




MINISTRY OF HEALTH



TOWARDS A MALARIA-FREE KENYA  
**KENYA MALARIA  
STRATEGY**  
2019–2023



NATIONAL MALARIA  
CONTROL PROGRAMME





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**Kenya Malaria Strategy 2019–2023**

National Malaria Control Programme

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# FOREWORD

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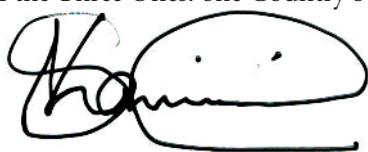
The Kenya Malaria Strategy 2019-2023 was based on the recommendations of the end-term Malaria Programme Review for the previous strategy 2009–2018 (revised 2014). The strategy has taken into account the Kenya Health Sector Strategic and Investment Plan July 2018–June 2023, the 2010 constitution of Kenya, Vision 2030, and the Global Technical Strategy for Malaria. The strategy was developed through an all-inclusive and documented process.

Kenya has made great strides in malaria control over the years. This strategy incorporates the recommendations of the malaria programme review and outlines a clear roadmap for the next five years.

The goal of the strategy is “to reduce malaria incidence and deaths by seventy-five percent of 2016 levels by 2023.” To attain the goal, this strategy sets ambitious targets to be achieved through implementation of technically sound, evidence-based objectives that will further shrink the malaria map in the country. Continued scaling up of preventive measures to attain universal coverage is a key pillar of this strategy. Prompt diagnosis and effective treatment in both public and private health sectors will be promoted.

In tandem with global guidance, the country will establish systems for malaria elimination in selected counties based on malaria incidence amongst other criteria. The strategy will strengthen performance monitoring and ensure that accurate, timely, and complete data are available from all sectors. A strong coordination of the partnership and enhanced collaboration with implementing partners is envisioned. The strategy will use community health structures to strengthen delivery and improve access to malaria control interventions. This strategy has quantified the resources required to attain the goal and provides approaches for sustainable financing.

We are confident that this strategy will propel the country towards the vision of a malaria-free Kenya. I urge all stakeholders to adopt this strategy in their planning and implementation of malaria interventions. We will achieve this through the principle of the Three Ones: one Country Strategy, one Coordinating Authority, one Monitoring and Evaluation Framework.



**Sicily Kariuki (Mrs), EGH**

Cabinet Secretary, Ministry of Health

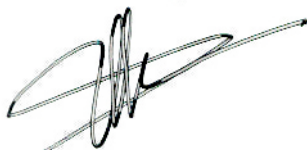
# PREFACE

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The Kenya Malaria Strategy 2009–2018 (revised 2014) had a lifespan of nine years; midway through its implementation, the strategy was revised to accommodate new technical guidance, constitutional arrangements, and innovations.

The end of the life of the strategy necessitated a Malaria Programme Review, which was an inclusive process guiding the formulation of this strategy. It was executed in four phases: phase 1 comprised planning for the process, phase 2 comprised a desk review of published and unpublished literature, phase 3 comprised validation of the desk review, and phase 4 comprised development of the new strategy. A comprehensive report of the review is available as a separate document.

This new strategy has used the lessons learnt from the previous strategy, recommendations from the Malaria Programme Review, the maturing of the county governments, structures for inter-governmental relations, the new direction towards Universal Health Coverage, and the presence of the Health Act as the foundation in its formulation. Thus, there is assurance that this new strategy will be an improvement and more ambitious than the previous one. My appreciation goes to all who were involved in this process.



**Dr. Rashid Aman**

Chief Administrative Secretary

Ministry of Health



## ACKNOWLEDGMENTS

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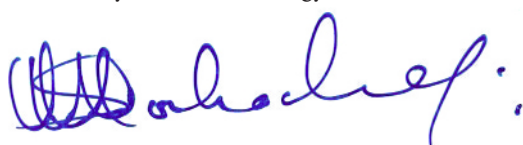
The development of this document was accomplished with extensive malaria stakeholder involvement. The Ministry would like to acknowledge the technical and policy guidance that was provided by the Director of Medical Services, Dr. Jackson Kioko, the Head of the Department of Preventive and Promotive Health, Dr. Peter Cherutich, and the Head of the Division of Strategic National Public Health Programmes, Dr. Joseph Sitienei.

We acknowledge the World Health Organization country and region offices and the Global Malaria Programme for the technical support for the strategy development process.

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We recognize the participation of the county governments throughout this process and appreciate the technical support of the membership of the Malaria Interagency Coordinating Committee, and all the technical working groups. We would also like to thank the staff of the National Malaria Control Programme led by Dr. Waqo Ejersa.

Finally, we thank the local consultants and all stakeholders who dedicated time and resources for the successful completion of the Kenya Malaria Strategy 2019–2023.



**Susan N. Mochache, CBS**

Principal Secretary, Ministry of Health

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# ABBREVIATIONS

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<b>ACT</b>	artemisinin-based combination treatment
<b>AL</b>	artemether-lumefantrine
<b>ANC</b>	antenatal care or antenatal clinic
<b>CBO</b>	community-based organisation
<b>CHV</b>	community health volunteer
<b>CCMm</b>	community case management for malaria
<b>CMCC</b>	county malaria control coordinator
<b>CoE</b>	Committee of Experts
<b>CRVS</b>	civil registration and vital statistics
<b>CSO</b>	civil society organisation
<b>DHIS 2</b>	district health information software version 2
<b>EPI</b>	expanded programme on immunization
<b>EPR</b>	epidemic preparedness and response
<b>FBO</b>	faith-based organisation
<b>FY</b>	financial year
<b>HIS</b>	health information system
<b>IDSR</b>	Integrated disease surveillance and response
<b>IPTp</b>	intermittent preventive treatment in pregnancy
<b>IRS</b>	indoor residual spraying
<b>IRM</b>	insecticide resistance management
<b>IVM</b>	integrated vector management
<b>KEMRI</b>	Kenya Medical Research Institute
<b>KEMSA</b>	Kenya Medical Supplies Authority
<b>KHSSP</b>	Kenya Health Sector Strategic and Investment Plan
<b>KMIS</b>	Kenya Malaria Indicator Survey
<b>KMS</b>	Kenya Malaria Strategy



<b>KNBS</b>	Kenya National Bureau of Statistics
<b>LLIN</b>	long-lasting insecticidal net
<b>LMIS</b>	logistics management information system
<b>LSM</b>	larval source management
<b>M&amp;E</b>	monitoring and evaluation
<b>MIP</b>	malaria in pregnancy
<b>MOH</b>	Ministry of Health
<b>MPR</b>	Malaria Programme Review
<b>mRDT</b>	malaria rapid diagnostic test
<b>NTD</b>	Neglected Tropical Diseases
<b>NGO</b>	nongovernmental organisation
<b>NHIF</b>	National Hospital Insurance Fund
<b>NMCP</b>	National Malaria Control Programme
<b>PBB</b>	programme-based budgeting
<b>PfPR</b>	<i>Plasmodium falciparum</i> parasite rate
<b>PMI</b>	President's Malaria Initiative
<b>PMLLIN</b>	post-mass distribution of long-lasting insecticidal-net survey
<b>PPB</b>	pharmacy and poisons board
<b>PSM</b>	procurement and supply management
<b>QA</b>	quality assurance
<b>SBC</b>	social and behaviour change
<b>SMEOR</b>	surveillance, monitoring, evaluation, and operational research
<b>SOP</b>	standard operating procedure
<b>SP</b>	sulphadoxine-pyrimethamine
<b>TOT</b>	training of trainers
<b>TWG</b>	technical working group
<b>UHC</b>	Universal Health Coverage
<b>USAID</b>	United States Agency for International Development
<b>VBDCU</b>	Vector-Borne Disease Control Unit
<b>WHO</b>	World Health Organization

# EXECUTIVE SUMMARY

Malaria remains a public health and socioeconomic problem in Kenya, with three-quarters of the population at risk of the disease. Moreover, the burden of the disease varies across the Country. The National Malaria Policy, the Kenya Malaria Strategy (KMS), and the accompanying Monitoring and Evaluation Plan provide a framework for guiding the response to the malaria burden in Kenya.

The KMS 2019–2023 was developed based on recommendations from the end-term review of the KMS 2009–2018. A key finding from the review was that Kenya has made significant strides in reducing the malaria burden. The review also noted several challenges that need to be addressed for better impact and attainment of the goal.

The KMS 2019–2023 was developed through a multistakeholder and multisectoral participatory process led by the Ministry of Health and in collaboration with County Governments, Civil Society, Development Partners, and other stakeholders. The strategy has been aligned to the Kenya Health Sector Strategic and Investment Plan July 2018–June 2023, the Kenya Health Policy, and the Global Technical Strategy for Malaria.

## Vision, Mission, Goal, and Objectives

**The Vision:** A malaria-free Kenya

**The Mission:** To direct and coordinate efforts towards a malaria-free Kenya through effective partnerships

**The Goal:** To reduce malaria incidence and deaths by at least 75 percent of the 2016 levels by 2023

**The Objectives:**

- To protect 100 percent of people living in malaria risk areas through access to appropriate malaria preventive interventions by 2023
- To manage 100 percent of suspected malaria cases according to the Kenya malaria treatment guidelines by 2023
- To establish systems for malaria elimination in targeted counties by 2023
- To increase utilisation of appropriate malaria interventions in Kenya to at least 80 percent by 2023
- To strengthen malaria surveillance and use of information to improve decision making for programme performance
- To provide leadership and management for optimal implementation of malaria interventions at all levels, for the achievement of all objectives by 2023



## Implementation

The main interventions in the KMS 2019–2023 are the same as in the previous strategy. These are as follows: vector control (long-lasting insecticide-treated nets, indoor residual spraying, larval source management); prevention of malaria in pregnancy; malaria diagnosis, and treatment; monitoring, evaluation, and operational research (including epidemic preparedness and response); malaria social and behaviour change; and programme management. A new KMS objective has been introduced, which focuses on establishing systems for malaria elimination in targeted counties. This is in line with the global push towards malaria elimination.

The guiding principles for the implementation of the strategy include the following: adherence to the principles of human rights, gender, and equity; a multisectoral approach; appropriate targeting of interventions; strengthening performance and monitoring systems; and strengthening the linkages between the National Malaria Control Programme and the counties. The malaria programme will also continue to invest in health systems strengthening, leverage community health services to achieve universal access to interventions, and strive to achieve sustainable financing. The Malaria Health Sector Working Committee, supported by the thematic Committees of Experts, will coordinate and provide overall technical guidance during implementation. The KMS will be operationalised through efficient and effective partnerships and coordination, and in adherence to the Three Ones principle: One country strategy, one coordinating authority, one monitoring and evaluation framework.

## Budget

Costing of KMS 2019–2023 was done based on activity-based costing, a bottom-up approach that estimates the costs of all inputs required per each activity over the entire implementation period. The cost of implementing KMS 2019–2023 has been estimated at **Ksh 61.92 billion** for the five-year period. Total funding projected to be available is **Ksh 37.84 billion**, thus resulting in a funding gap of **Ksh 24.07 billion**.

# 1. BACKGROUND

## 1.1 Strategic Planning for Malaria Control in Kenya

Malaria remains a significant public health concern in Kenya. Three-quarters of the population are at risk of infection, and older children ages 10–14 years have the highest prevalence, at 11 percent. More important, the burden of the disease varies across the country.

Kenya has experienced a decrease in the prevalence of malaria among children ages 6 months to 14 years in the lake endemic areas, from 38 percent in 2010 to 27 percent in 2015, and a slight increase in prevalence in the coast endemic areas, from 4 percent in 2010 to 8 percent in 2015.

Kenya continues to make progress in malaria control through multifaceted approaches, primarily prevention and treatment interventions. These interventions include distribution of long-lasting insecticidal nets (LLINs), intermittent preventive treatment in pregnancy (IPTp), and diagnosis and management of malaria cases. Over the years, the country has organized its fight against malaria based on key documents for guidance. The earliest available guiding document was the malaria control plan (1994) and subsequently the National Malaria Strategy 2001–2010. In 2009, Kenya conducted a comprehensive Malaria Programme Review (MPR), whose recommendations led to the development of the National Malaria Strategy 2009–2017. A mid-term review of the strategy in 2014 provided further alignment and strategic direction, and extended the period of implementation by one year. The Kenya Malaria Strategy 2009–2018 (revised 2014) aimed at providing a comprehensive but broad strategic framework for the fight against malaria that contributes to the attainment of the national vision of “a malaria-free Kenya.”

An end-term MPR of the KMS 2009–2018 was done in 2018, and the findings and recommendations formed the basis upon which the KMS 2019–2023 was developed. The strategy has been aligned to the Kenya Health Sector Strategic and Investment Plan (KHSSP) July 2018–June 2023, the Kenya Health Policy 2012–2030, and the Global Technical Strategy for Malaria 2016–2030. The vision of the strategy remains “a malaria-free Kenya,” with the goal “to reduce malaria incidence and deaths by 75 percent of 2016 levels by 2023.”

## 1.2 Country Profile

### 1.2.1 Geography, Climate, and Malaria Transmission

Kenya is situated in the eastern part of Africa. It borders Ethiopia to the north, Somalia to the northeast, Tanzania to the south, Uganda to the west, South Sudan to the northwest, and the Indian Ocean to the southeast. The country is administratively divided into 47 counties and 302 subcounties. Eighty percent of land area is arid or semi-arid, and only 20 percent is arable. The country has two main regions: lowlands and highlands. The lowlands include the coastal and the lake region, and the highlands fall on both sides of the Rift Valley. Rainfall and temperatures are influenced by altitude and proximity to the Indian Ocean. The coastal region has a tropical climate, with both rainfall and temperatures higher than the rest of the country throughout the year. These factors have influenced the epidemiology of malaria in the country. Malaria

transmission and infection risk across the geographic regions in Kenya is determined largely by altitude, rainfall patterns, and temperature. The lake and coastal regions have the highest burden of malaria in the country.

### 1.2.2 Demography

Kenya's population was projected to be 50.8 million in 2018, with a population density of 85.3 per square kilometre (Table 1). A summary of the projected trends of key indicators from 2009 to 2018 shows a reducing total fertility rate, a slight improvement in life expectancy, and a slight reduction in crude death rate and infant mortality rate.

Table 1. Basic demographic indicators

Indicators	2009 (Census)	2010	2011	2012	2013	2014	2015	2016	2017	2018
Population (millions) <sup>a</sup>	39.1	40.3	41.4	42.7	44.0	45.3	46.6	48.0	49.5	50.8
Density (pop./km <sup>2</sup> ) <sup>a</sup>	65.7	67.6	69.6	71.7	73.8	76.0	78.3	80.7	83.1	85.3
Total fertility rate <sup>b</sup>	4.5	4.4	4.3	4.2	4.1	4.0	3.9	3.9		
Crude birth rate <sup>c</sup>	35.8	35.1	34.3	33.6	32.9	32.3	31.8	31.3		
Crude death rate <sup>d</sup>	7.8	7.3	6.8	6.5	6.2	6.0	5.8	5.7		
Infant mortality rate (per 1,000 live births) <sup>e</sup>	43.6	42.5	41.3	40.6	39.6	38.2	36.5	35.6		
Life expectancy at birth (total) <sup>f</sup>	61.7	62.9	64.0	64.9	65.7	66.2	66.7	67.0		

<sup>a</sup> KNBS projected figures

<sup>b</sup> World Development Indicators (<https://data.worldbank.org/indicator/SP.DYN.TFRT.IN?locations=KE>)

<sup>c</sup> World Development Indicators (<https://data.worldbank.org/indicator/SP.DYN.CBRT.IN?locations=KE>)

<sup>d</sup> World Development Indicators (<https://data.worldbank.org/indicator/SP.DYN.CDRT.IN?locations=KE>)

<sup>e</sup> World Development Indicators (<https://data.worldbank.org/indicator/SP.DYN.IMRT.IN?locations=KE>)

<sup>f</sup> World Development Indicators (<https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=KE>)

### 1.2.3 Socioeconomic Situation

Kenya's economy is estimated to have grown by 4.9 percent in 2017, compared to a revised growth of 5.9 percent in 2016. The main contributions to the gross domestic product are manufacturing; agriculture, forestry, and fishing; financial and insurance services; accommodation and food services; information and communication technology; education; wholesale and retail trade; and public administration (KNBS, 2018).

The overall poverty headcount rate for individuals at the national level was 36.1 percent in 2015/16, implying that 16.4 million individuals lived in overall poverty. The highest overall poverty incidence was in rural areas, where 40.1 percent of the residents were considered as overall poor, compared to 27.5 percent in peri-urban areas and 29.4 percent in core urban areas. Malaria contributes to work and school absenteeism and impacts the economy.

The country's overall development framework is guided by the Kenya Vision 2030, a long-term policy that aims at creating a "globally competitive and prosperous country with a high quality of life by 2030" (Government of Kenya, 2008). The government is also committed to the realisation of the Sustainable Development Goals, including the third goal agenda, which aims at ending epidemics due to communicable diseases and Universal Health Coverage (UHC) by 2030.

### 1.2.4 Health Financing

Over the past five years, government allocation for funds to the health sector has stabilised. The allocation to health in the county budget has increased steadily, from an average of 21.5 percent in 2014/15 to 27 percent in 2017/18. In aggregate, the total allocation to the health sector both at the national and county levels for the past five years under review increased, from 7.5 percent in 2014/15 to 8.2 percent in 2017/18.

The government allocated about 2.3 percent of the Ksh 167 billion total health budget to the malaria programme in 2017/18, compared to 1.3 percent in 2015/16. The government also directly contributes towards the malaria programme through the allocation of the counterpart financing, which is pegged on a conditional grant from the Global Fund. Counterpart financing for malaria commenced in 2015/16 with Ksh 415.7 million and stood at Ksh 412.2 million in 2017/18.

### 1.2.5 Health Service Delivery and Infrastructure

The main objective of Vision 2030 is to make the country globally competitive and prosperous and attain a high quality of life by 2030. The Vision’s agenda is anchored on three pillars: social, political, and economic, with health issues categorized in the social pillar. The Ministry of Health (MOH) has in turn developed the Kenya Health Policy and the KHSSP July 2018–June 2023 to guide attainment of the long-term health goals of the country as outlined in Vision 2030. The strategies laid out in these health documents focus on the need to improve the number of available health services, scale up their coverage, and reduce the financial burden associated with using health services. The range of health services is comprehensively defined under the Kenya Essential Package for Health Services and UHC.

Health services in Kenya are integrated and delivered through a four-tier system, and malaria is managed across all the six levels of healthcare, including the community. As of 31 July, 2018, data available from the Kenya Master Health Facility List showed a total of 10,483 health facilities in the country with distribution as illustrated in Table 2 (Kenya Master Health Facility List, n.d.). Fifty percent of these are public health facilities managed by the various levels of government, 37 percent are in the private, for-profit sector, and 13 percent are in the private, not-for-profit sector e.g., faith-based organisations (FBOs). Non-facility-based community health services are offered through community health units which are a health service delivery structure within a defined geographic area covering a population of approximately 5,000 people. Data from Kenya Master Health Facility List showed that a total of **4,656** community health units had been established, of which **3,029** were fully functional, **1,255** were semi-functional, **266** were non-functional, and **106** were closed (Kenya Master Health Facility List, n.d.). Drug outlets such as private pharmacies and chemists, also offer malaria diagnosis and treatment services.

Table 2. Health service delivery structure

Tier of care	Service delivery level	Facility level	No. of health facilities at level
Tier 1	Community health services	Level 1	
Tier 2	Primary health services	Level 2—Dispensaries	8,409
		Level 3—Health centres	1,535
Tier 3	Secondary health services	Level 4—Primary referral	515
		Level 5—Secondary referral	19
Tier 4	National	Level 6—National teaching and referral facilities	5
		<b>TOTAL</b>	<b>10,483</b>

Adequate health system infrastructure is necessary for enhanced access to healthcare services. Under the devolved governance system, significant investment has gone into increasing the number of health facilities at the county level, resulting in an increased average density of health facilities in the country. There are, however, large disparities in the distribution of health facilities across the counties and a disconnect between the level of health infrastructure development and provision of other requisite inputs such as human resources (Mugo, et al., 2018).

## 1.2.6 Health Workforce

Adequate, equitably distributed, and skilled human resources for health are essential for the delivery of better health services and outcomes. According to the 2013 Service Availability and Readiness Assessment Mapping survey, Kenya had significant shortfalls in its health workforce relative to cadre norms, and the distribution of human resources was not balanced across counties. The survey showed that the country had a density of 0.54 medical officers per 10,000 population, compared to the World Health Organization (WHO) norm of 3.0 medical officers per 10,000 population. Nurses had a density of 3.4 per 10,000 population, and registered clinical officers had a density of 1.1 per 10,000 population. All the other cadres stood at less than 1 per 10,000 population.

According to the 2015 Kenya Health Workforce report, WHO's estimate for the number of physicians, nurses, and midwives per 10,000 population needed to meet the Sustainable Development Goals by 2030 is 44.5, but the actual number in Kenya was only 13.8 per 10,000 population (MOH, 2015a). The report also pinpointed the large disparity in health workforce distribution across the country, with most of the medical personnel preferring to work in urban areas.

Other cadres of health workers who are particularly relevant in malaria control activities are entomologists and parasitologists. At least 40 entomologists are required at both the national and county levels, because they are key in guiding suitable larviciding activities and generating entomological surveillance parameters. The MOH currently has 20 medical entomologists and 15 parasitologists in three units: Neglected Tropical Diseases (NTD), Vector-Borne Disease Control Unit (VBDCU), and National Malaria Control Programme (NMCP).

## 1.2.7 Health System Leadership and Governance

The governance of the health sector is guided by several legal frameworks including the 2010 constitution, devolution related Acts, Health Act 2017, and many others which continue to be enacted. The health sector in Kenya is implemented through a devolved system, with distinct functions assigned to the national and county governments (Government of Kenya, 2010). The two levels of governance coordinate the health sector through consultative forums as spelled out in the Intergovernmental Relations Act, 2012. The Health Sector Intergovernmental Forum serves as a link between national and county governments. Table 3 outlines the roles of each level of government.

