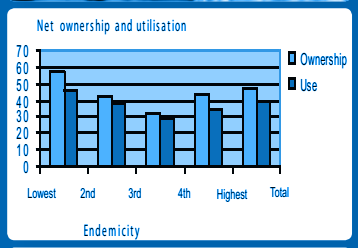
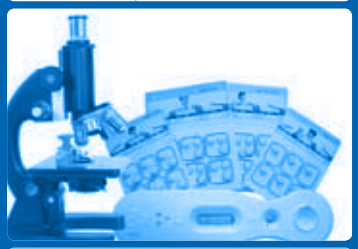
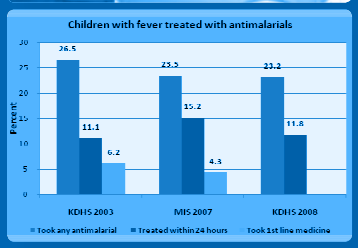
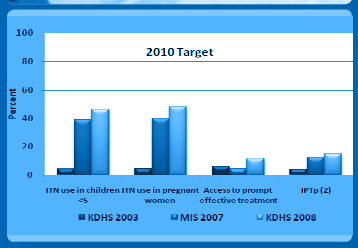


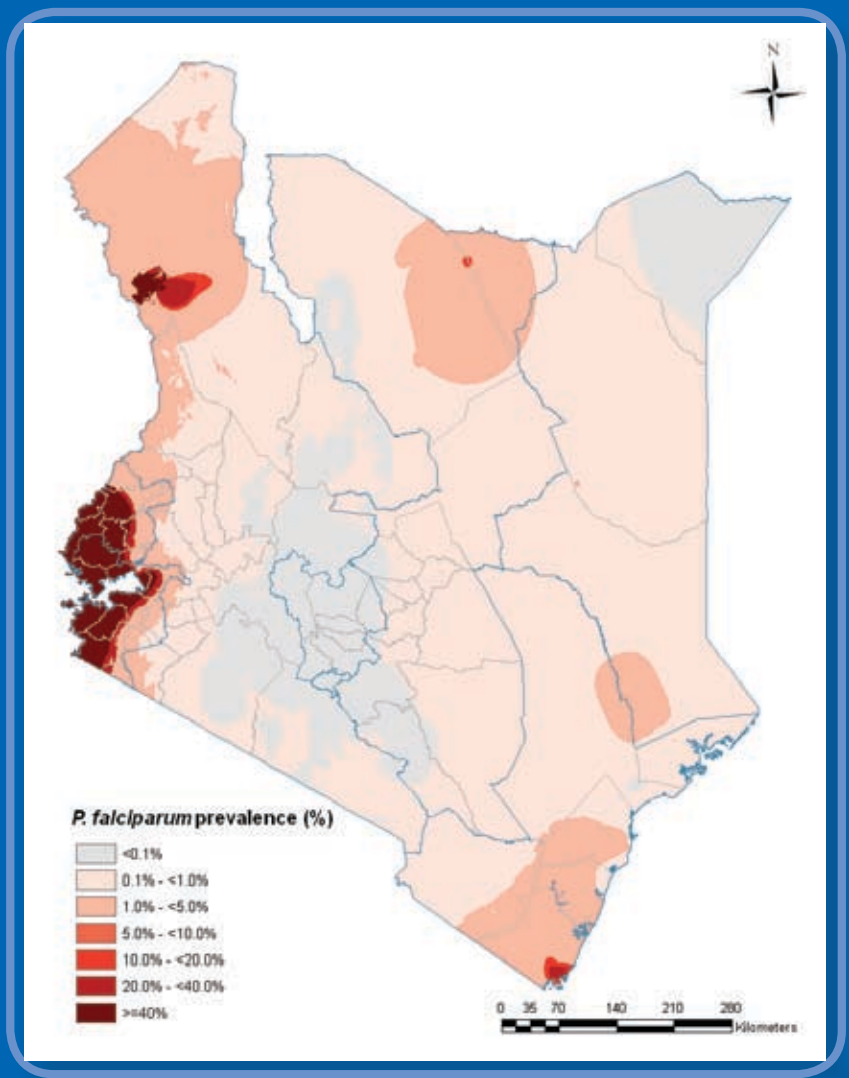






REPUBLIC OF KENYA

Kenya Malaria Monitoring and Evaluation Plan 2009–2017



Division of Malaria Control
Ministry of Public Health and Sanitation
July 2009

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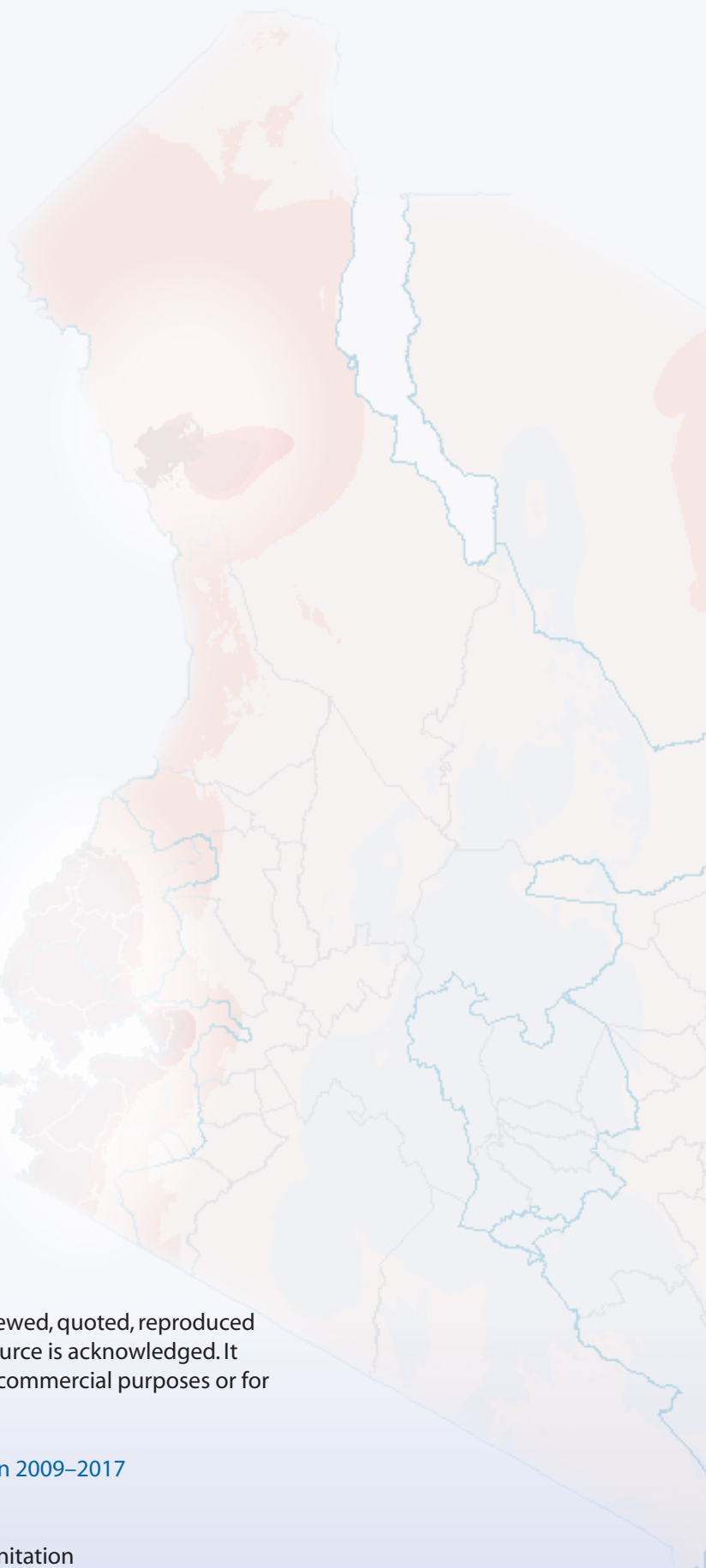
Kenya Malaria Monitoring and Evaluation Plan

2009–2017

Division of Malaria Control
Ministry of Public Health and Sanitation
July 2009



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Contents

Foreword

The National Malaria Strategy covering the period 2009–2017 and this Monitoring and Evaluation Plan have been developed in line with the Government's first Medium-Term Plan of the Kenya Vision 2030, Millennium Development Goals, as well as Roll Back Malaria partnership goals and targets for malaria control. The National Malaria Strategy is based on and carries forward an inclusive partnership between the Ministries of Public Health and Sanitation and Medical Services, other line Ministries of the Government of Kenya, development and all implementing partners in malaria control. It is a product of extensive consultation and collaboration between all stakeholders and establishes a strategic framework for the delivery of malaria control interventions as well as for monitoring and evaluating performance.

Surveillance, Monitoring and Evaluation and Operational Research are key to measuring performance and evaluating achievements in targeted results for any health program. To measure achievements of the previous National Malaria Strategy 2001-2010, the Ministry of Public Health through the Division of Malaria Control and partners used routine surveillance data as well as various national and sentinel surveys, including the Malaria Indicator Survey of 2007. The division was thus able to generate information on performance towards meeting the program implementation targets as outlined in the Annual Operational Plans, the Abuja targets and Millennium Development Goals.

This monitoring and evaluation plan for the National Malaria Program has been developed in line with the overall health sector framework for monitoring and evaluating performance including the institutional framework that is required for effective monitoring and evaluation of performance on various indicators and targets. The plan is part of the implementation of the principle of the "three ones" in malaria control in Kenya, including; one national malaria control coordinating authority where implementation is a country-led process; one agreed comprehensive national plan for malaria control including costed work plans; and one agreed country level monitoring and evaluation framework to serve the national malaria control programme and its partners in effective monitoring of performance and outcomes.

The plan articulates in detail indicators, sources of data, data collection and data analysis and use in evaluation of all program intervention areas. In addition, the plan addresses information reporting and feedback and the responsibilities of the various stakeholders in its implementation.

I am confident that this plan provides the necessary framework for monitoring and evaluation of malaria control interventions and I urge all stakeholders to put all effort into its implementation to enable the country move towards the vision of "a malaria-free Kenya".

Hon. Beth Mugo, EGH, MP

Minister for Public Health and Sanitation

Acknowledgements

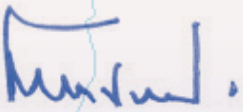
The development of the National Monitoring and Evaluation (M&E) Plan involved an elaborate consultative process involving several key stakeholders in malaria control. The Ministry would like to thank the Director of Public Health Dr. S. K. Sharif and the Head of the Department of Disease Prevention and Control Dr. Willis Akhwale for providing policy guidance and technical directions to the development of both the National Malaria Strategy 2009 - 2017 and this Monitoring and Evaluation Plan.

The commitment, technical support and overall stewardship from the members of the Malaria Inter-agency Coordinating Committee, the World Health Organization (Africa Regional Office, Inter-country Support Team and the Kenya Country Office) is highly appreciated. I acknowledge the contribution and technical support from the United States President's Malaria Initiative through USAID, Centres for Disease Control and Prevention and Management Sciences for Health, Global Fund to fight Aids Tuberculosis and Malaria, Kenya Medical Research Institute, Wellcome Trust Program, Measure Evaluation, Health Management Information System (HMIS), Population Services International (PSI) and United Nations Children's Fund (UNICEF) to the finalization of this M&E plan.

My sincere gratitude to the United Kingdom's Department for International Development (DfID) and United States President's Malaria Initiative (PMI) through Management Sciences for Health (MSH) for financing the development of the M&E plan.

I would like to thank staff of the Division of Malaria Control for coordinating the development of the M&E plan and in particular the Monitoring and Evaluation team, Andrew Wamari, Josephine Karuri (MSH/SPS); Gladys Tetteh (Resident Advisor PMI Kenya), Abdisalan Noor and Dejan Zurovac (KEMRI/Wellcome Trust), Khoti Gausi (WHO IST Harare) and Akpaka Kalu and Augustine Ngindu (WHO Kenya). I also acknowledge and appreciate the commitment and contribution of the Malaria Goodwill Ambassador Prof. Julius Meme and all partners and stakeholders in malaria control who made this possible.

Komesha Malaria, Okoa Maisha



Mark K. Bor, EBS

Permanent Secretary

Ministry of Public Health and Sanitation

Acronyms

ACSM	Advocacy, Communication and Social Mobilization
ACT	Artemisinin-Based Combination Therapy
AMFm	Affordable Medicines Facility for malaria
ANC	Antenatal Care
AOP	Annual Operational Plans
BCC	Behavior Change Communication
CCM	Country Coordinating Mechanism
CDC	Centers for Disease Control and Prevention
CDROM	Compact Disk Read Only Memory
CHW	Community Health Workers
CORP	Community Owned Resource Persons
CSO	Civil Society Organizations
CWC	Child Welfare Clinic
DDSR	Division of Disease Surveillance and Response
DFID	UK Department for International Development
DHMT	District Health Management Teams
DOMC	Division of Malaria Control
DVBD	Division of Vector Borne Diseases
DVD	Digital Versatile Disk
EPI	Expanded Programme on Immunization
EPR	Epidemic Preparedness and Response
FTP	File Transfer Protocol
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GOK	Government of Kenya
HMIS	Health Management Information System
HMM	Home-Based Management of Malaria
HRIO	Health Records Information Officer
ICT	Information, Communication and Technology
IDSR	Integrated Diseases Surveillance and Response
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illness
IPT	Intermittent Preventive Treatment
IPTp	Intermittent Preventive Treatment in Pregnancy
IMCI	Integrated Management of Childhood Illness
IRS	Indoor Residual Spraying
ITN	Insecticide Treated Nets
IVM	Integrated Vector Management
KDHS	Kenya Demographic and Health Survey
KEMRI	Kenya Medical Research Institute
KEMSA	Kenya Medical Supplies Agency
KNBS	Kenya National Bureau of Statistics
KSPA	Kenya Service Provision Assessment Survey
LLIN	Long Lasting Insecticide Treated Nets
LMIS	Logistics Management Information System

LMU	Logistics Management Unit
M&E	Monitoring and Evaluation
MCH	Maternal and Child Health
MIAS	Malaria Information Acquisition System
MICS	Multiple Indicator Cluster Survey
MIP	Malaria in Pregnancy
MIS	Malaria Indicator Survey
MOPHS	Ministry of Public Health and Sanitation
MSH	Management Sciences for Health
NMCP	National Malaria Control Programme
NMS	National Malaria Strategy
NQCL	National Quality Control Laboratory
OR	Operational Research
PHMT	Provincial Health Management Team
PPB	Pharmacy and Poisons Board
PSI	Population Services International
PSM	Procurement and Supply Chain Management
PMM	Pharmaceutical Management of Malaria Medicines
PV	Pharmacovigilance
QC	Quality Control
RBM	Rollback Malaria
RDT	Rapid Diagnostic Test
TOR	Terms of Reference
TWG	Technical Working Group
UNICEF	United Nations Children's Fund
USG	United States Government
WHO	World Health Organization
WTRP	Wellcome Trust Research Programme

1 Introduction

The goal of the Kenya National Malaria Control Program is to reduce morbidity and mortality caused by malaria in the various epidemiological zones by two thirds of the 2007/2008 level by 2017. The Division of Malaria Control (DOMC) coordinates National Malaria Control Programme activities at national level and is one of the divisions under the Department of Disease Prevention and Control in the Ministry of Public Health and Sanitation (MOPHS) The new National Malaria Strategy (2009-2017) has been developed, and it aims to achieve the stated objective through investment in four core interventions - vector control; access to prompt and effective treatment; prevention of malaria during pregnancy; and epidemic preparedness and response. Three supporting interventions have also been identified: surveillance, monitoring and evaluation and operational research; advocacy, communication and social mobilization and strengthening of programme management.

Effective monitoring and evaluation of national malaria programme remains an essential function of the malaria programme management in assessing progress made towards achieving the set objectives and targets. Following development of the National Malaria Strategy 2009-2017, a National Monitoring and Evaluation (M&E) Plan, based on the "Three Ones" was developed.

The "Three Ones"

a) One national malaria control coordinating authority where implementation is a country-led process
b) One agreed comprehensive national plan for malaria control including costed work plans
c) One agreed country level monitoring and evaluation framework

Monitoring is the *routine tracking* of the key elements of programme performance through record keeping, regular reporting, surveillance systems and periodic surveys. More specifically, monitoring involves generating data on inputs, processes and outputs of an ongoing programme over time. Programme monitoring also assesses the extent to which the implementation of planned activities is consistent with the project or programme design. Indicators selected for monitoring will be different depending on the reporting level within the health system and the interventions deployed. At the national and sub national levels of implementation, monitoring of inputs (human resources, financing, guidelines and supplies), processes (procurements and training) and outputs (services delivered) is essential for assessing program performance.

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 deploys various techniques including quantitative and qualitative research methods, to systematically investigate a programme's effectiveness and impact in order to determine the extent to which the invested resources have yielded the expected results.

This M&E plan articulates, by programme area, details of what data are needed, the indicators, sources of data, data collection and flow, analysis, use and reporting, feedback as well as the responsibilities of the various malaria stakeholders. It details plans for developing M&E capacity in terms of human, logistical and financial resources. It includes a detailed activity plan covering the duration of the strategic plan from the year 2009 to 2017.

1.1 Epidemiology of Malaria in Kenya

All four species of human *Plasmodium*: *P. falciparum, P. malariae, P. ovale* and *P. vivax* occur in Kenya. *P. falciparum,* which causes the severest form of the disease accounts for 98 percent of all malaria infections. The major malaria vectors in Kenya are members of *An. gambiae* complex and *An. funestus*. Based on the Kenya National Bureau of Statistics (KNBS) population projections for 2009, the number of people in Kenya at risk of malaria living in endemic, highland epidemic prone and seasonal areas is 27,596,285. The number of pregnant women and children under 5 years living in these areas is 8,392,725.

