator: Total number of suspected malaria cases in people above five years in the community sector				(HMIS, 2014)						
Proportion of health facilities/communities with no stock outs of diagnostic commodities within the reporting period.	**Numerator:** Number of health facilities/communities with no stock outs of diagnostic commodities.	National and District	HMIS	Annually	95%	100%	100%	100%	100%	100%	100%
	Denominator: Total number of health facilities / communities within the reporting period.				(HMIS 2014)						
Case Management											
Proportion of health staff trained on malaria diagnosis	**Numerator:** Number of health staff trained on malaria diagnosis	District	Training report	Annually	38.50%	75%	80%	85%	90%	95%	95%
	Denominator: Total number of health staff				(NMCP Training Records, 2013)						

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Proportion of CHWs trained on malaria diagnosis	**Numerator:** Number of CHWs trained on malaria diagnosis **Denominator:** Total number of Community Health Workers	District	Training report	Annually	68% (4,627/6,770)	75%	80%	85%	90%	95%	95%
Objective 1b: All malaria cases received effective treatment											
Proportion of uncomplicated malaria cases in children under five years treated according to national guidelines in the public sector.	**Numerator:** Number of uncomplicated malaria cases in children under five years treated according to national guidelines in the public sector. **Denominator:** Total number of uncomplicated malaria cases in children under five years treated in the public sector	National and District	HMIS	Annually	99.60% (HMIS, 2014)	100%	100%	100%	100%	100%	100%
Proportion of uncomplicated malaria cases in people five years and above treated according to national guidelines in the public sector.	**Numerator:** Number of uncomplicated malaria cases in people five years and above treated according to national guidelines in the public sector. **Denominator:** Total number of uncomplicated malaria cases in people five years and above treated in the public sector	National and District	HMIS	Annually	88% (HMIS, 2014)	100%	100%	100%	100%	100%	100%
Proportion of uncomplicated malaria cases in children under five years treated according to national guidelines in the private sector.	**Numerator:** Number of uncomplicated malaria cases in children under five years treated according to national guidelines in the public sector. **Denominator:** Total number of uncomplicated malaria cases in people five years treated in the public sector	National and District	HMIS	Annually	82% (HMIS, 2014)	100%	100%	100%	100%	100%	100%
Proportion of uncomplicated malaria cases in people above five	**Numerator:** Number of uncomplicated malaria cases in people above five years treated according to national guidelines in	National and District	HMIS	Annually	68%	100%	100%	100%	100%	100%	100%

years treated according to national guidelines in the private sector.	the private sector.										
	Denominator: Total number of uncomplicated malaria cases in people above five years treated in the private sector				(HMIS, 2014)						
	Denominator: Total number of uncomplicated malaria cases in children under five years treated in the community.				(HMIS, 2014)						
Proportion of uncomplicated malaria cases in children under five years treated according to national guidelines in the community.	**Numerator:** Number of uncomplicated malaria cases in children under five years treated according to national guidelines in the community.	National and District	HMIS	Annually	68.80%	100%	100%	100%	100%	100%	100%
	Denominator: Total number of uncomplicated malaria cases in children under five years treated in the community.				(HMIS, 2014)						
Proportion of uncomplicated malaria cases in people above five years treated according to national guidelines in the community	**Numerator:** Number of uncomplicated malaria cases in people above five years treated according to national guidelines in the community.	National and District	HMIS	Annually	62.30%	100%	100%	100%	100%	100%	100%
	Denominator: Total number of uncomplicated malaria cases in people above five years treated in the community				(HMIS, 2014)						
Proportion of health facilities with no stock outs of ACTs at any time during reporting period.	**Numerator**:: Number of health facilities with no reported stock outs of ACTs at any time during the reporting period	National and District	HMIS	Annually	95%	100%	100%	100%	100%	100%	100%
	Denominator: Total number of health facilities reported.				(HMIS, 2014)						

Proportion of health communities with no stock outs of ACTs at any time during reporting period.	**Numerator**:: Number of health communities with no reported stock outs of ACTs at any time during the reporting period **Denominator**: Total number of health communities reported.	National and District	HMIS	Annually	TBD	100%	100%	100%	100%	100%	100%
Vector Control											
Objective 2a: Provide access to 100% of the population at risk with preventive measures by 2017											
Number of LLINs distributed to the population through mass campaigns	**Numerator:** Total number of targeted population for mass distribution who receive LLIN. **Denominator:** Total number of population targeted for distribution.	National and District	Mass Campaign Administrative report (2014)	Every 3 years	98.60% -2014		100%			100%	100%
Number of LLINs distributed to pregnant women through ANC and children under one year through EPI (Routine distribution)	**Numerator:** Total number of pregnant women and children under one year targeted for routine distribution who received ITN/LLIN **Denominator:** Total number of pregnant women and children under one targeted for ITN/LLIN distribution.	National and District	HMIS	Annually	87.40% (HMIS, 2014)	90%	100%	100%	100%	100%	100%
Objective 2b: To Protect at least 80% of Pregnant women and children under one year with IPT 3 BY 2020											
Percentage of pregnant women who received at least two doses of IPTp2 for malaria during their last	**Numerator:** Number of pregnant women who receive at least two doses of SP for IPTp2. **Denominator:** Total number of pregnant women surveyed	National	MIS	Every 2 years	61.70% (MIS, 2013)	70%		80%		90%	90%