Table 3. Roles of national and county government

National government
<ul style="list-style-type: none"><li>• Formulate policy, develop strategic plans, set priorities</li><li>• Formulate budget, allocate resources</li><li>• Regulate, set standards, formulate guidelines</li><li>• Monitor performance and adherence to the planning cycle</li><li>• Mobilise resources</li><li>• Coordinate with all (internal and external) partners</li><li>• Provide technical support to the county level</li><li>• Build capacity of the county level</li><li>• Oversee national health referral services</li><li>• Train health staff (both pre- and in-service), ensure that curricula and training institutions are in place</li></ul>



## County government

- Provide leadership and stewardship for overall health management in the county
- Provide strategic and operational planning, monitoring, and evaluation of health services in the county
- Provide a linkage with the national ministry responsible for health
- Collaborate with state and non-state stakeholders at the county level and between counties in health services
- Mobilise resources for county health services
- Establish mechanisms for the referral function within and between the counties, and between the different levels of the health system in line with the sector referral strategy
- Coordinate and collaborate through county health stakeholder forums (with Community Health Management Board, FBOs, nongovernmental organisations, civil society organisations, development partners)
- Supervise county health services
- Deliver services in all health facilities (Levels 1–5)
- Develop and implement facility health plans
- Supervise and control the implementation of facility health plans (monitoring and evaluation)
- Train and develop capacity of staff (on-the-job training)
- Maintain quality control and adherence to guidelines

Good governance and leadership is critical for continuous interactions between the national and county governments to work together towards health systems strengthening. This requires stewardship, advocacy, partnerships, and effective governance structures (MOH, 2018b). The MOH has a department dedicated to intergovernmental relations whose role is to harmonize governance across the national and county levels.

The KHSSP July 2018–June 2023 recognizes the roles of the various actors in health and the need to strengthen collaboration with all stakeholders at national and county level. The various actors are outlined as follows:

- **State actors:** The public sector stewards (MOH and counties)
- **Health-related sectors:** Regulatory bodies (boards and councils); and professional bodies and associations whose mandate is drawn from that of the state and which have an effect on health
- **Non-state actors:** The private sector, nongovernmental organisations (NGOs), civil society organisations (CSOs), FBOs, traditional practitioners, media, and all other persons whose actions have an impact on health but do not draw their mandate from the state
- **External actors:** The bilateral, multilateral, and philanthropic actors who draw their mandate from outside Kenya but support national programmes
- **Clients/Community:** Individuals, households and communities who play an important role in adoption of health practices and health care seeking behaviours



## 2. CURRENT MALARIA SITUATION

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### 2.1 Malaria Epidemiology

#### 2.1.1 Distribution of *Plasmodium* Species

The country has continually collected information on the malaria parasite species that cause infection to inform diagnosis and treatment. Currently, 92 percent of malaria infections in Kenya are from *P. falciparum*, 6 percent are from *P. malariae*, and 2 percent are from *P. ovale*. Some malaria infections are as a result of more than one of these species (mixed infections) (MOH, 2016).

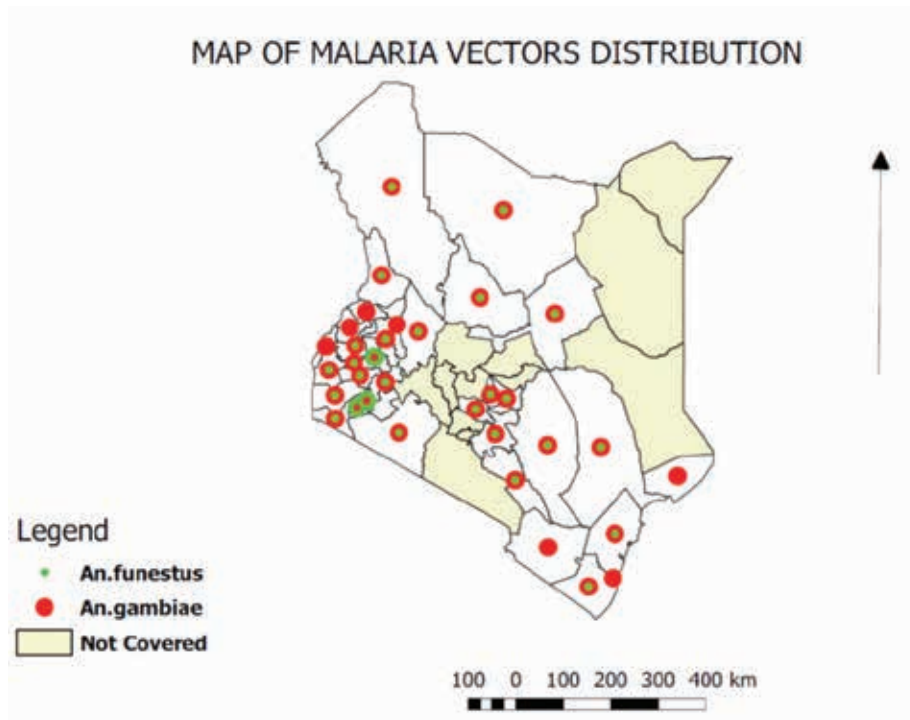
#### 2.1.2 Distribution of Malaria Vectors

Several vectors are responsible for malaria transmission in the country. These vectors are found in different ecological environments. Based on NMCP entomological surveillance data, *An. funestus* is emerging as the main vector in the highland epidemic prone areas. *An. arabiensis* is predominantly found in arid and semi-arid areas, and *An. gambiae s.s* is widespread across the country (Figure 1). In some areas *An. coustani*, a secondary vector, is now becoming a major vector and contributing substantially to malaria transmission (Mbogo, et al., n.d.).

Data on vector distribution and behaviour provide guidance for deployment of vector control interventions in the country. Over time, sustained distribution and use of LLINs in western Kenya and coast endemic regions have led to a switch in the relative species composition, with *An. arabiensis* replacing *An. gambiae s.s* as the dominant species (Bayoh, et al., 2010; Mwangangi, et al., 2013), particularly in the coast endemic region. This has important implications for malaria epidemiology and control, given that this vector predominantly rests and feeds on humans outdoors. Over the past few years, *An. funestus* has been reported as the dominant malaria vector species in the lake endemic counties (McCann, et al., 2014; Abt Associates Inc., 2018).

The use of LLINs and indoor residual spraying (IRS) in the country has contributed to a decrease in vector densities, parity, and distribution, as well as a change in feeding behaviour. The impact of vector control measures is affected by insecticide resistance, especially pyrethroid-based insecticide, which is currently used on LLINs (AIRS, 2018).

Figure 1. Distribution of Malaria Vectors in Kenya

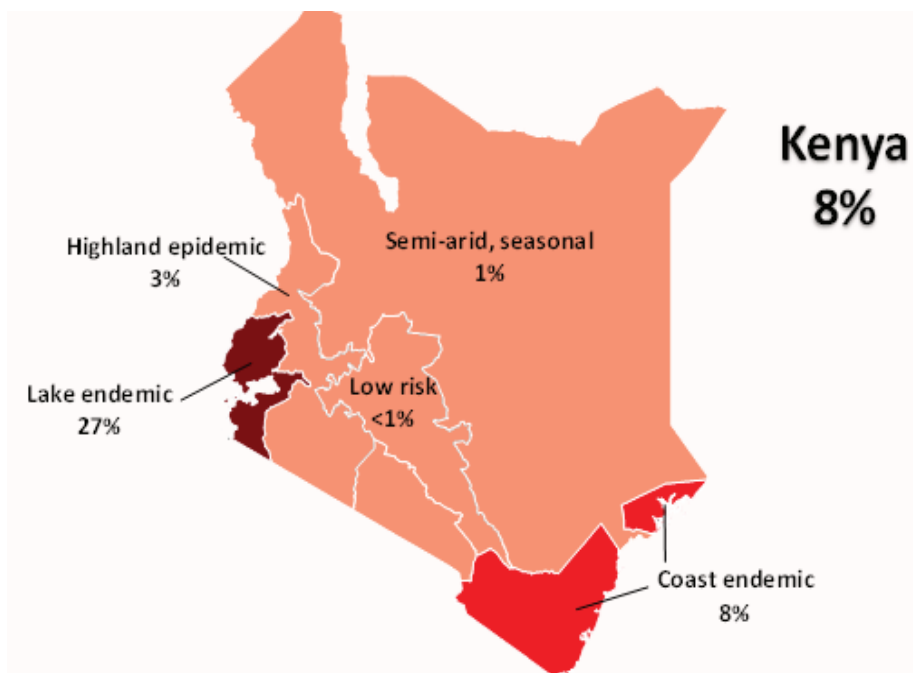


Source: National Malaria Control Programme Routine Vector Surveillance Data, 2018

### 2.1.3 Epidemiological Stratification

The epidemiology of malaria in Kenya is influenced by altitude, rainfall patterns, and temperature. Four malaria epidemiological zones are found in Kenya (Figure 2).

Figure 2. Malaria Prevalence in Kenya by Zone



Source: Kenya Malaria Indicator Survey 2015



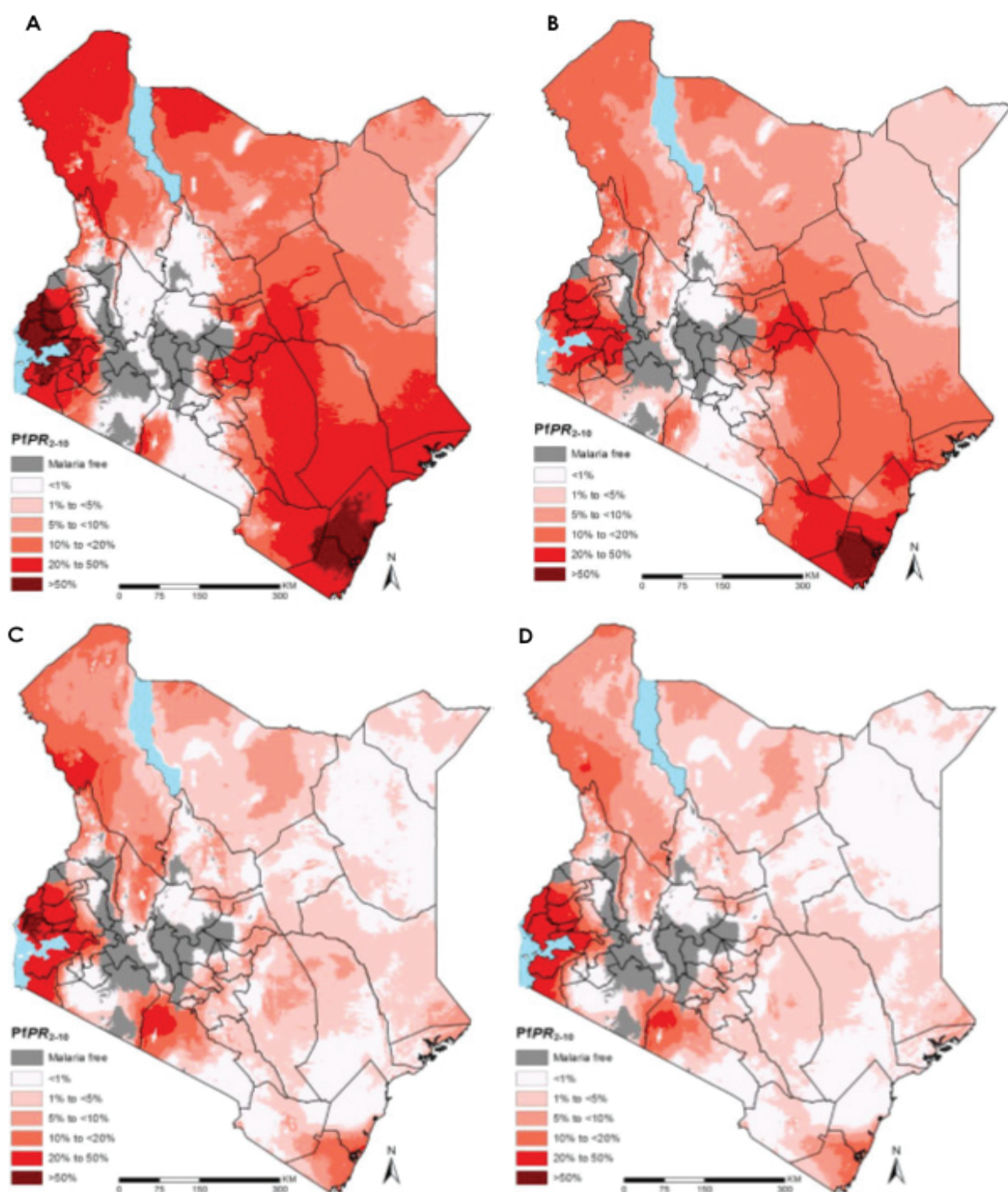
The different zones are as follows:

- **Endemic:** This includes areas of stable malaria with altitudes ranging from 0 to 1,300 meters around Lake Victoria in western Kenya and in the coastal region. Rainfall, temperature, and humidity are the determinants of the perennial transmission of malaria in this zone. The vector life cycle is usually short with a high survival rate due to the suitable climatic conditions. Transmission is intense throughout the year, with annual entomological inoculation rates between 30 and 100 (Degefa, et al., 2017). Malaria parasite prevalence in 2015 was 27 percent in the lake endemic zone and 8 percent in the coast endemic zone (NMCP, 2015).
- **Seasonal malaria transmission:** Seasonal malaria transmission occurs in the arid and semi-arid areas in northern and south-eastern parts of Kenya that experience short periods of intense malaria transmission during the rainy season. Temperatures are usually high, and water pools created during the rainy season provide breeding sites for malaria vectors. Extreme climatic conditions like *El Niño* that lead to flooding can cause malaria epidemics with high morbidity due to the low immune status of the population. Malaria parasite prevalence in this zone was less than 1 percent in 2015 (NMCP, 2015).
- **Malaria epidemic prone areas of western highlands:** Malaria transmission in the western highlands of Kenya is seasonal, with considerable year-to-year variation. Epidemics occur when climatic conditions favour sustained minimum temperatures around 18° C that sustain 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 10 times greater than what is experienced in regions where malaria occurs regularly. Malaria prevalence in this zone was 3 percent in the KMIS 2015.
- **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, increasing temperatures and changes in the hydrological cycle associated with climate change are likely to increase the areas suitable for malaria vector breeding, leading to the introduction of malaria transmission in areas it never existed before. Malaria parasite prevalence in low-risk areas was less than 1 percent in the 2015 KMIS.

#### 2.1.4 Malaria Risk Maps

Malaria risk in the country is heterogeneous. Countrywide survey data for 1980–2015 were modelled using geostatistical methods to develop continuous malaria risk maps from predictions of agecorrected mean *P. falciparum* parasite rate in children ages 2–10 years (PfPR<sub>2-10</sub>) for the years 2000, 2005, 2010, and 2015 at 1×1 spatial resolutions (Figure 3) (MOH, 2016).

Figure 3. Maps of population adjusted PfPR<sub>2-10</sub> at 1×1 km spatial resolution by sub-county in (A) 2000, (B) 2005, (C) 2010, and (D) 2015



Source: The epidemiology and control profile of malaria in Kenya, June 2016

The maps indicate progression to a wider coverage of less than 5 percent PfPR<sub>2-10</sub>, especially in 2010–2015. All counties in the lake endemic area in 2015 were under low to moderate transmission risks of between 5 and 50 percent and appear to have transitioned from high transmission. In 2000, 13.2 percent of Kenya’s population lived in areas where PfPR<sub>2-10</sub> was greater than 50 percent, and by 2015 there were no areas where PfPR<sub>2-10</sub> was more than 50 percent. These data show that the risk of malaria in Kenya is decreasing.

### 3. END-TERM REVIEW OF THE KENYA MALARIA STRATEGY 2009–2018

In 2018, the NMCP conducted an end-term evaluation of the KMS 2009–2018 with these objectives:

- To assess the progress of the NMCP towards the epidemiological and entomological impact targets
- To review the level of financing of the malaria programme
- To review the capacity of the programme to implement planned activities
- To review the attainment of programme outcome targets
- To define the recommendations and programming implications of the lessons learned in the implementation of the KMS

#### 3.1 The Process

The MPR and the subsequent development of the KMS 2019–2023 was a multistakeholder and multisectoral participatory process involving national and county governments, civil society, development and implementation partners, and other MOH departments and units. The review was accomplished in three phases (MOH, 2018) (Table 4). The fourth phase was the development of the KMS.

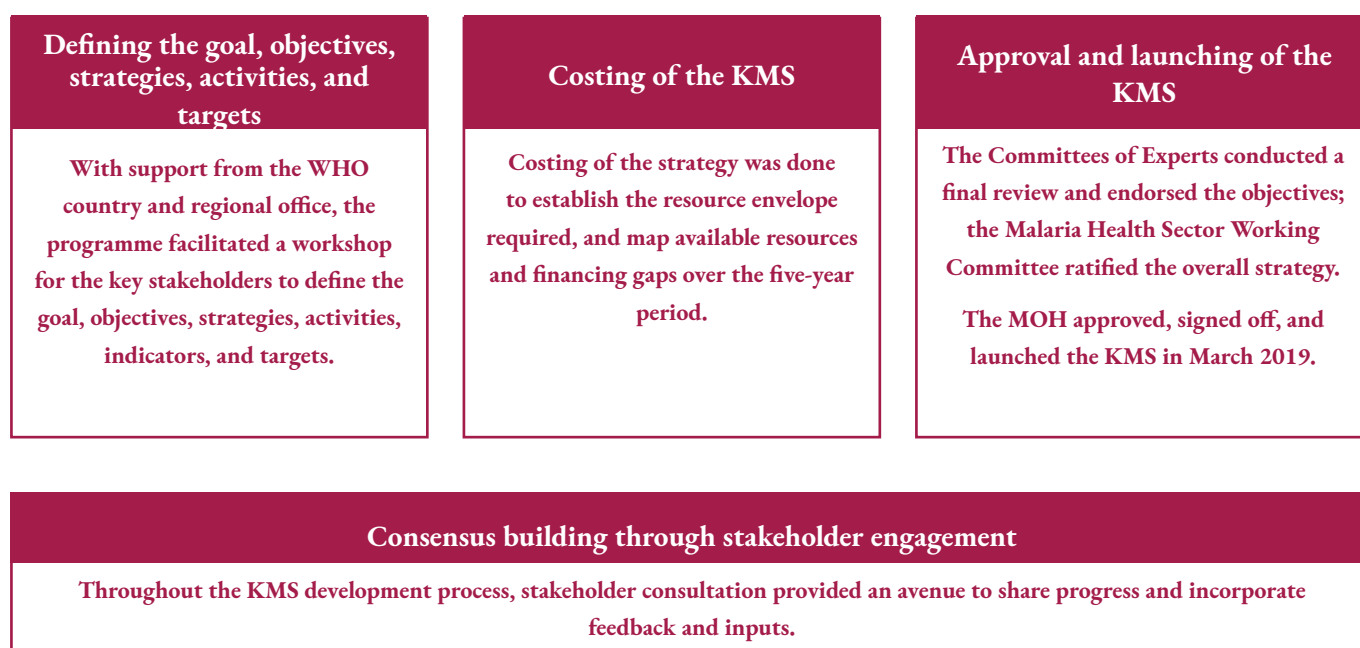
Table 4. Phases of the MPR

Phase I	Preparation of review	May 2018	Involvement
	<ul style="list-style-type: none"> <li>• Develop review concept and objectives</li> <li>• Establish review secretariat and taskforce for coordination and oversight</li> <li>• Develop review roadmap and mobilise resource</li> <li>• Build consensus through stakeholder engagement</li> </ul>		Membership of the Malaria Interagency Coordinating Committee
<b>Output:</b> Stakeholder awareness, defined roadmap, and resources for the review process			
Phase II	Desk review	June–July 2018	Involvement
	<ul style="list-style-type: none"> <li>• Assemble programme documents (policy, strategies and reports)</li> <li>• Conduct desk review of programme performance across the nine thematic areas (vector control; malaria in pregnancy; case management; epidemic preparedness and response; advocacy, communication, and social mobilisation; surveillance, monitoring, evaluation, and operational research; programme management; procurement and supply management; finance)</li> <li>• Engage with stakeholders to share and update review reports</li> </ul>		Technical working group members, counties, and other stakeholders
<b>Outputs:</b> Draft thematic reports and priorities for field validation			

Phase III	External validation and field visits	July–Sept 2018	Involvement
	<ul style="list-style-type: none"> <li>Undertake national-level consultation with key institutions (MOH, other relevant ministries, development partners, and other stakeholders)</li> <li>Conduct field visits to nine counties to validate desk review findings</li> <li>Hold special Kenya national malaria forum</li> <li>Engage with stakeholders on review findings, conclusions, recommendations, and strategic direction for the future</li> </ul>		WHO external validation team, national and county-level stakeholders
<b>Outputs:</b> Field reports, finalised review report, recommendations, and strategic direction for the next KMS			

The MPR 2018 report provides details on each phase and the specific outcomes. The report formed the foundation of Phase IV, which was the development of the KMS that began in October 2018. The development of KMS was guided by the principles of wide stakeholder involvement, requisite expertise, and leadership. Figure 4 illustrates the key components of this phase.

Figure 4. Key components of the development of the KMS




## 3.2 Evaluation of the KMS 2009–2018 Objectives

This section summarises the findings and recommendations of the 2018 Kenya MPR. The recommendations provide the foundation upon which the KMS 2019–2023 is based.

### 3.2.1 Epidemiological and Entomological Impact

The goal of the KMS 2009–2018 was to reduce morbidity and mortality caused by malaria in the various epidemiological zones by two-thirds of the 2007/2008 level by 2017. The review found that nationally, the prevalence (by microscopy) of malaria among children under five increased, from 3.5 percent in 2007 to 5 percent in 2015. The annual parasite incidence for confirmed outpatient malaria decreased, from 57 per 1,000 population in 2013 to 36 per 1,000 population in 2017. The malaria mortality data were not reliable enough to judge the impact made in malaria control during this period because of challenges with classifying and determining the cause of death in the broader Kenya health system.



With regard to entomological impact, the KMS 2009–2018 did not contain any impact-level entomological indicators. The vector surveillance undertaken over the period indicated that vector species composition remained heterogeneous, but in some areas, *An. arabiensis* replaced *An. gambiae* as the major malaria vector. There is evidence of a reduction in vector densities and sporozoite rates among *An. funestus* in areas where IRS was implemented. Insecticide resistance to pyrethroids was found to be widespread among the major vectors in Kenya. Currently, pirimiphos-methyl is the only available alternative registered chemical for IRS for use in Kenya.