Kenya has four malaria epidemiological zones:

a) ***Endemic*** – Areas of stable malaria have altitudes ranging from 0 to 1300 meters around Lake Victoria in western Kenya and in the coastal regions. Rainfall, temperature and humidity are the determinants of the perennial transmission of malaria. The vector life cycle is usually short with high survival rate due to the suitable climatic conditions. Transmission is intense throughout the year with annual entomological inoculation rates of 30-100.

b) ***Seasonal malaria transmission***- this epidemiological zone in arid and semi-arid areas of northern and south-eastern parts of the country experiences short periods of intense malaria transmission during the rainfall seasons. Temperatures are usually high and water pools created during the rainy season that provide the malaria vectors breeding sites. Extreme climatic conditions like *El Nino southern oscillation* lead to flooding in these areas leading to epidemic outbreaks with high morbidity rates due to low immune status of the population.

c) ***Malaria epidemic prone areas of western highlands of Kenya*** - Malaria transmission in the western highlands of Kenya is seasonal with considerable year-to-year variation. The epidemic phenomenon is experienced when climatic conditions favour sustainability of minimum temperatures around 18^0 C. This increase in minimum temperatures during the long rains period favours and sustains vector breeding resulting in increased intensity of malaria transmission. The whole population is vulnerable and case fatality rates during an epidemic can be up to ten-times greater than what is experienced in regions where malaria occurs regularly.

d) ***Low risk malaria areas*** – this zone covers the central highlands of Kenya including Nairobi. The temperatures are usually too low to allow completion of the sporogonic cycle of the malaria parasite in the vector. However, with increasing temperatures and changes in the hydrological cycle associated with climate change are likely to increase the areas suitable for malaria vector breeding with introduction of malaria transmission in areas it never existed.

1.2 The Malaria Situation

Clinically diagnosed malaria is responsible for 30% of outpatient consultations, while 15% of hospital admissions and 3-5% of inpatient deaths are attributed to malaria. In 2007, there were 9.6 million reported clinically diagnosed malaria cases in the public health sector. (HMIS 2007).

The expansion of coverage of parasite and vector control interventions resulted in decline in malaria burden, severity and transmission patterns. There is documented decline in under five mortality in sentinel districts by 44% among those children who used insecticide treated nets compared to those who did not[1] while at the Kenyan Coast, a 28-63% decline in paediatric malaria admissions was reported between 1992 – 2006[2]. Decline in malaria admissions in sentinel districts by 56% during the 1999-2006 period, shift in the mean age of clinical cases from 2.9 years in 1992 to 4.9 years in 2006 and a decline in rate of slide positive admissions from 22.6 per 1000 people at risk in 2004 to less than 2 per 1000 in endemic community in Kilifi District of Coast province.[3] These data are confirmed by results from a Demographic Surveillance Site in western Kenya where community prevalence of malaria parasitemia among children under 5 years of age has declined from over 80% in the 1990's to 26% in 2008, coincident with the introduction of Insecticide Treated Nets (ITNs), and the MOH introduction of effective treatment with Artemisinin-Based Combination Therapy (ACTs). During the past 5 years, as malaria control measures have been scaled up, under-5 mortality, malaria specific under-5 mortality (from verbal autopsy data) and malaria-related paediatric hospital admissions have declined (KEMRI/CDC unpublished data).

There are variations in malaria parasite prevalence across the country among children under 5 years of age; 17% in endemic areas, 1.4% in areas of seasonal malaria transmission (arid and semi-arid lowlands), 1% in epidemic prone areas, and 0.4% in malaria-free low risk transmission areas (KMIS 2007; Ye et al 2009).

1.3 Summary of the National Malaria Strategy

The vision for malaria control is to have a malaria free Kenya. The goal of the new National Malaria Strategy (2009-2017) is to have reduced morbidity and mortality caused by malaria in the various epidemiological zones by two thirds of the 2007/2008 level by the year 2017. To achieve this goal the 2008-2017 NMS identified six strategic objectives, each with key strategies which outline how these objectives will be achieved during the strategic plan period. The summary of objectives and strategies are as follows:

1) **Objective 1:** By 2013, to have at least 80% of people living in malaria risk areas using appropriate malaria preventive interventions
   a) Universal distribution of LLINs through appropriate channels
   b) Indoor residual spraying in the targeted areas
   c) Support for malaria-free schools initiative
   d) Provision of IPTp at antenatal clinics

1 Fegan GW, Noor AM, Akhwale WS, Cousens S, Snow RW (2007). Effect of expanded insecticide-treated bed net coverage on child survival in rural Kenya: a longitudinal study. *Lancet*, 370: 1035-1039

2 O'Meara W, Bon P, Mwangi TW, Okiro EA, Peshu N, Snow RW, Marsh K, 2008. Effect of a fall in malaria transmission on morbidity and mortality in Kilifi, Kenya. Lancet 372:1555-1562.

3 O'Meara W, Mwangi TW, Williams TN, McKenize FE, Snow RW, Marsh K, 2008. Relationship between exposure, clinical malaria, and age in an area of changing transmission intensity. Am J trop Med Hygiene 2008, 79(2) 185-191

2) **Objective 2:** To have 80% of all self-managed fever cases receive prompt and effective treatment and 100% of all fever cases who present to health facilities receive parasitological diagnosis and effective treatment by 2013
   a) Capacity building for malaria diagnosis and treatment at health facilities
   b) Access to affordable malaria medicines through the private sector
   c) Strengthening Home Management of Malaria
3) **Objective 3:** To ensure that all malaria epidemic prone districts have the capacity to detect and preparedness to respond to malaria epidemics annually by 2010
   a) Capacity building for epidemic preparedness and response
   b) Disease surveillance capacity strengthening
4) **Objective 4:** To strengthen surveillance, monitoring and evaluation systems so that key malaria indicators are routinely monitored and timely evaluated in all malarious districts by 2011
   a) Capacity strengthening for malaria surveillance
   b) Strengthen facility and school based malaria sentinel surveillance
   c) Strengthening malaria data management systems
   d) Conduct and support community and facility based surveys
   e) Operational Research and Translation
   f) Human Resource capacity building in surveillance, monitoring and evaluation
5) **Objective 5:** To strengthen advocacy, communication and social mobilization capacities for malaria control to ensure that at least 80% of people in malarious areas have knowledge on prevention and treatment of malaria by 2014
   a) Capacity strengthening for advocacy, communication and social mobilization
   b) Development of appropriate advocacy for uptake of specific malaria interventions
   c) Multi-sectoral IEC/BCC

6) **Objective 6:** By 2013, to strengthen capacity in programme management in order to achieve malaria programmatic objectives at all levels of the health care system
   a) Capacity strengthening for planning, partnerships and coordination at national malaria control program
   b) Strengthen malaria program at the district and provincial levels
   c) Strengthen infrastructure at the national, provincial and district level to support malaria program management
   d) Strengthen activity and performance monitoring
   e) Strengthen resource mobilization capacity to improve malaria control financing
   f) Strengthen human resource capacities in malaria endemic area
   g) Strengthen procurement and supply management systems for malaria drugs and commodities

1.4 Funding for the M&E Plan

Figure 1.1 below shows a summary budget estimate of the KNMS 2009 – 2017 and the corresponding M&E component for each NMS objective. It is evident the M&E has been given prominence in the new NMS since on average it represents 10% of the total NMS budget.

Figure 1.1: The M&E Budget Component of the KNMS 2009 – 2017

NMS OBJECTIVE FOCUS		BUDGET ESTIMATE IN MILLIONS OF DOLLARS								GRAND TOTAL
		2010	2011	2012	2013	2014	2015	2016	2017	
Objective 1: Malaria Preventive Interventions	**Total Budget**	291,801,841	130,221,772	48,047,964	188,237,126	53,186,981	52,228,878	200,071,634	57,062,589	**1,020,858,785**
	M&E Component	5,322,414	4,259,660	4,071,270	4,784,204	2,989,378	3,574,490	4,898,100	3,662,211	**33,561,727**
Objective 2: Case Management	**Total Budget**	45,105,591	39,017,730	41,304,593	54,625,829	50,998,629	50,845,074	62,970,810	57,777,326	**402,645,582**
	M&E Component	390,140	247,792	247,792	574,438	420,592	420,592	670,075	479,632	**3,451,053**
Objective 3: Epidemic Preparedness and Response	**Total Budget**	8,027,053	8,539,920	8,003,349	8,508,189	8,807,492	8,372,931	8,985,040	9,396,898	**68,640,874**
	M&E Component	3,306,278	4,167,895	3,620,508	3,754,897	4,402,146	3,861,006	4,001,811	4,655,649	**31,770,190**
Objective 4: Surveillance, M&E and Operational Research	**Total Budget (All M&E)**	7,887,305	3,325,492	3,984,636	5,423,607	6,333,134	4,011,496	5,958,872	5,463,001	**42,387,542**
Objective 5: Advocacy, Communication and Social Mobilization	**Total Budget**	3,779,961	3,501,700	3,507,700	3,773,573	3,509,645	3,500,845	3,782,280	3,502,745	**28,858,448**
	M&E Component									**0**
Objective 6: Program Management	**Total Budget**	15,536,812	14,100,268	14,496,179	14,369,442	14,890,718	14,381,592	14,930,413	14,096,408	**116,801,831**
	M&E Component	6,805,714	6,609,555	6,952,457	6,715,470	6,609,555	6,609,555	7,223,221	6,609,555	**54,135,082**
Total Budget per Year		**372,138,563**	**198,706,881**	**119,344,421**	**274,937,765**	**137,726,600**	**133,340,816**	**296,699,049**	**147,298,966**	**1,680,193,061**
Total M&E Budget Component		23,711,851	18,610,394	18,876,663	21,252,615	20,754,805	18,477,139	22,752,078	20,870,048	**165,305,594**
M&E Budget as a proportion of Total Malaria Budget		**6%**	**9%**	**16%**	**8%**	**15%**	**14%**	**8%**	**14%**	**10%**

2 The 2009-2017 Malaria Monitoring and Evaluation Plan

The recent articulation of a malaria M&E plan for the DOMC and its partners will ensure effective monitoring of performance including outcomes. This document will allow for the efficient use of data and resources by ensuring, for example, that indicators and sampling methodologies are comparable over time. Data generated by a comprehensive malaria M&E system will serve the needs of many constituents, including the DOMC, academic researchers and international donors, eliminating the need for parallel and duplicative M&E processes and activities as outlined in the "Three Ones" principle.

Monitoring and evaluation is key to all aspects of the national malaria control programming. Through the M&E plan, programme results can be measured to provide a basis for accountability and evidence-based decision - making at both programme and policy levels.

2.1 Objectives of the M&E Plan

The main objective of this M&E plan is to provide a comprehensive tracking system that enables transparent and objective management of information on the malaria control programme activities for effective implementation of malaria interventions in Kenya. The specific objectives of the plan, which will be guided by the M&E TWG are:

a) To ensure collection, collation, processing, analysis and use of appropriate malaria data at all levels of malaria control programming
b) To enable regular monitoring and documentation of programme performance based on implementation plans and targets
c) To facilitate harmonization of malaria data collection based on standardized definitions, tools and indicators
d) To ensure the updating of the malaria databases for comprehensive storage, retrieving and using malaria control information
e) To coordinate and strengthen linkages with other programmes and partners who generate malaria data in order to ensure attainment of all relevant data and to avoid duplication of efforts
f) To provide accurate and timely information to the malaria program and all stakeholders for evidence-based decision-making at all levels

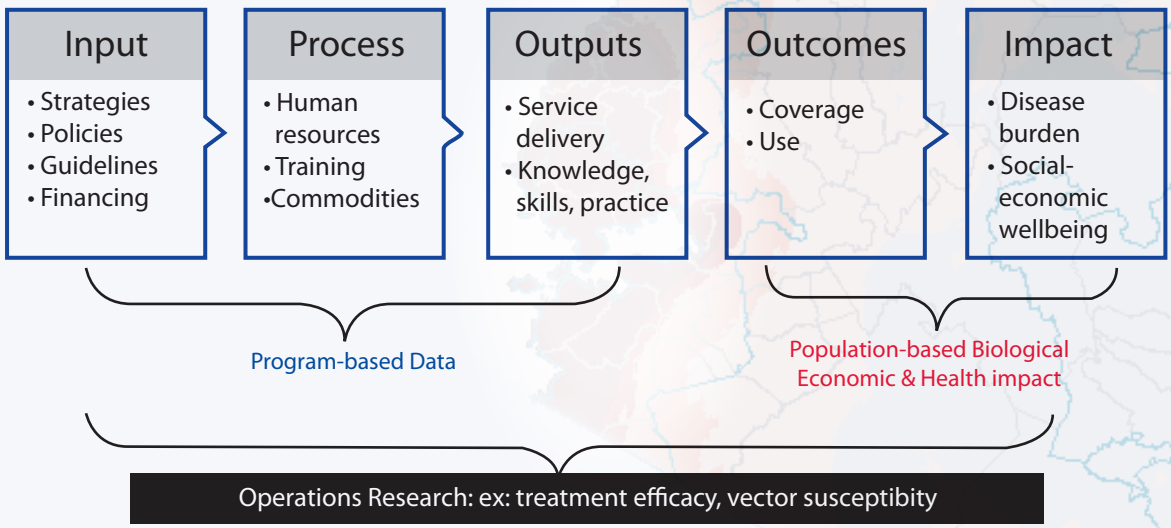
2.2 Framework for Monitoring and Evaluating the Kenya National Malaria Strategy

The Division of Malaria Control has adopted the basic M&E Framework for monitoring and evaluating a national malaria control programme.

Indicators are used at different levels to measure performance of a programme. For a programme or project to achieve its goals, **inputs** such as money and staff time must result in **outputs** such as stocks and delivery systems for drugs and other essential commodities, new or improved services, trained staff, information materials, etc. These outputs are often the result of specific **processes**, such as training sessions for staff. If these outputs are well designed and reach the populations for which they were intended, the programme is likely to have positive short-term **effects** or **outcomes**, for example increased use of ITNs or improved access to effective treatment. These positive short-term outcomes should lead to changes in the longer-term **impact** of programmes, measured in reduction of malaria cases and deaths.

The basic framework, shown in **Figure.2.1** below, outlines the inputs, processes, outputs, outcomes and impact indicators.

Figure 2.1: The Basic M&E Framework



The performance framework for monitoring implementation of the NMS 2009-2017 is presented in **Figure 2.2** below. This is based Goal, Key Objectives and Strategies that are elaborated upon in the NMS. The detailed Logframe for the Kenya Malaria Control Strategic Plan 2009-2017 is contained in **Appendix 1** of this plan.

Figure 2.2: M&E Basic Performance Framework for the Kenya National Malaria Strategy 2009-2017

GOAL: ***By 2017, to have reduced morbidity and mortality caused by malaria in the various epidemiological zones by two thirds of the 2007/2008 level***

GOAL	IMPACT INDICATORS	DATA SOURCE	FREQUENCY	RESPONSIBLE
To have reduced morbidity and mortality caused by malaria in the various epidemiological zones by two thirds of the 2007/2008 level by 2017.	Inpatient malaria cases among children <5yrs [per 1000 persons per year]	Routine surveillance	Quarterly	DOMC M&E /HMIS
	Total inpatient malaria cases [per 1000 persons per year]	Routine surveillance	Quarterly	DOMC M&E /HMIS
	Inpatient malaria deaths among children <5yrs [per 1000 persons per year]	Routine surveillance	Quarterly	DOMC M&E /HMIS
	Total inpatient malaria deaths [per 1000 persons per year]	Routine surveillance	Quarterly	DOMC M&E /HMIS
	Confirmed outpatient malaria cases at health facility level among children <5 yrs [per 1000 persons per year]	Routine surveillance	Monthly	DOMC M&E /HMIS
	Total confirmed outpatient malaria cases at health facility level [per 1000 persons per year]	Routine surveillance	Monthly	DOMC M&E /HMIS
	Clinical outpatient malaria cases at health facility level among children <5 yrs [per 1000 persons per year]	Routine surveillance	Monthly	DOMC M&E /HMIS
	Total Clinical outpatient malaria cases at health facility level [per 1000 persons per year]	Routine surveillance	Monthly	DOMC M&E /HMIS
	Slide/RDT Test Positivity Rate (TPR) at health facility level	Routine Surveillance	5 years	DOMC M&E and Lab / HMIS
	malaria parasitaemia prevalence rate among children < 5yrs in endemic areas (by microscopy)	Survey	3 years	DOMC M&E /KNBS

Objective 1: *By 2013, to have at least 80% of people living in malaria risk areas using appropriate malaria preventive interventions*				
Strategy	**Performance Indicators**	**Source of data**	**Frequency**	**Responsible**
Strategy 1 Universal distribution of ITNs/LLINs through appropriate channels (I LLIN for 2 people)	**Input**			
	Amount of fund available ITNs/LLINs strategy	Programme reports	Annually	DOMC Vector Control/PSI// UNICEF/ KENAAM
	ITNs/LLINs guidelines developed			
	Number of ITNs/LLINs purchased			
	Number of retreatment kits purchased			
	Volume of insecticide purchased for net retreatment			
	Process			
	Number of people trained in distribution / retreatment	Activity reports	Quarterly	DOMC Vector Control / PSI//UNICEF/ KENAAM/DMFP
	Number of distribution points (community and health facilities) established			
	Number of ITNs/LLINs guidelines distributed			
	Number of meetings held with stakeholders			
	Number of mass distribution campaigns implemented			
	Output			
	Number of ITNs/LLINs distributed through mass campaigns	Activity reports	Quarterly	DOMC Vector Control / PSI//UNICEF/ KENAAM/DMFP
	Number of ITNs/LLINs distributed through health facilities			
	Number of nets retreated			
	Volume of insecticides used for re-treatment			
	Cost per distribution mechanism			
	Outcome			
	Proportion of households with at least one ITNs/LLINs	Household survey	2-3 years	DOMC M&E/ KNBS
	Proportion of households with at least two ITNs/LLINs			
	Proportion of population protected by ITNs/LLINs			
	Proportion of pregnant women sleeping under ITN/LLIN			
	Proportion of household with at least 1 ITN/LLIN for 2 persons			
	Proportion of U5 sleeping under ITN/LLIN			
	Proportion of people sleeping under ITN/LLIN			