pregnancy											
Percentage of pregnant women who received at least three doses of IPTp3 for malaria during their last pregnancy	**Numerator:** Number of pregnant women who receive at least three doses of SP for IPTp3. **Denominator:** Total number of pregnant women surveyed.	National	MIS	Every 2 years	NA	Establish baseline		30%		50%	50%
Advocacy, Communication and Social Mobilisation											
Objective 3: To provide knowledge to the population such that at least 80% practice malaria prevention and treatment measures by 2018											
Percentage of children under one year who receive at least three doses of IPTi3 through EPI services	**Numerator:** Number of children under one year who receive at least three doses of SP for IPTi3. **Denominator:** Total number of children under one year targeted for IPTi 3 dose.	National	HMIS	Annually	NA	Establish baseline	56%	69%	75%	80%	80%
Proportion of women of child bearing age (15-49 years) that report mosquito bite as the cause of malaria	**Numerator:** Number of women of child bearing age (15-49 years) that report mosquito bite as the cause of malaria **Denominator:** Total number of women (15-49 years) surveyed	National and District	MIS	Every 2 years	90.80% (MIS 2013)	100%		100%		100%	100%
Proportion of women of child bearing age (15-49 years) that report fever as a symptom of malaria	**Numerator:** Number of women of child bearing age (15-49 years) that report fever as a symptom of malaria **Denominator:** Total number of women (15-49 years) surveyed	National and District	MIS	Every 2 years	64% (MIS, 2013)	80%		90%		100%	100%

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Proportion of women of child bearing age (15-49 years) who know that vomiting everything is a sign of severe illness (malaria).	**Numerator:** Number of women of child bearing age (15-49 years) who know that vomiting everything is a sign of severe illness (malaria) **Denominator:** Total number of women (15-49 years) surveyed	National and District	MIS	Every 2 years	37.10% (MIS, 2013)	60%		80%		100%	100%
Proportion of women of child bearing age (15-49 years) who have the correct knowledge of preventive measures for malaria	**Numerator:** Number of women of child bearing age (15-49 years) who have the correct knowledge of preventive measures for malaria **Denominator:** Total number of women (15-49 years) surveyed	National and District	MIS	Every 2 years	45.10% (MIS, 2013)	60%		80%		100%	100%
Number of functional community health clubs mobilized to deliver BCC outreach activities	Functionality is measured by regular monthly meetings where 80% (8 out of 10) of members attends. There should be minutes of the meetings with list of participants and bullets of issues covered.	National at community level	SR monthly Report sheet	Monthly	1,111	100%	100%	100%	100%	100%	100%
Advocacy, Communication and Social Mobilisation											
Number of functional school health clubs mobilized to		National at community level	SR monthly Report sheet	Monthly	390	100%	100%	100%	100%	100%	100%

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deliver BCC outreach activities.											
Number of people in the community reached through sensitization activities (CHCs)		National at community level	SR monthly Report sheet, 2017	Monthly	80%	80%	90%	100%	100%	100%	100%
Number of in-school youth reached through sensitization activities (SHCs)		National at community level	SR monthly Report sheet, 2017	Monthly	80%	80%	90%	100%	100%	100%	100%
Number of communities with active committees on malaria prevention and control	Number of active communities	High burden districts	SR monthly Report sheet, 2017	Monthly	N/A	N/A	N/A	50%	100%	100%	100%
Number of communities with active positive deviant individuals promoting malaria prevention and control	Number of active positive deviants	High burden districts	SR monthly Report sheet, 2017	Monthly	N/A	N/A	N/A	50%	100%	100%	100%
Number of people reached in high burden areas with malaria BCC messages	Number of people reached	High burden districts	SR monthly Report sheet, 2017	Monthly	N/A	N/A	N/A	50%	100%	100%	100%

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Surveillance, Monitoring and Evaluation											
Objective 4: By 2020, at least 95% of Health facilities report routinely on malaria programme performance											
Indicator	**Operational Definition**	**Level of Implementation**	**Data Source**	**Frequency of Collection**	**Baseline**	**Target**					
						2016	**2017**	**2018**	**2019**	**2020**	**2021**
Percentage of PHU and hospital staff supervised by NMCP using supervisory checklist from National to district level	**Numerator:** Number of PHU and hospital staff supervised by NMCP using supervisory checklist from National to district level **Denominator:** **T**argeted number of PHU and hospital staff in the districts.	National	Report	Annually	42.2% 2014 HMIS	80%	85%	90%	95%	100%	100%
Percentage of health workers and community health workers supervised by DHMT and Partners.	**Numerator:** Number of health workers and community health workers supervised by DHMT and Partners **Denominator:** Number of targeted health workers and community health workers.	District	Report	Annually	65.4% 2014 HMIS	80%	85%	90%	95%	100%	100%
Percentage of community health workers supervised by PHU staff and Partners	**Numerator:** Number of community health workers supervised by PHU staff and Partners **Denominator:** Number of targeted community health workers.	District	Report	Annually	NA	80%	85%	90%	95%	100%	100%
Proportion of districts conducting data quality audits and verification on HMIS for completeness on malaria indicators	**Numerator:** Number of districts conducting data quality audits and verification on HMIS for completeness on malaria indicators **Denominator:** Total **t**argeted districts	District	Report	Annually	NA	100%	100%	100%	100%	100%	100%
Programme Management and Programme Administration											