### 3.2.2 Financing of the KMS

Financing for health in Kenya comes from three sources: government (national and county), households, and development partners. The aggregate total allocation to health increased, from 7.5 percent in 2014/15 to 8.2 percent in 2017/18. The county budget allocation to health increased steadily, from an average of 21.5 percent in 2014/15 to 27 percent in 2017/18. Some county governments devote more than 30 percent of their annual budgets to health. Government remains the key financier for malaria control. The household contribution to malaria spending was 25 percent in financial year (FY) 2016/17, a decrease from 39 percent in FY 2012/13. The development partner contribution was 18 percent and focused on providing commodities for the key malaria prevention, diagnosis, and treatment interventions.

The country budgetary allocation has, however, been inadequate. Most of the county budget frameworks lack a specific malaria sub-programme under the programme-based budget. There was also the lack of a mechanism to track financial data at all levels. Out-of-pocket expenditure also remained high, compromising access to care, and this may lead to catastrophic health spending by households. At the programmatic level, the review found that there was low absorption capacity across all levels and an inability to link programmatic targets to funding and financing to outcomes.

### 3.2.3 Objective 1: To have at least 80 percent of people living in malaria-risk areas using appropriate malaria preventive interventions by 2018

Sixty-three percent of all households surveyed in the KMIS 2015 owned at least one LLIN. However, only 40 percent of the households surveyed owned at least one LLIN for every two persons (universal coverage). Close to 37 million LLINs were distributed to people at risk of malaria in the targeted counties between 2014 and 2018 through various channels. Despite the large number of LLINs distributed, universal coverage remained low at 47 percent. The 2015 KMIS reported that 58 percent of pregnant women ages 15–49 slept under an LLIN.

Over the period under review, IRS was implemented in two counties, and 94 percent of the target was achieved. Insecticide resistance to pyrethroids among malaria vectors was widespread across the country, posing a challenge to control interventions. Larval source management (LSM) was not implemented, although a few small-scale trials were conducted.

Prevention of malaria in pregnant women is implemented through antenatal clinics in 14 endemic counties. The target is to provide at least three doses of IPT<sub>p</sub>-sulphadoxine-pyrimethamine (SP) to all expectant women in these regions. Uptake of IPT<sub>p</sub> was 56 percent in 2015, compared to 12.5 percent in 2010, and IPT<sub>p</sub> was 38 percent in 2015, compared to 11 percent in 2010. It was noted that there is late first presentation to antenatal care (ANC), leading to suboptimal IPT<sub>p</sub> coverage, and subcounties bordering lake endemic counties are not implementing IPT<sub>p</sub>.

### 3.2.4 Objective 2: To have 100 percent of all suspected malaria cases presenting to a health provider managed according to the National Malaria Treatment Guidelines by 2018

The review found that there has been an increase in testing rates of suspected malaria cases in public health facilities, from 24 percent (2010) to 64 percent (2017), with 89 percent of all confirmed malaria cases presenting to public health facilities being treated with artemisinin-based combination treatment (ACT). The review also noted increased adherence to national treatment guidelines in public health facilities, from 16 percent (2010) to 59 percent (2017). Between 2014 and 2017, 7,350 community health volunteers (CHVs) in 10 counties were trained on community case management for malaria (CCMm).



The key issues identified included sub-optimal adherence to national guidelines among healthcare workers in the public and private sectors, and regulatory constraints to the implementation of CCMm, hindering the use of malaria rapid diagnostic tests (mRDTs) and ACTs at the community level. The review also noted weak coordination for community case management and limited coverage in target counties.

### **3.2.5 Objective 3: To ensure that 100 percent of the malaria epidemic prone and seasonal transmission sub-counties have the capacity to detect and timely respond to malaria epidemics by 2018**

During the review, it was found that all 7 reported malaria outbreaks were responded to within 2 weeks as recommended in the guidelines, and all the 26 targeted counties (100 percent) were trained and developed epidemic preparedness and response (EPR) plans. It was noted, however, that EPR activities had not been effectively integrated with surveillance activities. EPR did not have a stand-alone technical working group (TWG) because it was anticipated that its technical issues were to be addressed in other TWGs, particularly under surveillance, monitoring, evaluation, and operational research (SMEOR). It was also noted that there was low prioritisation of malaria EPR at all levels. However, the functionality of malaria epidemic detection sentinel health facilities in the highland epidemic prone zones was improved.

### **3.2.6 Objective 4: Ensure that all malaria indicators are routinely monitored, reported, and evaluated in all counties by 2018**

The review found that health facility reporting rates increased, from 70 percent in 2013–2014 to 88 percent in 2017. Routine use of surveillance data and development of malaria monitoring and evaluation (M&E) products at the national level and in select counties was achieved. Entomological surveillance was conducted in more than 80 percent of the counties in 2016 and 2017, although the results were not yet available at the time of the review. Community-level reporting through the health information system (HIS) has been implemented.


It was found, however, that not all malaria cases were counted at both inpatient and outpatient services. There was insufficient quality of health information for improved malaria programming. There was inadequate SMEOR capacity at county and sub-county levels. The review also found that there was inadequate programme implementation reporting and feedback to and from the counties and the national level.

### **3.2.7 Objective 5: To increase utilisation of all malaria control interventions by communities in Kenya to at least 80 percent by 2018**

Utilisation of key malaria interventions remains below the target of 80 percent. The 2010 and 2015 KMIS reported that LLIN use increased, from 32 percent to 48 percent, and treatment-seeking behaviour within 24 hours improved, from 59 percent to 72 percent over the same period. However, communities were not adequately using malaria control interventions due to various sociocultural reasons. Communication between healthcare providers and clients' needs to improve, and additional investment in advocacy, communication, and social mobilisation is required.

### **3.2.8 Objective 6: To improve capacity in coordination, leadership, governance, and resource mobilisation at all levels towards achievement of the malaria programme objectives by 2018**

The KMS 2009–2018 was a reference document for all programmes and stakeholders in malaria control. The review confirmed the availability of guidelines on different interventions, existence of some county-level communication plans, availability of consumption data of essential malaria commodities (LLINs, ACTs, and mRDTs) in the DHIS2, and malariology training of county malaria control coordinators (CMCCs). Malaria commodity availability at facilities (ACTs, diagnostics, LLINs) improved. In 2017, the stockout levels averaged 19 percent for artemether-lumefantrine (AL) (all packs) and 10 percent for any malaria diagnostics at health facilities. On domestic resources mobilisation, the review found that through engagement of the county leadership, four counties (Busia, Kilifi, Kwale, and Mombasa) were able to allocate Ksh 68 million to malaria control.



It was noted that the Malaria Prevention Act CAP 246 (1929 revised 2012) was outdated and needed to be reviewed. There was a lack of defined mechanisms for dissemination of policy guidelines and a lack of structured national and county engagement to enhance collaboration. The coordination of partners at both national and county levels was found to be inadequate.

Overall, the approach to procurement and supply management (PSM) at the national level was fragmented across objectives. The PSM plan lacked sufficient detail, and a harmonised commodity management framework was not in place. At county and sub-county levels, there was limited capacity in commodity management. Coordination of procurement and distribution needs better coordination, especially between national and county levels to enhance efficiencies.

### 3.2.9 Key Recommendations of the MPR

The following recommendations were made from the MPR:

- Improve coverage of LLINs to achieve universal coverage through continued mass campaigns and scale up of continuous net distribution.
- Maintain IRS in the counties where it is currently ongoing and implement IRS for transmission reduction and interruption.
- Strengthen the implementation of insecticide resistance management according to the existing Insecticide Resistance Management strategy.
- Increase uptake of IPTp at the ANC by promoting its use through community health structures.
- Intensify monitoring of the quality of care for improvement of malaria case management at national and county levels in public and private sectors.
- Scale up CCM in priority areas, integrated with other community-level interventions. Engage with relevant authorities to address any regulatory barriers.
- Regularly conduct epidemiological and entomological stratification to guide targeting of interventions.
- Strengthen surveillance and enhance data ownership and use at national and sub-national levels.
- Establish a network of health facilities to enhance availability of inpatient morbidity and mortality data.
- Strengthen collaboration between the programme and research community to allow sharing of research findings for public health use.
- Strengthen county malaria social and behaviour change (SBC) planning and implementation.
- Update provider knowledge on new guidelines at all levels, while rolling out interpersonal communication to address behavioural barriers for attainment of national targets.
- Adapt guidelines for engagement between national and county levels.
- Develop and implement capacity development, advocacy, and resource mobilisation strategies.
- Consolidate malaria PSM at the national level for effective management of all commodities, and build capacity in commodity management at the county and sub-county levels.

Specific recommendations across the six objectives are detailed in the MPR report.

### 3.2.10 Programming Implications and Lessons Learned in the Implementation of the KMS 2009–2018

#### Lessons Learned

Despite the organisational challenges brought about by devolution, Kenya has achieved significant strides in reducing the malaria burden. Universal coverage with preventive interventions is yet to be achieved. The inability to track inpatient malaria cases and malaria mortality and other challenges faced over the period calls for increasing investment in malaria control from domestic resources, investing in strengthening the surveillance systems, and ensuring universal coverage of the populations at risk of malaria with appropriate interventions. In addition, there is need for enhanced collaboration of the national and county governments.

#### Future Strategic Directions Recommended

To achieve the ultimate goal, the review recommended the following strategic directions:

- Introduce case-based investigation in select counties earmarked for malaria elimination after having met the required threshold. To strengthen malaria programme towards elimination, it is important to secure political commitment and develop the requisite capacity at national, county, and sub-county levels.
- Refocus the malaria programme to increase access to, and delivery of, malaria interventions. The current interventions should be rolled out to scale with a focus on achieving and maintaining universal access to preventive and curative services. The delivery through the current channels should be maintained and improved, including the use of community-based structures.
- Strengthen the capture and reporting of malaria data and conduct regular stratification using routine data. The malaria programme should use available opportunities to update the DHIS2 tools to strengthen data collection and standardise information collected nationwide by all facilities. The information collected should be used to epidemiologically and entomologically stratify the country to inform decision making and for targeting approaches and interventions.
- Strengthen multisectoral and inter-sectoral engagement at national and county levels for improved programme planning, implementation, monitoring, and coordination towards achievement of the programme goals through use of the Three Ones principle (one authority, one plan, one M&E framework).
- Improve efficiency in the use of existing resources and advocate for increased sustainable investment for malaria interventions at the national and county levels.
- Increase visibility and prioritisation of the malaria agenda through innovative and sustained advocacy and communication at all levels to support the universal access and coverage of malaria interventions.
- Strengthen capacity-building initiatives for enhanced skills and competencies for quality delivery of interventions with particular emphasis at the county level.
- Improve malaria commodity security through end-to-end supply chain visibility and promotion of data use for supply chain decision making.
- Leverage new innovations and technologies to improve malaria service delivery.



## 4. KMS 2019–2023 STRATEGIC FRAMEWORK

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### Vision and Mission

**Vision:** A malaria-free Kenya

**Mission:** To direct and coordinate efforts towards a malaria-free Kenya through effective partnerships

**Goal:** To reduce malaria incidence and deaths by at least 75 percent of the 2016 levels by 2023

### The Objectives:

- 1 To protect 100 percent of people living in malaria risk areas through access to appropriate malaria preventive interventions by 2023
- 2 To manage 100 percent of suspected malaria cases according to the Kenya malaria treatment guidelines by 2023
- 3 To establish systems for malaria elimination in targeted counties by 2023
- 4 To increase utilisation of appropriate malaria interventions in Kenya to at least 80 percent by 2023
- 5 To strengthen malaria surveillance and use of information to improve decision making for programme performance
- 6 To provide leadership and management for optimal implementation of malaria interventions at all levels, for the achievement of all objectives by 2023

### 4.1 Objective 1: To protect 100 percent of people living in malaria risk areas through access to appropriate malaria preventive interventions by 2023

This objective will focus on scaling up vector control initiatives while increasing uptake of IPTp both at ANC and through community health structures.

The three vector control strategies—LLINs, IRS, and LSM—will be deployed according to malaria risk stratification. New innovations, especially those that address the emerging threat of insecticide resistance, and modern, effective malaria vector control methods will be considered as they become available. All vector control interventions will be deployed in the context of integrated vector management (IVM).

Two malaria in pregnancy (MIP) strategies will be deployed. The first will focus on increasing uptake of IPTp at ANC, and the second will use CHVs to identify cases of missed IPTp opportunities for referral to ANC.

This objective will be implemented through the following strategies.

#### **4.1.1 Distribute LLINs through Appropriate Channels to Achieve and Sustain Universal Coverage in Malaria Risk Areas**

This strategy will be achieved through mass net distribution and continuous distribution of LLINs through ANC, Expanded Programme on Immunization (EPI), at the community level, and through other channels.

#### **4.1.2 Use IRS in the Targeted Areas**

This strategy aims to reduce the malaria burden through spraying of targeted structures, focalized IRS to interrupt transmission, and conduct of entomological and epidemiological monitoring.

#### **4.1.3 Use LSM in the Targeted Areas**

Under this strategy, a baseline survey and mapping of known mosquito breeding sites in malaria hotspots and in areas of relevant economic activities (e.g., mining and irrigation) will be done. Appropriate LSM interventions will be applied in the targeted areas. Entomological and epidemiological monitoring will be done subsequent to the application of the LSM interventions.

#### **4.1.4 Develop, Review, and Update Documents for Malaria Vector Control**

Activities under this strategy will include reviewing and updating key malaria vector control documents, such as IVM guidelines, the IRS business plan, the insecticide resistance management (IRM) plan and LSM business plan.

#### **4.1.5 Provide IPTp-SP at ANC in Targeted Areas**

Consistent with national guidelines, all pregnant women in the targeted counties and select subcounties will receive three or more doses of IPTp-SP during their ANC contacts. Training and retraining of health workers will be scaled up using the mentorship model to facilitate effective delivery of the intervention.

#### **4.1.6 Engage CHVs to Identify IPTp Missed Opportunities for Referral to ANC in Targeted Areas**

Community health structures will be used to further increase IPTp uptake. CHVs will be trained to identify IPTp-SP missed opportunities during their routine household visits for onward referral to ANC.

### **4.2 Objective 2: To manage 100 percent of suspected malaria cases according to the Kenya malaria treatment guidelines by 2023**

Prompt diagnosis and effective treatment of malaria is crucial towards achieving the goal of this strategy. This objective will focus on updating and disseminating relevant documents, enhancing the skills of healthcare providers, and ensuring access to diagnosis and treatment commodities. The target defined under this objective will be achieved through implementation of the following strategies.

#### **4.2.1 Strengthen Capacity for Integrated Malaria Case Management**

Malaria treatment guidelines will be revised, disseminated, and incorporated in pre-service curricula of medical training institutions and universities. Training of health workers on malaria case management will be undertaken for both the public and private sector. Focused technical oversight for outpatient malaria case management will be done.

#### **4.2.2 Strengthen Capacity for Case Management of Severe Malaria**

Training of health workers on case management for severe malaria will be undertaken. Technical oversight and clinical audit for severe malaria case management will be done.



#### **4.2.3 Provide Malaria Case Management at the Community Level in Targeted Areas**

CCMm will be implemented by CHVs who are guided by the Community Health Strategy and other regulatory policies. Guidelines will be revised, and CHVs will be trained. Performance monitoring and supportive supervision will be conducted.

#### **4.2.4 Ensure Quality of Malaria Parasitological Diagnosis**

Guidelines for malaria parasitological diagnosis and quality assurance (QA) will be revised, and health workers will be trained. Supportive supervision and external quality assurance will be undertaken. Lot-to-lot testing will be performed to ensure the quality of mRDTs.

#### **4.2.5 Procure Diagnostic and Treatment Commodities**

Procurement, warehousing, and distribution of all diagnostic and treatment commodities will be conducted as guided by the overall PSM plan.

### **4.3 Objective 3: To establish systems for malaria elimination in targeted counties by 2023**

In view of the shrinking malaria disease burden, and especially in low-risk areas, the country will establish the requisite structures necessary to guide the implementation of sub-national malaria elimination. To achieve this objective, the following strategies will be implemented.

#### **4.3.1 Establish Structures and Capacity at the National and County Levels to Coordinate and Drive the Implementation of the Elimination Agenda**

To lay a foundation for malaria elimination, key stakeholders will establish a coordinating mechanism to provide leadership for the institutionalisation of malaria elimination.

#### **4.3.2 Develop Capacity for Malaria Elimination**

A malaria elimination business plan, guidelines, training curriculum, and standard operating procedures (SOPs) will be developed and disseminated. Training will be conducted to build the capacity of healthcare providers in the counties targeted for elimination.

#### **4.3.3 Establish Active Case Detection, Notification, Investigation, and Response Systems for Elimination in Targeted Counties**

Efforts will be undertaken to enhance the passive and active surveillance systems to detect malaria cases, notify and conduct investigations on detected cases for appropriate response.

#### **4.3.4 Strengthen Quality Assurance for Diagnosis, Treatment, and Entomology to Enhance Surveillance**

Adequate capacity of national and county reference laboratories will be established for accurate diagnosis, treatment, and entomological investigations.

#### **4.3.5 Strengthen SBC for Malaria Elimination**

Political will and advocacy are crucial to malaria elimination. Leadership and senior management at national and county levels will be engaged to promote the malaria elimination agenda. Malaria SBC for active stakeholder engagement will be promoted.

#### **4.4 Objective 4: To increase utilisation of appropriate malaria interventions in Kenya to at least 80 percent by 2023**

Malaria SBC will seek to address barriers to the utilisation of available malaria control interventions at all levels. Strategies for increased utilisation of malaria control interventions will be deployed as follows.

##### **4.4.1 Scale Up Malaria Advocacy at National and County Levels for Increased Utilisation of Malaria Interventions**

Key stakeholders will be engaged to influence increased utilisation of malaria interventions at all levels. Malaria briefing kits will be developed to guide advocacy efforts for the targeted audiences.

##### **4.4.2 Strengthen Community-Based SBC Activities for All Malaria Interventions**

An integrated package of malaria interventions will be developed to facilitate the community health units to train and guide CHVs in promoting the use of malaria interventions at the household level. In addition, CSOs, community-based organisations (CBOs), school pupils, and other community networks will be engaged to promote the use of malaria interventions at individual and household levels.

##### **4.4.3 Strengthen Structures for the Delivery of Malaria SBC Interventions at All Levels**

The Kenya Malaria Communication Strategy will be updated, disseminated, and adapted by all implementers. Capacity development of implementers on malaria SBC will be conducted. Behaviour change communication packages targeting healthcare providers will be developed.

##### **4.4.4 Strengthen Programme Communication for Increased Utilisation of All Malaria Interventions**

Malaria SBC packages will be updated and disseminated to promote utilisation of all malaria interventions at the household level. Standardised messaging across platforms will be provided for implementers to adapt to their context.

#### **4.5 Objective 5: To strengthen malaria surveillance and use of information to improve decision making for programme performance**

This objective focuses on strengthening routine HIS, monitoring and evaluating programme performance, and promoting the generation and use of evidence to inform malaria programming. To achieve this objective, the following strategies will be implemented.

##### **4.5.1 Strengthen Malaria Surveillance**

Malaria surveillance guidelines will be developed and disseminated. Capacity development of health workers in malaria surveillance will be undertaken, and technical oversight will be provided. Data quality audits will be conducted to improve the quality of routine malaria data for decision making. Collaboration with HIS, Civil Registration and Vital Statistics (CRVS), and other departments and units will be maintained to enhance articulation and visualisation of malaria data sets.

##### **4.5.2 Strengthen Malaria EPR**

EPR guidelines will be updated and disseminated. EPR capacity development will be undertaken, and technical oversight will be facilitated. Thresholds will be monitored in conjunction with the Integrated Disease Surveillance and Response (IDSR) unit to inform appropriate response. Collaboration with strategic institutions will be maintained for effective planning.



### **4.5.3 Increase Use of Malaria Data for Decision Making**

A repository of research and non-research malaria-related data will be established. Use of epidemiological and entomological surveillance data for decision making will be promoted at all levels. These data will be used to inform stratification for the targeting of interventions.

### **4.5.4 Conduct and Facilitate Health Facility Surveys**

Health facility-based surveys and other surveys, including laboratory assessment, therapeutic efficacy testing, and cohort event monitoring, will be conducted.

### **4.5.5 Conduct and Support Community Surveys**

A Malaria Indicator Survey and a post-mass LLIN (PMLLIN) distribution survey will be conducted. Collaboration with the KNBS and other partners will be maintained in all relevant surveys such as the Kenya Demographic and Health Survey.

### **4.5.6 Facilitate Operational Research for Policymaking**

The operational research agenda will be reviewed and updated. Outputs of the findings of operational research activities will be disseminated to all relevant stakeholders. Collaboration with research and academia will be enhanced to promote sharing of findings and progress updates. Malaria research conferences and other fora will be held to inform policy dialogue.

### **4.5.7 Conduct Entomological Surveillance**

In collaboration with research institutions, monitoring of vector susceptibility to insecticides will be undertaken. Entomological guidelines and other documents will be updated and disseminated. Capacity development in entomological surveillance will be done at all levels. Entomological surveys will be conducted based on malaria seasonality. Data generated from these surveys will be used to develop entomological profile maps and other outputs for targeted sub-counties.

### **4.5.8 Monitor Efficacy and Effectiveness of Vector Control Tools and Technologies**

Special studies will be conducted to measure the efficacy of vector control tools against epidemiological endpoints.

## **4.6 Objective 6: To provide leadership and management for optimal implementation of malaria interventions at all levels, for the achievement of all strategic objectives by 2023**

This objective addresses leadership, partnerships, and coordination at all levels to provide a conducive strategy implementation environment and the resources necessary for achievement of the KMS goal and objectives. To achieve this objective, the following strategies will be implemented.

### **4.6.1 Align Malaria Governance and Legislation to Constitutional Mandates and Core Functions**

All malaria legislative and policy documents will be updated to be in tandem with the country's laws, health policies, and international best practices. Mid-term and end-term review of the KMS will be conducted to guide strategic direction.