Strategy 2 Indoor residual spraying in the targeted areas	**Input**	**Source of data**	**Frequency**	**Responsible**
	Amount of fund available for the IRS strategy	Programme reports	Annually	DOMC Vector Control/USAID/ IRS contractor
	Number of spray equipment purchased			
	Volume of insecticide purchased			
	IRS guidelines developed			
	Process			
	Number of target HHs mapped/ defined	Activity reports	Quarterly	DOMC Vector Control/USAID/ IRS contractar/ DMFP
	Number of spray operators trained			
	Number of IRS guidelines distributed			
	Output			
	Number of HHs (or rooms) sprayed in specified time frame (e.g. last 12 months)	Activity reports	Quarterly	DOMC Vector Control/USAID/ IRS contractor/ DMFP
	Volume of insecticides used in specified time frame (e.g. least 12mth)			
	Outcome			
	Proportion of targeted households sprayed in last 12 months	Activity reports	Quarterly	DOMC Vector Control/USAID/ IRS contractor
	Proportion of targeted sleeping rooms sprayed in last 12 months			
	Proportion of target population sleeping in rooms sprayed in last 12 months			
	Map of households sprayed			
Strategy 3 Support for malaria-free schools initiative	**Input**			
	Amount of fund available for malaria-free schools initiative	Programme reports	Annually	DOMC Vector Control/PSI/ UNICEF/KEMSA/ MoE
	Number of spray equipment purchased			
	Volume of insecticide purchased			
	Malaria-free schools guidelines developed			
	Process			
	Malaria-free schools guidelines distributed	Activity reports	Quarterly	DOMC Vector Control and Case Management/ PSI/UNICEF/ MoE/DMFP
	Number of schools targeted			
	Number of school children targeted			
	Number of ITNs/LLINs distributed for use in schools			
	Number of RDTs and ACTs distributed for use in schools			

	Output	Source of data	Frequency	Responsible
	Number of classrooms sprayed	Activity reports	Quarterly	DOMC Vector Control and Case Management/ MoE/DMFP
	Number of RDTs used in schools			
	Number of schools using curriculum mainstreamed with malaria control information			
	Outcome			
	Proportion of school children who received INT/LLIN	School survey/ Activity reports	Annually	DOMC Vector Control and Case Management/ MoE
	Proportion of schools sprayed			
	Number of children tested and number treated			
	Number school malaria campaigns			
	IMPACT			
	Fever prevalence in school children	School Survey	2-3 years	DOMC Case Management / M&E/MoE
	Parasite prevalence in school children			
Strategy 4 Provision of IPTp at antenatal clinics	**Input**			
	Amount of fund available for the IPTp strategy	Programme reports	Annually	DOMC MIP/ DRH/JPIEGO
	IPT guidelines developed			
	Number of IPT drugs purchased (expressed as a ratio –per population for better interpretation)			
	Process			
	Number of health care workers trained in IPT	Activity reports	Quarterly	DOMC MIP DRH/ JPIEGO
	Number of IPT drugs distributed to health facilities and consumed for IPTp			
	Number of IPT guidelines distributed			
	Output			
	Number of Pregnant who had 4 ANC visits	HMIS/MIS	Annually	DOMC MIP DRH
	Number of pregnant women who received IPT 1			
	Number of pregnant women who received IPT 2			
	Number of facilities with no reported stock outs of IPT drugs in the last 3 months lasting more than 7 days			

	Outcome	Source of data	Frequency	Responsible
	Proportion of pregnant women who received at least 1 dose of intermittent preventive treatment (IPTp) for malaria during their last pregnancy (in the last 2 years)	Household survey / MIS	2-3 years	DOMC M&E / KNBS
	Proportion of pregnant women who received 2 or more doses of intermittent preventive treatment (IPTp) for malaria during their last pregnancy (in the last 2 years)			

Objective 2: ***To have 80% of all self-managed fever cases receive prompt and effective treatment and 100% of all fever cases who present to health facilities receive parasitological diagnosis and effective treatment by 2013***				
STRATEGY	**INDICATORS**	**Source of data**	**Frequency**	**Responsible**
Strategy 1 Capacity building for malaria diagnosis and treatment at health facilities	**Input**			
	National malaria diagnostic policy and implementation plan developed	Activity reports	Annually	DOMC Case Management/ MSH/NPHLS/PSI/ WHO
	National malaria case management guidelines and wall charts revised			
	Standardized training curriculum for laboratory and clinical staff developed			
	QA/QC system for RDTs and malaria microscopy developed			
	Number of RDTs, ACTs and malaria microscopy supplies procured			
	Process			
	Number of health workers trained (clinical and laboratory)	Activity reports	Quarterly	DOMC Case Management/ MSH/NPHLS/PSI/ PMFP/DMFP/DPF
	Number of health facilities supervised			
	Number of job aids disseminated (guidelines and wall charts)			
	Number of facilities with functional weighing scales			
	Number of facilities under RDT and microscopy QA scheme			
	Number of RDT lot testing performed			
	Number of RDTs distributed			
	Number of microscopes and laboratory supply distributed			
	Number of ACT's distributed and consumed per weight band			

	Output	Source of data	Frequency	Responsible
	Proportion of health workers trained in malaria diagnosis	Activity reports	Quarterly	DOMC Case Management / PSI/MSH/WHO/PSI PMFP/DMFP/DPF
	Proportion of health workers supervised			
	Proportion of health workers having access to national guidelines			
	Proportion of health facilities with malaria case management wall charts			
	Proportion of health facilities with functional weighing scales			
	Proportion of facilities under RDT and microscopy QA scheme			
	Proportion of health facilities providing malaria diagnostic services (RDT or microscopy) on survey day	Case Management monitoring/ PMM Survey	Bi-annual	DOMC/ KEMRIWT
	Proportion of health facilities having ACTs /RDTs in stock on survey day (for each ACT weight band)			
	Proportion of health facilities having no stock-out of ACTs / RDTs for 7 consecutive days in past 3 months (for each ACT weight band)			
	Outcome			
	Proportion of patients with fever presenting to health facility who are tested for malaria with RDT or microscopy. (<5 years and ≥5 years of age)	Case Management monitoring/ PMM Survey	Bi-annual	DOMC/KEMRI WT
	Proportion of patients with fever presenting to health facility who are managed in accordance with national malaria guidelines (tested for malaria AND test positive prescribed ACT or test negative not prescribed an antimalarial) [<5 years and ≥5 years of age]			
	Proportion of patients presenting to HF with fever and ACT prescribed who had counseling and ACT dispensing tasks performed according to national guidelines [<5 years and ≥5 years of age]			
	Proportion of patients with gold standard diagnosis of malaria who are prescribed ACT.	National HF survey	3 years	DOMC/KNBS/ Partners

Strategy 2 Access to affordable malaria medicines through the private sector	**Input**	**Source of data**	**Frequency**	**Responsible**
	Develop and submit an AMFm proposal	Programme reports	Annually	DOMC Case Management/PPB/ PSK
	Process			
	Number ACTs distributed to private outlets through AMFm strategy	Distribution Reports	Quarterly	
	Number of private ACT retailers trained on malaria case management	Activity reports	Quarterly	
	Output			
	Proportion of private outlets that have the recommended ACTs / other antimalarials in stock at the time of field visit	Supervisory Field visit	Bi-annual	DOMC Case Management/PPB/ PSK
	Proportion of private outlets with number stock outs of nationally recommended anti-malarial drugs, lasting more than one week, at the time of field visit	Supervisory Field visit	Bi-annual	DOMC Case Management/PPB
	Median cost to patients, of a full course of treatment (adult/child) with quality assured ACTs from private outlets visited during AMFm field visit	Supervisory Field visit	Bi-annual	DOMC Case Management/PPB/ PSK
	Outcome			
	Proportion of patients with fever in last 2 weeks who received ACT treatment by source (<5 years and ≥5 years)	MIS	3 years	DOMC M&E / KNBS/Partners
	Proportion of patients with fever in last 2 weeks who received ACT treatment within 24 hours of fever onset by source (<5 years and ≥5 years)			
	Proportion of patients, with fever in the past 2 weeks who received any antimalarial treatment by source			
Strategy 3 Strengthening Home Management of Malaria (HMM)	**Input**			
	National policy and implementation plan on HMM developed	Programme reports	Annually	DOMC Case Management/ DPHS
	Training curriculum on HMM developed			
	ACTs and RDTs status deregulated			
	Process			
	Number of CHW's trained	Activity reports	Quarterly	DOMC Case Management/ DPHS
	Number of supervisory visits of CHW's			
	Number of RDT kits and ACT distributed			

	Output	Source of data	Frequency	Responsible
	Proportion of districts implementing community strategy which includes HMM	Activity reports	Quarterly	DOMC Case Management/ DPHS/PMFP/ DMFP/CHEWS
	Proportion of health workers trained on HMM			
	Proportion of districts with CHWs trained on HMM			
	Outcome			
	Proportion of patients with fever in last 2 weeks who received any antimalarial treatment, by source of provider. (<5 years and ≥5 years)	MIS	3 years	DOMC M&E /KNBS
	Proportion of patients with fever in last 2 weeks who received ACT within 24 hours from onset of fever, by source of provider. (<5 years and ≥5 years)			
	Proportion of patients with fever in the last 2 weeks who had a finger or heel stick. (<5 years and ≥5 years)			DOMC Case Management/ CHEWS
	Proportion of patients with fever presenting to a CHW who are tested for malaria using an RDT. (<5 years and ≥5 years)	Activity reports	Quarterly	
	Proportion of patients with fever who tested positive by a CHW who were treated with ACT. (<5 years and ≥5 years)			
	Proportion of patients with fever who tested negative by a CHW who were not treated with an antimalarial. (<5 years and ≥5 years)			
	Proportion of febrile patients referred to health facilities			
	Proportion of mothers knowledgeable about HMM			

Objective 3: ***To ensure that all malaria epidemic prone districts have the capacity to detect and preparedness to respond to malaria epidemics annually by 2010***

Strategy	Indicators	Source of data	Frequency	Responsible
Strategy 1 Capacity building for epidemic preparedness and response (EPR)	**Input**			
	Amount of fund available for the EPR strategy	Programme reports	Annually	DOMC EPR/WHO/ DDSR
	Districts identified as epidemic prone using available risk maps reviewed/defined			
	District level epidemic preparedness reviewed			
	Epidemic preparedness policy and guidelines for malaria updated			
	Process			
	Number of health workers at district and facility level trained in epidemic preparedness and response	Activity reports	Quarterly	DOMC EPR/DDSC/ DMFP
	Number of districts with active surveillance system			

	Output	Source of data	Frequency	Responsible
	Proportion of districts with EPR teams trained	Activity reports	Annually	DOMC EPR DDSC/ DMFP
	Proportion of districts with functional epidemic preparedness and response teams and logistics			
	Proportion of epidemics detected and reported			
	Outcome			
	Proportion of epidemics managed according to the guidelines	Activity reports	Quarterly	DOMC EPR/DDSR
	Update Risk maps of epidemic prone areas			
Strategy 2 Disease surveillance capacity strengthening	**Input**	Program Activity Reports	Annually	DOMC EPR/DDSR/ WHO
	Amount of fund available for the active surveillance strategy			
	Guidelines and tools for malaria active surveillance in epidemic-prone and low transmissions areas developed			
	Amount of supplies for screening members of households of index cases of confirmed malaria e.g. RDTs			
	Amount of AL procurement of AL for treatment of malaria plasmodium falciparum positive household members			
	Number of EPR kits procured			
	Process			
	Number of disease surveillance officers trained in active surveillance	Activity reports	Quarterly	DOMC EPR/DDSC/ PMFP/DMFP
	Number of RDTs used for screening			
	Number of districts with malaria EPR kits			
	Number of weekly surveillance meetings held			
	Output			
	Number of villages screened	Activity reports	Quarterly	DOMC EPR/PMFP/ PDSC
	Number of districts with post epidemic audits conducted			
	Number of health facilities submitting weekly surveillance reports timely			
	Number of health facilities in epidemic prone districts with updated epidemic thresholds			

	Outcome	Source of data	Frequency	Responsible
	Proportion of targeted population screened for malaria	Activity reports	Quarterly	DOMC EPR/DMFP
	Proportion of positive cases detected			
	Proportions of epidemics detected and managed as per the guidelines			

Objective 4: ***To strengthen surveillance, monitoring and evaluation systems so that key malaria indicators are routinely monitored and evaluated in all malarious districts by 2011***

Strategy	Indicators	Source of data	Frequency	Responsible
Strategy 1: Capacity strengthening for malaria surveillance	**Input**			
	Finances, logistics, training and materials provided	Programme reports	Annually	DOMC SMEOR/ MSH
	M&E plan available			
	Process			
	Number of M&E plans distributed	Activity reports	Quarterly	DOMC SMEOR/ MSH/PMFP
	Number of M&E supportive supervisory visits to the districts			
	Training of district level staff in M&E			
	Output			
	Number of M&E technical Working Group meetings held	Activity reports	Quarterly	DOMC SMEOR/ MSH/WHO/HMIS/ DDSR/LMU
	Number of districts reporting on malaria surveillance monthly			
	Number of Operational Research meetings held			
	Number of partners providing malaria data			
	Number of focal persons at district trained in M&E			
	Outcome			
	Proportion of target group trained in M&E	Activity reports	Quarterly	DOMC SMEOR/ HMIS
	Proportion of target group with M&E plan			
	Proportion of districts reporting monthly			

Strategy 2: Strengthen facility and school based malaria sentinel surveillance	**Input**	**Source of data**	**Frequency**	**Responsible**
	Finances, logistics, collaborations	Programme reports	Annually	DOMC SMEOR/ WHO
	Process			
	Proposals, questionnaires, data entry systems, training	Activity reports	Quarterly	DOMC SMEOR/ MoE/KEMRI//TWG
	Output			
	Number of new sentinel sites established by type (community, schools and health facilities)	Activity reports	Quarterly	DOMC SMEOR/ MoE/KEMRI
	Number of malaria sentinel sites reporting regularly			
	Number of demographic surveillance sites supported and reporting			
	Types of surveillance sites and collaborators			
	Outcome			
	Proportion of sample sentinel sites covered and reporting	School surveys and Routine facility surveillance	Quarterly	DOMC SMEOR/ KEMRI
	Number of malaria cases over times			
	Parasite prevalence			
	Compliance with case management guidelines			
Strategy 3: Strengthening malaria data management systems	**Input**			
	Finances, logistics, collaborations	Programme reports	Annually	DOMC SMEOR/ HMIS
	Process			
	Number of districts where MIAS installed	Activity reports	Quarterly	DOMC SMEOR/ HMIS
	Number of districts with adequate hardware and personnel			
	Number of districts with reliable internet connection			
	Output			
	Number of malaria data quality audit conducted	Activity reports	Quarterly	DOMC SMEOR/ HMIS
	Number districts using MIAS			
	Number and type of updated malaria M&E tools available for data collection			
	ICT infrastructure strengthened/updated at all levels			
	Number of malaria data quality audit conducted			

	Outcome	Source of data	Frequency	Responsible
	Coverage of functioning MIAS	Activity reports	Quarterly	DOMC SMEOR/ HMIS
	Frequency of data auditing			
	Frequency of data update			
Strategy 4: Conduct and support community and facility based surveys	**Input**			
	Finances, logistics, collaborations	Programme reports	Annually	DOMC SMEOR
	Process			
	Budget, proposals, questionnaires, training, survey schedule, data processing capacity	Activity reports	Quarterly	DOMC SMEOR/ KNBS/Partners
	Output			
	Number of drug efficacy studies done	Activity reports	Quarterly	DOMC SMEOR/ KEMRI/MoE/ Partners
	Number of vector susceptibility studies done			
	Number of community surveys			
	Number of school surveys			
	Number of entomological surveys done			
	Number of health facility surveys conducted			
	Outcome			
	Proportion of scheduled surveys successfully implemented	Activity reports	Quarterly	DOMC SMEOR/ KEMRI/MoE/ Partners
	Number of publications and policy briefs resulting from the surveys			
	Number of publications and policy briefs resulting from the surveys implemented			
Strategy 5: Operational Research and Translation	**Input**			
	Finances, logistics, collaborations	Programme reports	Annually	DOMC SMEOR / RTWG/WHO/PMI
	Operation research agenda for malaria	Programme reports	Annually	DOMC SMEOR / RTWG

	Process	**Source of data**	**Frequency**	**Responsible**
	Budget, proposals, questionnaires, training	Activity reports	Quarterly	DOMC SMEOR / RTWG
	Number of consultative meeting to define research question	Activity reports	Annually	
	Number of research question identified and agreed upon	Activity reports	Annually	
	Output			
	Number of operational research studies conducted	Activity reports	Annually	DOMC SMEOR / RTWG
	Cost effectiveness analysis of different combinations of control interventions	Activity reports	Quarterly	
	Social behavioral research in malaria control			
	Entomological studies			
	Tracking of changes in malaria transmission nationally			
	Other emerging questions relevant to malaria control in Kenya			
	Outcome			
	Number of surveys for which results were presented	Activity reports	Quarterly	DOMC SMEOR
	Number of Policy briefs			
	Number of publications resulting from surveys			
	Number of abstracts presented at conferences			
Strategy 6: Human Resource capacity building in surveillance, monitoring and evaluation	**Input**			DOMC SMEOR and EPR/HMIS/WHO/ MSH
	Finances, logistics, collaborations	Programme reports	Annually	
	Process			
	Budget, training	Activity reports	Quarterly	
	Output			
	Number of DOMC staff trained in M&E	Activity reports	Quarterly	
	Number of DOMC staff trained in surveillance, GIS and data management			
	Outcome			
	Number of surveys done using PDAs/ GPS equipment	Activity reports	Quarterly	
	Improved reporting rate for malaria activities			