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Objective 5: By 2020, maintain and strengthen capacity for programme management, coordination and partnership to achieve malaria programme performance at all levels.											
Indicator	**Operational Definition**	**Level of Implementation**	**Data Source**	**Frequency of Collection**	**Baseline**	**Target**					
						2016	**2017**	**2018**	**2019**	**2020**	**2021**
Number of functional Technical Working Groups holding quarterly meetings	Number of Meetings held at National level on Malaria prevention and control related activities.	National and District	Report	Annually	8	28	28	28	28	28	28
Number of RBM partnership coordination meetings held	RBM meetings held at National level on Malaria prevention and control related activities.	National and District	Report	Monthly	12 (2014 NMCP Report)	12	12	12	12	12	12

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2.4 Data Collection Methods

Based on the local context and the national M&E plan, the following systems/data collection methods are available:

Routine – HMIS (DHIS), IDSR, LLIN monitoring system, activity monitoring system, sentinel surveillance system, IRS monitoring system, drug efficacy testing and insecticide resistance monitoring.

Surveys – Household surveys (population-based) such as DHS, KAP, MIS, MICS, SARA and health facility assessments.

Logistics Management Information Systems (LMIS)
Other complimentary methods such as **supervision**, **Pharmacovigilance** and **operational research** are also used.

Modalities of collecting data on Programme Interventions at the service delivery points:

ACTs and RDTs are delivered at both the community and health facility levels. Health workers at the community, health facility and DHMT collect and summarize distribution, utilization and stock information on a monthly basis.

Intermittent Preventive Treatment (IPTp) is delivered under direct observation at antenatal clinics, outreach sessions and through the community based TBAs. Antenatal clinic records and Traditional Birth Attendant (TBA) records tally the number of women who received first, second and third doses of IPTp. These records are collated monthly by health facilities and then reported to DHMTs.

LLINs distribution records from EPI and antenatal clinics are collated monthly at the health facilities and DHMTs.

Data collection at the different Levels:

Community Level (CHWs and TBAs): The Community Health Workesr (CHWs) and Traditional Birth Attendants (TBAs) are responsible for clearly and accurately reporting data on their treatment activities. The primary data source for Community Case Management of malaria (CCMm) is the standardized CHW *and TBA registers* kept by the CHWs and TBAs. During the monthly CHWs and TBAs meeting with their respective Peripheral Health Units, the CHWs and TBAs submit their data for that reporting month.

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Peripheral Health Unit (PHU): PHU staff are responsible for supervising data collection at the community level. The Officer In-charge collects the data from CHWs and TBAs every month. The data are then summarized and included in the monthly PHU F6 *Summary form for community interventions*, which is then forwarded to the District Health Management Team (DHMT).
Additionally, the PHU staff clearly and accurately report data from the health facility in a timely manner using the PHU reporting forms (PHU F1 to F8).

District Health Management Team (DHMT): National Malaria Control Programme data elements and indicators have been fully integrated into the national DHIS2 software. Every month, PHU staff submit summary forms to the DHMTs on or before the 5th of the other month. These data are received, reviewed for completeness and tracked by staff of the M&E Unit of every district before inputting into the DHIS2 software.

2.5 Time Frame for M&E measurements

Table 2: Dissemination of M&E Products

Source of data	Reporting Frequency	Responsibility
HMIS	Monthly	DPPI
IDSR	Weekly/Monthly	DPC
LMIS	Monthly	CMS
LLIN monitoring system	Monthly	NMCP
Surveys: - DHS - MICS - MIS - KAP - Census	Every 5 years Every 5 years Every 2 years Every 2-3 years Every 10 years	SSL
Quarterly Report – Summary of completed outputs (target, achievement in the quarter and cumulative total from KPIs)	Quarterly	NMCP
Annual Reports- (Summary of completed outputs (target, achievement in the year and cumulative total from KPIs)	Annually	NMCP

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Supervision reports	Quarterly	NMCP
Activity reports (e.g. training, site visit, spraying exercise)	Quarterly	NMCP

Table 3: Reporting and Feedback processes for KPIs

Feedback process	Deadline	Responsible person(s)
Submission of monthly summary forms (F1-F8) to DHMTs	5th	Facility In-charge or Head Nurse
Data Entry at DHMT level	15th	DMO
District monthly data received by programs (e.g. Malaria)	25th	DPPI
Feedback reports to DHMTs from national	30th	DPPI/NMCP

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3.0 SECTION III - M & E ACTIVITY PLAN

3.1 Coordination of malaria M&E

The M&E plan will be implemented by all the RBM partners in Sierra Leone. Overall guidance will be provided by the NMCP in collaboration with DPPI of the Ministry of Health and Sanitation.

As part of the health sector, the private sector will be providing needed malaria information through the national health information system. The NGOs are currently playing a critical role in providing health services. They also monitor the implementation of their activities and this information will be shared quarterly with the NMCP.

At the district level, the M&E officer and Malaria focal person will take a lead in ensuring that data generated for key performance indicators are captured in the DHIS2 platform and reported monthly to DPPI.

The NMCP has four (4) M&E Officers and 3 Data Entry Clerks. The capacity of the district Malaria Focal Persons will be enhanced in data collection and management. The capacity of the district M&E officers and Malaria Focal Points will be strengthen through supportive supervision and refresher training courses on data collection, reporting and analysis.

3.2 Monitoring the malaria control program activities

Annual NMCP Operational Plan will be developed and its implementation monitored

3.3 Evaluation of the malaria programme in the country

The malaria prevention and control interventions will be evaluated as follows:

(i) Programme Review;

(ii) Mid Term Evaluation;

(iii) End of Term Evaluations;

(iv) Operational research.

