Republic of Zambia   **Ministry of Health**

End-term review report of the National Malaria Strategic Plan 2011–2016

National Malaria Elimination Centre, Lusaka, Zambia

January 2017

Table of contents

Foreword

Although Zambia has made significant progress against malaria in the recent past, malaria is still an important cause of significant morbidity and mortality and therefore remains one of the government's highest public health priorities.

The Ministry of Health has harnessed and coordinated partner support to successfully scale up proven interventions for a 'malaria-free Zambia. The National Malaria Strategic Plan (NMSP) 2011–2016, which provided a comprehensive framework for the prevention and control of malaria in 2011–2016, was part of the National Health Strategic Plan 2011–2016, the Sixth National Development Plan 2011–2016, and the Vision 2030 strategy for Zambia, which defines the broader national development context. It is also linked to global health and malaria control initiatives. The NMSP 2011–2016 focused on consolidating gains for impact through the continued scale-up of key interventions by a dedicated workforce with substantial financial support and commitment to other resources.

The end of the NMSP 2011–2016 in 2016 provided an opportunity to review and assess progress, identify the key challenges, and recommend improvements for the next malaria strategic plan. An end-term review (ETR) was therefore conducted in the last quarter of 2016. The ETR revealed significant progress in the scale-up of proven interventions. Zambia continues to be one of the best performing countries in terms of insecticide-treated net (ITN) distribution; about nine million nets were made available in 2013 and 2014 through mass distribution and to pregnant mothers and young children.

The malaria indicator survey (MIS) conducted in 2015 showed that progress has been made in net ownership and that Net use was high among households with a sufficient number of ITNs. However, use remained problematic among certain populations, in particular school children aged 5–19 years old. There has been a significant increase of testing of suspected malaria cases but this still falls short of the required universal testing. The coverage of intermittent preventive treatment of pregnant women (IPTp) in Zambia is among the highest in the African region. Zambia continues to show improvement in community management of cases; the MIS found an increase in use of community health workers as a source for anti-malarial drugs

Although malaria deaths declined 70% between 2010 and 2015, the target of near zero deaths was not achieved at the end of 2016. National malaria incidence remained largely unchanged over the review period, with some provinces experiencing dramatic reductions in incidence while others noted increases.

The ETR revealed that the overall capacity of the National Malaria Elimination Programme (NMEP) to implement planned activities of the NMSP 2011–2016 was low; only 36% of the planned activities were fully implemented, 43% of the planned activities were partially implemented, while 21% of the planned activities were not implemented at all.

In order to move towards elimination, Zambia will need to strengthen the capacity of the programme to implement planned activities, establish a package of high-impact malaria elimination interventions driven by epidemiological profile, and strengthen the capacity to track the malaria elimination programme to generate, interpret, and use quality assured data for decision-making and action.

With sustained commitment and financial resources, key leadership by the Government, and a focused package of proven, high-impact interventions, and a solid evidence base to monitor our progress, we will attain our goals.

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Acknowledgements

Acronyms and abbreviations

ACT	Artemisinin-based combination therapy
AL	Artemether-lumefantrine
ANC	Antenatal care
BCC	Behaviour change communication
CHA	Community health assistant
CHAZ	Churches Health Association of Zambia
CHW	Community health workers
CSO	Civil society organisation
DHIS	District health information system
DHO	District health office
DHS	Demographic and health survey
EIR	Entomological inoculation rate
ETR	End-term Review
EPR	Epidemic preparedness and response
GFATM	Global Fund to Fight AIDS, Tuberculosis, and Malaria
GRZ	Government of the Republic of Zambia
HMIS	Health management information system
HQ	Headquarters
iCCM	Integrated community case management
IEC	information, education, and communication
IPTp	intermittent preventive treatment in pregnancy
IRS	indoor residual spraying
ITN	insecticide-treated net
LLIN	Long-lasting insecticide-treated net
LSM	Larval source management
MACEPA	Malaria Control and Partnership in Africa
MCD	Ministry of Community Development
M&E	Monitoring and evaluation
MIS	Malaria indicator survey
MOH	Ministry of Health
MPR	Malaria programme review
MTR	Mid-term review
NMCC	National Malaria Control Centre
NMEC	National Malaria Elimination Centre
NMCP	National Malaria Control Programme
NMSP	National Malaria Strategic Plan
PAMO	Program for Advancement of Malaria Outcomes
PHO	Provincial Health Office
PMI	United States President's Malaria Initiative
PSM	Procurement supply management
RBM	Roll Back Malaria
RDT	Rapid diagnostic test
SBCC	Social behaviour change communication

SDG	Sustainable Development Goal
SMEOR	Surveillance monitoring and evaluation and operational research
SP	Sulfadoxine-pyrimenthamine
TWG	Technical working group
UNICEF	United Nations Children's Fund
UNZA	University of Zambia
USAID	United States Agency for International Development
WHO	World Health Organization

Executive summary

The National Malaria Strategic Plan (NMSP) 2011–2016 focused on consolidating gains for impact through the scale-up of key interventions by a dedicated workforce with substantial financial support and commitment to other resources. The National Malaria Control Programme (NMCP) and its partners conducted an end-term review (ETR) in the last quarter of 2016 to assess the progress made in achieving the goals and objectives of NMSP 2011–2016 for better programme results and impact. The findings, conclusions, and recommendations of this review will inform the development of a new national malaria elimination strategic plan (NMESP) for 2017 to 2021, an operational plan for 2017 to 2019, and a business plan.