Objective 5. To strengthen advocacy, communication and social mobilization capacities for malaria control to ensure that at least 80% of people in malarious areas have knowledge on prevention and treatment of malaria by 2014				
Strategy	**Indicators**	**Source of data**	**Frequency**	**Responsible**
Strategy 1. Capacity strengthening for advocacy, communication and social mobilization.	**Input**			
	Amount of fund available for capacity strengthening	Activity reports	Quarterly	DOMC IEC/PMI/ WHO/PSI
	Guideline and strategies documents available			
	Meeting, consultation			
	Process			
	Number of guideline and training material produced	Activity reports	Quarterly	DOMC IEC/PMFP/ DMFP/KENAAM/ PSI
	Number of health workers and other health care providers trained on ACSM activities/ guidelines			
	Number of quarterly meeting on ACSM held			
	Number of supervisory visits conducted			
	Output			
	Number of KAPB survey planed and conducted	Activity reports	Quarterly	DOMC IEC PMFP/ DMFP/PSI
	Number of supervisory visits planed and conducted			
	Number of quarterly meeting on ACSM planed and held			
	Proportion of health workers and other service providers trained on ACSM activities			
	Outcome			
	Proportion of district with ACSM guideline	Activity reports	Quarterly	DOMC IEC
	Proportion of health workers and other service performing correctly ACSM activities			
Strategy 2. Development of appropriate advocacy of uptake of specific malaria interventions	**Input**			
	Amount of fund available	Activity reports	Quarterly	DOMC IEC/ WHO/ PMI/PSI
	Updated guideline and strategies documents available			
	Materials			
	Process			
	Number of presidential declarations produced	Activity reports	Quarterly	DOMC IEC/Malaria Ambassador/ WHO/PMI/PSI
	Number of media campaigns conducted			
	Number of advocacy bulletins produced			
	Number of types of IEC materials produced			

	Output	Source of data	Frequency	Responsible
	Number of media campaigns conducted	Activity reports	Quarterly	DOMC IEC WHO/ PMI/PSI
	Number of presidential declarations disseminated			
	Number of advocacy bulletins distributed			
	Number of IEC materials distributed by type			
	Outcome			
	Proportion of people reached by ACSM messages on malaria prevention and treatment	MIS	3 years	DOMC M&E/KNBS
	Proportion of mothers/caregivers who correctly cite fever as the principal symptom of malaria			
	Proportion of mothers/caregivers who believe pre-packaged ACT is an effective treatment for malaria in children under 5 years			
Strategy 3 Multi-sectoral IEC/BCC	**Input**			
	Fund available	Activity reports	Quarterly	DOMC IEC WHO/ PMI/PSI
	Guideline and strategies documents available			
	Process			
	Number of meeting held with partners/stakeholders	Activity reports	Quarterly	DOMC IEC WHO/PMI/PSI/ KENAAM Malaria Ambassador/ PMFP/DMFP
	Number of symposia held			
	Number of BCC messages developed			
	Number of documentaries produced			
	Output			
	Proportion of people reached with the BCC messages	Activity reports	Quarterly	DOMC IEC WHO/PMI/PSI/ KENAAM Malaria Ambassador/ PMFP/DMFP
	Proportion of people reached with the documentaries			
	Proportion of meeting with partners/stakeholders planed and held			
	Proportion of symposia planned and held			
	Outcome			
	Proportion of districts conducting malaria field days			
	Produce quarterly and annual advocacy bulletins			

Objective 6: *By 2013, to strengthen capacity in programme management in order to achieve malaria programmatic objectives at all levels of the health care system*				
Strategy	**Indicators**	**Source of data**	**Frequency**	**Responsible**
Strategy 1 Capacity strengthening for planning, partnerships and coordination at national malaria control program	**Input**			
	Partnership coordinator recruited	Programme reports/ Activity reports	Quarterly	DOMC Programme Management /WHO/ PMI
	Amount of funding for partnerships and coordination function			
	Number and types of malaria guidelines disseminated			
	Process			
	Updated Partners database	MIAS DATABASE	Quarterly	DPH&S/DOMC Programme Management /All Partners
	Number of MICC meetings conducted (quarterly)			
	Number of planning and coordination meetings with other stakeholders conducted			
	Number of TWG meetings conducted			
	Output			
	Detailed directory of partners and interests	Districts Reports	Quarterly	DOMC Programme Management and SMEOR
	Detailed record of investment in malaria control by stakeholders			
	Number of malaria policy documents disseminated			
	Outcome			
	Proportion of malaria partners with whom the DOMC has signed an MOU	Activity Reports	Quarterly/ Annually	DOMC Programme Management
	Proportion of annual reports received from malaria implementing partners			
Strategy 2 Strengthen malaria program at the district and provincial levels	**Input**			
	Number of districts with TORs for malaria focal persons	Programme reports	Annually	DOMC Programme Management /WHO
	Amount of funding for district and provincial malaria activities			
	Process			
	Number of planning meetings held with districts and provinces	Activity Reports	Quarterly	DOMC Programme Management /PHMT/ DHMT
	Number of district and province focal persons trained			
	Output			
	Number of malarious districts with current malaria strategies included in their annual plans	Activity Reports	Quarterly	DOMC Programme Management t/PHMT/ DHMT/PATNERS
	Number of malarious districts with a malaria focal point position filled			
	Outcome			
	Proportion of malarious districts with current national malaria control strategies reflected in their annual plans	Activity Reports	Quarterly	DOMC Programme management/Dept of Planning
	Proportion of malarious districts with a malaria focal point who have been trained			

Strategy 3 Strengthen infrastructure at the national, provincial and district level to support malaria program management	**Input**	**Source of data**	**Frequency**	**Responsible**
	Amount of funds available for office space expansion/renovation	Programme reports/ DOMC Inventory	Annually	DOMC Programme Management /PMI/ WHO
	Amount of funding for renovating district stores			
	Number and type of office equipment procured for each level			
	Process			
	Number of trainings on use of the new computer equipment	Activity Reports	Quarterly	DOMC Programme Management t and SMEOR
	Output			
	Number of district focal points provided with office equipment	Activity reports	Quarterly	DOMC Programme Management
	Number of districts whose stores have been renovated			
	Outcome			
	Proportion of malarious districts supported with office equipment	MIAS Data Analysis	Quarterly	DOMC Programme Management
	Proportion of malarious districts with optimal stores			
Strategy 4: Strengthen activity and performance monitoring	**Input**			
	Amount of funding available for stakeholders meetings and supervision visits	Programme reports	Annually	DOMC Programme Management /WHO/ PMI/UNICEF
	Schedule of supervisory visits			
	Process			
	Number of monthly program meetings conducted	Activity reports	Quarterly	DOMC Programme Management and SMEOR/PHMT/DHMT
	Number of national level coordination meetings held (quarterly)			
	Number of annual review and planning meetings held			
	Number of supervisory visits facilitated			
	Number of provincial level meetings facilitated			
	Output			
	Number of supervisory reports generated	Activity reports	Quarterly	DOMC Programme Management /PHMT/ DHMT
	Number of provinces that participated at the annual planning meetings			
	Number of province level malaria meetings held			
	Outcome			
	Proportion of districts supervised	Activity reports	Quarterly	DOMC SMEOR/HMIS/ PMFP/DMFP
	Proportion of districts reporting monthly on malaria indicators			

Strategy 5: Strengthen resource mobilization capacity to improve malaria control financing	**Input**	**Source of data**	**Frequency**	**Responsible**
	Resource mobilization officer recruited	Programme reports	Annually	DOMC Programme management/PMI/ WHO
	Amount of funding availed for the partnerships office and meetings			
	Process			
	Number of roundtable donor meetings conducted (quarterly)	Activity reports	Quarterly	DOMC Programme Management
	Number of proposals submitted for funding			
	Number of donors approached for funding			
	Output			DOMC Programme Management and M&E
	Amount of funding received from donors to support malaria activities	Activity reports	Quarterly	
	Outcome			
	Proportion of activities in the strategic plan which have been financed by source			
Strategy 6 Strengthen human resource capacities in malaria endemic area	**Input**			
	TOR for training coordinator developed	Programme reports	Annually	DOMC Programme Management /WHO/ PMI/PSI
	Training Coordinator recruited			
	Amount of funding availed for training health workers			
	Amount of funding availed for recruitment of priority health workers			
	Process			
	Number of malaria training sessions held	Activity reports	Quarterly	DOMC Programme Management and Case Management/PMI/ WHO
	Output			
	Number of health workers recruited	Activity reports	Quarterly	
	Number of health workers trained			
	Outcome			
	Proportion of targeted health workers trained in endemic areas			
Strategy 7 Strengthen procurement and supply management systems for malaria drugs and commodities	**Input**			
	PSM policy, guidelines and SOPs for malaria commodities	Programme reports	Annually	DOMC Programme Management and Case Management/MSH/ PMI/KEMSA
	Amount of malaria drugs and supplies procured			
	PSM specialist for DOMC recruited			
	LMIS and other commodity tracking tools printed			
	Funds available to facilitate distribution			

	Process	Source of data	Frequency	Responsible
	Commodities Quantifications completed	Activity reports	Quarterly	DOMC Case Management/TWG/ MSH/
	Number of DOMC staff trained in PSM			
	Number of and types of inventory management tools for malaria commodities updated and distributed			
	Output			
	Number of districts using LMIS malaria commodities	Activity reports	Quarterly	DOMC Programme Management and Case Management/MSH/
	Number of annual malaria PSM audits conducted			
	Quantity of malaria commodities distributed to facilities / districts			
	Number, Costs and Regions of vertical distributions facilitated			
	Number of central level stock outs averted			
	Outcome			
	Proportion of malarious districts using the LMIS	Activity reports	Quarterly	DOMC Case Management/MSH/ DPF
	Proportion of facilities reporting consumption and stock out levels for ACTs			
	Proportion of facilities with malaria inventory tracking tools			

Figure 2.3 Targets for Key Indicators of the M&E Performance Framework

GOAL	IMPACT	SOURCES	RESPONSIBILITY	FREQUENCY	*BASELINE*		*TARGETS (2010 - 2017)**							
					Data	*Source/year*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*
To have reduced morbidity and mortality caused by malaria in the various epidemiological zones by two thirds of the 2007/2008 level by 2017.	Inpatient malaria cases among children <5yrs [per 1000 persons per year]	Routine surveillance	DOMC M&E / HMIS	Quarterly	-	HMIS				3				2
	Total inpatient malaria cases [per 1000 persons per year]	Routine surveillance	DOMC M&E / HMIS	Quarterly	4	HMIS (08/09)				3				2
	Inpatient malaria deaths among children <5yrs [per 1000 persons per year]	Routine surveillance	DOMC M&E / HMIS	Quarterly	-	HMIS				2				1
	Total inpatient malaria deaths [per 1000 persons per year]	Routine surveillance	DOMC M&E / HMIS	Quarterly	3	HMIS (08/09)				2				1
	Confirmed outpatient malaria cases at health facility level among children <5 yrs [per 1000 persons per year]	Routine surveillance	DOMC M&E / HMIS	Monthly	54	HMIS (2008)				36				18
	Total confirmed outpatient malaria cases at health facility level [per 1000 persons per year]	Routine surveillance	DOMC M&E / HMIS	Monthly	31	HMIS (2008)				21				11
	Clinical outpatient malaria cases at health facility level among children <5 yrs [per 1000 persons per year]	Routine surveillance	DOMC M&E / HMIS	Monthly	185	HMIS [2008]				124				62
	Total Clinical outpatient malaria cases at health facility level [per 1000 persons per year]	Routine surveillance	DOMC M&E / HMIS	Monthly	277	HMIS [2007]				185				92
	Slide/RDT Test Positivity Rate (TPR) at health facility level	Routine Surveillance	DOMC M&E and Lab /HMIS	Monthly	None	-	40%			27%				13%
	Malaria parasitaemia prevalence (pf) rate among children <5yrs in endemic areas (by microscopy)	Survey	DOMC M&E / KNBS	3 Years	7.4	MIS [2007]				4.9				2.5

**Inpatient data estimated as HMIS reporting rate is below 50%. These targets will be updated when more accurate data is obtained.*

OBJECTIVES	OUTCOME / COVERAGE INDICATOR	SOURCES	RESPONSIBILITY	FREQUENCY	BASELINE		TARGETS (2010 - 2017)							
					Data	Source/year	2010	2011	2012	2013	2014	2015	2016	2017
Objective 1: By 2013, to have at least 80 percent of people living in malaria risk areas using appropriate malaria preventive interventions	Proportion of targeted population protected with ITN/LLIN	Survey	DOMC Vector Control and M&E / KNBS	2-3 years	None	-	80%			80%			80%	
	Proportion of households who own at least two ITN/ LLINs	Survey	DOMC Vector Control and M&E / KNBS	2-3 years	22.5%	MIS [2007]	100%			100%			100%	
	Proportion of children <5yrs who slept under an ITN/LLIN on night before a survey	Survey	DOMC Vector Control and M&E / KNBS	2-3 years	39.2%	MIS [2007]	80%			80%			80%	
	Proportion of pregnant women who slept under an ITN/LLIN on night before a survey	Survey	DOMC Vector Control and M&E / KNBS	2-3 years	39.8%	MIS [2007]	80%			80%			80%	
	Proportion of people who slept under an ITN/LLIN on night before a survey	Survey	DOMC Vector Control and M&E / KNBS	2-3 years	None	-	80%			80%			80%	
	Proportion of school children in targeted schools who received an ITN/LLIN	Activity reports	DOMC Vector Control	Once	None	-		100%						
	Proportion of targeted schools sprayed annually	Activity reports	DOMC Vector Control and M&E	Annually	None	-	100%	100%	100%	100%	100%	100%	100%	100%
	Proportion of households in targeted areas sprayed in the last 12 months	Supervision reports	DOMC Vector Control	Annually	80%	Activity Report [2008]	85%	85%	85%	85%	85%	85%	85%	85%
	Proportion of population in targeted areas protected by IRS	Supervision Report	DOMC Vector Control	Annually	85%	Supervision Report [2008]	85%	85%	85%	85%	85%	85%	85%	85%
	Proportion of pregnant women who received 2 or more doses of Pit during last pregnancy (within last 2 years)	Survey	DOMC Vector Control and M&E / KNBS	2-3 years	12.5%	MIS [2007]	30%			50%			80%	

OBJECTIVES	OUTCOME / COVERAGE INDICATOR	SOURCES	RESPONSIBILITY	FREQUENCY	BASELINE		TARGETS (2010 - 2017)							
					Data	Source/year	2010	2011	2012	2013	2014	2015	2016	2017
Objective 2: To have 80% of all self-managed fever cases receive prompt and effective treatment and 100% of all fever cases who present to health facilities receive parasitological diagnosis and effective treatment by 2013	Proportion of patients with fever in last 2 weeks who received any antimalarial treatment (<5 years and ≥5 years)	MIS	DOMC M&E/KNBS	3 years	None	-	40%			100%			100%	
	Proportion of patients with fever in last 2 weeks who received ACT within 24 hours from onset of fever (<5 years and ≥5 years)	MIS	DOMC M&E/KNBS	3 years	15.2% [<5 yrs]	MIS [2007]	40%			100%			100%	
	Proportion of patients with fever in the last 2 weeks who had a finger or heel stick (<5 years and ≥5 years)	MIS	DOMC M&E/KNBS	3 years	None		40%			100%			100%	
	Proportion of patients with gold standard diagnosis of malaria who were prescribed ACT.	National HF Survey	DOMC M&E/KNBS	3 years	None	-	30%			100%			100%	
	Proportion of patients with fever presenting to health facility who are tested for malaria with RDT or microscopy.	Case Management monitoring/ PMM Survey	DOMC/KEMRI WT	Bi-Annual	None	-	50%	60%	80%	100%	100%	100%	100%	100%
	Proportion of patients with fever presenting to health facility who are managed in accordance with national malaria guidelines	Case Management monitoring/ PMM Survey	DOMC/KEMRI WT	Bi-Annual	None	-	50%	60%	80%	100%	100%	100%	100%	100%
	Proportion of patients presenting to HF with fever and ACT prescribed who had counseling and ACT dispensing tasks performed according to national guidelines	Case Management monitoring/ PMM Survey	DOMC/KEMRI WT	Bi-Annual	None	-	50%	60%	80%	100%	100%	100%	100%	100%
	Proportion of health facilities having no stock-out of ACTs for 7 consecutive days in past 3 months (for each ACT weight band)	Case Management monitoring/ PMM Survey	DOMC/KEMRI WT	Bi-Annual	None	-	50%	60%	80%	100%	100%	100%	100%	100%
	Proportion of targeted health workers trained in malaria diagnosis and treatment	Activity reports	DOMC Case Management	Quarterly	50%	Activity Report [2009]	50%	70%	100%	100%	100%	100%	100%	100%

OBJECTIVES	OUTCOME / COVERAGE INDICATOR	SOURCES	RESPONSIBILITY	FREQUENCY	BASELINE		TARGETS (2010 - 2017)							
					Data	Source/year	2010	2011	2012	2013	2014	2015	2016	2017
	Median cost to patients, of a full course of treatment (adult/child) with quality assured ACTs/ /other antimalarials, in private outlets	AMFm evaluation Report	DOMC Case Management / Contractor	Every 2 years	None	-	40%	60%	80%	80%	80%	80%	80%	80%
	Proportion of districts implementing community strategy which includes HMM	Activity reports	DOMC	Quarterly	0%	Activity Report [2009]	40%	60%	80%	100%	100%	100%	100%	100%
	Proportion of patients with fever who tested positive by a CHW who were treated with ACT	Activity reports	DOMC	Quarterly	0%	Activity Report [2009]	40%	60%	80%	100%	100%	100%	100%	100%
	Proportion of targeted districts with CHWs trained on HMM	Activity reports	DOMC	Quarterly	0%	Activity Report [2009]	40%	60%	80%	100%	100%	100%	100%	100%
Objective 3: To ensure that all malaria epidemic prone districts have the capacity to detect and preparedness to respond to malaria epidemics annually	Proportion of target districts with functional sentinel facilities for epidemic detection and response	Supervision Reports	DOMC M&E and EPR	Quarterly	60%	Supervision Report [2009]	80%	100%	100%	100%	100%	100%	100%	100%
	Proportion of EPR sentinel facilities in target districts with updated surveillance graphs (alert thresholds) for detecting epidemics	District Reports	DOMC EPR/ DDSC	Annually	47%	District Reports [2009]	70%	80%	100%	100%	100%	100%	100%	100%
	Proportion of target districts with an Epidemic Preparedness and Response plan	Supervision Report	DOMC EPR/ DDSC	Annually	100%	Supervision Report [2009]	100%	100%	100%	100%	100%	100%	100%	100%
	Proportion of target districts with adequate EPR resources (drugs, insecticides, pump, etc) in readiness for epidemics	Supervision Reports	DOMC EPR/ DDSC	Annually	80%	Supervision Report [2009]	80%	100%	100%	100%	100%	100%	100%	100%
	Proportion of malaria epidemics detected within 2 weeks of onset	District Reports	DOMC EPR/ DDSC	Quarterly	100%	District Report [2009]	100%	100%	100%	100%	100%	100%	100%	100%
	Proportion of the detected epidemics properly managed as per the EPR guidelines.	District Reports	DOMC EPR/ DDSC	Quarterly	100%	Supervision Report [2009]	100%	100%	100%	100%	100%	100%	100%	100%
	Proportion of target districts with updated EPR guidelines	Activity / Supervision Reports	DOMC EPR	Annually	0%	Supervision Report [2009]	50%	100%	100%	100%	100%	100%	100%	100%