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The programme review will focus among other things on the following issues:

- Relevance of programme objectives
- Relevance of strategies employed
- Effectiveness of the programme
- Efficiency of implementation
- Sustainability of programme
- Gender mainstream in programme implementation
- Human rights approaching to programme implementation

Mid Term Evaluation (MTE)

This will be conducted midway through the implementation of the National Malaria Strategic Plan (MSP) in the third quarter of 2018. The MTE will assess programme performance and management capacities at central, district and amongst major partners. It will be undertaken by the programme and partners with external support.

Final/End of Term Evaluation

This will be done at the end of 2020 to assess the impacts generated by interventions implemented through guidance by the MSP. Independent consultants will undertake the evaluation.

Operational Research

Various type of operational research will be conducted to improve program implementation of interventions.

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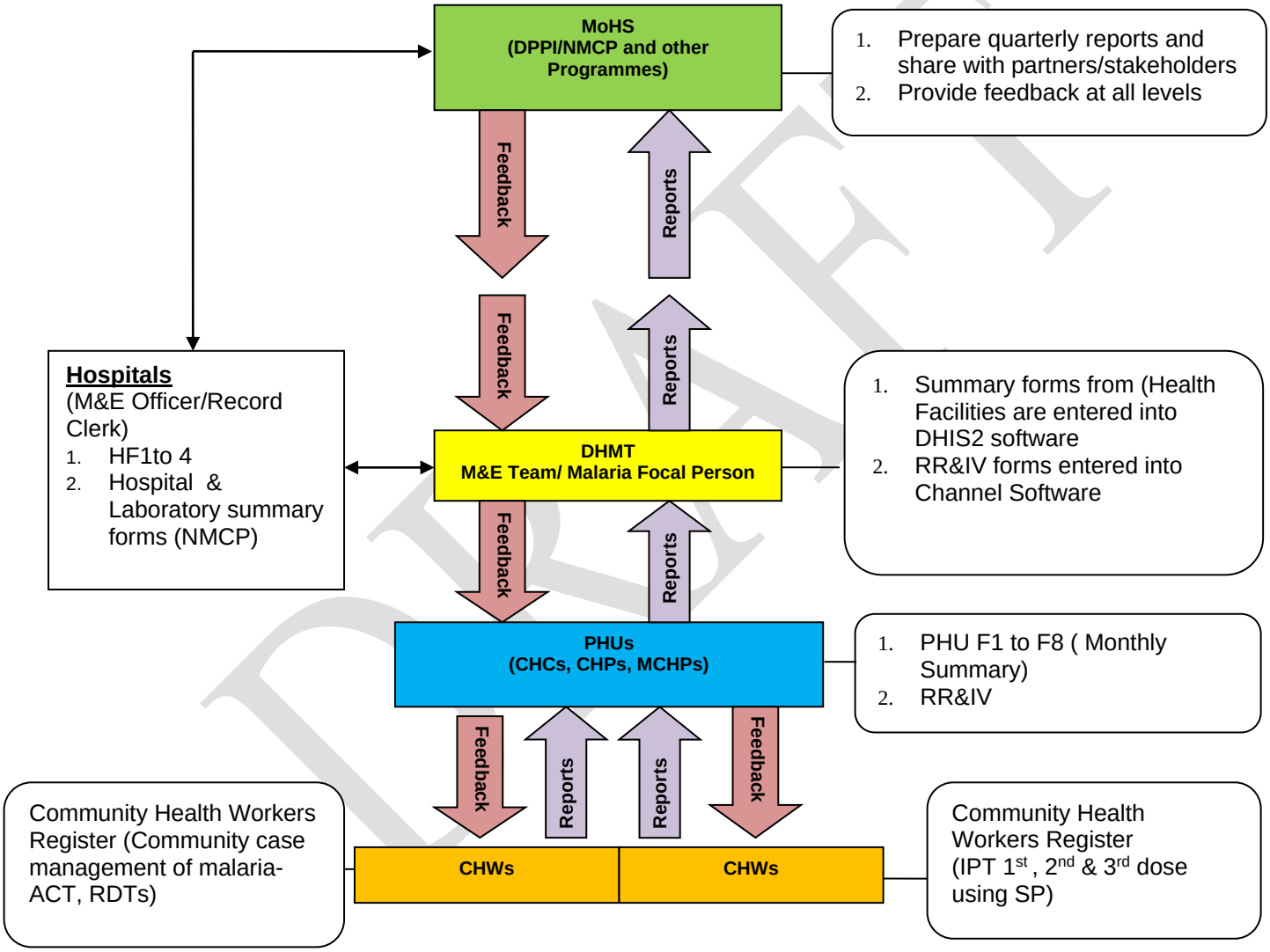
3.4 Data Flow

The Health sector requirement is that all facilities both private and public are to report monthly on all services provided. Communities report through the Health facilities in which they are located. During the monthly CHWs meeting with their respective Peripheral Health Unit the CHWs submit their data for that reporting month. Health Facilities summaries (PHU F1 to F8) and hospital summary forms (HF1 and 2) are completed and verified by the in-charges and submitted to the DHMTs. Districts enter the data received from the health facilities into DHIS2 which is now web-based/fully online.

Figure 1: Data Flow



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At community level:

Community Health Workers Register – data on the services provided at community level (e.g. for malaria, data on IPTp, data on treatment with ACTs administered).