### **4.6.2 Strengthen Partnerships and Coordination for Malaria Programme Management**

Stakeholder engagement will be done through an inclusive multisectoral approach. Committees of Experts (CoEs) and the Malaria Health Sector Working Committee will be strengthened for effective coordination of programme implementation. The private sector will be engaged for enhanced delivery of malaria interventions. Collaboration with MOH departments and agencies will continue to ensure visibility of the malaria programme and articulation of the agenda.



### **4.6.3 Strengthen Capacity for Malaria Programming at National and County Levels**

The annual malaria work plan will be developed jointly with stakeholders and routinely reviewed as part of programme performance tracking. The programme will work with the counties to establish the required skill set and facilitate capacity development for effective implementation of malaria activities. An up-to-date information repository will be developed and maintained.

### **4.6.4 Strengthen Resource Mobilisation Initiatives for Malaria**

A resource mobilisation strategy will be developed and disseminated to drive efforts for increased funding for malaria from all sectors. This will include advocacy for increased public funding at national and county levels with the view to enhance sustainability of programme financing. Efforts will be made to participate in and advocate the inclusion of malaria interventions in the various healthcare services mechanisms, such as public insurance and health financing packages.

### **4.6.5 Enhance Malaria Commodity Security at All Levels**

Uninterrupted availability of malaria commodities is essential for achievement of KMS objectives and targets. This will be achieved through a well-coordinated PSM mechanism for efficient quantification, timely procurement, and distribution of commodities. The programme will collaborate with the regulatory authorities and relevant stakeholders to ensure patient safety, quality, and efficacy for malaria commodities.

### **4.6.6 Strengthen the Use of Supply Chain Data for Decision Making**

Quality malaria commodity data will be made available for decision making through expansion of the national logistics management information system (LMIS). A functional health supply chain portal on DHIS2 will be developed and maintained to enhance visibility.

## 5. IMPLEMENTATION FRAMEWORK FOR KMS 2018/19–2022/23

### 5.1 Implementation Plan

The previous chapter described the objectives and strategies of the KMS 2019–2023. Table 5 below summarises the KMS objectives and their respective strategies, activities, and implementation timelines.

Table 5. Objectives, strategies, activities, and implementation timelines of the KMS

FINANCIAL YEARS						
Strategy	Activities	2018/19	2019/20	2020/21	2021/22	2022/23
<b>Objective 1: To protect 100 percent of people living in malaria risk areas through access to appropriate malaria preventive interventions by 2023</b>						
1.1 Distribute LLINs through appropriate channels to achieve and sustain universal coverage in malaria risk areas	1.1.1 Conduct mass net distribution campaign of LLINs in targeted areas		X			X
	1.1.2 Support continuous distribution of LLINs through ANC, EPI, and community	X	X	X	X	X
	1.1.3 Distribute LLINs using other appropriate channels		X	X	X	X
1.2 Use IRS in the targeted areas	1.2.1 Map and enumerate households and sprayable structures	X	X	X	X	X
	1.2.2 Recruit and train spray operators	X	X	X	X	X
	1.2.3 Spray targeted structures	X	X	X	X	X
	1.2.4 Conduct entomological and epidemiological monitoring	X	X	X	X	X

## FINANCIAL YEARS

Strategy	Activities	2018/19	2019/20	2020/21	2021/22	2022/23
1.3 Use LSM in targeted areas	1.3.1 Conduct baseline survey and mapping (geographical reconnaissance, Geographic Information System, and remote sensing)	X	X	X	X	X
	1.3.2 Support quantification of larvicides	X	X	X	X	X
	1.3.3 Recruit and train community-owned resource persons	X		X		
	1.3.4 Apply appropriate LSM interventions in targeted areas	X	X	X	X	X
	1.3.5 Conduct entomological and epidemiological monitoring	X	X	X	X	X
1.4 Develop, review, and update documents for malaria vector control	1.4.1: Review and update key vector control documents (IVM guidelines, IRS business plan, insecticide resistance management plan, LSM business plan)	X				
1.5 Provide IPTp-SP at the ANC in targeted areas	1.5.1 Update IPTp component in all guidelines	X				X
	1.5.2 Disseminate IPTp job aids to all targeted counties	X	X	X	X	X
	1.5.3 Scale up IPTp to fringe areas bordering endemic regions	X				
	1.5.4 Train service providers on IPTp (public, private, and NGOs)	X	X	X		
	1.5.5 Scale up the mentorship model to all targeted counties	X	X	X	X	X
	1.5.6 Provide technical support during MIP supervisory visits	X	X	X	X	X
	1.5.7 Participate in county quarterly malaria and reproductive health CoE review meetings to ensure that the MIP agenda is discussed	X	X	X	X	X
	1.5.8 Conduct MIP CoE meetings	X	X	X	X	X
1.6 Engage CHVs to identify IPTp missed opportunities for referral to ANC in targeted areas	1.6.1 Train CHVs to sensitise the community and identify IPTp-SP missed opportunities during routine household visits for referral to ANC	X	X	X		
	1.6.2 Conduct review meetings with CHVs	X	X	X	X	X

## FINANCIAL YEARS

Strategy	Activities	2018/19	2019/20	2020/21	2021/22	2022/23
<b>Objective 2: To manage 100 percent of suspected malaria cases according to the Kenya malaria treatment guidelines by 2023</b>						
2.1 Strengthen capacity for integrated malaria case management	2.1.1 Revise and disseminate malaria diagnosis and treatment guidelines and curricula	X		X		X
	2.1.2 Engage pre-service instructors on malaria case management	X	X	X	X	X
	2.1.3 Train training of trainers (TOTs), support training, and monitor health worker training on malaria case management and reporting	X		X		X
	2.1.4 Provide technical oversight for outpatient malaria case management	X	X	X	X	X
2.2 Strengthen capacity for case management of severe malaria	2.2.1 Revise and disseminate malaria diagnosis and treatment guidelines and curricula	X		X		X
	2.2.2 Train TOTs, support training, and monitor health worker training on severe malaria case management and reporting	X	X	X	X	X
	2.2.3 Provide technical oversight for severe malaria case management	X	X	X	X	X
	2.2.4 Support counties to establish and sustain clinical audit/Quality improvement activities for severe malaria	X	X	X	X	X
2.3 Provide malaria case management at the community level in targeted areas	2.3.1 Convene sensitisation meetings with regulators to authorise the use of mRDTs and ACTs by CHVs	X	X	X	X	X
	2.3.2 Revise and disseminate CCMm curricula	X				
	2.3.3 Develop CCMm guidelines	X				
	2.3.4 Support training of community health assistants		X	X	X	X
	2.3.5 Revise and disseminate biosafety guidelines for level 1		X			
	2.3.6 Support supervision for CCMm practice by county teams	X	X	X	X	X
	2.3.7 Support quarterly county review meetings for CCMm	X	X	X	X	X

## FINANCIAL YEARS

Strategy	Activities	2018/19	2019/20	2020/21	2021/22	2022/23
2.4 Ensure quality of malaria parasitological diagnosis	2.4.1 Revise and disseminate malaria parasitological diagnosis guidelines and curricula	X	X	X	X	X
	2.4.2 Train TOTs and conduct health worker training on malaria parasitological diagnosis	X	X	X	X	X
	2.4.3 Revise and disseminate guidelines and curricula for QA for malaria diagnosis	X	X	X	X	X
	2.4.4 Train TOTs, and conduct health worker training on QA for malaria diagnosis	X	X	X	X	X
	2.4.5 Support supportive supervision of QA for malaria diagnosis	X	X	X	X	X
	2.4.6 Review malaria diagnosis QA implementation plan	X		X		
	2.4.7 Conduct lot-to-lot testing for mRDTs	X	X	X	X	X
	2.4.8 Support external quality assessment activities, including development of improvement plans	X	X	X	X	X
	2.4.9 Conduct biannual QA meetings	X	X	X	X	X
	2.4.10 Review and update malaria equipment and supplies specification	X	X	X	X	X
2.5 Procure diagnostic and treatment commodities	2.5.1 Procure and distribute diagnostics and treatment commodities	X	X	X	X	X

## FINANCIAL YEARS

Strategy	Activities	2018/19	2019/20	2020/21	2021/22	2022/23
<b>Objective 3: To establish systems for malaria elimination in targeted counties by 2023</b>						
3.1 Establish structures and capacity at the national and county levels to coordinate and drive the implementation of the elimination agenda	3.1.1 Develop terms of reference for a national malaria elimination taskforce/committee and appoint suitable members	X				
	3.1.2 Establish the national malaria elimination taskforce/committee and appoint suitable members	X	X			
	3.1.3 Solicit seed funding for malaria elimination (Government of Kenya, global elimination working group, and other sources)		X			
	3.1.4 Lobby for malaria elimination at national and county levels	X				
	3.1.5 Establish county malaria elimination taskforce and CoE	X				
	3.1.6 Conduct malaria elimination assessments in candidate counties (at subcounty level)		X			
	3.1.7 Conduct peer learning visits to national programmes with experience in malaria elimination (e.g., Eswatini and Zanzibar)		X			
	3.1.8 Conduct regular malaria elimination CoE meetings (agenda in SMEOR CoE)	X	X	X	X	X
3.2 Develop capacity for malaria elimination	3.2.1 Develop and disseminate business plan, guidelines, training curriculum, and SOPs for implementation of malaria elimination		X			
	3.2.2 Establish and train national and county malaria elimination teams		X			
	3.2.3 Provide mentorship and supervision of malaria elimination teams at both national and county levels		X	X	X	X
	3.2.4 Conduct onsite training, including practicum for county and health facility incharges and health workers			X		
	3.2.5 Train CHVs on their specific roles in malaria elimination			X		

## FINANCIAL YEARS

Strategy	Activities	2018/19	2019/20	2020/21	2021/22	2022/23
3.3 Establish active case detection, notification, investigation, and response systems for elimination in targeted counties	3.3.1 Establish malaria investigation teams at the county level and assign responsibilities for response		X	X		
	3.3.2 Strengthen passive and active case notification systems in target counties		X	X	X	X
	3.3.3 Conduct active case detection around each index case according to guidelines		X	X	X	X
	3.3.4 Set up and maintain case and foci repositories at national and county levels		X	X	X	X
	3.3.5 Map and classify malaria transmission foci		X	X	X	X
	3.3.6 Undertake appropriate intervention for the foci		X	X	X	X
	3.3.7 Conduct quarterly elimination review meetings		X	X	X	X
3.4 Strengthen quality assurance for diagnosis, treatment, and entomology to enhance surveillance	3.4.1 Conduct assessments for national and country reference laboratories for diagnosis of malaria	X	X			X
	3.4.2 Strengthen county malaria reference laboratories		X	X	X	X
	3.4.3 Conduct health worker training on malaria parasitological diagnosis and entomology		X	X	X	X
	3.4.4 Conduct supportive supervision of quality assurance for malaria diagnosis and treatment in elimination settings		X	X	X	X
3.5 Strengthen SBC for malaria elimination	3.5.1 Conduct econometric study for malaria elimination to use as an advocacy tool		X			
	3.5.2 Ensure engagement and commitment of national and county health leadership, Governors, partners and other stakeholders to eliminate malaria and prioritize, allocate resources for, and participate in malaria elimination activities	X	X	X	X	X
	3.5.3 Develop and disseminate appropriate malaria elimination messages to targeted audience through a variety of preferred communication channels, including interpersonal communication		X	X	X	X
	3.5.4 Engage various community networks, CBOs, and CSOs through a variety of approaches to participate in malaria elimination		X	X	X	X

## FINANCIAL YEARS

Strategy	Activities	2018/19	2019/20	2020/21	2021/22	2022/23
<b>Objective 4: To increase utilisation of appropriate malaria interventions in Kenya to at least 80 percent by 2023</b>						
4.1 Scale up malaria advocacy at national and county levels for increased utilisation of malaria interventions	4.1.1 Build capacity on malaria advocacy at all levels	X	X		X	
	4.1.2 Develop county malaria advocacy briefs	X				
	4.1.3 Engage key stakeholders to advocate utilisation of malaria interventions	X	X	X	X	X
	4.1.4 Conduct high-level advocacy activities for increased utilisation of malaria interventions	X	X	X	X	X
	4.1.5 Publish malaria control newsletter	X	X	X	X	X
4.2 Strengthen community-based SBC activities for all malaria interventions	4.2.1 Engage community health strategy unit to develop a package on malaria interventions for CHVs	X		X		
	4.2.2 Engage counties and stakeholder to train CHVs on promotion of malaria interventions at the household level through interpersonal communication	X	X			
	4.2.3 Engage CSOs, CBOs, and other networks to promote social accountability and utilisation of malaria interventions	X	X	X	X	X
	4.2.4 Scale up the engagement of school pupils to promote the use of malaria interventions at the household level	X	X	X	X	X
4.3 Strengthen structures for the delivery of malaria SBC interventions at all levels	4.3.1 Review and realign the malaria communication strategy to the KMS	X	X			
	4.3.2 Scale up the capacity of implementers on malaria SBC and develop county communication plans at the county and partner levels	X		X	X	X
	4.3.3 Strengthen healthcare provider behaviour change communication for attainment of national targets	X		X		
4.4 Strengthen programme communication for increased utilisation of all malaria interventions	4.4.1 Establish and maintain online portal of existing malaria information, education, and communication materials and messages	X	X	X	X	X
	4.4.2 Develop, disseminate, and distribute malaria SBC package to promote utilisation of all malaria interventions at the household level	X	X	X	X	X
	4.4.3 Support mass media activities and campaigns	X	X	X	X	X
<b>Objective 5: To strengthen malaria surveillance and use of information to improve decision making for programme performance</b>						



## FINANCIAL YEARS

Strategy	Activities	2018/19	2019/20	2020/21	2021/22	2022/23
5.1 Strengthen malaria surveillance	5.1.1 Develop malaria surveillance guidelines	X	X			
	5.1.2 Review malaria surveillance curriculum	X				
	5.1.3 Train health workers on malaria surveillance	X	X	X	X	
	5.1.4 Conduct data quality audits	X	X	X	X	X
	5.1.5 Develop and continuously update the data quality improvement plans	X	X	X	X	X
	5.1.6 Review the supportive supervision manual		X			
	5.1.7 Conduct mentorship at the national level and supportive supervision at the county level	X	X	X	X	X
	5.1.8 Establish a network of health facilities to enhance continuous availability of inpatient morbidity and mortality data	X	X	X	X	X
	5.1.9 Review and update HIS tools	X		X		
5.2 Strengthen malaria EPR	5.2.1 Review the EPR guidelines		X			
	5.2.2 Conduct annual EPR review and planning meetings (including threshold setting)	X	X	X	X	X
	5.2.3 Train county and sub-county teams on EPR		X	X	X	X
	5.2.4 Enhance capacity to pull and push commodities for uncomplicated and severe malaria during epidemics and upsurges	X	X	X	X	X
	5.2.5 Participate in integrated disease surveillance and response CoEs	X	X	X	X	X
	5.2.6 Conduct rapid assessment of detected epidemics and upsurges and preparedness capacity in epidemic-prone and seasonal transmission sub-counties	X	X	X	X	X
	5.2.7 Hold quarterly epidemic monitoring and detection review meetings	X	X	X	X	X
	5.2.8 Conduct post-epidemic evaluation	X	X	X	X	

## FINANCIAL YEARS

Strategy	Activities	2018/19	2019/20	2020/21	2021/22	2022/23
5.3 Increase use of malaria data for decision making	5.3.1 Develop malaria surveillance bulletins and profiles	X	X	X	X	X
	5.3.2 Develop malaria policy briefs	X	X	X	X	X
	5.3.3 Conduct regular stratification for targeting of interventions	X	X	X	X	X
	5.3.4 Strengthen engagement with county-level decision makers to enhance evidence-based decision making	X	X	X	X	X
	5.3.5 Establish and maintain a system to ensure sharing of findings and progress updates of malaria research and non-research data	X	X	X	X	X
5.4 Conduct and facilitate health facility surveys	5.4.1 Conduct quality of care surveys	X	X	X	X	X
	5.4.2 Conduct countrywide health provider and laboratory assessment for malaria diagnosis	X			X	
	5.4.3 Conduct cohort event monitoring			X	X	X
	5.4.4 Conduct therapeutic efficacy testing every three years	X			X	
5.5 Conduct and support community surveys	5.5.1 Conduct Malaria Indicator Surveys			X	X	
	5.5.2 Conduct PMLLIN survey				X	
	5.5.3 Support conduct of Kenya Demographic and Health Survey			X	X	
5.6 Facilitate operational research for policymaking	5.6.1 Annually update research agenda every other year	X		X		X
	5.6.2 Establish and regularly update a database of malaria research studies to inform interventions and policy	X	X	X	X	X
	5.6.3 Hold biennial national malaria research to policy conference			X		X

## FINANCIAL YEARS

Strategy	Activities	2018/19	2019/20	2020/21	2021/22	2022/23
5.7 Conduct entomological surveillance	5.7.1 Review and consolidate entomological SOPs		X			
	5.7.2 Procure entomological surveillance tools	X	X	X	X	X
	5.7.3 Select sentinel sites for entomological surveillance	X	X	X	X	X
	5.7.4 Conduct entomological surveillance training at the county level		X			
	5.7.5 Conduct entomological surveys twice a year (wet and dry season)	X	X	X	X	X
	5.7.6 Develop entomological profile maps for select sub-counties	X		X		
	5.7.7 Conduct routine monitoring of vector susceptibility to insecticides (twice per year)	X	X	X	X	X
5.8 Monitor efficacy and effectiveness of vector control tools and technologies	5.8.1 Monitor efficacy and effectiveness on LLINs	X	X	X	X	X
	5.8.2 Monitor efficacy and effectiveness on IRS	X	X	X	X	X
<b>Objective 6: To provide leadership and management for optimal implementation of malaria interventions at all levels, for the achievement of all objectives by 2023</b>						
6.1 Align malaria governance and legislation to constitutional mandates and core functions	6.1.1 Facilitate review of malaria legislative documents		X	X		
	6.1.2 Facilitate review of malaria policy	X	X			
	6.1.3 Facilitate mid-term review process for the KMS			X		
	6.1.4 Facilitate end-term review process for the KMS					X
	6.1.5 Advocate development and review of county by-laws to support malaria policy implementation		X		X	
6.2 Strengthen partnerships and coordination for malaria programme management	6.2.1 Develop and maintain an updated partners database for national and county levels		X	X	X	X
	6.2.2 Reconstitute and maintain functional Malaria Health Sector Working Committee and CoEs	X	X	X	X	X
	6.2.3 Enhance NMCP visibility in MOH structures	X	X	X	X	X
	6.2.4 Facilitate private sector engagement for enhanced delivery of malaria interventions	X	X	X	X	X
	6.2.5 Strengthen engagement with counties	X	X	X	X	X

## FINANCIAL YEARS

Strategy	Activities	2018/19	2019/20	2020/21	2021/22	2022/23
6.3 Strengthen capacity for malaria programming at national and county levels	6.3.1 Develop and review national annual malaria work plans	X	X	X	X	X
	6.3.2 Develop, review, and maintain an implementation and performance tracking platform at the national level	X	X	X	X	X
	6.3.3 Develop and maintain a national information repository and malaria knowledge hub	X	X	X	X	X
	6.3.4 Participation in local, regional, and international malaria trainings and workshops	X	X	X	X	X
	6.3.5 Train CMCCs on malariology	X	X		X	
	6.3.6 Maintain human resources for the NMCP	X	X	X	X	X
	6.3.7 Undertake capacity development for malaria programming at national and county levels	X	X	X	X	X
	6.3.8 Participate in local (professional association meetings), regional, and international malaria meetings	X	X	X	X	X
	6.3.9 Maintain NMCP infrastructure, equipment, and consumables	X	X	X	X	X
6.4 Strengthen resource mobilisation initiatives for malaria	6.4.1 Conduct high-level advocacy for increased funding for malaria from all sectors		X		X	
	6.4.2 Develop and implement a resource mobilisation strategy	X	X	X	X	X
	6.4.3 Conduct high-level advocacy for increased public funding in malaria control at national and county levels	X	X	X	X	X
	6.4.4 Participate in and advocate inclusion of malaria interventions in healthcare service mechanisms	X	X	X	X	X
6.5 Enhance malaria commodity security at all levels	6.5.1 Establish and operationalise a malaria PSM working group with appropriate terms of reference, representation, and a PSM plan	X				
	6.5.2 Develop, review, and disseminate PSM-related guidelines, technical specifications, tools, and SOPs	X	X			
	6.5.3 Build capacity on PSM at all levels	X	X	X	X	X
	6.5.4 Work with national and county level malaria commodity managers to develop and implement commodity management-focused interventions, including quantification, procurement and distribution planning, and inventory management	X	X	X	X	X
	6.5.5 Undertake regular surveillance of adverse drug reactions and product quality to ensure patient safety, quality, and efficacy for malaria commodities	X	X	X	X	X

## FINANCIAL YEARS

Strategy	Activities	2018/19	2019/20	2020/21	2021/22	2022/23
6.6 Strengthen the use of supply chain data for decision making	6.6.1 Expand the national LMIS to cover all malaria commodities	X	X	X		X
	6.6.2 Strengthen and enhance malaria commodity data availability, quality, and use for supply chain decision making		X		X	

## 5.2 Guiding Principles

### 5.2.1 Human Rights, Gender, and Equity in the KMS

In alignment with the Kenya Constitution 2010 that guarantees health as a basic right, and in line with the KHSSP July 2018–June 2023 and the Kenya Health Policy, implementation of the KMS 2019–2023 will strive towards ensuring universal access to malaria interventions among all members of the community, including the vulnerable, marginalised, and special groups. The malaria interventions will be implemented to ensure gender equity and responsiveness in the appropriate affirmative action. Communities will be an integral part of malaria planning, implementation, and monitoring for increased social accountability in malaria programming.

### 5.2.2 Multisectoral Approach

Multisectoral and intersectoral engagement will be strengthened at the national and county levels for improved planning, implementation, monitoring, and coordination towards achievement of the KMS goal through use of the Three Ones principle (one authority, one plan, one M&E framework). Stakeholder engagement and coordination will be strengthened through the reconstituted and functional Malaria Health Sector Working Committee and CoEs (previously referred to as the Malaria Interagency Coordination Committee and Technical Working Groups).