OBJECTIVES	OUTCOME / COVERAGE INDICATOR	SOURCES	RESPONSIBILITY	FREQUENCY	BASELINE		TARGETS (2010 - 2017)							
					Data	Source/year	2010	2011	2012	2013	2014	2015	2016	2017
Objective 4: To strengthen surveillance, monitoring and evaluation systems so that key malaria indicators are routinely monitored and timely evaluated in all malarious districts by 2011	Proportion of target group trained on M&E guidelines	Activity reports	DOMC M&E	Quarterly	None	-	30%	50%	70%	100%	100%	100%	100%	100%
	Proportion of districts with functional MIAS	Activity reports	DOMC M&E	Quarterly	2%	Activity Report [2009]	20%	40%	60%	80%	100%	100%	100%	100%
	Proportion of scheduled surveys successfully conducted	Activity reports	DOMC M&E	Annually	None	-	100%	100%	100%	100%	100%	100%	100%	100%
	Proportion of survey reports printed and disseminated within 6mths of survey completion	Activity reports	DOMC M&E	Annually	None	-	80%	80%	80%	80%	80%	80%	80%	80%
	Proportion of target districts sending timely reports on malaria disease surveillance	DDSR reports	DOMC EPR and M&E/DDSC	Monthly	None	-	50%	100%	100%	100%	100%	100%	100%	100%
Objective 5: To strengthen advocacy, communication and social mobilization capacities for malaria control to ensure that at least 80per cent of people in malarious areas have knowledge on prevention and treatment of malaria by 2014.	Proportion of districts with updated ACSM guidelines	Supervision reports	DOMC ACSM	Quarterly	0%	Activity Report [2009]	50%	100%	100%	100%	100%	100%	100%	100%
	Proportion of targeted health workers and other service providers trained on updated ACSM guidelines	Activity reports	DOMC ACSM	Quarterly	0%	Activity Report [2009]	0%	30%	100%	100%	100%	100%	100%	100%
	Proportion of health facilities supplied with updated ACSM material	Supervision Reports	DOMC ACSM	Quarterly	10%	Supervision Report [2009]	30%	60%	80%	100%	100%	100%	100%	100%
	Proportion of districts conducting World Malaria Day Activities	Activity reports	DOMC ACSM	Annually	70%	Activity Reports [2009]	70%	80%	80%	80%	80%	80%	80%	80%
	Proportion of people reached by ACSM messages on malaria prevention and treatment	Surveys	DOMC M&E and ACSM	2-3 yrs	None	-	30%	-	-	80%	-	-	80%	-
	Proportion of people who correctly cite fever as the principal symptom of malaria	Surveys	DOMC M&E and ACSM	2-3 yrs	None	-	30%	-	-	80%	-	-	80%	-
	Proportion of mothers/ caregivers who have heard that ACT is an appropriate treatment for malaria	Surveys	DOMC M&E and ACSM	2-3 yrs	38.8%	MIS [2007]	50%	-	-	80%	-	-	80%	-

OBJECTIVES	OUTCOME / COVERAGE INDICATOR	SOURCES	RESPONSIBILITY	FREQUENCY	*BASELINE*		*TARGETS (2010 - 2017)*							
					Data	*Source/year*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*
Objective 6: By 2013, to strengthen capacity in programme management in order to achieve malaria programmatic objectives at all levels of the health care system	Proportion of malarious districts with current national malaria control strategies reflected in their annual plans	Activity reports	DOMC Programme Management	Quarterly	0%	Activity Reports [2009]	40%	60%	80%	100%	100%	100%	100%	100%
	Proportion of malarious districts with an formally designated and trained malaria focal point	Activity reports	DOMC Programme. Management	Quarterly	0%	Activity Reports [2009]	30%	70%	80%	100%	100%	100%	100%	100%
	Proportion of malarious districts supported with office equipment	Activity reports	DOMC Programme. Management and M&E	Quarterly	0%	Activity Reports [2009]	30%	70%	80%	100%	100%	100%	100%	100%
	Proportion of districts supervised as per the guidelines	Activity reports	DOMC Programme Management and M&E	Quarterly	13%	GF Activity Reports [2009]	30%	50%	65%	80%	80%	80%	80%	80%
	Proportion of activities in the strategic plan which have been financed	Activity reports	DOMC Programme Management	Quarterly	67%	Malaria Business Plan [2008/09]	70%	80%	80%	80%	80%	80%	80%	80%
	Proportion of malarious districts using the LMIS	Activity reports	DOMC	Quarterly	58%	LMIS Reports [2008/09]	60%	70%	80%	100%	100%	100%	100%	100%

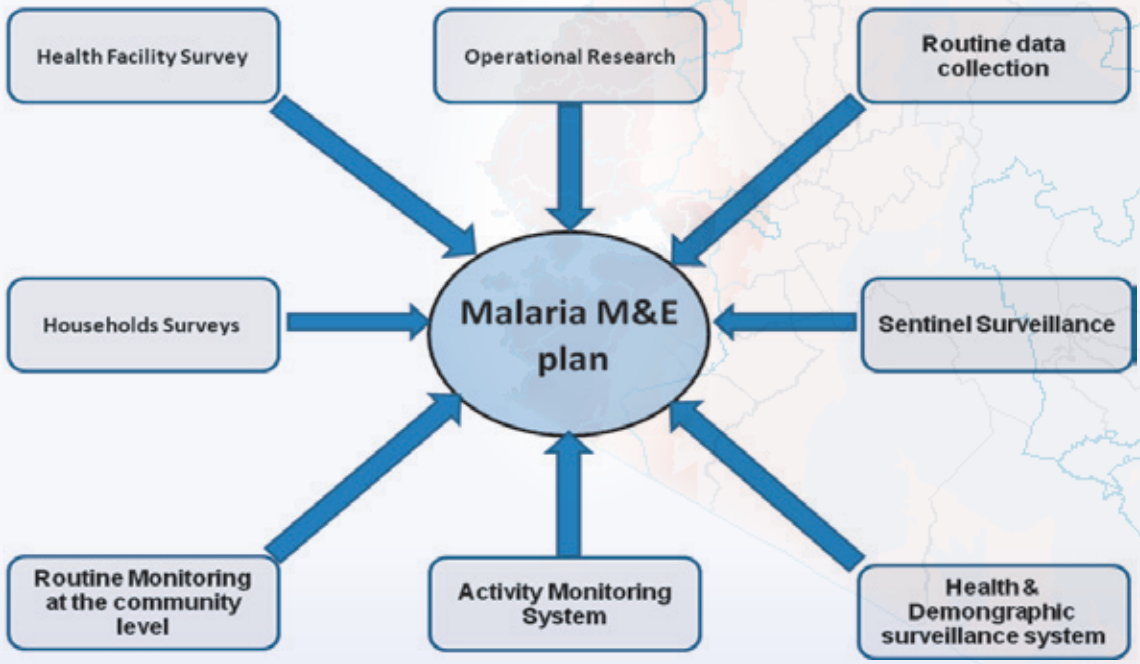
2.3 Measuring Performance

The M&E framework contained in this plan identifies the core indicators for impact, outcome, and output measurement towards scaling up malaria control efforts in Kenya for the period 2009-2017. These indicators have further been detailed in Appendix 2 with definitions, numerators and denominators.

2.4 Data Collection Systems

The DOMC intends to strengthen malaria monitoring and evaluation guided by the strategic plan and this M&E plan to ensure acquisition and use of data/information for more effective planning and implementation of interventions. The programme purposes to support routine reporting by the National Health Management Information System (HMIS), as well as to undertake malaria specific surveys and operational research; it will strengthen its surveillance capacity and develop additional sentinel sites for therapeutic efficacy testing and insecticide resistance monitoring. Data for routine implementation will also be enhanced by reviewing progress on a regular basis both for the DOMC as well all partners involved in malaria control financing and implementation. **Figure 2.4** below summarizes the different sources of malaria M&E data.

Figure 2.4: Data sources for the malaria M&E plan



2.4.1 Routine Data Collection

a) Health Management Information System

The primary healthcare monitoring system for the Ministry of Public Health and Sanitation in Kenya is the Health Management Information System (HMIS). HMIS is charged with the responsibility of collecting, collating, analyzing, publishing and disseminating health data to all stakeholders (both public and private) for evidence based decision-making. Most of the routine malaria data is collected through the HMIS. The

information is reported monthly from health facilities to the districts, which consolidate and transmit it to the provincial level electronically via an FTP system. The province further submits this data to the national level. At national level the HMIS Unit analyzes the data and produces some routine reports for all the health programs, including the Division of Malaria Control.

The HMIS system has harmonized tools and a list of health indicators, which were developed through a consultative process with other health programmes. Recently these tools and indicators were revised (registers and summary forms) and disseminated to the facilities. A system of using File Transfer Protocol site (FTP) for uploading of MS Excel summary forms for data collection (entry) at the district has been set up and this has significantly improved the overall reporting rates. A key challenge of the HMIS is incompleteness and lack of timeliness in the data collected. This is due inadequate reporting forms at collection centres, inadequate feedback from the higher reporting levels, insufficient funding for supervision and inadequate staff to compile the data at the peripheral facilities and data collection centres in general. At the central level there has been a problem of late reporting and consequently delays in processing and reporting the information. HMIS is however addressing these issues as detailed in the "Annual Health Sector Status Report 2005-2007". The DOMC will rely on the HMIS for collecting various routine data indicators in the area of malaria and will provide the appropriate support to ensure availability and sufficient feedback of the HMIS data to the program.

b) The Integrated Disease Surveillance System

In some areas of Kenya, malaria is of epidemic nature requiring weekly reporting on routine surveillance to be able to identify these malaria epidemics when they occur. The Division Disease Surveillance and Response (DDSR) is responsible for the weekly Disease Surveillance System, which is used to detect these malaria epidemics. Epidemic thresholds have been set in 4-6 sentinel facilities in each of these districts to facilitate detection of malaria and other diseases and allow the division to facilitate appropriate responses to malaria outbreaks. Rural health centres submit data to districts by the first day of the next week, districts then transmits this data to provincial centres with a copy to national level by short messaging service (SMS). The data transmission system is in the process of being changed to FTP. Completeness and timeliness are the two performance indicators measured when all data reaches national level.

c) Indoor Residual Spraying (IRS) Monitoring System

Kenya's National Malaria Strategy (NMS) promotes Integrated Vector Control Management (IVM), which includes use of residual spraying (IRS) using pyrethroids in targeted areas. Standard forms have been developed and are used by spray operators to collect daily, weekly and monthly IRS data during the spraying season. Data collected includes spraying coverage, population protected by IRS as well as net coverage and usage. These data are then submitted to and consolidated at the district level and before being transmitted to national level. Excel and Access databases are in place at national level for aggregation and analysis and reporting of this data. During the IRS supervision season activities are undertaken at all levels with an oversight from the DOMC; pre- and post-spraying evaluations are also undertaken (both entomological and epidemiological); and reports on IRS implementation compiled.

d) Insecticide Treated Nets (ITNs) / Long lasting Insecticide Treated Nets (LLINs) Tracking System

Under the new malaria strategy, high coverage of ITNs/LLINs is the cornerstone of malaria prevention. It is anticipated that by 2011, through mass net distribution, there will be one ITN per two people in endemic and highland epidemic areas and at least 80% of pregnant women and children under five will sleep under an ITN/LLINs. A system for keeping records on ITNs distributed using campaigns will be set up. Routine

data on the ITNs/LLINs that are distributed through antenatal care (ANC)/child welfare care (CWC) clinics is captured using the harmonized HMIS tools. Outcome indicators are captured using the malaria indicator survey (MIS) and other related surveys.

e) Data on microscopy and Rapid Diagnostic Test (RDT)

The malaria programme is currently focusing on scaling up case management using artemisinin-based combination therapies (ACTs) complemented by improved diagnosis. In line with the decline in malaria transmission and new WHO recommendations, the revised diagnostic strategy recommends parasitological malaria diagnosis for all febrile patients across all age groups and endemicity areas. The diagnostic strategy supports rational drug use in the wake of reducing malaria prevalence, and reduces both the risk of resistance development and cost of treatment. Currently, while a system exists for reporting use of reagents and microscopy, no system exists for capturing the RDT consumption data and tools will have to be developed for this purpose.

f) ACT Consumption Data

Kenya started implementation of the new ACT policy in 2006. However, the national HMIS data collection system did not have any provision for capturing ACT related consumption data. Data collection and consolidation tools were hence designed by the DOMC and ACT consumption and other logistics data has since been collected from the facilities / districts and sent directly to the DOMC for data entry and analysis. This process has however proved to be inefficient and has resulted in poor reporting rates.

The malaria program is currently changing the reporting process for ACT data tracking by linking the data collecting system to the Logistics Management Unit (LMU) / Logistics Management Information System (LMIS) which is housed at KEMSA. The new tools to be used for the data collection and tracking at the district and facility level have been developed and health workers are currently being trained on the tools. In future all the facility data will be aggregated at the district level, either manually or electronically, to generate the district summary data to be dispatched to the LMU/LMIS system. For the time being the system will remain parallel to the HMIS system. DOMC partners are supporting the LMU/LMIS unit to scale up implementation of this tracking system in order to ensure timely and regular availability of ACT data for malaria control decision making.

g) Pharmacovigilance - Voluntary Spontaneous Adverse Drug Reaction (ADR) Monitoring

Pharmacovigilance (PV) falls under the Pharmacy and Poisons Board (PPB), which regulates and controls pharmaceutical products and services and ensures accessibility, quality, safety and efficacy of human and veterinary medicines and medical devices. PV aims to closely monitor adverse drug reactions (ADRs) of ACTs as well as other medicines. The national PV guidelines provide guidance to health workers and the public on what to report, why to report, when to report, where to report and how to report. The DOMC works within these guidelines and procedures for reporting adverse drug reactions (ADRs) related to malaria pharmaceutical products. The tools for Pharmacovigilance have been developed and produced by the PPB with the involvement of the Case Management Unit of DOMC. The program has supported the development of a national PV curriculum and plans to support the PPB to scale up nationwide implementation of integrated pharmacovigilance with malaria medicines as the entry point. In addition, the DOMC will actively monitor inadvertent exposure to ACTs by pregnant women in their first trimester. This will guide policy updates.

2.4.2 Sentinel Surveillance System

Four community-based sentinel sites were selected and established in 2000 by the Division of Malaria Control (DOMC), Malaria Public Health & Epidemiology Group and KEMRI. The sentinel sites are Bondo (lakeside endemic), Kwale (coast endemic), Makueni (semi arid) and Kisii/Gucha (epidemic). These represented the major malaria epidemiological zones in Kenya and were used to monitor implementations levels of malaria control interventions and their health impacts.

Over the years, these sites have however been over-supplied with malaria control interventions and hence they presently no longer represent the malaria situation in the rest of the country. With increasing improvements in the routine malaria surveillance systems such as HMIS and IDRS, as well as the regular surveys such as MIS, the maintenance of this type of sentine sites is no longer necessary. Another thing to note is the fact that one of the weaknesses of the sentinel sites in previous years was that they were mainly research focused and sharing of information from these sites was inadequate.

In the new NMS sentinel, school-based monitoring of parasite prevalence will be undertaken on an annual basis. In addition district hospitals, which meet the set operational criteria will be monitored on a regular basis to obtain inpatient as well as other malaria trends data. This data will be representative of the malaria situation in the whole country. The health facility based sentinels which report on malaria cases for the purpose of diseases surveillance and response will be maintained in the epidemic prone districts.

2.4.3 Activity Monitoring Systems

The annual malaria plan is the tool used by the DOMC to plan and budget for its activities implementation, as well as to gain buy-in from the donors and implementation partners. This plan will now be based on the new Nation Malaria Strategy (2009 – 2017) and guided by the detailed M&E framework contained in this document. The program will use its Malaria Information Acquisition System (MIAS) to facilitate development of the annual plan, to regularly monitor the activities implementation and to record and report on performance.

The DOMC will disseminate adequately the revised national malaria framework and the accompanying tools to ensure that all stakeholders collaborate their efforts synergistically. To track performance and strengthen project implementation for effectiveness, quarterly reviews meetings will held at all levels with involvement of all relevant stakeholders. The DOMC will facilitate the national meetings and the provincial health management teams (PHMTs) and the district health management teams (DHMTs) will do the same at their levels. Supervision visits by DOMC into the provinces will be undertaken quarterly; while the PHMTs will undertake quarterly supportive supervision visits in the districts and the DHMTs will do monthly visits to the peripheral levels. An integrated supervisory approach (including case management, diagnostics, and malaria in pregnancy, etc) will be employed. Supportive supervision visits will also be used as an opportunity for collecting pharmacovigilance (PV) forms from sites implementing pharmacovigilance and other technical information.