At Peripheral Health Unit (PHU) level:

1. PHUF1 – Monthly morbidity summary data (e.g. For malaria - Suspected cases, confirmed case using RDTs/ microscopy , cases treated with ACT and without ACT)
2. PHUF2 – Monthly summary data on children's preventive services (e.g. For malaria – LLINs distributed to children under five years)
3. PHUF3 – Monthly summary data on reproductive health services (e.g. for malaria - IPTp administered and LLINs distributed to pregnant women)
4. PHUF4- Monthly summary data on commodity stock (e.g. for malaria - SP for IPTp, ACTs, LLINs and RDTs)
5. PHUF5 – Monthly summary data on mortality (e.g. malaria deaths)
6. PHUF6 – Monthly summary for community interventions (e.g. for malaria - malaria morbidity, cases treated with and without ACTs, deaths at community level. IPTp)
7. PHUF7 – Semi-permanent data reporting (e.g. for malaria – malaria RDT/microscopy performed at facility level)
8. PHUF8 – Monthly report on TB/Leprosy and HIV.

At hospital level:

1. HF1 - Monthly outpatient morbidity data
2. HF2 -.Monthly in-patient morbidity data
3. HF3 – Monthly summary data on reproductive health services (e.g. for malaria – IPTp administered, LLINs distributed and malaria treatment)
4. HF4 – Monthly mortality summary data
5. Hospital Summary Form (NMCP) – Data on suspected cases of malaria, confirmed cases, cases treated with ACTs, deaths attributed to malaria, anaemia and ARI cases and stock level of ACTs and RDTs)
6. Hospital Laboratory Summary Form (NMCP) – Data on number of suspected cases seen, number tested , number positive/negative)

At district level (DHMT)

All summary forms submitted to DHMTs by PHUs and Hospitals at the beginning of the other month are received, tracked for timeliness, completeness and then entered into the DHIS2 Software.

At National level (DPPI/NMCP)

No data entry at national as DHIS2 is now fully online.

1. Quarterly bulletin(DPPI)
2. Quarterly report (NMCP)

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Feedback mechanism

All health data collected should be analysed at all level to generate output that will be provided as feedback to improve health service delivery. This should be done regularly on a quarterly basis but can also be done more frequently.

Routine data for monitoring is collected using the HHIS tools. The system provides opportunity for District level to generate report that is used to give feedback to facilities they supervised. Directorates and Programmes use the national aggregated data to provide feedback on performance to districts as well as develop standard report for partners.

3.5 Data Quality Assurance

Routine data must be of sufficient quality to support decision-making. Data quality will be ensured through periodic application of Routine Data Quality Assessment (RDQA) at the various levels (National, District and service delivery point). This will be carried out half yearly. Data quality will also be monitored during supportive supervision, rapid data verification visits and review meetings at all levels.

Data Quality Audit (DQA) of the health information system (HIS) and IDSR will be conducted periodically by external body/organization. Spot Checks including data quality will also be conducted by external service provider (contracted by the GF) any time during the life cycle of the malaria grant implementation.

Standardized data collection tools are used for data collection and data are entered into standardized DHIS2 Software. During supervision, data will be verified from the registers at health facilities and the CHWs registers. On-the-job training will be conducted on data verification, collection and analysis. Specific data quality measures are to be carried out at all levels to ensure data accuracy and completeness.

A) Community Level (CHWs)

The Community Health Workers (CHWs) and Traditional Birth Attendants (TBAs) are responsible for clearly and accurately report data on summary forms every month. They are encouraged to cross check their data before submission.

B) Peripheral Health Unit (PHU)

PHU staff are responsible for supervising data collection at the community level. They are tasked to review all data forms and take corrective action if necessary. Additionally, the PHU staff are to clearly and accurately report data from the PHU in a timely manner. They are encouraged to cross check their data before submission. The PHU staff are also tasked with providing necessary feedback to the community level as appropriate.

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C) District Health Management Teams

DHMT/Malaria Focal Persons/M&E Officers are responsible for supervising all malaria related data collection in the district. They are tasked to review all data forms and reports and take corrective action if necessary. Additionally, the DHMT/Malaria Focal Persons/M&E Officers staff are to clearly and accurately report data from the PHU to NMCP in a timely manner. They are encouraged to cross check their data before submission. The DHMT/Malaria Focal Persons/M&E Officers staff are also tasked with providing necessary feedback to the PHU and community levels as appropriate.

D) M&E Unit (NMCP)

M&E Unit is responsible for supervising all malaria related data collection and activities throughout the country. The Unit is tasked to review all data malaria data in the DHIS2 Software, give feedback to the respective district through the Malaria Focal Person/District M&E Officer or during DHMT/PHU In-Charges meeting and take appropriate action.

Coaching and on-the-job training will form part of the quarterly supportive supervision conducted by the National Malaria Control Programme. Supervision exit meetings are organised to share findings and give appropriate recommendation as well as develop actionable plans.

In order to ensure quality data is being collected, supervisory visits take place every quarter. To better facilitate effective and focused monitoring and supervision, the country has been divided up into five zones as follows:

Table 4: Monitoring Zones

Zone	Districts
Zone 1	Kambia, Port Loko, Koinadugu
Zone 2	Bombali, Tonkolili, Kono,
Zone 3	Bo, Bonthe, Moyamba
Zone 4	Kailahun, Kenema, Pujehun
Zone 5	Western Area (Urban and Rural), Karene, Falaba

Following supervisory visits, the M&E unit will provide the necessary feedback to the districts as appropriate.