### 5.2.3 Appropriate Targeting of Interventions

Routine malaria data collection and reporting mechanisms will be strengthened. Data reported will be used to epidemiologically and entomologically stratify the country. This will enable informed targeting of malaria approaches and interventions at county and sub-county levels based on the prevailing stratum.

### 5.2.4 Strengthening Malaria Control Performance and Monitoring System

In line with government policy on performance monitoring and globally accepted practices, performance tracking will be done regularly to review progress on implementation of interventions, funding expenditure, and commodity availability. As part of commitment to performance monitoring, all stakeholders will meet annually to review achievements against set targets and milestones in the strategic plan and annual business plans. During these meetings, priorities for the new financial year will also be defined and finalised.

### 5.2.5 Strengthened Linkages Between the National and County Levels

Stewardship in implementation of malaria control interventions is shared between the national and county governments, with each level having defined roles as outlined in the fourth schedule of the Constitution. Linkages between the national and county levels will be strengthened through the biannual progress review meetings that will review the implementation of malaria interventions at the county level. Continuous capacity development of CMCCs for effective implementation will be undertaken.



### **5.2.6 Investing in Health Systems Strengthening**

There will be continued investment in the WHO building blocks of health systems strengthening, namely human resources for health, infrastructure and equipment, procurement and supply chain management, health information systems, leadership and governance, and health financing.

### **5.2.7 Leveraging the Community Health Service**

To achieve universal access to malaria preventive and curative services, implementation will leverage the community strategy to deliver malaria control interventions through the existing community-based structures.

### **5.2.8 Risk Management**

A continued systematic approach to risk management will be employed. This includes capacity assessments, standards setting and promotion of adherence, internal control mechanisms, and external audits. In-country partners, such as bilateral and multilateral donors and technical partners, will also provide local and independent oversight. Key operational and implementation risks will be identified on a regular basis, and mitigation measures will be implemented.

### **5.2.9 Towards Sustainable Financing**

Continuous efforts will be made towards the improvement of efficiency in the utilisation of existing resources and to advocate increased sustainable investment for malaria interventions at national and county levels. In particular, advocacy for increased public funding for malaria interventions at national and county levels with a view to enhance sustainability will be scaled up. Capacity development for financial reporting at all levels will be undertaken while strengthening the systems for expenditure tracking and accountability.

### **5.2.10 Aid Effectiveness**

The strategic plan will be implemented in line with the five principles of aid effectiveness, which are as follows: country ownership, alignment of aid to country priorities, harmonisation between donor organisations and countries, joint management for results, and mutual accountability.

## **5.3 Implementation Arrangements**

### **5.3.1 Institutional Framework and Human Resources for Malaria Programme**

The NMCP falls under the Division of Strategic National Health Programmes, Department of Preventive and Promotive Health Services. This department reports to the Director of Medical Services, who reports to the Principal Secretary, who in turn reports to the Cabinet Secretary for Health.

The NMCP is headed by a programme manager who supervises and provides oversight to technical and administrative units. The technical units are as follows: Vector Control; Malaria in Pregnancy; Case Management; Malaria Elimination; Surveillance, Monitoring, Evaluation, and Operational Research; and Social and Behaviour Change. The programme manager is the overall in charge of all administrative functions, including partnership coordination, planning, PSM, finance, and administration.

There are seven CoEs (previously TWGs) that meet quarterly and are aligned to key functions. The Malaria Health Sector Working Committee (previously the Malaria Interagency Coordination Committee) is the national technical coordinating agency for the NMCP. The Malaria Health Sector Working Committee will be convened quarterly and on an ad hoc basis. The committee members include departments, units, and agencies in the MOH, other ministries, county representation, multilateral and bilateral partners, research institutions, academia, CSOs, and FBOs. Details of the Malaria Health Sector Working Committee membership are provided in Annex 2 (NMCP, 2014).

At county level, the health sector is headed by a Chief Executive for Health, who is supported by a Chief Officer for Health who is the accounting officer. The County Director for Health is in charge of the technical aspects of the health sector and heads the county health management team. Counties have appointed CMCCs to oversee malaria activities.

### **5.3.2 National Financial Planning Cycle and Alignment with Malaria Programme Implementation**

Planning for the financing of malaria control at the national level is done through the development of a five-year malaria business plan and annual work plans. Counties develop county integrated development plans and annual work plans to guide activity implementation and resource mobilisation.

In line with the KHSSP July 2018–June 2023, the NMCP timelines for budgeting, planning, and reporting of malaria annual work plans will be aligned to the Constitution, Public Financial Management Act 2012, and County Government Act 2012. This means that the annual planning and monitoring timelines for the malaria programme run from July to June. Priorities for investment in malaria activities will be made in consideration with available budgetary allocations from the public and private sectors. The work plan activities will be monitored on a quarterly basis by malaria control technical teams, the Malaria Health Sector Working Committee, and malaria CoEs.

The programme will continue holding biannual review meetings with key stakeholders, including malaria coordinators from all 47 counties, to review progress on the implementation of agreed-on activities, share experiences including best practices, disseminate key outputs from activities implemented at the national level, discuss challenges experienced, and brainstorm solutions. The same biannual forums will be used for planning the activities for the coming period and agreeing on whether the team is on track to achieve its targets in line with the KMS.

### **5.3.3 Partnerships and Coordination**


The Kenya malaria programme has established strong malaria control partnerships with the following: other MOH units and departments: other ministries (e.g., Ministry of Education); other governments institutions (e.g., Kenya Medical Supplies Authority (KEMSA), Kenya Medical Research Institute (KEMRI), Pharmacy and Poisons Board (PPB); county governments; development and technical partners (e.g., Global Fund, United States Agency for International Development, United States President’s Malaria Initiative, UNICEF, WHO, governments of China and Cuba, United Kingdom Department for International Development, African Leaders Malaria Alliance, Roll Back Malaria); NGOs (e.g., Kenya NGOs Alliance Against Malaria, Malaria No More); and the private sector. These partnerships contribute a range of financial, technical, and operational support.

### **5.3.4 Procurement and Supply Management Systems**

Nationally, the Public Procurement and Asset Disposal Act No. 33 of 2015 will guide the procurement of commodities and services for malaria control. The MOH procures malaria medicines and commodities through KEMSA. KEMSA has the mandate for procuring, warehousing, and distributing essential medicines and medical supplies in Kenya under the KEMSA Act 2013. Management of the health commodities follows the Pharmacy and Poisons Act Cap 244 (Revised Edition 2015) and other relevant legislation. Procurement of malaria health commodities under special programmes like the Global Fund follows government rules and regulations, and procurement by other donor agencies follows the rules and regulations of the relevant organisations.

### **5.3.5 Financial Resources Management**

In accordance with the Public Finance Management Act 2012, the National Treasury is responsible for mobilising domestic and external resources for financing national and county government budgetary requirements and putting in place systems to ensure transparent financial management and standard financial reporting. To accomplish this, the National Treasury uses the Integrated Financial Management Information System that captures all costs and expenditures and accounts for all funds transparently. Bilateral donors channel resources through agencies based on memoranda of understanding (The National Treasury, n.d.).



Funding made available through the government systems is subject to both internal audit and external audit by the office of the Auditor General. Resources disbursed and managed by funding agencies are audited in accordance with their respective rules and regulations. The flow of expenditures through a health system is tracked using the National Health Accounts methodology, which links the sources of funds to agents and subsequently service providers, and monitors the uses of funds by functions and services (MOH, 2015b).

## **5.4 Financing and Financial Sustainability Plan**

### **5.4.1 Resource Need for the KMS**

The KMS 2019–2023 resource need estimation is based on activity-based costing, which uses a bottom-up approach and is built for the cost of all inputs required per activity to achieve KMS objectives and targets for the financial years 2018/19–2022/23. The implementation of the KMS 2019–2023 is built on gains made and lessons learned from the previous KMS 2009–2018 (revised 2014). Thus, the resource need reported is based on the incremental costs required for the next five-year implementation period.

The total resource need for the KMS 2018/19–2022/23 is estimated at Ksh 61.92 billion for the five-year period. Table 6 shows the annual need across the five years. It is noted that in FY 2019/20 the need increases to Ksh 15.84 billion, and in FY 2022/23 the need increases to Ksh 16.92 billion, on account of implementation of community net distribution.



Table 6. Budget plan 2019–2023 (in Ksh millions)

Strategic objectives	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Objective 1: To protect 100 percent of people living in malaria risk areas through access to appropriate malaria preventive interventions by 2023	5,133.42	11,931.75	5,820.11	5,859.29	12,754.79	41,499.36
Objective 2: To manage 100 percent of suspected malaria cases according to the Kenya malaria treatment guidelines by 2023	2,257.73	1,422.54	1,479.98	1,673.72	1,828.08	8,662.04
Objective 3: To establish systems for malaria elimination in targeted counties by 2023	79.44	412.31	343.17	333.23	359.87	1,528.03
Objective 4: To increase utilisation of appropriate malaria interventions in Kenya to at least 80 percent by 2023	967.94	932.09	848.29	905.69	872.18	4,526.19
Objective 5: To strengthen malaria surveillance and use of information to improve decision making for programme performance	698.53	670.43	826.52	753.62	630.30	3,579.40
Objective 6: To provide leadership and management for optimal implementation of malaria interventions at all levels, for the achievement of all objectives by 2023	405.16	467.73	407.29	367.68	472.96	2,120.83
Grand total	9,542.22	15,836.84	9,725.36	9,893.23	16,918.18	61,915.83

Figure 5. Proportion of resource needs per KMS objective area

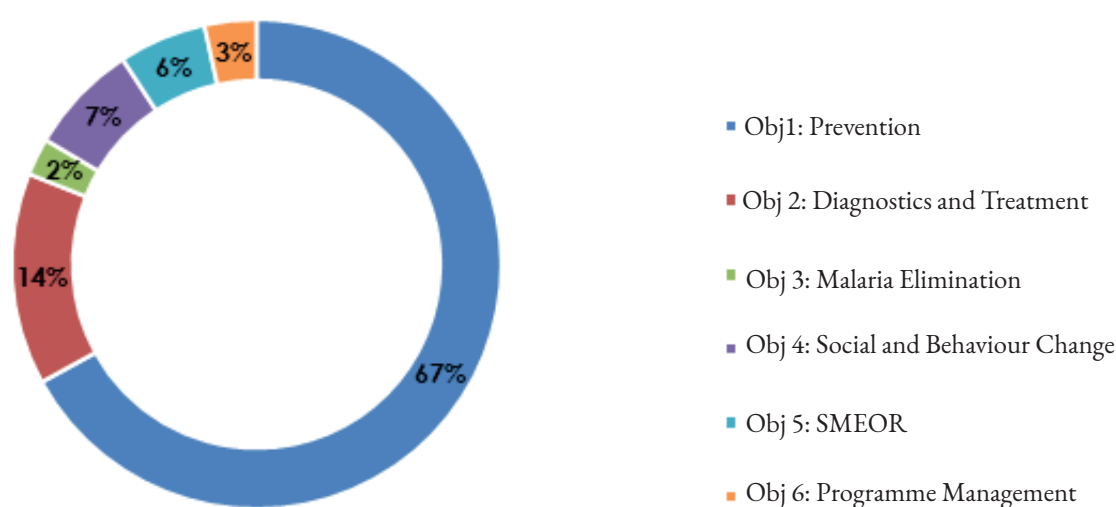


Figure 5 shows that malaria prevention will account for the highest share of the total resource need (67 percent), followed by diagnostics and treatment (14 percent), SBC (7 percent), malaria surveillance (6 percent; with the inclusion of all the M&E resource needs incorporated in the other five objectives, surveillance accounts for 13 percent), programme management (3 percent), and malaria elimination (2 percent). Table 7 shows the resource need for prioritised strategies in the KMS.

Table 7. Estimated resource need by strategy (in Ksh millions)

Proposed strategies	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Strategy 1.1 Distribute LLINs through appropriate channels to achieve and sustain universal coverage in malaria risk areas	1,098.57	7,983.10	1,857.85	1,917.56	8,802.08	21,659.16
Strategy 1.2 Use IRS in the targeted areas	2,976.54	2,976.54	2,976.54	2,976.54	2,976.54	14,882.69
Strategy 1.3 Use LSM in the targeted areas	968.08	954.71	968.32	954.71	954.71	4,800.53
Strategy 1.4 Develop, review, and update documents for malaria vector control	61.46	-	-	-	-	61.46
Strategy 1.5 Provide IPTp-SP at ANC in targeted areas	23.72	12.34	12.34	10.42	21.39	80.21
Strategy 1.6 Engage CHVs to identify IPTp missed opportunities for referral to ANC in targeted areas	5.06	5.06	5.06	0.06	0.06	15.30
Strategy 2.1 Strengthen capacity for integrated malaria case management	258.39	61.07	258.39	61.07	256.28	895.22
Strategy 2.2 Strengthen capacity for case management of severe malaria	101.20	87.27	87.27	101.20	87.27	464.20
Strategy 2.3 Provide malaria case management at the community level in targeted areas	183.14	490.40	436.47	436.47	436.47	1,982.93
Strategy 2.4 Ensure quality of malaria parasitological diagnosis	53.89	43.69	43.69	53.26	43.69	238.22
Strategy 2.5 Procure diagnostic and treatment commodities	1,661.11	740.11	654.16	1,021.72	1,004.37	5,081.47
Strategy 3.1 Establish structures and capacity at the national and county levels to coordinate and drive the implementation of the elimination agenda	1.15	10.77	-	-	-	11.92
Strategy 3.2 Develop capacity for malaria elimination	-	17.68	8.82	1.20	1.20	28.91
Strategy 3.3 Establish active case detection, notification, investigation, and response systems for elimination in targeted counties	75.42	49.81	62.82	47.67	55.60	291.32
Strategy 3.4 Strengthen quality assurance for diagnosis, treatment, and entomology to enhance surveillance	1.58	204.76	161.80	167.26	194.23	729.62
Strategy 3.5 Strengthen SBC for malaria elimination	1.28	129.29	109.73	117.10	108.85	466.25
Strategy 4.1 Scale up malaria advocacy at national and county levels for increased utilisation of malaria interventions	19.98	52.93	16.96	50.47	16.96	157.29
Strategy 4.2 Strengthen community-based SBC activities for all malaria interventions	48.79	41.35	38.62	32.98	32.98	194.71
Strategy 4.3 Strengthen structures for the delivery of malaria SBC interventions at all levels	106.46	66.15	0.45	50.58	50.58	274.22
Strategy 4.4 Strengthen programme communication for increased utilisation of all malaria interventions	792.71	771.66	792.26	771.66	771.66	3,899.97
Strategy 5.1 Strengthen malaria surveillance	162.13	484.51	467.33	467.33	467.33	2,048.61
Strategy 5.2 Strengthen malaria EPR	72.03	76.24	72.03	72.03	72.03	364.37
Strategy 5.3 Increase use of malaria data for decision making	5.07	5.07	5.07	5.07	5.07	25.36

Proposed strategies	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Strategy 5.4 Conduct and facilitate health facility surveys	411.33	82.69	103.56	131.90	69.37	798.86
Strategy 5.5 Conduct and support community surveys	-	-	162.45	69.40	-	231.86
Strategy 5.6 Facilitate operational research for policymaking	0.90	0.90	9.09	0.90	9.09	20.89
Strategy 5.7 Conduct entomology surveillance	45.36	14.64	3.38	3.38	3.38	70.15
Strategy 5.8 Monitor efficacy and effectiveness of vector control tools and technologies	1.70	6.38	3.60	3.60	4.02	19.30
Strategy 6.1 Align malaria governance and legislation to constitutional mandates and core functions	0.71	2.71	43.26	-	83.71	130.39
Strategy 6.2 Strengthen partnerships and coordination for malaria programme management	2.13	5.87	4.33	1.82	5.73	19.88
Strategy 6.3 Strengthen capacity for malaria programming at national and county levels	276.38	370.18	269.77	272.14	297.87	1,486.33
Strategy 6.4 Strengthen resource mobilisation initiatives for malaria	3.84	8.64	7.53	27.08	3.84	50.92
Strategy 6.5 Enhance malaria commodity security at all levels	105.05	72.02	65.36	65.42	65.36	373.22
Strategy 6.6 Strengthen the use of supply chain data for decision making	17.05	8.33	17.05	1.22	16.45	60.09
Grand Total	<b>9,542.22</b>	<b>15,836.84</b>	<b>9,725.36</b>	<b>9,893.23</b>	<b>16,918.18</b>	<b>61,915.83</b>

#### 5.4.2 Resource Availability and Funding Gap for the KMS

The projected funds available based on the funding levels of the government, major donors, and private sector are Ksh 37.84 billion over the five-year period (Table 8). This estimation is based on the assumption that the funding from these three main sources will remain fairly stable around the current funding levels and commitments.

Table 8. Summary of available funding by objective (in Ksh millions)

Strategic Objectives	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Objective 1: To protect 100 percent of people living in malaria risk areas through access to appropriate malaria preventive interventions by 2023	4,910.54	5,276.59	4,959.30	4,982.61	5,001.74	25,130.77
Objective 2: To manage 100 percent of suspected malaria cases according to the Kenya malaria treatment guidelines by 2023	2,143.25	1,026.89	1,026.13	1,398.76	1,398.76	6,993.78
Objective 3: To establish systems for malaria elimination in targeted counties by 2023	-	-	-	-	-	-
Objective 4: To increase utilisation of appropriate malaria interventions in Kenya to at least 80 percent by 2023	228.58	320.80	407.99	280.27	278.43	1,516.07
Objective 5: To strengthen malaria surveillance and use of information to improve decision making for programme performance	445.31	314.06	618.73	421.48	418.85	2,218.42
Objective 6: To provide leadership and management for optimal implementation of malaria interventions at all levels, for the achievement of all objectives by 2023	402.40	419.64	389.66	366.42	403.93	1,982.04
Grand Total	<b>8,130.07</b>	<b>7,357.98</b>	<b>7,401.80</b>	<b>7,449.54</b>	<b>7,501.70</b>	<b>37,841.09</b>

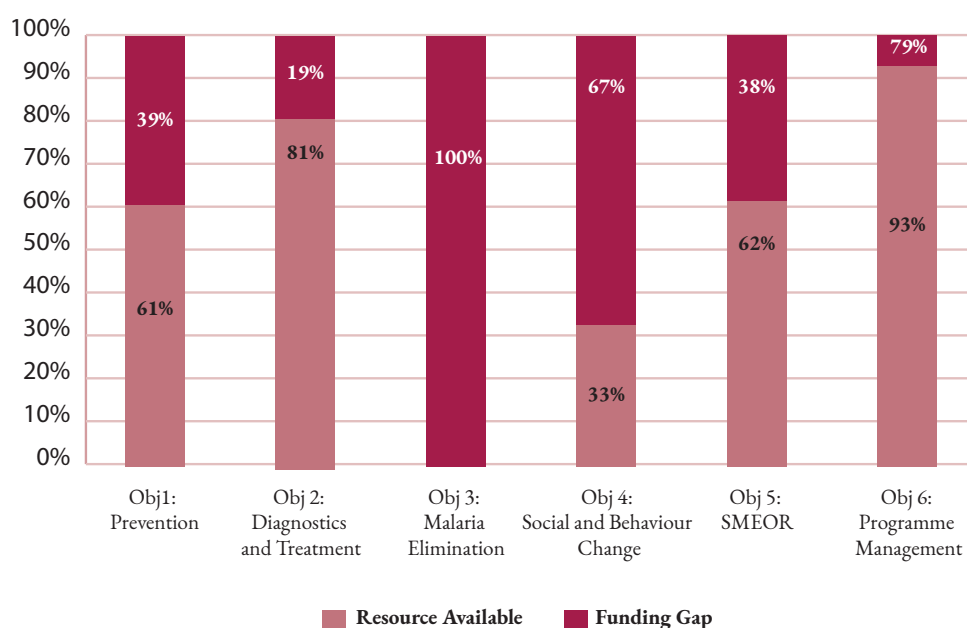
Comparing the resource need for the implementation of the KMS (Table 7) and the projected resources available (Table 8) reveals a total gap of Ksh 24.07 billion, with the highest annual gaps noted in FY 2019/20 at Ksh 8.48 billion and FY 2022/23 at Ksh 9.42 billion (Table 9).

Table 9. Funding gap by strategic objective (in Ksh millions)

Strategic objectives	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Objective 1: To protect 100 percent of people living in malaria risk areas through access to appropriate malaria preventive interventions by 2023	222.89	6,655.16	860.81	876.68	7,753.05	16,368.59
Objective 2: To manage 100 percent of suspected malaria cases according to the Kenya malaria treatment guidelines by 2023	114.48	395.65	453.85	274.96	429.32	1,668.25
Objective 3: To establish systems for malaria elimination in targeted counties by 2023	79.44	412.31	343.17	333.23	359.87	1,528.03
Objective 4: To increase utilisation of appropriate malaria interventions in Kenya to at least 80 percent by 2023	739.36	611.29	440.30	625.42	593.75	3,010.12
Objective 5: To strengthen malaria surveillance and use of information to improve decision making for programme performance	253.22	356.37	207.79	332.14	211.45	1,360.97
Objective 6: To provide leadership and management for optimal implementation of malaria interventions at all levels, for the achievement of all objectives by 2023	2.77	48.09	17.63	1.26	69.03	138.78
Grand Total	<b>1,412.15</b>	<b>8,478.87</b>	<b>2,323.56</b>	<b>2,443.69</b>	<b>9,416.48</b>	<b>24,074.74</b>

Malaria prevention accounts for the largest share of the KMS total resources gap (83 percent), followed by malaria surveillance (5 percent). Figure 6 shows the proportion of total resource availability and funding gap per KMS objective.

Figure 6. Proportion of total resource availability and funding gap per KMS objective area



### 5.4.3 Funding Opportunities and Sustainability Plans

A comparison of the resource availability and resource need for malaria programming reveals a financing gap that calls for a strategic resource mobilisation plan. This would ensure adequate resources to meet the set targets in the KMS 2019–2023. To close this resource gap, this strategic plan will promote domestic financing both at the national and county levels, mobilise donor funding, and adopt innovative sustainable financing options targeting the private sector, while maximizing efficiencies. This strategy aims to focus on the following priority areas.