Internally, the DOMC will hold monthly progress update and review meetings, which will also serve as forum for information sharing and charting the way forward. A quarterly bulletin will be produced and distributed to all partners and also posted on the national malaria control programme website for general consumption. An annual review and planning meeting will be conducted each year and an annual report will be compiled from all information gathered from various sources including information gathered during

the annual and review planning meeting. The M&E TWG will hold scheduled quarterly meetings to guide implementation of this M&E Plan.

2.4.4 Routine Monitoring at the Community Level

Basic Community Health Services, including malaria services, will be delivered in accordance with the Kenya Essential Package for Health to the community. The malaria activities implemented at the community level will be monitored in accordance with the community strategy developed in line with NHSSP II. According to this strategy, the Community Health Workers (CHWs) are responsible for collecting integrated health information right from the household and village levels and submitting the same to Community Health Extension Workers (CHEWS) on a monthly basis. The CHEWS are formal employees of the national health system and attached to local health facilities, while the CHWs are volunteers identified by the local community and trained and supported by the CHEWS. Because the CHWs are key persons in the routine monitoring system at the community level, there is need to think of compensation strategies for their service. Voluntary approach is not sustainable in the long run due to the high attrition

The DHMT has the responsibility to facilitate availability of the data collection tools (e.g. village registers and household service delivery forms) to the CHWs. The CHEWS ensure that the data collected is availed to the health facility-in-charges for further collation prior to review during the monthly meetings by the Health Facility Management Committees. It is intended that in future the data collected through this CBIS will be integrated to the HMIS.

Multidisciplinary supervisory teams from National, provincial and district levels will be established to provide support supervision at the community level.

2.4.5 Community and Facility Based Surveys

The NMS has planned several surveys to measure outcomes and impact of the implementation malaria control interventions during the life of the plan.

a) Demographic and Health Surveys

The Kenya Demographic and Health Survey (KDHS) is a good source of LLIN and intermittent preventive treatment in pregnancy (IPTp) coverage data. However, KDHS underestimates the true fever prevalence because it is conducted in the dry season when malaria transmission is at its lowest in Kenya. The standard malaria modules used in the surveys needs to be revised and updated, while collaboration with KNBS will be enhanced in order to improve the contribution of KDHS to evaluating the impact of the malaria control program. For example, possible inclusions of new questions in the KDHS tools or increase the sample to address Malaria M&E.

b) School Malariometric Survey

The aim of malariometric survey is to monitor the trends of the true parasite prevalence in the country through school-based parasite prevalence studies. This is in order to monitor expansion of malaria transmission into hitherto malaria-free areas as climate change progresses. A base-line survey is already under way with the lead KEMRI/WTRP.

c) Malaria Indicator Survey

The Malaria Indicator Survey (MIS) is conducted regularly (every three years) in Kenya to inform programme design and effective implementation by measuring performance of the key malaria indicators. The last one

was done in 2007 and the program will undertake the next two in year 2010 and 2013 after which the periodicity will be reviewed.

d) Entomological Surveys

Regular collection of data on the abundance and behavior of mosquito vectors in each sentinel site will be undertaken to inform effective intervention to further reduce incidence. Specimens collected will be transported to laboratories at the national level for further analysis. A national entomological laboratory and insectary will be established under this project.

Support will be provided to the DVBD and other relevant institutions to undertake a national malaria entomological survey with the aim of updating the Kenya entomological map. Support will also be provided to undertake regular entomological surveys in the malaria-free areas as part of a system to monitor the impact of climate change on malaria epidemiology.

e) Quality Control/Assurance of Diagnostic Methods

Pre- and post-market surveillance of the RDTs will be undertaken to ensure that the quality of the kits is acceptable. The RDT kits will be sampled and tested regularly against known standards at the National Quality Control Laboratory (NQCL). At the health facility level, confirmation of RDTs test results will be done by laboratories that have the capacity to undertake expert microscopy. Supportive supervision will also be provided to the health facilities implementing RDTs to ensure the specified standards are kept to guarantee integrity of results to inform effective malarial treatment.

f) Quality Control/Assurance of Medicines

The NQCL tests pre-market batches of malaria medicines entering the public sector. PPB will be supported to undertake regular integrated post-market surveillance of medicines with emphasis on malaria medicines. Sampled medicines will be tested by NQCL and requisite action taken if there is evidence of compromised quality.

g) Antimalarial Drug Efficacy Monitoring

Data gathered on anti-malaria drug resistance informs review of national treatment guidelines and regional resistance patterns for appropriate planning and intervention. The DOMC will conduct therapeutic efficacy studies in sentinel sites. (3-4 sites will be maintained based on parasite prevalence). Three therapeutic efficacy studies on AL and quinine are proposed to be undertaken in the eight sentinel sites during the next five years. DOMC will work with research institutions (e.g. KEMRI, WHO etc) to undertake this activity.

h) Insecticide Resistance Testing

The efficacy of insecticides (including IRS and LLINs efficacy) used in vector control measures will be evaluated regularly using discriminating-dose bioassays and KDR genotype assays. KEMRI and Division of Vector Borne Diseases (DVBD) will undertake the activity of behalf of the DOMC.

i) Monitoring Quality of Care

In line with the new diagnostic and treatment policies, the DOMC will undertake biannual, national sample, facility assessments to monitor the availability of malaria case management commodities and practices. The DOMC will continue to provide technical input and collaborate with the DCAH and other partners in health facility surveys undertaken every 3 years to evaluate the quality of integrated management of childhood illnesses

2.4.6 Operational Research and Translation

This will be supported beginning with strengthening of the effectiveness of the national operational research working group and definition and frequent update of the malaria control operational research priorities. As Kenya progresses to malaria elimination in the long-term, there is need for annual review meetings and operational research in the following 4 key areas: Social behavioural research in malaria control; entomological studies; tracking of changes in malaria transmission; piloting of school based malaria parasite control (testing and treatment of school children); malaria early warning systems; cost-effectiveness analysis of different combination of control interventions and other emerging questions relevant to malaria control.

- Malaria Early Warning Systems (MEWS)
  Epidemic prone districts largely use early detection indicators from health facility malaria morbidity data (using epidemic thresholds) and data from weather patterns to detect the onset of an epidemic. Research on suitable MEWS will continue to be supported to determine models that are simple, affordable and sustainable and reliable MEWS for Kenya.

- Testing and treatment of asymptomatic school children
  School age children currently have the highest malaria parasite prevalence of any age group especially in malaria endemic areas. As part of the malaria-free schools initiative, pilot studies on the impact of testing and treatment of asymptomatic school children in addition to other malaria control interventions will be supported.

3 Implementation Arrangements

This M&E plan has been compiled in line with the National Malaria Strategy 2009-2017 in order to monitor its implementation. To coordinate this plan in line with "the Three Ones", the DOMC's M&E Unit has a coordinating role of monitoring and evaluation of the NMS and its implementation in Kenya. The M&E Unit of the DOMC is responsible for the following functions, data collation and management and analysis, surveillance, activity program and financial performance monitoring, operational research, documentation and dissemination.

3.1 Coordination of Malaria Monitoring and Evaluation in Kenya

In line with "The Three Ones" principle, there will be only one agreed upon monitoring and evaluation framework to serve DOMC and its partners *in effective monitoring of performance including outcomes*. In this role the DOMC M&E Unit will work with all partners and different units within and outside the Ministry of Public Health and Sanitation. The DOMC through the M&E focal point will strengthen the existing linkages from within the malaria programme (Case Management, Vector Control, Epidemic Preparedness, MIP and ACSM units). The M&E Unit will also have close links with the Health Management Information Unit (HMIS) where it obtains relevant malaria data on a basis. Functional linkages between the DOMC and other Ministry of Public Health and Sanitation units (e.g. MCH, IMCI, EPI, PPB, Planning Units) and other Government Departments, CSO, Local Authorities, Private Sector and partners (e.g. GFATM, WHO, UNICEF, PSI, MSH) working in malaria control will be established and maintained.

This document will allow for the efficient use of data and resources by ensuring, for example, that indicators and sampling methodologies are comparable over time. Data generated by a comprehensive malaria M & E system will serve the needs of many constituents, including the DOMC, academic researchers and international donors, eliminating the need for parallel and duplicative M & E processes and activities.

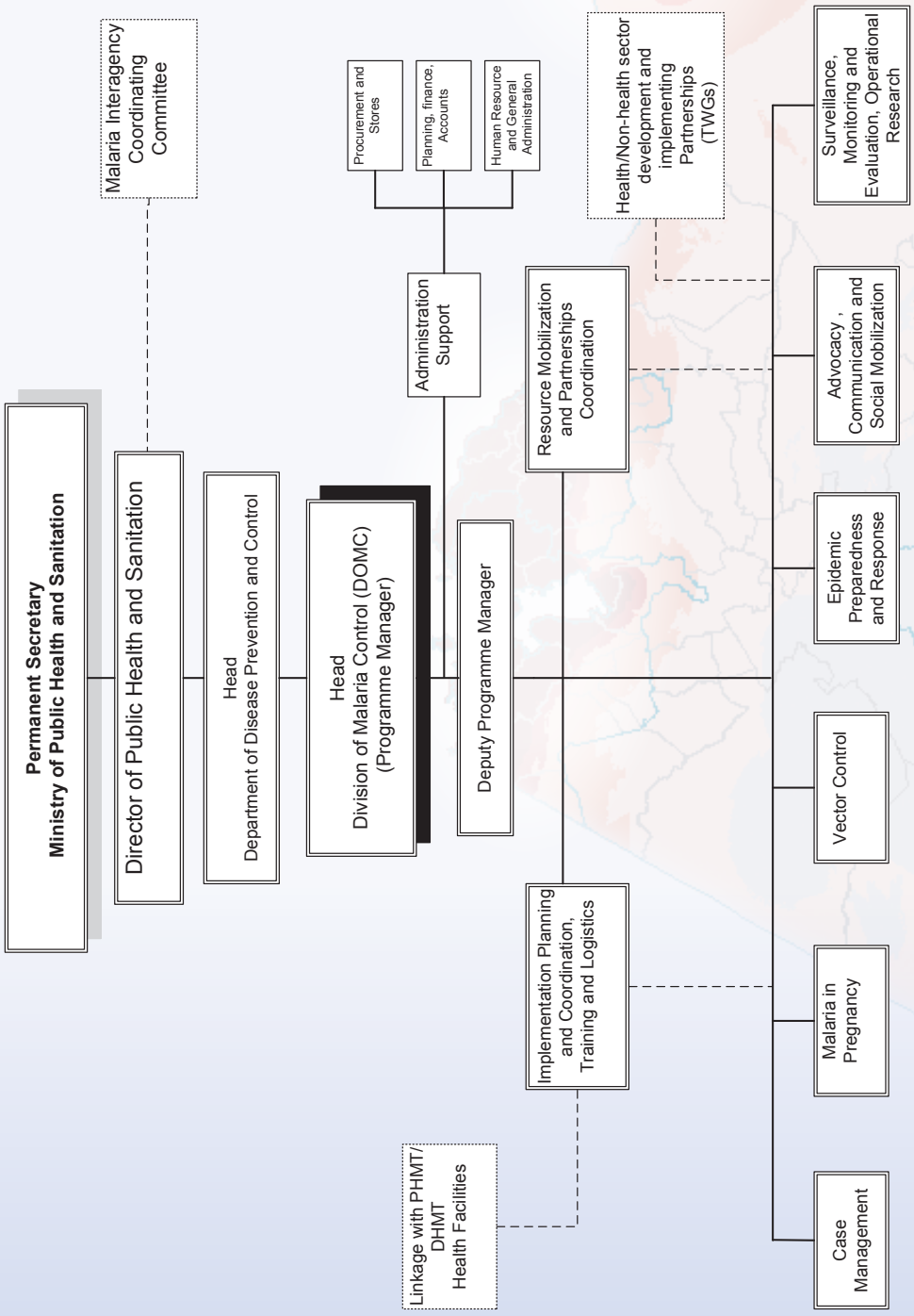
3.2 M&E within the DOMC

Considering the very stringent requirements of the DOMC to monitor progress and report to various partners such as the GFATM, the need for establishing a robust M&E unit was evident. An assessment of the status of data sources for malaria information and data availability to the DOMC was done in early 2006. The assessment highlighted the need for:

a) an agreement on a minimum set of indicators for overall malaria monitoring;
b) a malaria information system for strengthening the planning, budgeting and performance monitoring and reporting for the business plan activities;
c) establishment of a networked database system (MIAS) on the DOMC server;
d) capacity building of DOMC staff in data management and the use of the MIAS; and
e) support to other health departments/divisions, and districts, aimed at strengthening data flow. The DOMC has since put in place an in-house M&E system with the aim of improving collation and analysis of data on various malaria indicators across all interventions.

The M&E unit in DOMC is mandated to coordinate the generation of information on the progress in implementation of malaria interventions as well evaluation of health impacts from malaria interventions. The performance of DOMC will be measured against the NMS achievements towards set targets, outputs for business plan and achievements of AOP targets. The current M&E system heavily relies on data collected by other systems, especially the HMIS.

Figure 3.1: Position of M&E Unit within the DOMC Organization Structure



3.3 Current DOMC M&E Unit Resources

3.3.1 Human Resources

The current M&E staff establishment at the DOMC consists of two epidemiologist (one of whom serves as the M&E focal unit head), one Nurse with MPH, four HRIOs who are trained in data compilation, analysis and storage using basic MS packages. In addition, an ICT systems specialist has been seconded to the program and is assisting with implementation and rollout of MIAS. Temporary support for ICT systems maintenance is also available. As the program progresses in its reliance on ICT systems for program planning and management as well as in monitoring and evaluation, it is strongly recommended that additional staff be deployed to the program namely: one permanent data manager who will be responsible managing and analyzing the data, and one ICT Support person responsible for acquisition and maintenance of all the ICT hardware, software and networks, management of data backups and restoration among other routine ICT services. The existing M&E staff needs further training in information management, analysis, use and dissemination, as well in other functions of monitoring and evaluation.

3.3.2 Data management Software and Equipment

Several desktop computers and laptops are available to support management of data at the DOMC. All these computers are equipped with Microsoft Office applications and client applications for the MIAS system. Some statistical packages (SPSS, EPI info, Stata) are also available. Data backups are undertaken using CDROMS and DVDs. The use of flash disks and email system for easy information sharing and access is widespread, which calls for enhanced protection for all ICT equipment from viruses and other malware. Some of the computers, however, need replacing for enhanced efficiency in application usage and information sharing. There is also need for another server, which will serve as a test and backup server for MIAS as well as provide more shared information storage space. In the new NMS, PDAs will be acquired for various activities including mapping for epidemic preparedness and response as well as conducting of various malaria surveys.

3.3.3 Information Dissemination

Information generated by the programme is disseminated mostly via the program website www.nmcp.or.ke and also via MOPH&S website www.health.go.ke. Internal and external emails are also used for this function, and so are the various meetings and workshops that the division holds or participates in. A quarterly bulletin is produced every quarter for information sharing with malaria partners and the general public. In addition, information dissemination will also take place during planning, program update and review meetings which are to be held with the various stakeholders on a regular basis. Other mechanisms of information sharing will also be explored.

3.4 Monitoring and Evaluation of Implementation of the NMS

The DOMC will strengthen malaria monitoring and evaluation of the NMS (2009-2017) to ensure acquisition and use of data/information for more effective planning and implementation of interventions. The programme will undertake monitoring the implementation of all activities and evaluate progress using malaria specific surveys and operational research. Further, surveillance capacity will be strengthened and additionally school malariometric surveys undertaken to monitor the true parasite prevalence in the country.

The monitoring of the programme will include regular supportive supervision, monthly programme meetings, quarterly review meetings with all partners involved in malaria control and regular technical meetings to review technical issues related to implementation. To make sure implementation is monitored effectively from the DOMC, this M&E plan will be disseminated to all programme personnel and partners for ease of follow-up. With regard to evaluation, several surveys and studies have been planned. In addition, routine monitoring of disease trends and other operational studies will be undertaken.

3.5 Data Flow

Routine health information, including malaria data, flows from the health facilities to the district hospital and to the national level through the provincial offices. At the community level, transfer of data is manual to the facility while from facility to the district level the transfer is either manual or electronic and it is done on a monthly basis. The transfer between the districts to the national level is done electronically using the newly installed FTP system. The province is able to access the data from the HMIS FTP website. Programme specific information such as data on IRS and mass ITN distribution is collected using special forms and conveyed through the same channels from the district level. It is important that feedback be provided to the data sources for use at their different levels.