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E) Senior Staff (NMCP), M&E Staff (PR) and M&E Staff (MoHS/DPPI/DPC)

Occasionally Senior NMCP staff or M&E staff from IHPAU or the MoHS/DPPI/DPC Unit will carry out supervisory visits to validate activities and data from the four other levels. This will be done by comparing data from reports with data at the field level. Feedback will be provided upon return during program and partner meetings.

3.5.1 Data Storage

Data are received and stored at all levels:

- At community level, data generated are kept in registers by CHWs
- At PHUs level, data generated are kept in Tally Books, registers and summary forms are stored locally.
- At district level, data from PHUs are kept electronically in DHIS2 Platform. This is a district based information system that is integrated into data warehouse at national level.
- At central level, the DHIS2 data are kept in the national data warehouse.

Every CHW/health unit/District/National should have a secured place for storing all HMIS data, preferably metallic cabinets. The person in-charge of records should be responsible for storing all filled HMIS data in the records store. Health data should be stored by year and department to ease retrieval. The most current health files (not more than five years back) should be kept within the records office while other old files (greater than five years) should be archived.

For electronic storage a system will be set up to ensure daily data back-up and updates. External drive/storage devices should be used to back-up and update data from all computers used to collect data, whether networked or stand-alone. An offsite back-up facility will be set up.

Filing and Record keeping

At District and National levels

Items Needed: Folder or file, external storage media (flash drive, external hard drive, compact disks (CD) etc.)

- Assign separate folders for keeping both soft copies and hard copies of source (registers) and aggregated data/records.
- At the end of each day of update, save data on computer and an assigned external storage medium.
- At the end of every month (or update), save data on computer and a copy on an external storage medium (e.g. flash drive, external hard drive)
- Print a hard copy and place in designated folder and keep in a cabinet (or any other records keeping system used in the facility.)

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- At the end of every quarter, print out data and add to folder in the cabinet (or any other records keeping system used in the facility.)
- The filing and record keeping system used at the facility should allow for easy retrieval of information.

At PHU and Community levels

Items Needed: Folder or file, cabinets/ cupboard

- Assign separate folders for keeping hard copies of source (registers) and aggregated data/records.
- The filing and record keeping system used at the facility and community should allow for easy retrieval of information.

3.6 Malaria Data Management

Currently routine data are collected in the public sector through the functioning Peripheral Health Units (PHUs), and all hospitals (public & private) that are distributed throughout the country across the 14 health districts. The PHUs and hospitals gather data from client/patient registration forms, using tally sheets. These are collated onto paper based integrated reporting forms (HF1-8 and HF1-4) which are sent to the district health management team. Data from the community are included in the PHU's reporting forms. DHMT capture this data into an electronic District Health Information System (DHIS2) Software. The DHIS2 Software will progressively be extended to capture data from other sources such as Logistic Management Information System (LMIS), specific surveys, civil registration (births and deaths), research, supervision, private sector, civil society, resources and administrative records to give a broad picture of the country

Data Management – Community level

1. Clients are registered into the CHWs Register
2. The registers are taken to the PHU responsible for the CHWs for verification and compilation of the data submitted.
3. Following the compilation of the data by PHU staff, the registers are then taken back by the CHWs.

Data Management – PHU level

1. Routine data collected from patient care are first entered into the registers and tally sheets by facility staff on a daily basis as they consult patients
2. The PHU In-charge (or any other person designated by the facility) collects, summarises and verifies data from various service delivery registers/tally sheets at the end of every month including CHW data using the HMIS PHU Forms for onward submission to the DHMT by the 5th of the following month.
3. The PHU In-charge (or any other person designated by the facility) checks the completeness, correctness and timeliness of the data before submission to the DHMT.
4. Copies of the monthly report sent to DHMT are kept at the health facility
5. The PHU staff performs simple analysis of the data collected by generating tables, graphs and charts and are displayed on walls at the PHU.

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Data Management - DHMT

1. Data are collected from each PHU every month, entered in the DHIS and sent electronically to the national level and NMCP receives the paper base report (NMCP District Summaries)
2. Other relevant malaria information that is cleared by the DMO/ Head of Institution is sent directly to NMCP including hospital data.
3. The data is reviewed and all necessary corrections made. The completeness, correctness and timeliness of the data are checked.
4. The DHMT records on PHUs are updated each time data is received from PHUs and data analysis is carried out on a monthly basis.
5. All data and reports are filed by month in designated files.
6. DHMT replenishes data collection tools at health facility level.

Data Management- NMCP

1. National Malaria Control Programme data elements and indicators are now fully integrated into the national DHIS2 platform which is fully online. Monitoring and Evaluation staff of NMCP have user access to the DHIS2 Software.
2. The other relevant information from the districts is stamped "***Received***" and the date indicated on the document. The person that brought the report and the person that receive it sign the Register (Report Tracking Log Book).
3. Periodic data analysis is carried out on monthly, quarterly or six-monthly and the information is used for reporting to donors/partners and programmatic decision.