#### 5.4.3.1 Mobilising Domestic Resources for Malaria

In Kenya, financing for healthcare comes from various sources, which include Government of Kenya tax revenue, development partner contributions, and the private sector, including out-of-pocket payments. Heavy reliance on out-of-pocket payments is undesirable, because it can push vulnerable households farther below the poverty line. To expand and ensure access to malaria services for all and to protect households from catastrophic expenditures, this strategy needs alternative and sustainable healthcare financing mechanisms.

The Public Finance Management Act (2012) proposed a programme-based budgeting (PBB) approach in which the budget is organised around specific programmes, with clear objectives and connections between inputs and outputs. PBB also promotes accountability by helping policymakers, planners, and other implementers track budget expenses along specific budget lines. Current budgeting approaches limit the county governments' ability to prioritise and earmark resources for specific health programmes, including malaria. The transition to PBB has seen counties face some challenges, and it requires considerable effort to help them understand the shift to the new budgeting format. The national level needs to work closely with other key stakeholders to build the capacity of counties in using the PBB approach to planning and budgeting, including priority setting.

Through this initiative, the KMS aims to achieve the following:

- Support the development and implementation of the malaria resource mobilisation strategy to guide resources mobilisation for malaria programming
- Support the national and county governments to allocate funds for malaria in their budgets
- Prioritise malaria as a sub-programme in the county PBB budgets, particularly in the malaria endemic counties
- Support high-level advocacy for increase of malaria funding towards strategic commodities that are predominately funded by donors
- Generate evidence to support advocacy efforts for increased public and private sector investment in malaria

#### 5.4.3.2 Maximising Efficiencies through Aligning the Malaria Response to the County Context

Targeting interventions that have the greatest impact results in efficiency gains through cost savings. Various counties are in different stages on their path to malaria elimination. Although some counties are earmarked for elimination, others are still trying to achieve malaria control. The malaria policy provides guidance on intervention deployment across epidemiological settings. This strategy proposes a deliberate shift towards programmes that are calibrated to countyspecific circumstances and needs. An approach that targets specific interventions towards who needs them and where they are needed will further reduce malaria incidence.

#### 5.4.3.3 Optimising private funds for malaria to raise and leverage domestic resources

Kenya is transitioning to UHC to ensure that all people have access to affordable quality healthcare services. Attaining the long-term goal of UHC requires additional investment in national health insurance coverage, which calls for new financing options. For the malaria programme, a substantial amount of funding is out-of-pocket expenditure (23 percent), which is of concern because it has the potential to lead to catastrophic spending and impoverishment. A long-term goal is to push private financing for malaria by households through a pooling mechanism, specifically through the National Hospital Insurance

Fund (NHIF). Counties have embarked on a rigorous exercise to mobilise households to enrol with NHIF. Advocacy for coverage of all malaria treatment cases through the NHIF is needed, more so in counties with a heavy malaria burden.

#### 5.4.3.4 Optimising Funding from All the Key Sources to KMS Priorities

To optimise malaria investment, funding from both government and development partners (project support and on-budget support) should be aligned to KMS 2019–2023 priorities. This is part of adherence to the Three Ones principle.

Table 10. Recommendations for aligning malaria investment to KMS priorities

Recommended actions	
Government of Kenya resources	<ul style="list-style-type: none"> <li>• Develop and implement a resources mobilisation strategy for malaria.</li> <li>• Facilitate implementation of deliberate measures to increase domestic financing in the counties through efficient allocation and spending.</li> <li>• Track national and county government allocations to the malaria programme.</li> <li>• Advocate strategies that will guarantee that funding for malaria is provided and available in the county budget.</li> <li>• Unblock the financial, human, infrastructural, institutional, and structural bottlenecks that impact absorptive capacity to financing malaria programmes.</li> </ul>
Development and implementing partners	<ul style="list-style-type: none"> <li>• Implement a partnership accountability framework (national and county levels) to ensure alignment of resources to KMS priorities.</li> <li>• Facilitate joint planning and reporting of KMS resource contribution and utilisation on an annual basis.</li> <li>• Facilitate quantification of malaria-specific county resource needs, available financing, and gaps.</li> </ul>

## 6. MONITORING AND EVALUATION

A separate M&E plan supports the KMS strategy. The M&E framework is shown in Table 11.

### 6.1 Tracking Progress

The M&E plan envisions the following:

**Monitoring:** Quarterly performance monitoring meetings will be held to review progress of implementation against targets in the annual work plans. Semi-annual stakeholder performance monitoring and review meetings at the national and county levels will also review performance against targets, address any constraints in implementation, and re-focus activities if needed.

**Control and audit:** HIS remains the custodian of routine health information and provides access through the DHIS2 platform. Annual data quality audits will be conducted. Other programme-generated data sets, including data from surveys, will be available from the NMCP.

**Review and planning meetings:** As part of the commitment to performance monitoring, all stakeholders will meet biannually to review achievements against targets and milestones in the strategic plan and annual work plans. These meetings will also define and finalise priorities for the new financial year.

### 6.2 Measuring Outcome and Impact

**Midterm evaluation:** A mid-term review of KMS 2019–2023 is scheduled for FY 2020/21.

**Final evaluation:** The final evaluation of the strategy will be an in-depth review of the NMCP during the second half of FY 2022.

### 6.3 Performance Framework

Table 11. Performance framework

Indicators	Baseline		Targets				
	Year	Value	2018/ 2019	2019/ 2020	2010/ 2021	2012/ 2022	2022/ 2023
<b>Goal: To reduce malaria incidence and deaths by at least 75 percent of the 2016 levels by 2023</b>							
Total inpatient malaria deaths [per 100,000 persons per year]		TBD					
Total inpatient malaria cases [per 10,000 persons per year]		TBD					

Indicators	Baseline		Targets				
	Year	Value	2018/ 2019	2019/ 2020	2010/ 2021	2012/ 2022	2022/ 2023
Total confirmed malaria cases [per 1,000 persons per year]	2016	62	60	52.7	46.5	31	15
Annual entomological inoculation rate	2017	4.3	4.0	3.5	3.0	2.0	1.1
<b>Objective 1: To protect 100 percent of people living in malaria risk areas through access to appropriate malaria preventive interventions by 2023</b>							
Proportion of households with universal coverage of LLINs in malaria risk areas	2017	47%	50%	60%	75%	93.8%	100%
Proportion of the general population in targeted areas using an LLIN the night before the survey	2017	76%	76%	79.8%	85.4%	92.2%	100%
Proportion of population in targeted areas protected through IRS within the last 12 months	2018	100%	100%	100%	100%	100%	100%
Proportion of larval habitats targeted for LSM that are appropriately managed	2018	0	20%	40%	60%	80%	100%
Proportion of eligible pregnant women who receive 3 or more doses of IPTp for malaria during their last pregnancy in targeted counties	2015	38%	45%	60%	70%	80%	80%
Percentage of IPTp missed opportunities referred	2015	Unknown	30%	50%	80%	80%	80%
<b>Objective 2: To manage 100 percent of suspected malaria cases according to the Kenya malaria treatment guidelines by 2023</b>							
Proportion of suspected malaria cases presenting to public health facilities tested with mRDT or microscopy	2018	59%	70%	90%	95%	100%	100%
Proportion of suspected malaria cases presenting to public health facilities managed in accordance with the Kenya malaria treatment guidelines	2018	54%	65%	70%	80%	90%	100%
Severe malaria case fatality rate (proportion of severe malaria cases resulting in death)	2018	TBD	25% reduction	50% reduction	75% reduction	Maintain	Maintain
Proportion of suspected malaria cases presenting to a CHV in targeted areas tested with mRDT	2018	88%	90%	95%	95%	100%	100%

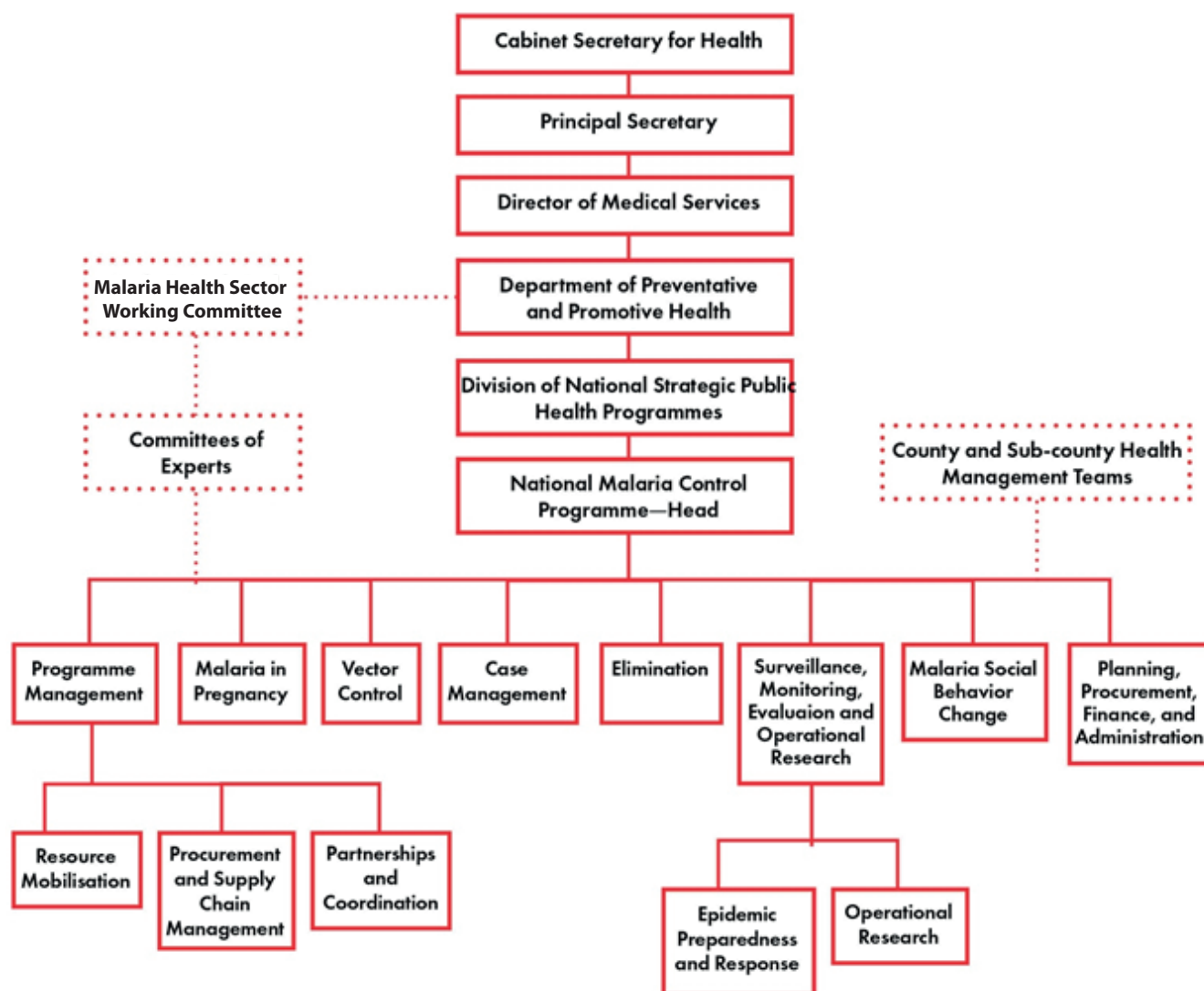


Indicators	Baseline		Targets				
	Year	Value	2018/ 2019	2019/ 2020	2010/ 2021	2012/ 2022	2022/ 2023
<b>Objective 3: To establish systems for malaria elimination in targeted counties by 2023</b>							
Functional elimination unit in place	2018	No value	unit in place		unit in place	unit in place	unit in place
Proportion of targeted health workers trained in malaria elimination	2018	None	20%	50%	80%	90%	100%
Proportion of functional county reference laboratories for malaria elimination	2018	None	20%	50%	80%	90%	100%
Proportion of malaria notifications investigated/ followed up	2018	None	20%	50%	80%	90%	100%
Proportion of households in targeted villages reached with malaria SBC messages for elimination	2018	None	20%	50%	80%	90%	100%
<b>Objective 4: To increase utilisation of appropriate malaria interventions in Kenya to at least 80 percent by 2023</b>							
Proportion of population that slept under an LLIN the previous night	2017 PMLLIN	76%	76%	80%	85%	92%	95%
Proportion of the population using an LLIN, among households with universal coverage.	2017 PMLLIN	88%	88%	95%	100%	100%	100%
Proportion of targeted pregnant women who received at least three doses of IPTp [disaggregated by provider initiated, self-initiated or both]	2015 [KMIS]	38%	45%	60%	70%	80%	80%
Proportion of children under age five with fever in the last two weeks for whom advice or treatment was sought within 24 hours from the onset of fever	2015 [KMIS]	72%	75%	80%	85%	90%	90%
Proportion of patients who received AL and were counselled	–	0	50%	70%	80%	80%	90%
<b>Objective 5: To strengthen malaria surveillance and use of information to improve decision making for programme performance</b>							
Proportion of expected health facilities reports received	2017	80%	90%	95%	100%	100%	100%
Proportion of expected health facilities reports received on time	2017	60%	70%	80%	90%	100%	100%
Proportion of targeted sub-counties reporting malaria threshold data weekly	2017	31%	60%	80%	100%	100%	100%

Indicators	Baseline		Targets				
	Year	Value	2018/ 2019	2019/ 2020	2010/ 2021	2012/ 2022	2022/ 2023
Proportion of counties using malaria surveillance data for targeting of interventions (for decision making)	2018	23%	68%	88%	98%	100%	100%
Annual blood examination rate	2016	19	19	20	25	25	30
<b>Objective 6: To provide leadership and management for optimum implementation of malaria interventions at all levels, for the achievement of all objectives by 2023</b>							
Proportion of activities in the annual malaria workplan implemented as planned	2017	49%	90%	90%	95%	95%	100%
Proportion of counties implementing at least 75 percent of the malaria activities in their annual work plans in line with the KMS		Unknown	30%	50%	60%	70%	80%
Proportion of resources mobilised to KMS costed need	2017	47%	60%	70%	80%	90%	100%
Proportion of resources spent to available resources		Unknown	70%	74%	80%	90%	95%
Proportion of domestic (public) resources mobilised to available resources	2017	9%*	15%	20%	23%	27%	30%
Proportion of public health facilities having no stockout of key malaria commodities in the facility							
All artemether-lumefantrine(AL)	2018	80.0%	90%	95%	100%	100%	100%
Injectable artesunate	2016	81.0%	95%	100%	100%	100%	100%
SP tabs	2018	95.6%	100%	100%	100%	100%	100%
mRDTs	2018	68.0%	90%	95%	100%	100%	100%
LLINs	2018	98.0%	98%	99%	100%	100%	100%
Proportion of key malaria commodities forecasted within $\pm 25\%$ forecast error (composite of 8 items: AL [all sizes], Artesunate, mRDT, SP, LLINs)	2017	0%	25%	38%	50%	63%	75%
<b>Note:</b> Please refer to the Malaria M&E Plan 2019–2023 for more indicators and the indicator definitions.							

## 7. ANNEXES

**Annex 7.1: Position and Structure of National Malaria Control Programme**



## Annex 7.2: Terms of Reference for the Malaria Health Sector Working Committee

The Malaria Health Sector Working Committee is the technical coordinating agency for malaria control in Kenya. The purpose of the committee is to review recommendations from the various Committees of Experts (CoE) and advocate for and mobilise resources for malaria control and elimination in Kenya. The committee will also prioritise areas of investment, set national targets based on global guidance for malaria control and elimination, and oversee implementation of interventions, including review of progress against set targets.

Terms of reference	Chair	Members
1. To advise and guide the Ministry of Health on malaria policy, strategies and priorities, including cross-border issues	Head, Preventive and Promotive Health (Chair)	<ul style="list-style-type: none"> <li>• Head, Department of Technical Planning and Monitoring and Evaluation (M&amp;E)</li> <li>• Head of Curative Services</li> </ul>
2. To advise and support the National Malaria Control Programme (NMCP), Ministry of Health (MOH) in mobilising resources for malaria control interventions	Head, Division of National Strategic Public Health Programmes (Alternate chair)	<ul style="list-style-type: none"> <li>• Head, Vector Borne Disease Control Unit</li> <li>• Head, Division Family Health</li> <li>• Universal Health Coverage Unit</li> </ul>
3. To advise and guide the NMCP and other implementing partners on the implementation of Kenya Malaria Strategy		<ul style="list-style-type: none"> <li>• KEMSA</li> <li>• County Directors of Health (Kisii, Kisumu, Kwale, and Turkana)</li> </ul>
4. To act as a forum for exchange of information on partners' malaria control and research activities	Head, National Malaria Control Programme (Secretary)	<ul style="list-style-type: none"> <li>• Council of Governors (Health Representative)</li> <li>• Christian Hospital Association of Kenya</li> </ul>
5. To identify and advise on strategic areas for coordination at the county, national, and international levels		<ul style="list-style-type: none"> <li>• Director Public Health</li> <li>• Deputy Director Research and Development, KEMRI</li> </ul>
6. To define and review the output of committees of experts and sub-committees and take account of their findings in formulating advice and recommending action		<ul style="list-style-type: none"> <li>• The National Treasury</li> <li>• United States President's Malaria Initiative (PMI)</li> <li>• Clinton Health Access Initiative</li> </ul>
7. To receive and review progress and performance reports against set targets		<ul style="list-style-type: none"> <li>• Amref Health Africa</li> </ul>
8. To identify problems and obstacles to implementation of malaria control activities and recommend solutions		<ul style="list-style-type: none"> <li>• World Health Organization</li> <li>• UK Department for International Development</li> </ul>
9. To provide regular updates to the MOH on achievements and progress against objectives		<ul style="list-style-type: none"> <li>• UNICEF</li> <li>• World Bank</li> <li>• Civil society representation</li> <li>• Private sector representation</li> <li>• All chairpersons of various CoEs</li> </ul>

NOTE: Other members may be co-opted from time to time as need arises: Relevant PMI/United States Agency for International Development implementing partners(Chief of Party); Chief Pharmacist; Deputy Secretary Finance; Head, Reproductive Health and Maternal Unit; Ministry of Education; Head, Neonatal, Child and Adolescent Health Unit; Head, Community Health and Development Unit; Head, Health Promotion Unit; CoE Chair; Head, Division of Health Information System and M&E; Ministry of Information, Communication and Technology; Ministry of Tourism and Wildlife; Ministry of East Africa Community and Northern Corridor Development; Ministry of Agriculture and Irrigation

### Annex 7.3: Terms of Reference for the NMCP Committees of Experts

Resource Mobilisation Committee of Experts		
Purpose: To ensure availability of adequate financial resources for the implementation of the Kenya Malaria Strategy		
Terms of reference	Chair	Membership
<ol style="list-style-type: none"> <li>1. Advise on the development and review of the resource mobilisation strategy for NMCP</li> <li>2. Review resource availability and gaps</li> <li>3. Review funding absorption</li> <li>4. Review resource mobilisation annual plan</li> <li>5. Review annual financial gap analysis</li> <li>6. Provide effective coordination for the development of proposals for resource mobilisation</li> <li>7. Advise on innovative mechanisms for resource mobilisation, both domestic and external</li> </ol>	<p>Head, Division of National Strategic Public Health Programmes</p>	<ul style="list-style-type: none"> <li>• Department of Technical Planning and M&amp;E</li> <li>• NMCP (Secretary)</li> <li>• Chief Finance Officer</li> <li>• Universal Health Coverage</li> <li>• Council of Governors</li> <li>• The National Treasury</li> <li>• PMI</li> <li>• Relevant PMI/USAID implementing partners</li> <li>• Amref Health Africa</li> <li>• World Health Organization</li> <li>• UKAID</li> <li>• UNICEF</li> <li>• World Bank</li> <li>• Malaria No More</li> <li>• Civil society representation</li> <li>• Private sector representation</li> <li>• Other members may be co-opted from time to time as need arises</li> </ul>

Procurement and Supply Chain Management (PSCM) Committee of Experts

**Purpose:** To provide overall stewardship on malaria commodity management

Terms of reference	Chair	Membership
<ol style="list-style-type: none"> <li>1. Provide technical advice on forecasting and quantification of malaria commodities</li> <li>2. Monitor and recommend actions related to commodity pipeline</li> <li>3. Review and advise on stock status on monthly basis</li> <li>4. Report regularly to and advise the Malaria Health Sector Working Committee on PSM</li> <li>5. Review redistribution of commodities</li> </ol>	<p>Head, Malaria Control Unit</p> <p>Secretary: Focal person Procurement Supply Chain Management</p>	<ul style="list-style-type: none"> <li>• NMCP focal persons</li> <li>• The National Treasury</li> <li>• KEMSA</li> <li>• Pharmacy and Poisons Board</li> <li>• NQCL</li> <li>• PMI</li> <li>• Relevant PMI/USAID implementing partners</li> <li>• WHO</li> <li>• Amref Health Africa</li> <li>• UNICEF</li> <li>• Department of Pharmacy</li> <li>• Council of Governors</li> <li>• Department of Environmental Health</li> <li>• Private sector representation</li> </ul>

\*For purposes of TOR No. 3, a subset of this team will meet on a monthly basis, and the membership of the monthly meeting will include but not be limited to: NMCP, KEMSA, The National Treasury, PPB, PMI, relevant PMI/USAID implementing partners, WHO