Figure 3.2: HMIS Data Flow

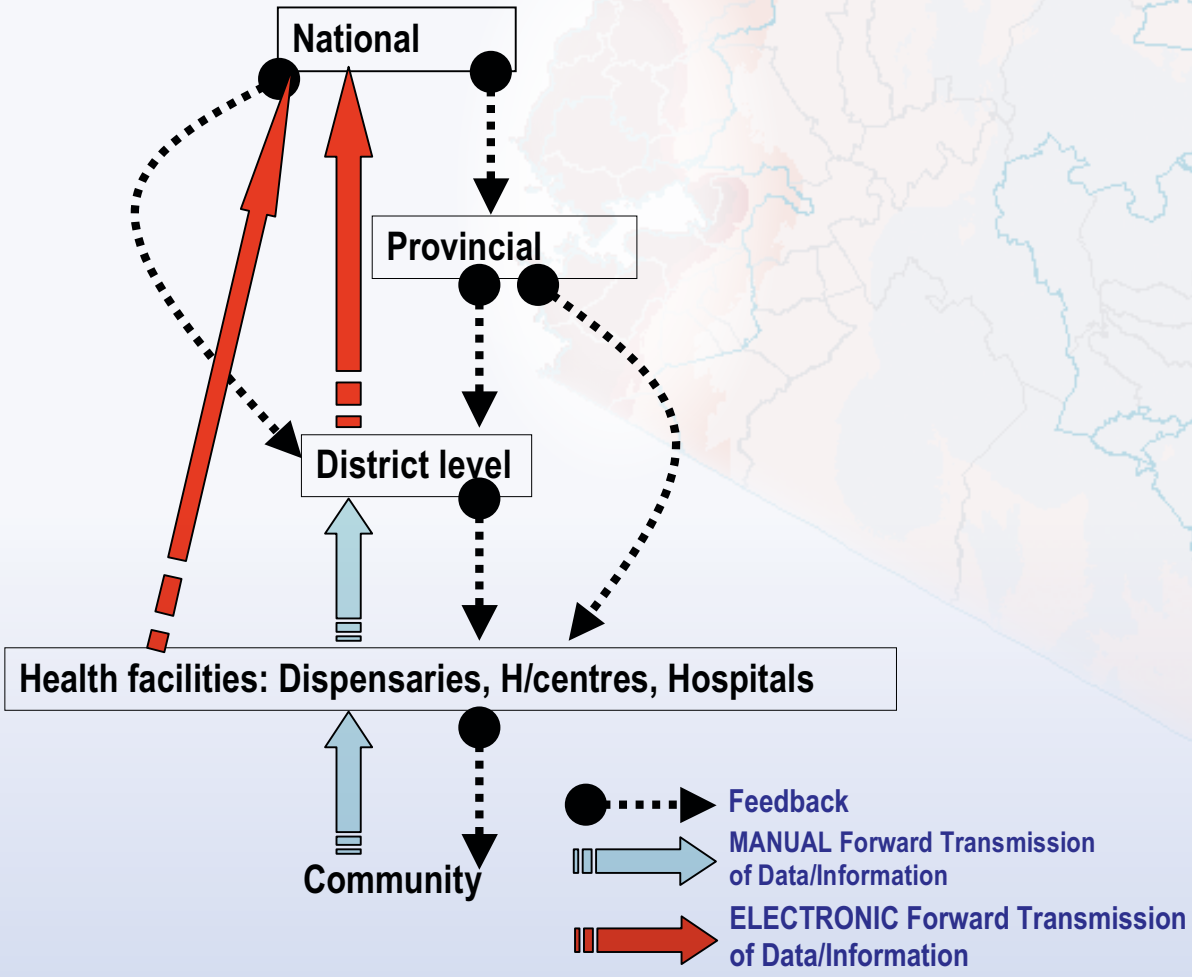
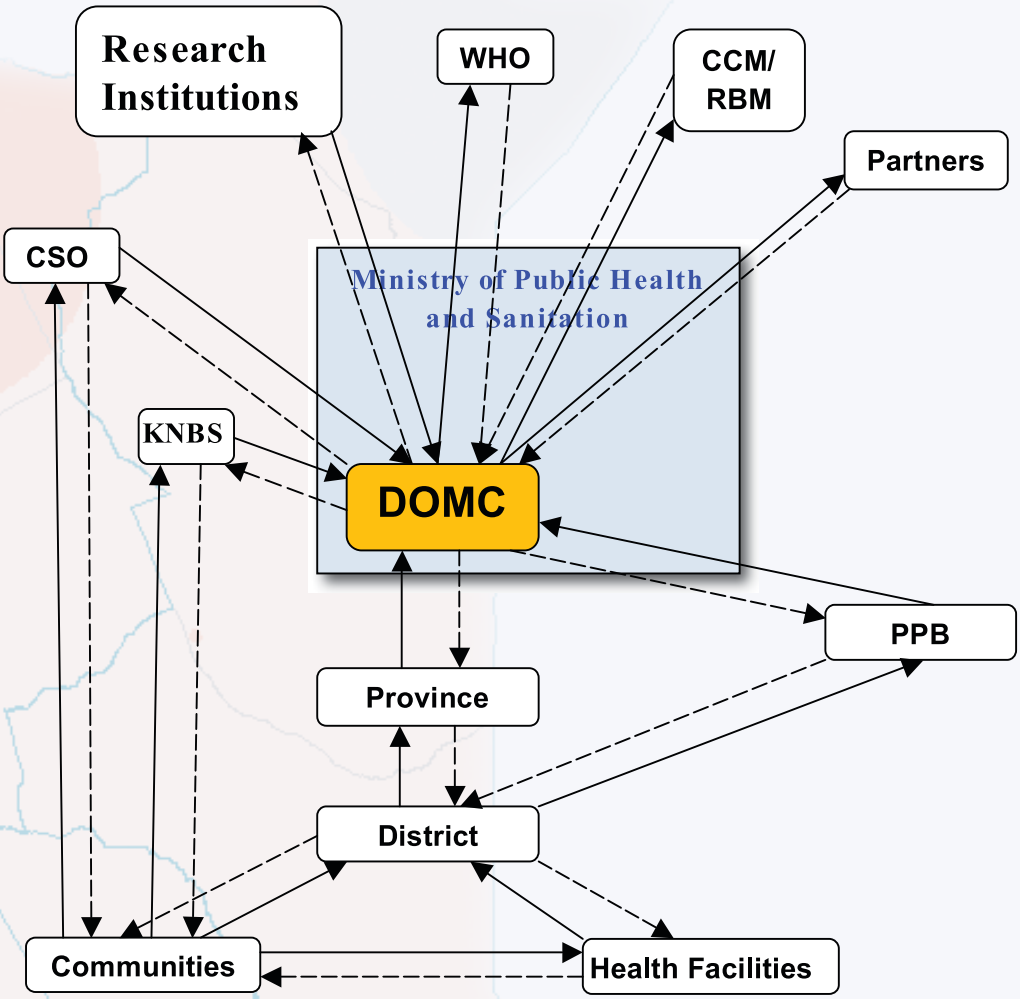


Fig 3.3: Overall Malaria Data and Information Flow from sources to DOMC



3.6 Data Quality Assurance

In Kenya, the national HMIS is charged with the responsibility of collecting, collating, analyzing, publishing and disseminating health data to all stakeholders (both public and private) for evidence based decision-making. Data quality assurance is important for verification and validation of data. Specially trained health records information officers exist at district, provincial and national level and they are responsible for data collection and management at those levels.

One major challenge to the monitoring and evaluation proposed in the current framework remains the need to standardize and improve the quality of the health information that is obtained from the HMIS. The HMIS has identified this weakness and has set its vision as: 'to be a centre of excellence for Quality Health Information'. The Division of HMIS has identified steps to ensure that this vision is realized. The DOMC will work with the HMIS Division to make sure data validation and audits are undertaken regularly to ensure that the data collected is interpreted appropriately.

All the malaria surveys are done in collaboration with the KNBS, who are specialists in data management to ensure that all the surveys are properly designed and statistically sound. They are also important in data cleaning of the resultant surveys, as well as analysis.

3.7 Malaria Database

The main database within the NMCP is Malaria Information Acquisition System (MIAS). The key objective of MIAS was to assist in monitoring and evaluation of the malaria program activities implementation at national and district levels based on the annual malaria business plan activities as well as to provide an easy to access repository of other malaria specific routine data sets – HMIS, Epidemic Detection (IDSR) Data, ACTs, etc. The core MIAS system is hosted on the DOMC's existing Local Area Network and incorporates sub-modules for planning and budgeting, performance and expenditure monitoring, tracking survey results and survey gaps, tracking training information, tracking technical meetings and field /mission trips and hosting of various categories of reference data e.g. districts and facilities, etc. The system acquires routine malaria data that is collected by other divisions on behalf of the DOMC including routine data from HMIS, ACT consumption tracking data from LMU/LMIS, malaria epidemic tracking and detection data from DDSR and routine IPT and ITN utilization data from HMIS.

The District Electronic Tool is a component of MIAS, which will be used to facilitate collection of the non-routine data required by the DOMC at the district level including data on the district malaria activities implementation (for all activities funded under the DOMC Business Plan), mass distribution of ITNs and IRS campaign data. Routine malaria data is electronically transmitted from district level to provincial offices and then relayed electronically to HMIS via the FTP system. The HMIS database is readily accessible to NMCP via the HMIS FTP website.

The WHO Country Profile repository for national malaria control country-specific information has also been introduced in the program and it is currently being updated using data generated from MIAS and other sources.

4 Monitoring and Evaluation Action Plan

Activity		Activity Indicator	Responsible	Timeline [2009 – 2017]								
				2009	2010	2011	2012	2013	2014	2015	2016	2017
Finalization and Dissemination of the M&E Plan												
1	Establish a core group to finalize draft M&E plan	Draft in place	DOMC M&E	x								
2	Discuss the draft with Manager for comments	Comment incorporated in the draft	DOMC M&E	x								
3	Present the draft plan to the M&E TWG for inputs	Number of TWG members attended the meeting	DOMC/TWG	x								
4	Finalizing the M&E plan	Final draft in place	DOMC M&E/TWG	x								
5	Present M&E final draft for approval to Manager	Approved M& E plan	DOMC M&E/TWG	x								
6	Editing & Printing of final M&E Plan	Number of copies printed and distributed	DOMC M&E/TWG/ MSH	x								
7	Launch and distribute the M& E plan to key stakeholders	Number of people attending the launch	DOMC Programme Management	x								
8	Publish the M&E plan on the malaria website	Availability of the plan on the website	DOMC M&E	x								
Capacity strengthening for malaria surveillance												
1	Recruit an ICT Data Manager	Recruitment completed	DOMC Programme Management	x								
2	Procure computers and laptops to replace the old ones in DOMC	Number of computers & laptops procured	DOMC/Funding Partners	x			x			x		
3	Procure a test a backup server for DOMC	Server procured and installed	DOMC/Funding Partners	x								
4	Support regular SMEOR TWG meetings	Quarterly meetings held	DOMC M&E/TWG	x	x	x	x	x	x	x	x	x

Activity		Activity Indicator	Responsible	Timeline [2009 – 2017]								
				2009	2010	2011	2012	2013	2014	2015	2016	2017
Capacity strengthening for malaria surveillance												
5	Support regular Research Technical Committee meetings	Quarterly meetings held	DOMC OR	x	x	x	x	x	x	x	x	x
6	Develop a malaria OR plan and define research priorities	Detailed malaria OR plan in place	DOMC OR	x								
7	Strengthen linkages with sources of routine data (HMIS, IDSR, LMIS & PPB)	Timeliness of data received from these sources	HMIS, IDSR, LMIS & PPB	x	x	x	x	x	x	x	x	x
8	Obtain data regularly from other program implementation partners	Completeness of the malaria database	DOMC/All Malaria Partners	x	x	x	x	x	x	x	x	x
9	Conduct M&E supportive supervision in districts and provinces.	Number of supervision visits made per quarter	DOMC/PHMT/ DHMT	x	x	x	x	x	x	x	x	x
Strengthen Malaria Data Management Systems												
1	Update the malaria database (MIAS & Kenya Country Profile)	Data completeness	DOMC	x	x	x	x	x	x	x	x	x
2	Purchase computers and other ICT equipment for 4 pilot districts	Number of equipment purchased and distributed	DOMC/MSH	x								
3	Train pilot districts in MIAS	Training Report	DOMC/MSH	x								
4	Complete pilot of MIAS District tool in 4 districts	Number of pilot districts with MIAS operational	DOMC/MIAS	x								
5	Purchase computers and other ICT equipment for MIAS rollout to other districts	Number of ICT equipment purchased and distributed	DOMC/Funding Partners		x							
6	Train the other districts in MIAS	Training Reports	DOMC/Funding Partners		x							
7	Roll out MIAS in the other districts	Proportion of districts using MIAS	DOMC/Partners		x							
8	Training (& Refresher Training) of DOMC staff in information management, analysis, use and dissemination	Number of M&E staff trained	DOMC/Partners		x							
9	Train DOMC staff in surveillance and GIS	Number of M&E staff trained in this area	DOMC/Partners		x							

Activity		Activity Indicator	Responsible	Timeline [2009 – 2017]								
				2009	2010	2011	2012	2013	2014	2015	2016	2017
Strengthen Malaria Data Management Systems												
10	Revise and harmonize existing M&E tools	Proportion of M&E tools revised and harmonized	DOMC/Partners		x		x		x		x	
11	Develop and produce data collection tools for HMM	Tool developed	DOMC/TWG			x						
12	Training on HMM data collection tools	Number of people trained	DOMC				x	x				
13	Develop/Update tool for RDT usage data collection	Tool developed/ updated	DOMC/HMIS	x								
14	Train on the updated tool for RDT usage data	Number of health workers trained	DOMC/Partners		x							
15	Compilation of ITN distribution data	Number of ITN distribution reports received	DOMC/Partners	x	x	x	x	x	x	x	x	x
16	Collection and consolidation of the IRS data	Number of IRS reports received	DOMC Partners	x	x	x	x	x	x	x	x	x
17	Develop policy for data security and access to malaria data at DOMC	Policy developed and implemented	DOMC		x							
Conduct and Support Community and Facility Based Surveys												
1	Support PPB to undertake pharmacovigilance for malaria medicines	Proportion of districts reporting on ADR	DOMC/PPB	x	x	x	x	x	x	x	x	x
2	Conduct malaria medicines post-marketing surveillance and quality assessment studies	Number of surveillance & assessment studies conducted	DOMC/PPB	x	x	x	x	x	x	x	x	x
3	Strengthen capacity of selected institutions and sites for malaria drug efficacy studies	Number of sites performing drug efficacy testing	DOMC/selected institutions	x	x	x	x	x	x	x	x	x
4	Conduct malaria drug efficacy monitoring studies every 2 years	Efficacy study completed as scheduled	DOMC/selected institutions		x		x		x		x	
5	Monitoring of vector susceptibility of insecticides	Number of susceptibility studies done	DOMC/KEMRI/ CDC/Partners	x	x	x	x	x	x	x	x	x
6	Conduct malaria indicator survey	MIS conducted and report disseminated	DOMC/KNBS		x			x			x	
7	Conduct school malariaometric surveys	Survey done and report disseminated	DOMC/Partners			x		x			x	

Activity		Activity Indicator	Responsible	Timeline [2009 – 2017]								
				2009	2010	2011	2012	2013	2014	2015	2016	2017
Conduct and Support Community and Facility Based Surveys												
8	Participate in planning of KDHS	Number of planning meetings attended	DOMC/KNBS				x					x
9	Conduct entomological surveys	Survey done and report disseminated	DOMC/KEMRI/ CDC/Partners		x		x		x		x	
10	Conduct health facility based assessment to monitor quality of care / PMM	Number of survey reports available	DOMC/Partners/ Districts	x	x	x	x	x	x	x	x	x
11	Countrywide health provider and health facility inventory for malaria diagnosis and treatment	Inventory available and updated	DOMC/Partners			x			x			x
Operational Research												
1	Quarterly OR meetings to define malaria OR agenda and coordinate malaria research activities	Number of meetings held per year	DOMC OR/ Research TWG	x	x	x	x	x	x	x	x	x
2	Provide OR grants to research institutions	Number of grants awarded	DOMC/selected institutions	x	x	x	x	x	x	x	x	x
3	Annual malaria research to policy conference	Annual national malaria control symposium held	DOMC/Partners	x	x	x	x	x	x	x	x	x
Activity Monitoring												
1	M &E operational plan developed as part of annual malaria business plan	Plans updated in MIAS	DOMC M&E	x	x	x	x	x	x	x	x	x
3	Quarterly stakeholders meetings in line with the planning cycle and GFATM reporting requirements	Minutes	DOMC Programme. Management	x	x	x	x	x	x	x	x	x
4	Holding annual malaria review and planning meeting	Minutes	DOMC Programme. Management	x	x	x	x	x	x	x	x	x
5	Compilation of quarterly reports	Progress Reports	DOMC	x	x	x	x	x	x	x	x	x
6	Production of a quarterly progress bulletin	Availability of quarterly bulletin	DOMC ACSM and M&E	x	x	x	x	x	x	x	x	x

Activity		Activity Indicator	Responsible	Timeline [2009 – 2017]								
				2009	2010	2011	2012	2013	2014	2015	2016	2017
Activity Monitoring												
7	Develop and disseminate an annual malaria report	Report written and disseminated	DOMC Programme. Management	x	x	x	x	x	x	x	x	x
8	Participate in development of an integrated supervisory checklist	Integrated checklist developed	DOMC M&E	x	x	x	x	x	x	x	x	x
9	Support supervisory visits at all levels	Reports	DOMC/PHMT/ DHMT	x	x	x	x	x	x	x	x	x

5 References

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6 Appendices

6.1 Appendix 1: Log frame for Kenya Malaria Control Strategic Plan 2009-2017

Objective	Strategies	Activities	Timeline (FY July – June)							
			2010	2011	2012	2013	2014	2015	2016	2017
1. By 2013, to have at least 80% of people living in malaria risk areas using appropriate malaria preventive interventions	1.1 Universal distribution of LLINs through appropriate channels (1 LLIN for 2 people)	Conduct a mass LLIN distribution campaign to households for universal access (1 LLIN for every 2 people at risk every three years)	X			X			X	
		Routine distribution of LLINs using ANC/CWC	X	X	X	X	X	X	X	X
		Distribution of LLINs through social marketing	X	X	X	X	X	X	X	X
	1.2 Indoor residual spraying in the targeted areas	Conduct IRS in epidemic prone and fringe endemic districts	X	X	X					
		Capacity building for IRS	X	X	X					
		Procurement and distribution of IRS commodities and equipment	X	X	X					
		Develop GPS mapping system for planning and monitoring IRS activities	X							
		IVM (Larval source reduction) in targeted areas				X	X	X	X	X
		IVM (Environmental management)		X	X	X	X	X	X	X
	1.3 Support malaria-free schools initiative	LLIN distribution in schools (LLINs and distribution costs)	X							
		Implementation of IRS in schools in targeted areas (insecticides; operational costs including training)	X	X	X					
		Operations Research on testing and treatment for malaria control in schools	X	X						
		Mainstream malaria control in school curriculum	X	X	X	X	X	X	X	X
	1.4 Provision of IPTp at antenatal clinics and community levels	Update and disseminate IPT guidelines	X			X			X	
		Support supervision of MIP activities by DOMC/RH, PHMTs and DHMTs	X	X	X	X	X	X	X	X
		Procurement and distribution of effective medicines for IPTp	X	X	X	X	X	X	X	X
		Conduct a review of IPTp implementation (every three years)	X				X			
		Training of service providers in IPTp (public, private, NGOs)	X		X					
		Mobilization and advocacy for MIP	X	X	X	X	X	X	X	X
		Meetings of the MIP Technical Working Group	X	X	X	X	X	X	X	X