3.7 Dissemination of the Information and Information Products

Analysis of data will be done at various levels of the health sector. The products from the NMCP M&E system will include:

- Monthly Report (internal consumption)
- Quarterly Reports
- Annual Reports
- Evaluation Reports
- Feedback meetings' reports with stakeholders
- Supervision reports
- Quarterly bulletin
- News letter

In order to facilitate use of information for decision making among the different programme stakeholders, a number of communication and feedback mechanisms are instituted as part of the M&E system. M&E products are disseminated as appropriate through:

- Email
- Post
- Courier
- Delivered by hand

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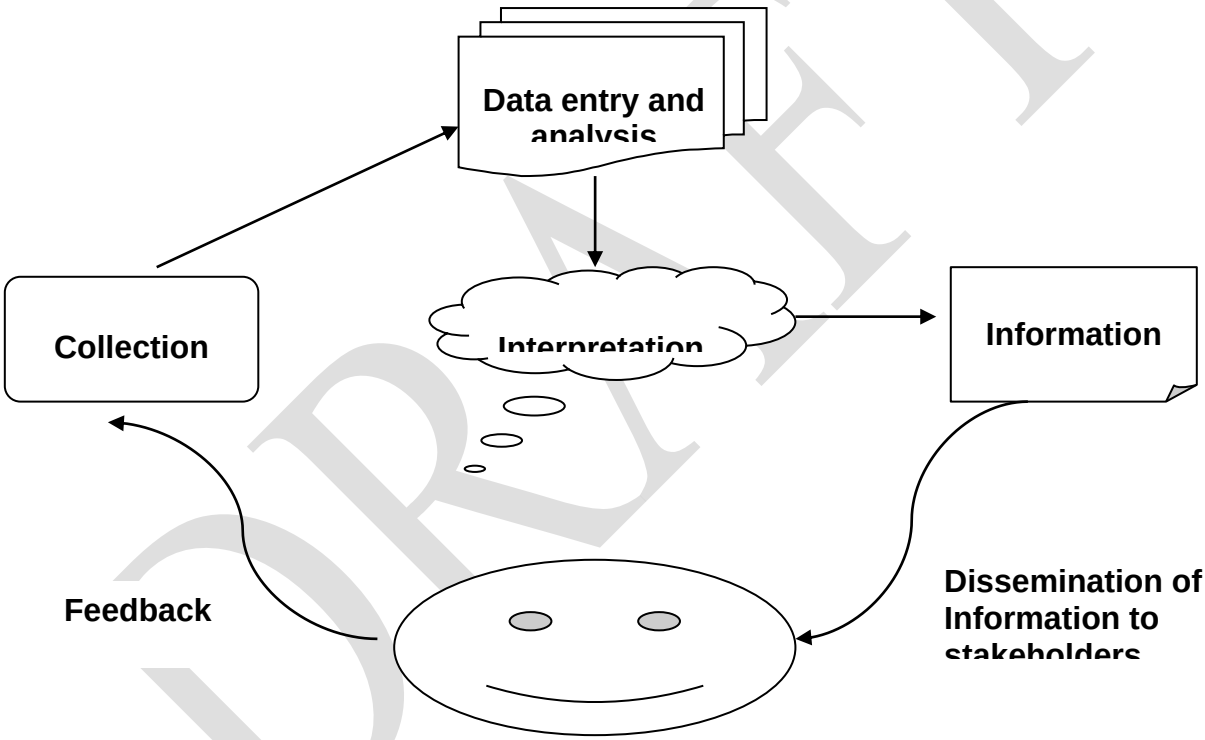
- During meetings

Other avenues for information sharing are sub-regional meetings (e.g. West Africa RBM Network (WARN), and West Africa Network for Monitoring Antimalarial Treatment (WANMAT). Reports from evaluation and research activities such as treatment efficacy studies and pharmacovigilance are published in relevant peer review journals.

Feedback is provided to the DHMT including the Malaria Focal Persons, M&E Officers and health workers on their performance with regards to malaria activities. This is often done through coaching and on-the-job training during supportive supervision visits. The figure below outlines the data utilization cycle.

Figure 4: Data Utilization Cycle



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M&E Plan 2016-2020 Activity Budget

Key M&E Activities 2016-2021								
	Activity	Cost/Year (Le)						
		2016	2017	2018	2019	2020	2021	Total (Le)
1	Training of DMO, district M&E, malaria focal persons, DEC and surveillance on malaria surveillance and routine data quality assessment at district level	46,811,805.04	46,811,805.04	57,482,000.00	57,482,000.00	57,482,000.00	57,482,000.00	323,551,610.08
2	Printing of data collection and reporting tools	62,005,097.00	62,005,097.00	0.00	0.00	0.00	0.00	124,010,194.00
3	Conduct 10 days quarterly supportive supervision for NMCP Staff from National to Districts. Quarterly supportive supervision for 17 NMCP staff for 10 days (DSA for NMCP staff)	180,000,000.00	180,000,000.00	192,000,000.00	204,000,000.00	204,000,000.00	204,000,000.00	1,164,000,000.00
4	Conduct 10 days quarterly supportive supervision for NMCP Staff from National to Districts. Quarterly supportive supervision for 17 NMCP staff for 10 days (DSA for Drivers)	36,000,000.00	36,000,000.00	36,000,000.00	36,000,000.00	36,000,000.00	36,000,000.00	216,000,000.00
5	Conduct 10 days quarterly supportive supervision for NMCP Staff from National to Districts. Quarterly supportive supervision for 17 NMCP staff for 10 days (Fuel to and fro districts	36,765,000.00	36,765,000.00	47,794,500.00	58,824,000.00	58,824,000.00	58,824,000.00	297,796,500.00