## Vector Control Committee of Experts

**Purpose:** To recommend policy direction and provide technical support for IVM for malaria control activities

Terms of reference	Chair	Membership
<ol style="list-style-type: none"> <li>1. Advise the Malaria Health Sector Working Committee on vector control policy direction</li> <li>2. Provide a forum for private and public sector groups to consider and recommend policy direction and against solicited research</li> <li>3. Review modalities and costs of Government of Kenya/donor-assisted targeted distribution of long lasting insecticidal nets, indoor residual spraying and larvae source management to population at risk</li> <li>4. Review the performance of vector control intervention on a regular basis</li> <li>5. Advise on curriculum review for health workers training on vector control</li> <li>6. Liaise with the Social and Behaviour Change CoE on appropriate messaging to support vector control activities</li> <li>7. Provide forum for sharing of technical information with PCPB on malaria vector control products</li> <li>8. Serve as custodian and repository of knowledge on malaria vector control</li> </ol>	Head, NMCP	<ul style="list-style-type: none"> <li>• NMCP</li> <li>• Migori county malaria control coordinator with any other county being co-opted depending on the agenda/need</li> <li>• Disease Surveillance and Response Unit</li> <li>• PCPB</li> <li>• PMI</li> <li>• Relevant PMI/USAID implementing partners</li> <li>• WHO</li> <li>• Relevant academic institutions</li> <li>• KEMSA</li> <li>• International Centre of Insect Physiology and Ecology</li> <li>• National Environment Management Authority</li> <li>• KEMRI and affiliate bodies/programmes</li> <li>• Kenya NGOS Alliance Against Malaria</li> <li>• Vector Borne Disease Control Unit</li> <li>• Community Health and Development Unit</li> <li>• Private sector representation: <ul style="list-style-type: none"> <li>• Bayer</li> <li>• Sumitomo chemicals</li> </ul> </li> </ul>

### Malaria in Pregnancy Committee of Experts

**Purpose:** To advise on policy issues and provide technical support related to prevention and treatment of malaria in pregnancy (MIP)

Terms of reference	Chair	Membership
<ol style="list-style-type: none"> <li>1. Advise the Malaria Health Sector Working Committee on policies and strategies, including suitable products for intermittent preventive treatment in pregnancy using sulphadoxine-pyrimethamine</li> <li>2. Provide technical guidance for the implementation of activities for the prevention and treatment of MIP</li> <li>3. Be custodians of a knowledge repository for prevention and treatment of MIP</li> <li>4. Review the performance of MIP on a regular basis</li> <li>5. Advise on operational research for the prevention and treatment of MIP</li> <li>6. Advise on guidelines and curricula</li> </ol>	<p>Head, Reproductive Health Services Unit</p>	<ul style="list-style-type: none"> <li>• <b>Departments:</b> NMCP (Secretariat), Reproductive Health Services Unit, Department of Health Promotion, Community Health and Development Unit, HMIS, Nursing Council of Kenya, KEMRI and affiliate institutions, KEMSA, Kenya Clinical Officers Council</li> <li>• <b>Institutions:</b> Kenya Obstetrical and Gynaecological Society, relevant departments of academia</li> <li>• <b>Partners:</b> WHO, UNICEF, Population Services Kenya, PMI, relevant PMI/ USAID implementing partners</li> </ul>

### Case Management Committee of Experts

**Purpose:** To advise on policy issues related to diagnosis and treatment of malaria in Kenya

Terms of reference	Chair	Membership
<ol style="list-style-type: none"> <li>1. Provide policy guidelines on malaria treatment and chemoprophylaxis based on available evidence</li> <li>2. Maintain a review of the quality of antimalarial medicines to ensure safe and effective antimalarial are available in the market</li> <li>3. Monitor the implementation of the current treatment policy, identify problems, and recommend solutions</li> <li>4. Review pre-service and in-service training for case management and parasitological diagnosis and recommend changes to curricula or training packages to meet these needs</li> <li>5. Give technical advice on the quantification of antimalarial medicines and diagnostic equipment based on the country needs</li> <li>6. Report regularly to and advise the Malaria Health Sector Working Committee on case management policy directions</li> </ol>	<p>Head, NMCP</p>	<ul style="list-style-type: none"> <li>• <b>NMCP:</b> Secretariat</li> <li>• <b>Government of Kenya institutions:</b> NQCLs, National Public Health Laboratory Services, DCAH, Department of Pharmacy</li> <li>• <b>Regulatory bodies:</b> PPB, Kenya Medical Laboratory Technicians and Technologists Board</li> <li>• <b>Partners:</b> Population Services Kenya, Afya Ugavi, PMI, relevant PMI/USAID implementing partners, WHO, UNICEF, Mission for Essential Drugs and Supplies,</li> <li>• <b>Academic/research institutions</b> KEMRI, Centers for Disease Control, KEMRI/ Wellcome trust, Amref Health Africa</li> <li>• <b>Professional bodies:</b> Kenya Medical Association, Nursing Council of Kenya, Pharmaceutical societies of Kenya, Clinical Officers Council</li> <li>• <b>Training institutions:</b> University of Nairobi, Kenya Medical Training College</li> </ul>



### Malaria Social and Behaviour Change (SBC) Committee of Experts

**Purpose:** To advise the Malaria Health Sector Working Committee on policy issues and provide technical support on implementation of advocacy, communication, and social mobilisation for malaria control interventions

Terms of reference	Chair	Membership
<ol style="list-style-type: none"> <li>1. Advise the Malaria Health Sector Working Committee on policy and strategy concerning malaria SBC</li> <li>2. Provide technical guidance on all aspects of SBC, including research, design, production, dissemination, monitoring, and evaluation</li> <li>3. Provide a forum for malaria SBC partners to coordinate the planning, implementation, and monitoring of malaria SBC activities</li> <li>4. Provide a platform for the development, review, and approval of standardised malaria messages that can be adapted into local context</li> <li>5. Identify, document, and disseminate best practices on malaria SBC</li> <li>6. Provide SBC support to other CoEs vector control, case management, malaria elimination, and SMEOR.</li> <li>7. Report to the Malaria Health Sector Working Committee on a quarterly basis</li> </ol>	<p>Head, Health Promotion Unit – Ministry of Health</p>	<ul style="list-style-type: none"> <li>• <b>Ministry of Health:</b> NMCP, Health Promotion Unit, Public Relations Officer, Reproductive, Maternal and Health Unit, Community Health and Development Unit, Neo-natal, Child &amp; Adolescent Health Unit, National Vaccines and Immunisation Programme</li> <li>• <b>Relevant Ministries:</b> Ministry of Education, Ministry of Information, Communication and Technology</li> <li>• <b>Bilateral and development partners:</b> WHO, UNICEF, PMI, relevant PMI/USAID implementing partners, UKAID and implementing partners, Bill and Melinda Gates Foundation and its implementing partners</li> <li>• <b>Implementing partners:</b> Amref Health Africa, KeNAAM, Kenya Red Cross, World Vision, and PATH</li> <li>• KEMRI and its affiliate institutions</li> <li>• Relevant departments of academia</li> <li>• Other relevant members can be co-opted as needed</li> </ul>

Surveillance, Monitoring and Evaluation Committee of Experts

**Purpose:** To advise and provide technical support on monitoring and evaluating progress against strategic objectives, and assess research needs and implications of emerging evidence

Terms of reference	Chair	Membership
<ol style="list-style-type: none"> <li>1. Advise on methods for measuring the indicators for malaria as stipulated by the Kenya Malaria Strategy</li> <li>2. Monitor and support evaluation of progress towards the KMS goals, objectives, and strategies</li> <li>3. Identify the logistical and resource issues associated with applying the proposed evaluation and survey methodologies and make recommendations on the way forward</li> <li>4. Advise on the surveillance modalities for malaria management</li> <li>5. Disseminate the results of monitoring and evaluation and ensure they are taken into account during strategic planning and review</li> <li>6. Identify and advise on emerging evidence and its implications for policy and strategic application</li> <li>7. Monitor Epidemic Preparedness and Response(EPR) and advise on appropriate strategies and guidelines for EPR</li> <li>8. Make recommendations and report regularly to the Malaria Health Sector Working Committee</li> </ol>	<p>Head, NMCP</p>	<ul style="list-style-type: none"> <li>• <b>Ministry of Health:</b> NMCP, Health Management Information Systems, Civil Registration and Vital Statistics, Disease Surveillance Response Unit, Vector Borne Disease Control Unit, National Child and Adolescent Health Unit, Reproductive Health Unit, Community Health and Development Unit, Department of Environmental Health, National Vaccines and Immunisation Programme, PPB, KEMSA,</li> <li>• <b>Relevant Ministries:</b> Kenya National Bureau of Statistics, National Coordinating Agency for Population and Development, Kenya Meteorological Department,</li> <li>• <b>Academic institutions:</b> KEMRI and affiliate institutions,</li> <li>• <b>Implementing partners:</b> KeNAAM, ICIPE, Amref Health Africa, World Vision Kenya, PMI, relevant PMI/USAID implementing partners, UKAID and implementing partners, WHO, UNICEF, Kenya association of private hospitals</li> </ul>

### Operational Research Committee of Experts

**Purpose:** To coordinate appropriate research activities and assess policy implications of emerging evidence

Terms of reference	Chair	Membership
<ol style="list-style-type: none"> <li>1. Advise on needs for malaria research to support the Kenya Malaria Strategy implementation</li> <li>2. Set a prioritised research agenda for malaria management in Kenya as well as review progress in various ongoing research activities</li> <li>3. Mobilise partners and advocate funds for the malaria research agenda</li> <li>4. Develop and oversee the implementation of a strategy for dissemination of research findings relevant to the Kenya Malaria Strategy implementation</li> <li>5. Track, collate, package, and disseminate emerging research evidence nationally and internationally in relation to policy issues in the Kenya Malaria Strategy</li> <li>6. Provide a theme and stewardship for the biennial Kenya Malaria Forum</li> <li>7. Report regularly to the Malaria Health Sector Working Committee</li> </ol>	KEMRI	<ul style="list-style-type: none"> <li>• <b>Ministry of Health:</b> Vector Borne Disease Control Unit, Health Research Unit,</li> <li>• <b>KEMRI and its affiliates:</b> KEMRI Centre for Biological Research, KEMRI CDC, KEMRI Walter Reed, KEMRI Wellcome Trust, KEMRI Nagasaki,</li> <li>• <b>Relevant departments of academic institutions:</b> African Population and Health Research Centre, African Institute for Development Policy, AMPATH, ICIPE</li> <li>• <b>Implementing partners:</b> Amref Health Africa, PATH, PMI, relevant PMI/ USAID implementing partners, UNICEF, World Bank, WHO</li> </ul>

#### Key:

CDC=U.S. Centers for Disease Control and Prevention; CoE=Committee of Experts; DCAH=Department of Child and Adolescent Health; HMIS=Health Management Information System; ICIPE=International Centre of Insect Physiology and Ecology; IRS=indoor residual spraying; KEMRI=Kenya Medical Research Institute; KEMSA=Kenya Medical Supplies Authority; KeNAAM=Kenya NGOs Alliance Against Malaria; LLIN=long-lasting insecticide-treated net; LSM=larval source management; M&E=monitoring and evaluation; NMCP=National Malaria Control Programme; NQCL=National Quality Control Laboratory; PCPB=Pest Control Products Board; PMI=United States President’s Malaria Initiative; PPB=Pharmacy and Poisons Board; PSM=procurement and supply management; SBC=social and behaviour change; UKAID=UK Department for International Development; USAID=United States Agency for International Development; VBDCU=Vector Borne Disease Control Unit; WHO=World Health Organization



## CoE and Malaria Health Sector Working Committee Operation Procedures

The Malaria Health Sector Working Committee and CoEs and other committees shall operate according to the following guidelines:

**Meetings:** Standard meetings will be held on a quarterly basis; the chair and the secretary will determine ahead of time the specific dates and timings for each meeting. Special meetings may be scheduled in accordance with specific requirements.

**Disclosure of conflict of interest:** If a member has a conflict of interest on specific topic under discussion, he or she will make the circumstances of the conflict of interest known to the meeting, to ensure that discussions proceed in an open and transparent manner.

**Quorum:** In the first meeting, the membership will determine the minimum quorum and mandatory participation for all standard meetings.

**Meeting support:** The secretariat carries the responsibility for preparing an agenda and meeting materials in advance, sending timely invitations, and circulating minutes.

**Delegation of tasks:** The Malaria Health Sector Working Committee and CoE may delegate tasks as needed to the chair of the committee or CoE members as deemed appropriate.

**Participation in meetings:** The meetings may co-opt other persons to participate during meeting for the purpose of sharing expertise.

**Chairing:** All meetings will be conducted by the designated chairs.

## Annex 7.4: Critical Sectors that Affect Malaria Control

The following table outlines the key critical sectors that affect malaria control, grouped into seven areas. These sectors are critical to malaria control due to their direct or indirect contribution to malaria control. Collaboration and partnerships in planning, implementation, monitoring, and evaluation of the programme is important to achieve the programme's goal and objectives.

**Group 1:** Health sector programs such as Division of Reproductive Health, Disease Surveillance and Response, public health laboratories, health promotion, Department of Child and Adolescent Health (DCAH)

**Group 2:** Non-health ministries: Ministry of Education Science and Technology; Ministry of Interior Coordination and Security; Ministry of Defence; Ministry of Devolution and Planning; Ministry of Environment, Water and Natural Resources; Ministry of Mining; The National Treasury; Ministry of East African Community, Commerce and Tourism; Ministry of Transport and Infrastructure; Ministry of Land, Housing and Urban Development; Ministry of Agriculture, Livestock and Fisheries

**Group 3:** Academia and research institutions

**Group 4:** Private sector

**Group 5:** Civil society

**Group 6:** Professional associations and societies

**Group 7:** Legislators at national and county levels

### Seven Key Critical Sectors and Groups that Affect Malaria Control

Ministry, Department, Agency	Role in Malaria Control
GROUP 1: HEALTH SECTOR PROGRAMS	
Reproductive and Maternal Health Unit	<ul style="list-style-type: none"> <li>• Support LLIN and IPTp delivery through ANC</li> <li>• Treatment of malaria in pregnancy</li> <li>• Conduct integrated support supervision</li> <li>• Monitor and evaluate MIP indicators</li> <li>• Include MIP in RH SBC messages, incorporate MIP in RH capacity-building curricular</li> </ul>
Neonatal, Child and Adolescent Health Unit	<ul style="list-style-type: none"> <li>• Support routine LLIN distribution through Child Welfare Clinics in malaria-prone counties</li> <li>• Implement diagnosis and appropriate treatment of fever, particularly the use of parasitological diagnostics for confirmation of malaria</li> <li>• Development of appropriate job aids and treatment guidelines</li> <li>• Integration of current malaria policies in Integrated Management of Childhood Illness</li> <li>• Coordination of implementation, monitoring and evaluation of CCMm</li> </ul>



Ministry, Department, Agency	Role in Malaria Control
Neglected Tropical Diseases Unit and Vector Borne Disease Control Unit	<ul style="list-style-type: none"> <li>• Participate in implementation of IRS activities</li> <li>• Support and participate in LSM surveys and entomological surveillance</li> <li>• Undertake vector surveillance activities</li> <li>• Participate in the development and validation of Malaria Early Warning Systems</li> <li>• Undertake risk mapping to identify hot spots</li> <li>• Build capacity in vector surveillance</li> <li>• Participate in updating of EPR and IRS guidelines</li> <li>• Participate in insecticide resistance monitoring</li> </ul>
Division of Environmental Health	<ul style="list-style-type: none"> <li>• Support and assist in planning and coordination of larval source management, IRS, and mass net distribution</li> <li>• Advocacy and social mobilisation</li> <li>• Enforce public health and health-related environmental laws and regulations</li> <li>• Participate in vector control Committee of Experts</li> <li>• Support environmental impact assessment and environmental audit, including IRS and LLIN waste management</li> <li>• Participate in policy formulation for insecticides to be used for IRS in early response</li> <li>• Participate in revision of EPR guidelines</li> <li>• Participate in climate change and share information for EPR planning</li> </ul>
Community Health Unit	<ul style="list-style-type: none"> <li>• Disseminate key information to communities</li> <li>• Participate in LLIN distribution, IRS, LSM, IPTp, and Malaria Free-schools initiative</li> <li>• Ensure that Community Health Units are functional</li> <li>• Assist in surveillance activities at the household level</li> <li>• Assist in monitoring LLIN ownership and use at the household level</li> <li>• Develop and disseminate policies and guidelines for malaria CCMm</li> <li>• Coordinate and implement malaria CCMm programmes</li> <li>• Develop and review CHIS tools</li> <li>• Monitor and report CHIS indicators</li> </ul>
Division of Health Informatics, Monitoring and Evaluation	<ul style="list-style-type: none"> <li>• Develop, review, and produce reporting tools</li> <li>• Formulate, integrate, and review health indicators</li> <li>• Participate in DQAs</li> <li>• Ensure timely and complete reporting through DHIS2</li> </ul>
Division of Research and Development	<ul style="list-style-type: none"> <li>• Link NMCP to overall health research agenda</li> <li>• Provide research policy and guidelines</li> <li>• Participate in dissemination of malaria operations research results</li> </ul>

Ministry, Department, Agency	Role in Malaria Control
Disease Surveillance and Response Unit	<ul style="list-style-type: none"> <li>• Coordinate malaria surveillance and reporting countrywide</li> <li>• Participate in capacity building for EPR at county and sub-county levels</li> <li>• Participate in updating of EPR guidelines and surveillance curriculum</li> <li>• Participate in EPR planning and review meetings</li> <li>• Support detection of and response to malaria epidemics</li> <li>• Participate in malaria post-epidemic evaluation</li> <li>• Generate and disseminate disaggregated malaria weekly data by county and subcounty through a feedback epidemiological bulletin</li> <li>• Participate in review of tools for reporting disease surveillance</li> <li>• Prepare weekly and monthly disease surveillance reports</li> <li>• Provide feedback to county and sub-county health management teams on malaria surveillance data</li> <li>• Build capacity at national and sub-national levels on disease surveillance</li> <li>• Participate in DQAs</li> </ul>
National Public Health Laboratory Services	<ul style="list-style-type: none"> <li>• Establish the national malaria reference lab for training and quality control and quality assurance for malaria diagnosis</li> <li>• Support response to malaria epidemics</li> <li>• Participate in verification exercises in case of high positivity rates in a county or subcounty for quality assurance</li> <li>• Ensure timely reporting of malaria lab data through Laboratory Information System</li> <li>• Participate in health facility and community surveys</li> <li>• Support the development of malaria diagnostic policy and guidelines</li> <li>• Conduct diagnostics quantification, forecasting, and inventory management</li> <li>• Ensure adequate supply of malaria diagnostics countrywide</li> <li>• Ensure that personnel are regularly updated on malaria diagnosis</li> </ul>
Health Promotion Unit	<ul style="list-style-type: none"> <li>• Conduct risk communication during malaria outbreaks</li> <li>• Support the review and development of appropriate messages to promote the uptake of malaria control interventions, including campaigns (World Malaria Day, community mobilisation meetings)</li> <li>• Support delivery of malaria control messages to target audiences</li> <li>• Provide guidance on ACSM and participate in ACSM CoE meetings</li> <li>• Evaluate the impact of various messages and delivery mechanisms</li> <li>• Report on performance, best practices, and impact of messages</li> </ul>



Ministry, Department, Agency	Role in Malaria Control
Kenya Medical Supplies Authority	<ul style="list-style-type: none"> <li>• Support logistics and management of commodities and supplies</li> <li>• Procure warehousing and distribute malaria case management commodities</li> <li>• Procure and distribute emergency malaria commodities</li> <li>• Maintain malaria commodities buffer stocks and preposition at central and regional depots</li> <li>• Participate in the strengthening of LMIS for malaria commodities</li> <li>• Report on commodity distribution</li> <li>• Support supervision on commodity management</li> <li>• Conduct training on procurement and supply management</li> </ul>
Regulatory Bodies (PPB, KMLTTB, Kenya Bureau of Standards (KEBS))	<ul style="list-style-type: none"> <li>• Regulate, monitor, and evaluate access to subsidized ACTs in the private sector</li> <li>• Conduct pharmacovigilance for malaria medicines, including monitoring of adverse drug reactions</li> <li>• Participate in post-market surveillance for malaria medicines</li> <li>• Participate in the drug availability survey in the private sector</li> <li>• Regulate malaria parasitological testing and conduct QA/QC of malaria diagnostics</li> <li>• Monitor performance and report on set targets</li> </ul>
<b>GROUP 2: NON-HEALTH SECTOR MINISTRIES AND ORGANISATIONS</b>	
Ministry responsible for Education, Science and Technology	<ul style="list-style-type: none"> <li>• Mainstream malaria prevention activities in the school curriculum</li> <li>• Promote LLIN use in schools</li> <li>• Encourage prompt diagnosis and treatment for all fever cases in schools</li> <li>• Participate in malariometric surveys in schools</li> <li>• Participate in evaluation of various interventions to control malaria in school populations</li> <li>• Participate in performance monitoring and review meetings</li> </ul>
Ministry responsible for Agriculture, Livestock and Fisheries	<ul style="list-style-type: none"> <li>• Sensitise communities on environmental manipulation through reclamation of water bodies and wet lands</li> <li>• Provide a platform for exhibition during agricultural shows to promote malaria interventions</li> <li>• Support LSM in irrigation schemes (well-planned and designed irrigation schemes)</li> <li>• Enhance registration and regulation of vector control commodities (PCPB)</li> <li>• Participate in the monitoring of insecticide resistance to malaria vectors (PCPB)</li> <li>• Participate in the monitoring of the impact of agricultural activities on malaria</li> <li>• Participate in performance monitoring and review meetings</li> </ul>



Ministry, Department, Agency	Role in Malaria Control
Ministry responsible for Transport and Infrastructure	<ul style="list-style-type: none"> <li>• Implement National Environment Management Authority regulations for road construction and maintenance (backfilling of excavations during road construction and roadside potholes)</li> <li>• Regulate construction of dams and irrigation systems to minimise larval habitat creation</li> </ul>
Ministry responsible for Tourism and Wildlife	<ul style="list-style-type: none"> <li>• Support LLIN use in hotels</li> <li>• Participate in dissemination of malaria information on prevention and treatment in tourism sector</li> </ul>
Ministry Responsible for Environment and Natural Resources	<ul style="list-style-type: none"> <li>• Enforce environmental regulations for roads, buildings, and construction works, agricultural and water sector</li> <li>• Conduct environmental impact assessment and environmental audit, including IRS and LLIN waste management</li> <li>• Kenya Meteorology Department: Generate and share weather forecast reports to guide EPR activities</li> <li>• Participate in evaluation of the impact of environmental degradation and climate change on malaria</li> <li>• Provide climate forecast to facilitate malaria risk communication</li> <li>• Advocate measures to mitigate against environmental impact that promote malaria transmission</li> </ul>
The National Treasury and Planning	<ul style="list-style-type: none"> <li>• Allocate resources for malaria control</li> <li>• Mobilise resources</li> <li>• Oversee financial management</li> <li>• Participate in performance monitoring and review meetings</li> </ul>
Ministry of Devolution	<ul style="list-style-type: none"> <li>• Coordinate, plan, and implement Malaria Indicator Surveys, Demographic and Health Surveys, Service Provision Assessment surveys, economic surveys, and national health accounts</li> <li>• Provide national and county demographic data</li> </ul>
Media	<ul style="list-style-type: none"> <li>• Support advocacy and social mobilisation</li> <li>• Provide education on malaria prevention</li> <li>• Mobilise resources</li> </ul>
Ministry of East African Committee	<ul style="list-style-type: none"> <li>• Ensure provision of efficient and high-quality regional health system</li> <li>• Harmonise legal and regulatory framework, standards and guidelines, for malaria control in the health sector in the region</li> <li>• Address crosscutting challenges affecting malaria control in the region such as health financing, human resources, poverty, climate</li> <li>• Monitor and evaluate regional projects such as the East African Public Health Laboratory Network</li> <li>• Mainstream malaria control into the regional development agenda</li> </ul>