Objective	Strategies	Activities	Timeline (FY July – June)							
			2010	2011	2012	2013	2014	2015	2016	2017
2. To have 80% of all self-managed fever cases receive prompt and effective treatment and 100% of all fever cases who present to health workers receive parasitological diagnosis and effective treatment by 2013	2.1 Capacity building for malaria diagnosis and treatment at health facilities	Develop standardized training curriculum for laboratory staff	X			X			X	
		Develop tools for laboratory data collection and reporting	X			X			X	
		Update health workers on malaria diagnosis		X			X			X
		Update health workers on malaria laboratory QA and QC	X			X			X	
		Conduct integrated case management training for health workers	X			X			X	X
		Review and disseminate Malaria diagnosis and treatment policy and guidelines	X			X			X	
		Conduct case management supportive supervision in health facilities	X	X	X	X	X	X	X	X
		Procure and distribute essential RDTs and laboratory supplies for malaria diagnostics to all levels	X	X	X	X	X	X	X	X
		Train health workers on pharmacovigilance	X			X			X	
		Establish and maintain central malaria reference laboratory	X	X	X	X	X	X	X	X
		Establish and review sustainable maintenance plan for microscopes and other equipment	X	X	X	X	X	X	X	X
		ACSM in support of prompt and effective treatment	X	X	X	X	X	X	X	X
	2.2 Access to affordable malaria medicines through the private sector	Develop proposals for AMFm	X			X			X	
		Participate with private sector in AMFm to ensure access to affordable ACTs in private sector (quarterly meetings)	X	X	X	X	X	X	X	X
		Conduct quarterly planning and coordination meetings with private sector	X	X	X	X	X	X	X	X
		Provide technical support for private sector activities	X	X	X	X	X	X	X	X
	2.3 Strengthening Home Management of Malaria using the community strategy through community health workers	Mainstream ACTs into the community strategy	X			X			X	
		Train health workers on home management of malaria	X			X			X	
		Develop curriculum for training on home management of malaria	X			X			X	
		Train community health workers on home management of fever	X			X			X	
		Supply of kits for CHWs and CHEWS	X	X	X	X	X	X	X	X
		Supervise CHWs and CHEWs	X	X	X	X	X	X	X	X

Objective	Strategies	Activities	Timeline (FY July – June)							
			2010	2011	2012	2013	2014	2015	2016	2017
3. To ensure that all malaria epidemic prone districts have the capacity to detect and preparedness to respond to malaria epidemics annually by 2010	3.1 Capacity building for epidemic preparedness and response	Update epidemic preparedness guidelines for malaria	X			X			X	
		Risk mapping of epidemic prone areas	X	X	X	X	X	X	X	X
		Review epidemic preparedness and response plans for district teams	X	X	X	X	X	X	X	X
		Training of health workers at district and facility level in epidemic preparedness and response	X			X			X	
		Capacity building in malaria surveillance for epidemics for district and health facility teams	X	X	X	X	X	X	X	X
	3.2 Disease surveillance capacity strengthening	Development of guidelines and tools for malaria active surveillance in epidemic-prone and low transmissions areas	X							
		Training of disease surveillance officers on active surveillance of malaria in epidemic prone and low transmissions areas	X		X		X		X	
		Supplies for screening members of households of index cases of confirmed malaria - RDTs	X	X	X	X	X	X	X	X
		Procurement of AL for treatment of malaria plasmodium falciparum positive household members	X	X	X	X	X	X	X	X
		Disease surveillance teams conduct household visits	X	X	X	X	X	X	X	X
		Communications support of disease surveillance in the epidemic-prone and low transmission areas	X	X	X	X	X	X	X	X
		Establish epidemic preparedness teams at district level	X			X			X	
		Revise malaria epidemic thresholds for health facilities annually	X	X	X	X	X	X	X	X
		Weekly surveillance meetings held at district and lower levels during the malaria season	X	X	X	X	X	X	X	X
		Conduct epidemic post mortems or audits for all epidemic prone districts	X	X	X	X	X	X	X	X
		Collection and analysis of outbreak reports at national level	X	X	X	X	X	X	X	X
		Maintain malaria epidemic kits including buffer stocks for malaria epidemic management	X	X	X	X	X	X	X	X

Objective	Strategies	Activities	Timeline (FY July – June)							
			2010	2011	2012	2013	2014	2015	2016	2017
4. To strengthen surveillance, monitoring and evaluation systems so that key malaria indicators are routinely monitored and evaluated in all malarious districts by 2011	4.1 Capacity strengthening for malaria surveillance	Develop and disseminate M&E framework and plan	X			X			X	
		Support M&E technical working group	X	X	X	X	X	X	X	X
		Support scale up malaria surveillance in collaboration with IDSR and HMIS	X	X	X	X	X	X	X	X
		Malaria surveillance monitoring and supervision	X	X	X	X	X	X	X	X
	4.2 Strengthen facility and school based malaria sentinel surveillance	Malariometric surveys	X	X	X	X	X	X	X	X
		Support the monitoring of the quality of malaria case management in health facility sentinel sites	X	X	X	X	X	X	X	X
	4.3 Strengthening malaria data management systems	Update malaria databases (country database, MIAS)	X	X	X	X	X	X	X	X
		Strengthen ICT infrastructure at national, provincial and district levels	X	X	X	X	X	X	X	X
		Roll out MIAS to the district level	X	X	X	X	X	X	X	X
		Strengthen malaria data security	X	X	X					
	4.4 Conduct and support community surveys	Support pharmacy and poisons board to undertake pharmacovigilance for malaria medicines	X	X	X	X	X	X	X	X
		Conduct malaria medicines post-marketing surveillance and quality assessment studies	X	X	X	X	X	X	X	X
		Conduct malaria drug efficacy monitoring studies every 2 years	X		X		X		X	
		Conduct monitoring of vector susceptibility of insecticides	X	X	X	X	X	X	X	X
		Conduct Malaria Indicator Surveys	X			X			X	
		Conduct re-analysis of KDHS malaria data	X				X			
		Conduct entomological surveys	X	X	X	X	X	X	X	X
	4.5 Conduct and facilitate health facility surveys	Conduct health facility operational assessments			X			X		
		Conduct health facility surveys			X			X		
		Countrywide health provider and health facility inventory for malaria diagnosis and treatment	X			X			X	

Objective	Strategies	Activities	Timeline (FY July – June)							
			2010	2011	2012	2013	2014	2015	2016	2017
	4.6 Operational and Translation	Meetings of the malaria control operational research working group to define malaria operations research agenda and coordinate malaria research activities	X	X	X	X	X	X	X	X
		Provide operations research grants to research institutions	X	X	X	X	X	X	X	X
		Hold annual national malaria research to policy conference	X	X	X	X	X	X	X	X
	4.7 Human resource capacity building in surveillance,	Training of DOMC staff in M&E	X			X			X	
		Training of M&E staff in surveillance, GIS and data management	X	X	X	X	X	X	X	X
5. To strengthen advocacy, communication and social mobilization capacities for malaria control to ensure that at least 80% of people in malarious areas have knowledge on prevention and treatment of malaria by 2014.	5.1 Capacity strengthening for advocacy, communication and social mobilization.	Develop and disseminate ACSM policy and guidelines	X			X			X	
		Capacity building for health workers and other service providers on ACSM	X			X			X	
		Hold quarterly meetings of malaria ACSM groups at all levels	X	X	X	X	X	X	X	X
		Conduct support supervision visits	X	X	X	X	X	X	X	X
	5.2 Support priority implementing partners	IEC/BCC support to priority implementing partners (Malaria free schools initiative)	X	X	X	X	X	X	X	X
		Document malaria control best practices	X	X	X	X	X	X	X	X
		Production of documentaries on best practices in various intervention areas	X			X			X	
		Support provincial/district level ACSM activities (location level malaria field days and competitions)	X	X	X	X	X	X	X	X
		Support activities/visits by the Kenya Malaria Goodwill Ambassador	X	X	X	X	X	X	X	X
		Commemorate World Malaria Day	X	X	X	X	X	X	X	X
		Publication of quarterly and annual advocacy bulletins	X	X	X	X	X	X	X	X
	5.3 Development of appropriate advocacy for uptake of specific malaria interventions	IEC/BCC support for mass LLIN distribution	X	X		X	X		X	X
		IEC/BCC support for IRS campaigns	X	X	X					
		Advocacy, social Mobilization and BCC for MIP	X	X	X	X	X	X	X	X
		Mobilization and advocacy for appropriate case management in the private sector (AMFm)	X	X	X	X	X	X	X	X

Objective	Strategies	Activities	Timeline (FY July – June)							
			2010	2011	2012	2013	2014	2015	2016	2017
6. By 2013, to strengthen capacity in programme management in order to achieve malaria programmatic objectives at all levels of the health care system	6.1 Capacity strengthening for planning, partnerships and coordination at national malaria control program	Develop/update relevant malaria control policy documents and guidelines in all intervention areas	X			X			X	
		Strengthen coordination and integration of malaria control into the health sector annual operational planning process	X	X	X	X	X	X	X	X
		Conduct quarterly MICC meetings	X	X	X	X	X	X	X	X
		Participate in Regional and international conferences and meetings	X	X	X	X	X	X	X	X
		Coordinate all Technical Working Groups	X	X	X	X	X	X	X	X
		Maintain current core staff at DOMC	X	X	X	X	X	X	X	X
	6.2 Strengthen malaria program management at the district and provincial levels	Establish /designate malaria focal point positions at provincial and district levels	X							
		Train malaria focal point persons at the provincial and district levels on malaria control and program management	X		X		X		X	
	6.3 Strengthen infrastructure at the national, provincial and district levels	Office expansion/renovations DOMC	X			X			X	
		Provide office equipment and operational support for national, provincial and district program offices	X	X	X	X	X	X	X	X
	6.4 Strengthen activity and performance monitoring	Conduct quarterly program review meetings (DOMC technical) at national level	X	X	X	X	X	X	X	X
		Conduct national biannual planning and review meetings with partners	X	X	X	X	X	X	X	X
		Conduct mid-term and end-term review of the NMS and update NMS	X	X	X	X	X	X	X	X
		Facilitate quarterly performance review and planning meetings at provincial level	X	X	X	X	X	X	X	X
		Produce and disseminate annual business plans	X	X	X	X	X	X	X	X
	6.5 Strengthen resource mobilization capacity to improve malaria control financing	Recruit and remunerate planning officer	X	X	X	X	X	X	X	X
		Hold roundtable quarterly development partners (donors) meetings	X	X	X	X	X	X	X	X
		Resource mobilization proposal development (such as GFATM)	X	X	X	X	X	X	X	X

Objective	Strategies	Activities	Timeline (FY July – June)							
			2010	2011	2012	2013	2014	2015	2016	2017
	6.6 Strengthen human resource capacities in malaria endemic area	Recruit and remunerate logistician	X	X	X	X	X	X	X	X
		Recruit priority health workers	X	X	X	X	X	X	X	X
		Support for annual malaria program management and planning course	X	X	X	X	X	X	X	X
		Collaboration with training institutions on curriculum updates	X	X	X	X	X	X	X	X
	6.7 Strengthen procurement and supply management systems for malaria drugs and commodities	Conduct quantification of malaria medicines (IPTp, case management), LLINs, laboratory and other medical supplies	X	X	X	X	X	X	X	X
		Recruit /designate logistician for DOMC	X							
		Support the implementation of LMIS for malaria commodities	X	X	X	X	X	X	X	X

6.2 Appendix 2: Core Indicators Definitions

	Name of indicator	Numerator, Denominator	DATA TYPE/ SOURCE
Impact Indicators			
1.	Inpatient malaria cases among children <5yrs [per 1000 persons per year]	N: Number of inpatient cases <5yrs with a primary diagnosis of malaria D: Population (under 5yrs) per 1000 persons for persons resident in areas at risk of malaria.	Routine Surveillance
2.	Total inpatient malaria cases [per 1000 persons per year]	N: Total number of inpatient cases with a primary diagnosis of malaria D: Total population per 1000 persons for persons resident in areas at risk of malaria.	Routine Surveillance
3.	Inpatient malaria deaths among children <5yrs [per 1000 persons per year]	N : Number of inpatient deaths due to malaria for children < 5 years D: Population (under 5yrs) per 1000 persons for persons resident in areas at risk of malaria.	Routine Surveillance
4.	Total inpatient malaria deaths [per 1000 persons per year]	N: Total number of inpatient deaths due to malaria D: Total population per 1000 persons for persons resident in areas at risk of malaria.	Routine Surveillance
5.	Confirmed outpatient malaria cases at health facility level among children <5 yrs [per 1000 persons per year]	N: Number of outpatient malaria cases confirmed by microscopy or RDT among children <5yrs reported by health facilities per year D: Population (under 5yrs) per 1000 persons for persons resident in areas at risk of malaria.	Routine Surveillance
6.	Total confirmed outpatient malaria cases at health facility level [per 1000 persons per year]	N: Number of outpatient malaria cases confirmed by microscopy or RDT reported by health facilities per year D: Total population per 1000 persons for persons resident in areas at risk of malaria.	Routine Surveillance
7.	Clinical outpatient malaria cases at health facility level among children <5 yrs [per 1000 persons per year]	N: Number of malaria cases who tested positive either by blood slide or RDT D: Total number of malaria cases tested	Routine Surveillance
8.	Total Clinical outpatient malaria cases at health facility level [per 1000 persons per year]	N: Number of clinical malaria reported by health facilities per year D: Total population per 1000 persons for persons resident in areas at risk of malaria.	Routine Surveillance
9	Outpatient malaria Slide/RDT Test Positivity Rate (TPR) at health facility level	N: Total number of outpatient cases confirmed positive for malaria by Microscopy or RDT D: Total number of outpatient suspected malaria cases tested	Routine Surveillance for Laboratory Data
10	Malaria parasitaemia prevalence rate among children < 5yrs in endemic areas (by microscopy)	N: Number of children testing positive for presence of malaria parasite in the blood D: Total number of children tested	Household surveys
Outcome Indicators			

	Name of indicator	Numerator, Denominator	DATA TYPE/ SOURCE
1.	Percentage of malaria cases receiving prompt and effective treatment within 24 hours according to the national policy (household)	N: Number of malaria cases who had a fever in the two weeks prior to a survey who received an antimalarial according to national policy at the time of survey for treatment within 24 hours of onset of fever D: Total number of malaria cases who had a fever reported for the two weeks prior to a survey	Household survey
2.	Percentage of pregnant women attending ANC who received IPTp2 in endemic areas	N: Number of women in endemic areas who received two or more doses of a recommended antimalarial drug treatment during ANC visits to prevent malaria during their last pregnancy that led to a live birth within the last two years D: Total number of women surveyed in endemic areas who had a live birth in the last two years	Household survey
3.	Percentage of with fever who received antimalarial treatment through home-based management of malaria	N: Number of children under five who had fever in the two weeks prior to a survey who received antimalarial treatment within 24 hours of onset of fever through home-based management D: Total number of children under five who had fever reported for the two weeks prior to a survey	Household survey
4.	Proportion of households (HH) with at least one ITN	N: Number of households that own at least one ITN D : Number of households surveyed	Household survey
5.	Average number of ITNs per person	N: Number of persons that own an ITN D: Total population in households surveyed	Household survey
6.	Proportion of children under 5 years of age who slept under an ITN the previous night	N: Number of children under 5 years of age who slept under an ITN the previous night D: Total number of children under 5 years who slept in surveyed households the previous night	Household survey
7.	Proportion of household residents who slept under an ITN the previous night	N: Number of household residents and visitors who slept under an ITN the previous night D: Total number of residents and visitors who slept in surveyed households the previous night	Household survey
8.	Proportion of pregnant women who slept under an ITN the previous night	N: Number of pregnant women who slept under an ITN the previous night D: Total number of pregnant women who slept in surveyed households the previous night	Household survey
9	Proportion of women who received 2 or more doses of intermittent preventive treatment (IPT) for malaria during their last pregnancy (in the last 2 years)	N: Number of women who received two or more doses of IPTp during ANC visits to prevent malaria during their last pregnancy that led to a live birth within the last two years D: Total number of women surveyed who had a live birth in the last two years	Household survey
10	Proportion of children under five years of age with fever in the last two weeks who received treatment with an antimalarial according to national policy within 24 hours of onset of fever	N: Number of children under five who had a fever in the two weeks prior to a survey who received an antimalarial according to national policy at the time of survey for treatment within 24 hours of onset of fever D: Total number of children under five who had a fever reported for the two weeks prior to a survey	Household survey

	Name of indicator	Numerator, Denominator	DATA TYPE/ SOURCE
	Output Indicators		
1.	ITNs/LLINs distributed within the past 3 years	Number of ITNs/LLINs distributed nationally within the last 3 years	Activity Reports
2.	Percentage of targeted structures in IRS-target areas sprayed by IRS in the last 12 months	N: Number of occupied structures in the IRS program target area sprayed with a residual insecticide D: Total number of occupied structures in the IRS program target area	Activity Reports
3.	Proportion of health facilities with microscopy and/or RDT capability	N: Number of public sector health facilities with trained and equipped staff to perform laboratory diagnosis of malaria D: Total number of public sector health facilities	Activity Reports
4.	Proportion of health facilities having no stock-out of ACTs for 7 consecutive days in past 3 months (for each ACT weight band)	N: Number of health facilities with no reported stock-outs of nationally recommended ACTs lasting more than 7 days at any time during the past three months D: Total number of public health facilities	Routine surveillance (LMIS)
5.	Proportion of annual business plan financed	N: Available funding for annual business plan D: Funding needed for annual business plan	Programme Reports
6.	Number of studies of drug efficacy completed according to WHO protocol	Number of studies of drug efficacy completed according to WHO protocol	Activity Reports
7.	Number of studies of insecticide efficacy completed according to WHO protocol	Number of studies of insecticide efficacy completed according to WHO protocol	Activity Reports

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