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Key M&E Activities 2016-2021								
	Activity	Cost/Year (Le)						
		2016	2017	2018	2019	2020	2021	Total (Le)
6	17 NMCP personnel Conduct 5-day Data quality assessment audit (DSA to NMCP staff)	72,000,000.00	72,000,000.00	87,000,000.00	102,000,000.00	102,000,000.00	102,000,000.00	537,000,000.00
7	17 NMCP personnel Conduct 5-day Data quality assessment audit (DSA to Drivers)	12,000,000.00	12,000,000.00	15,000,000.00	18,000,000.00	18,000,000.00	18,000,000.00	93,000,000.00
8	17 NMCP personnel Conduct 5-day Data quality assessment audit (Fuel to and fro district)	14,712,000.00	14,712,000.00	22,068,000.00	29,424,000.00	29,424,000.00	29,424,000.00	139,764,000.00
9	Conduct monthly supportive supervision by DHMT to PHUs at District level	402,948,000.00	402,948,000.00	402,948,000.00	0.00	0.00	0.00	1,208,844,000.00
10	Conduct monthly M&E sub-meetings for the programme-25 participants at National Level.	26,085,000.00	26,085,000.00	26,085,000.00	0.00	0.00	0.00	78,255,000.00
11	Conduct periodic evaluation of feedback about BCC activities and link to outcome	108,072,000.00	108,072,000.00	108,072,000.00	108,072,000.00	108,072,000.00		540,360,000.00
12	Conduct a Barrier Analysis in six districts (Koinadugu, Kambia, Kono, Moyamba, Western Area Urban, Western Area Rural)				103,694,220.00			103,694,220.00
13	LLINs monitoring and post coverage and utilization survey.	0.00	0.00	0.00	0.00	5,165,551,846.80	0.00	5,165,551,846.80

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Key M&E Activities 2016-2021								
	Activity	Cost/Year (Le)						
		2016	2017	2018	2019	2020	2021	Total (Le)
14	Conduct a KAP Survey nationwide			278,840,002.00				278,840,002.00
15	Conduct Malaria Indicator Survey	6,580,000,010.43		6,580,000,000.00	0.00	10,484,292,117.96	0.00	23,644,292,128.39
16	ITN Facility Register	56,366,316.00	56,366,316.00	56,366,316.00	348,000,000.00	348,000,000.00	348,000,000.00	1,213,098,948.00
17	Develop research agenda	0.00	0.00	41,360,560.78	0.00	0.00	0.00	41,360,560.78
18	Training of NMCP staff on operational Research methodology	0.00	0.00	107,888,644.00	107,888,644.00	107,888,644.00	107,888,644.00	431,554,576.00
19	Quarterly meeting of Research Committee5 MOHS, 12 University ,3 private sector ,5 NGOs , 11 Health Institutions and Associate , 2 Research Institutions, 5 NMCP, 3 UN, 1 Expert International (47)	0.00	0.00	100,180,000.00	100,180,000.00	100,180,000.00	100,180,000.00	400,720,000.00
20	Review and update the Research Agenda - (5 MOHS, 12 University ,3 private sector ,5 NGOs , 11 Health Institutions and Associate , 2 Research Institutions, 5 NMCP, 3 UN, 1 Expert International (47))	0.00	0.00	0.00	85,992,400.00	85,992,400.00	85,992,400.00	257,977,200.00
21	GIS Mapping and Spatial Analysis (Using ArcGIS 10.2) Training of 4 NMCP staff x 5 days in Nairobi Kenya (Tuition fees)	0.00	0.00	28,439,200.00	28,439,200.00	28,439,200.00	28,439,200.00	113,756,800.00

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Key M&E Activities 2016-2021								
	Activity	Cost/Year (Le)						
		2016	2017	2018	2019	2020	2021	Total (Le)
22	GIS Mapping and Spatial Analysis (Using ArcGIS 10.2) Training of 4 NMCP staff x 5 days in Nairobi Kenya (Airfare-return)	0.00	0.00	41,910,400.00	41,910,400.00	41,910,400.00	41,910,400.00	167,641,600.00
23	GIS Mapping and Spatial Analysis (Using ArcGIS 10.2) Training of 4 NMCP staff x 5 days in Nairobi Kenya (DSA to staff)	0.00	0.00	45,802,080.00	45,802,080.00	45,802,080.00	45,802,080.00	183,208,320.00
24	NMCP staff to participate in the Quarterly DHMT/PHU In-charges meetings at District level	0.00	0.00	17,112,000.00	17,112,000.00	17,112,000.00	17,112,000.00	68,448,000.00
25	Refresher training for hospital M& E staff (public and private sector) staff on Data Management (M&, MFP, DEC, Surveillance)	0.00	0.00	78,524,996.00	78,524,996.00	78,524,996.00	78,524,996.00	314,099,984.00
26	Monitoring and Evaluation System Strengthening Tool (MESST) Review	0.00	0.00	135,621,978.00	0.00	135,621,978.00	0.00	271,243,956.00
Total (Le)		**7,633,765,228.47**	**1,053,765,218.04**	**8,506,495,676.78**	**1,571,345,940.00**	**17,253,117,662.76**	**1,359,579,720.00**	**37,378,069,446.05**
Total ($)		**$ 1,020,011.39**	**$ 140,802.41**	**$ 1,136,624.22**	**$ 209,960.71**	**$ 2,305,333.73**	**$ 181,664.85**	**$ 4,994,397.31**

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