Ministry, Department, Agency	Role in Malaria Control
Immigration	<ul style="list-style-type: none"> <li>• Ensure well-being of refugee populations in regards to malaria control</li> <li>• Ensure that all visitors comply with regulation and policies of malaria control</li> </ul>
Ministry of Labour, Social Security and Services	<ul style="list-style-type: none"> <li>• Promote progressive workplace and safety policies that safeguard the health of workers</li> <li>• Develop social policies for protection of vulnerable groups</li> <li>• Ensure the development and enforcement of proper regulation of traditional health practitioners</li> </ul>
<b>GROUP 3: ACADEMIC AND RESEARCH INSTITUTIONS</b>	
Academic and Research Institutions	<ul style="list-style-type: none"> <li>• Participate in malaria control CoE meetings</li> <li>• Participate in training and capacity building at national and county levels</li> <li>• Carry out operational Research</li> <li>• Generate evidence for policy formulation</li> <li>• Monitor drug efficacy</li> <li>• Conduct entomological surveillance</li> <li>• Monitor insecticide resistance</li> <li>• Collaborate in the implementation of Malaria Indicator Surveys and other surveys</li> <li>• Participate in carrying out various interventions</li> <li>• Participate in performance monitoring and review meetings</li> <li>• Mainstream malaria control guidelines, policies into relevant school curriculum</li> </ul>
<b>GROUP 4: PRIVATE SECTOR</b>	
Private Sector	<ul style="list-style-type: none"> <li>• Contribute malaria control commodities (IRS, LLINs, ACTs, malaria rapid diagnostic tests) through corporate social responsibility initiatives</li> <li>• Support logistics for the distribution of malaria control commodities</li> <li>• Develop innovative products for malaria prevention and control</li> <li>• Manufacture malaria control commodities</li> <li>• Support the provision of and access to affordable malaria case management, especially in the private sector, and implement training of health workers on malaria case management</li> <li>• Submit complete and timely reports through the HMIS</li> <li>• Promote partnership with the public health sector</li> <li>• Provide resources for malaria control interventions through various alliances</li> <li>• Participate in the various CoE meetings at the NMCP</li> <li>• Participate in the development and implementation of malaria business plans</li> </ul>

Ministry, Department, Agency	Role in Malaria Control
GROUP 5: CIVIL SOCIETY Organisations	
Civil Society Organisations	<ul style="list-style-type: none"> <li>• Support the implementation of malaria control activities as guided by the policy documents and Strategic Plan</li> <li>• Support the development of curricula, guidelines, strategies, and policy documents</li> <li>• Support M&amp;E of various interventions implemented by community service organisations</li> <li>• Participate in various community-based surveys</li> <li>• Monitor various malaria indicators and report in a timely manner</li> <li>• Ensure timely data submission to HMIS/LMIS and community information system where relevant</li> <li>• Conduct and report on performance review meetings</li> <li>• Document and share best practices</li> <li>• Participate in the implementation of operational research</li> <li>• Participate in proposal development for malaria control interventions</li> <li>• Participate in the various CoE meetings</li> <li>• Participate in strategic planning and policy implementation</li> <li>• Participate in the development and implementation of malaria business plans</li> <li>• Submit performance reports</li> <li>• Lobby for increased domestic funding for malaria control</li> </ul>



Ministry, Department, Agency	Role in Malaria Control
GROUP 6: PROFESSIONAL ASSOCIATIONS AND SOCIETIES	
Professional Associations and Societies	<ul style="list-style-type: none"><li>• Advocate policies in favour of malaria prevention and control</li><li>• Support implementation of malaria prevention and control policies and strategies</li><li>• Support and participate in updating curricula for pre-service and in-service training of health workers</li><li>• Participate in the development of guidelines and job aids for health workers and ensure utilisation</li><li>• Maintain quality of care in service delivery by various cadres of health workers</li><li>• Hold clinical discussions and reviews of malaria diagnosis and treatment with health workers</li><li>• Strengthen research capacities at the institutional level to evaluate quality of service delivery</li><li>• Support the generation of evidence-based practices for health workers</li><li>• Participate in discussions to translate research to policy</li><li>• Disseminate information on malaria policies, strategies, and guidelines to health workers</li><li>• Participate in the dissemination of the vision, goals, and objectives of the malaria control strategic plan to members</li><li>• Participate in mass communication to the public on malaria prevention and control messages</li><li>• Participate in the various CoE meetings</li><li>• Participate in strategic planning and policy implementation</li><li>• Participate in the development and implementation of malaria business plans</li><li>• Submit performance reports</li><li>• Liaise with regulatory bodies to encourage malaria best practices through trainings contributing to continuous professional development in malaria activities</li></ul>

Ministry, Department, Agency	Role in Malaria Control
GROUP 7: LEGISLATORS AT PARLIAMENTARY AND COUNTY ASSEMBLY COMMITTEES ON HEALTH	
Parliamentary (national and senate)	<ul style="list-style-type: none"> <li>• Advocate review of Malaria Prevention Act and Public Health Act</li> <li>• Advocate allocation of more resources for malaria control activities</li> <li>• Advocate malaria control interventions</li> <li>• Budget allocation in support of malaria control interventions</li> <li>• Promote political goodwill for support of malaria control interventions</li> <li>• Pass bills in support of malaria control interventions</li> <li>• Advocate enforcement of laws mopping up non-recommended medicines and diagnostics</li> <li>• Advocate the passing of relevant bills and their amendment as need arises</li> <li>• Support policy formulation and change</li> <li>• Advocate Government of Kenya support for health infrastructure development</li> <li>• Participate in resource mobilisation for malaria control interventions for partners</li> </ul>



Ministry, Department, Agency	Role in Malaria Control
County Assembly Committees on Health	<ul style="list-style-type: none"> <li>• Participate in county-level stakeholder meetings for malaria policy and strategic development</li> <li>• Support delivery of malaria prevention and control measures at community level</li> <li>• Allocate resources for malaria interventions from county budget</li> <li>• Advocate prompt diagnosis and treatment for malaria</li> <li>• Advocate the allocation of financial resources towards provision of stipend and other incentives for community health volunteers implementing CCMm</li> <li>• Advocate enforcement of laws mopping up non-recommended medicines and diagnostics</li> <li>• Advocate the passing of relevant bill sand their amendment as need arises</li> <li>• Promote community mobilisation activities for malaria control</li> <li>• Advocate the uptake of interventions, including the use of LLINs, acceptability of IRS, uptake of IPTp</li> <li>• Participate in the dissemination of malaria information to communities (e.g., during World Malaria Day)</li> <li>• Lead malaria control efforts and inter-sectoral collaboration within constituencies</li> <li>• Participate in ward, constituency, and county-level performance monitoring, planning, and review meetings.</li> <li>• Support and fund the recruitment of community health workers to support service delivery at the community level</li> <li>• Support passing of a resolution on a malaria-free Kenya</li> <li>• Advocate the allocation of resources for a malaria-free Kenya</li> <li>• Support resource mobilisation from private sector and other funding agencies</li> <li>• Recruit health workers to support service delivery</li> </ul>

**Key:**

ACSM=advocacy, communication, and social mobilization; ACT=artemisinin-based combination treatment; ANC=antenatal care; CCMm=community case management of malaria; CHIS=community health information system; CoE=Committee of Experts; DQA=data quality audit; EPR=epidemic preparedness and response; HMIS=health management information system; IPTp=intermittent preventive treatment in pregnancy; IRS=indoor residual spraying; KMLTTB=Kenya Medical Laboratory Technicians and Technologists Board; LLIN=long-lasting insecticide-treated net; LMIS=logistics management information system; LSM=larval source management; MIP=malaria in pregnancy; NMCP=National Malaria Control Programme; PCPB=Pest Control Products Board; PPB=Pharmacy and Poisons Board; RH=reproductive health;

## Annex 7.5: Commodities Requirements

LLINs	2019	2020	2021	2022	2023	Key assumptions
Population targeted	24,684,477	25,297,165	25,926,015	26,571,474	27,234,006	<i>In the 26 counties targeted for routine LLINs</i>
Routine distribution LLINs	1,701,852	1,753,213	1,797,076	1,851,708	1,898,179	<i>100% of pregnant women attending ANC; and 100% of infants covered by EPI in target counties</i>
Mass distribution LLINs		15,541,988			16,728,104	<i>Population targeted divided by 1.8, the no. of nets required to achieve universal coverage</i>
<b>Total LLINs required</b>	<b>1,701,852</b>	<b>17,295,202</b>	<b>1,797,076</b>	<b>1,851,708</b>	<b>1,898,179</b>	
Routine LLINs financed	1,698,988	1,667,827				<i>Financed through PMI</i>
Mass LLINs financed		9,155,000				<i>LLIN financed through Global Fund</i>
Gap routine distribution LLINs	2,864	85,386	1,797,076	1,851,708	1,898,179	
Gap mass distribution LLINs		6,386,988			16,728,104	<i>- ve gap = surplus</i>

IRS	2019	2020	2021	2022	2023	Key assumptions
Population targeted	2,082,290	3,024,861	3,412,825			<i>People living in targeted endemic counties</i>
Target structures	488,323	465,862	919,899			
No. of insecticide (pirimiphos methyl) bottles required	162,774	167,861	331,461			<i>Pirimiphos methyl</i>
IRS insecticides financed	164,174	172,586	4,725			<i>Financed through PMI</i>
Gap IRS insecticides	-1,400	-4,725	326,737			<i>-ve gap = surplus</i>

SP tabs (IPTp)	2019	2020	2021	2022	2023	Key Assumptions
Population targeted	15,595,289	15,952,387	16,137,791	16,325,848	16,516,613	<i>Total population in the target areas</i>
Total expected pregnancies	645,712	658,042	664,416	670,873	677,426	<i>~4.1% of the population in the target areas</i>
Women attending ANC in public health facilities	459,108	467,874	472,406	481,915	491,588	
IPTp doses needed	<b>1,377,323</b>	<b>1,403,623</b>	<b>1,417,219</b>	<b>1,445,745</b>	<b>1,474,763</b>	<i>3 doses per pregnancy</i>
SP tabs needed	<b>4,131,969</b>	<b>4,210,870</b>	<b>4,251,658</b>	<b>4,337,234</b>	<b>4,424,290</b>	<i>3 tablets per dose</i>
SP tabs financed	5,715,354	5,423,385	2,712,515	-	-	
Gap SP tabs	-1,583,385	-1,212,515	1,539,143	4,337,234	4,424,290	<i>- ve gap = surplus</i>

ACTs	2019	2020	2021	2022	2023	Key assumptions
Consumption data extrapolated from DHIS2 (2018)	6,725,713	6,898,564	7,071,717	7,249,218	7,431,173	<i>If all factors constant, consumption to increase at same rate as population</i>
Projected testing rate	70.0%	72.5%	75.0%	77.5%	80.0%	
Δ in consumption due to higher testing rate	1,167,828	253,672	251,523	249,231	246,678	<i>Increase in consumption due to higher testing rate</i>
Projected compliance: test +ve given AL	97.0%	98.0%	98.0%	98.0%	98.0%	
Δ in consumption due to higher compliance for test +ve given AL	5,320	54,805	-	-	-	<i>Increase in consumption due to higher compliance for test +ve given AL</i>
Projected non-compliance: test -ve given AL	9.0%	8.0%	7.0%	6.0%	5.0%	
Δ in consumption due to lower non-compliance for test -ve given AL	-232,569	-155,983	-180,111	-209,687	-246,678	<i>Decrease in consumption due to lower non-compliance for test -ve given AL</i>
Projected non-compliance: non-tested given AL	4.1%	3.5%	3.0%	2.5%	2.0%	
Δ in consumption due to lower non-compliance for non-tested given AL	-138,434	-47,972	-39,498	-39,024	-38,543	<i>Decrease in consumption due to lower non-compliance for non-tested given AL</i>
% reduction in consumption due to vector control measures	30%	20%	10%	30%	20%	<i>Highest reduction in the years following mass net campaigns (2019 and 2022)</i>
Δ in consumption due to vector control	-2,258,357	-1,400,617	-710,363	-2,174,921	-1,478,526	<i>Decrease in consumption due to vector control; largest decrease in years after mass net campaigns</i>
Net Δ in consumption	-1,456,212	-1,296,096	-678,449	-2,174,401	-1,517,069	
Total AL need for the public sector	5,269,501	5,602,468	6,393,269	5,074,817	5,914,104	
Total AL treatments financed	<b>8,487,399</b>	<b>6,920,020</b>	<b>3,015,000</b>		-	<i>Global Fund (6.3m Rx) and PMI (12m Rx)</i>
Gap AL tabs	-3,217,898	-1,317,552	3,378,269	5,074,817	5,914,104	<i>- ve gap = surplus</i>



Inj artesunate	2019	2020	2021	2022	2023	Key assumptions
inj artesunate need based on population growth	1,161,775	1,191,633	1,221,543	1,252,204	1,283,634	
% reduction in inj artesunate consumption due to programmatic interventions	22%	19%	10%	30%	20%	<i>Assumed to reduce in the same proportion as AL consumption</i>
Δ in inj artesunate consumption	-251,541	-223,883	-117,193	-375,598	-262,053	
Inj artesunate 60mg vials needed	<b>910,234</b>	<b>967,750</b>	<b>1,104,350</b>	<b>876,605</b>	<b>1,021,581</b>	
Inj artesunate 60mg vials financed	1,028,107	995,000	550,000	-	-	<i>PMI, Global Fund, and GOK co-financing</i>
Gap inj artesunate 60mg vials	-117,872	-27,250	554,350	876,605	1,021,581	<i>- ve gap = surplus</i>

Malaria RDTs	2019	2020	2021	2022	2023	Key assumptions
mRDTs consumption based on population growth	6,482,790	6,649,398	6,816,298	6,987,387	7,162,771	
Increase in mRDT consumption due to increase in testing rate	332,567	74,806	76,683	78,608	80,581	
mRDTs needed (tests)	<b>6,815,358</b>	<b>6,724,204</b>	<b>6,892,981</b>	<b>7,065,995</b>	<b>7,243,352</b>	
mRDTs financed	7,033,953	7,700,000	3,200,000	-	-	<i>PMI, Global Fund, and GOK co-financing</i>
Gap mRDTs	-218,596	-975,796	3,692,981	7,065,995	7,243,352	<i>- ve gap = surplus</i>

**Key:**

ACT=artemisinin-based combination treatment; AL=artemether-lumefantrine; ANC=antenatal care; EPI= Expanded Programme on Immunization  
 GOK=Government of Kenya; IPTp=intermittent preventive treatment in pregnancy; IRS=indoor residual spraying; LLIN=long-lasting insecticide-treated net; mRDT=malaria rapid diagnostic test; PMI=United States President's Malaria Initiative; SP=sulphadoxine-pyrimethamine

## Annex 7.6: List of Participants in Development of KMS 2019–2023

NAME	Organisation
Abduba Diba	NMCP
Abdi Yussuf	Marsabit County
Abdinasir Amin	MEASURE Evaluation
Abduba Dabassa	NMCP
Agnes Makandi	MOH
Agneta Mbithi	MEASURE Evaluation
Albert Odhiambo	Kisumu County
Alex Ayabei	MOH
Alexander Barchok	Uasin Gishu County
Ali Mohamed Noor	Wajir County
Aloise Gikunda	Population Services Kenya
Ambrose Agweyu	Consultant, Case Management
Andrew Wamari	NMCP
Ann Musuva	Population Services Kenya
Anthony Miru	The National Treasury
Anthony Murunga	MOH
Anthony Mwangi	NCCG
Arthur Andere	Kakamega County
Augustine Ngindu	Jhpiego
Bahati Mburah	Lamu County
Beatrice Kariuki	USAID/HIGDA
Beatrice Machini	NMCP
Beatrice Syomiti	Population Services Kenya
Ben Adika	Consultant, ACSM
Benson Kamau	Kirinyaga County
Betty Chepng'eno Lang'at	Kericho County
Brigid K. Ahindikha	MOH
Carey Abuya	Siaya County
Catherine Kariuki	MOH
Cecilia Muiva	Consultant, PSM
Charles Chege	NMCP
Charles Ogari	MEASURE Evaluation
Chimwani Welby	NMCP
Christine Kawira	USAID/Health Policy Plus
Christine Mbuli	NMCP
Clara Ahenda	MOH
Daniel Mwai	USAID/Health Policy Plus
Daniel Wacira	USAID/PMI
David Musya	MOH
Deborah Ikonge	NMCP
Diana Wandia K	Population Services Kenya

NAME	Organisation
Diane Sibi	Kajiado County
E. Cheruiyot	Kericho County
Edward Mwangi	KeNAAM
Edwin Onyango	Busia County
Elizabeth Chomba	Kwale County
Elizabeth Mwangeka	MEASURE Evaluation
Elly Obonyo	MOH
Emily Macharia	USAID/Health Policy Plus
Enos Masini	WHO
Ephantus Murigi	NMCP
Erastus Sinoti	Samburu County
Erick Okoth	KeNAAM
Esther Karanja	MOH
Esther Kinyeru	NMCP
Eunice Masamo	Taita Taveta County
Evan Mathenge	Consultant, Vector Control
Fatuma Dume	Mombasa County
Florence Nyangwara	Kisii County
Francis Kiio	Narok County
Fredrick Onyango	USAID/HIGDA
Geoffrey Otomu	Kisii County
George Karoki	Kirinyaga County
George Wadegu	USAID/TUPIIME Kaunti
Gerald Akeche	Homabay County
Gilbert Korir	Bomet County
Gilbert Sowon	Trans Nzoia County
Gilchrist Lokoel	Turkana County
Gladys Moraa	NMCP
Grace Baya	MOH
Grace Rabut	Kitui County
Haraja Elbusaidy	Kwale County
Hellen A Irahuya	Vihiga County
Hellen Gatakaa	Consultant, SMEOR
Isaac Chege	MOH
Isako Kushi	MOH
Ismael Abbey	NMCP
Jacinta Kiarie	Amref Health Africa
Jacinta Omariba	NMCP
Jacinta Opondo	NMCP
Jacqueline Kisia	NMCP
Jackson Cheruyot	Nakuru County
James Kiarie	NMCP


NAME	Organisation
James Mwangi	Population Services Kenya
James Sang	NMCP
Japhet K Rutto	MOH
Japheth Ayako	Tana River County
Jared Oure	Amref Health Africa
John Okindo	NMCP
Johnson Akatu Mariati	Bungoma County
Josephine Karuri	Lead Consultant
Josphat Kimori	Amref Health Africa
Judith Raburu	UNICEF
Kennedy Oruenjo	Siaya County
Khoti Gausi	WHO
Kiambo Njagi	NMCP
Kiiluku David	Makueni County
Lairumbi Geoffrey	Consultant, Kenya National Malaria Forum
Lenson Kariuki	MOH
Lilian Kaloki	Meru County
Lilian Manyonge	Amref Health Africa
Lilyana Dayo	Kisumu County
Lutomia Melsa	Busia County
Margaret Kigoi	MOH
Margaret Njenga	Population Services Kenya
Maxwell Murage	Kiambu County
Meshack Ogutu	Migori County
Micah Koech	Bomet County
Mildred Shieshia	USAID/PMI
Mohammed Adawa	Mandera County
Mokishon Turere	Malaria No More
Moses Kigen	MOH
Moses Wambusi	MOH
Mwaniki Njuguna	NMCP
Nancy Njoki	Population Services Kenya
Nicholas Lungaho	Amref Health Africa
Omar Ahmeldin	NMCP
Patricia Njiri	Clinton Health Access Initiative
Patrick Kome	Nyeri County
Patrick Njoka	Narok County
Pauline Ngigi	MOH
Peter Munyua	Nyeri County
Peter Njiru	NMCP
Peter Ouma	Consultant, Malaria in Pregnancy
Phillip Bett	MOH

NAME	Organisation
Rebecca Kiptui	NMCP
Regina Kandie	NMCP
Reuben Kiptoo	Uasin Gishu County
Reuben Maloba	Amref Health Africa
Robert Gichari Nginjiri	Nyeri County
Robert Mwaura	NMCP
Robert Perry	PMI/CDC
Robert Rono	Baringo County
Salat Dagane	Garissa County
Salome Onyando	Population Services Kenya
Samwel Kigen	NMCP
Shem Patta	Mombasa County
Silas Ayunga	Nyamira County
Simeon Okothe	Migori County
Solomon Karoki	NMCP
Solomon Simba	USAID/HIGDA
Sophie Githinji	MEASURE Evaluation
Stanislaous Ndeto	Makueni County
Stephen Munga	Consultant, Epidemic Preparedness and Response
Stephen Ngososei	KeNAAM
Stephen Osiemo	MOH
Theresa Watwii Ndavi	USAID/Health Policy Plus
Tom Wabwire	KeNAAM
Victor Sumbi	USAID/Afya Ugavi
Vincent Iduri	Kilifi County
Waqo Ejersa	Head, NMCP
William Kendagor	Elgeyo Marakwet County
Willis Akhwale	Jhpiego
Willis Omoro	Population Services Kenya
Wilson Tarus	West Pokot County
Winnie Kanyi	Murang'a County
Yazoume Ye	MEASURE Evaluation
Zeba Siaanoi	Malaria No More

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The logo consists of three overlapping curved shapes: a black one on the left, a red one in the middle, and a green one on the right, all with white outlines.

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