The specific objectives of the ETR were to:

- Assess the level of attainment of the objectives and goals against the set targets.
- Assess the implementation status of the activities and strategies.
- Identify achievements, best practices, and lessons learnt.
- Assess capacity, structures, and systems for the delivery of interventions.
- Identify key issues and challenges hindering the achievement of goals and objectives.
- Develop recommendations and solutions for the challenges identified.

Key findings, conclusions, and recommendations
Progress towards the epidemiological and entomological impact targets of the National Malaria Strategic Plan 2011–2016
Findings and conclusions:
- The national malaria incidence was not reduced significantly during the period under review. It declined marginally from 343 cases per 1,000 population in 2011 to 335 cases per 1,000 population in 2015. The target incidence of 81 cases per 1,000 population by 2016 is unlikely to be achieved. However, it is important to note that the national malaria incidence trend masks the local trends. Some provinces experienced dramatic reductions in incidence while others noted increases. Between 2012 and 2015, malaria prevalence in children under the age of five years increased from 14.9% to 19.4%. This means that one in five children in Zambia are still infected with malaria. This increase was seen in both rural and urban areas, although rural areas are more malarious than urban areas.
- The reported severe malaria in-patient attendance declined significantly from 15.8 cases per 1,000 population in 2010 to 6.6 cases per 1,000 in 2015, a 58% reduction.
- Malaria deaths decreased by 70% from a baseline of 51.2 per 100,000 in 2010 to 15.5 per 100,000 in 2015. Although, the national target of "near zero" deaths (less than ten) is not likely to be achieved by 2016, in Southern Province near zero deaths will have been achieved by 2016.
- All-cause child mortality reduced from 52 deaths per 1,000 in 2007 to 31 per 1,000 in 2013–14— a 40% reduction according to the 2013–14 Zambia Demographic and Health Survey. This is against a target reduction of 20% from 2010 to 2016.
- The principal malaria-transmitting mosquito species in Zambia are *Anopheles gambiae sensu stricto*, *Anpheles funestus*, and *Anopheles arabiensis.* The availability of infrastructure, particularly functional insectaries, in some sites and an active Insecticide Resistance Technical Working Group and Technical Advisory Committee has led to the development and implementation of a national insecticide resistance management plan. This has resulted in the identification of the emergence of vector resistance to insecticides in Zambia, which in turn has

necessitated the periodic, evidence-based rotation of insecticides for indoor residual spraying (IRS). However, the funding for nationwide epidemiological and entomological surveillance has been inadequate.

Recommendation:
- It will be imperative to strengthen malaria surveillance to better understand why severe malaria and mortality declined and yet the incidence remained unchanged.

Financing of the National Malaria Control Programme
Findings and conclusions:
- Malaria was prioritized in all key national planning documents, namely the National Health Strategic Plan 2011–2015 of the Ministry of Health, the Sixth National Development Plan, and the Zambia Vision 2030 document. All stakeholders viewed malaria as a disease of major health and development priority.
- Funding for malaria control from the Zambia Government (GRZ) was not sufficient to sustain the various malaria control interventions. Most malaria activities were financed from external sources.
- Although the financial contribution to malaria has been on the increase, with consistent funding from partners, the programme experienced a financing gap of 43% and 30% of the budget in 2014 and 2015, respectively.
- A major achievement was an increase in the domestic contribution to malaria. The GRZ allocated US$24.8 million in 2014 and US$28 million in 2015 towards the procurement of anti-malaria commodities.
- A malaria business plan to facilitate mobilisation of additional resources was not developed as recommended by the 2013 mid-term review of the NMSP 2011–2015.

Recommendations:
- Increase domestic funding for malaria elimination activities.
- Develop innovative mechanisms to improve investments in malaria elimination including mobilizing funds from the corporate/private sector.

Capacity of the National Malaria Control Programme to implement planned activities
Findings and conclusions:
- The review revealed that the overall capacity of the NMCP to implement planned activities of the NMSP 2011–2016 was low. Only 36% of the planned activities were fully implemented and 43% of the planned activities were partially implemented, while 21% of the planned activities were not implemented at all. In terms of the fully implemented activities, the performance was lowest for social behavioural change communication (SBCC) at 11%; then increased to 35% for surveillance, monitoring and evaluation; then to 43% for case management; then to 46% for vector control and to 54% for operational research.
- There was fragmentation of programme implementation due to pre-packaged partner projects.
- Parallel planning between the centre and districts led to discordance.
- There was an absence of operational planning at all levels.
- There was an absence of planned outputs in the medium term expenditure frameworks.
- There was a failure to finalize key planning documents (e.g., NMSP 2011–2016 and the Monitoring & Evaluation Plan 2011–2016).
- There was an absence of a system to track implementation in real time.

- A three-year operational plan was not developed.
- Operations were too centralized.

Recommendations:
- Establish an annual process that ensures that the resources in the GRZ Yellow Book are aligned with partner resources against planned outputs (operational plans) at all levels for the year in support of the implementation of the malaria strategic plan.
- Develop a system for tracking implementation at all levels in real time (management tool).
- Develop a business plan to facilitate resource mobilisation.
- Develop a monitoring and evaluation (M&E) plan.

Effectiveness of the health system in delivering malaria services
Level of attainment of vector control outcome targets
Findings and conclusions:
- Zambia continues to be one of the best performing countries in terms of insecticide-treated net (ITN) distribution. About 9 million nets were made available in 2013 and 2014 through mass distribution and through antenatal care programming to pregnant mothers and young children. The national ITN ownership increased from 64% in 2010 to 68% in 2012 and to 76% in 2015 against a target of 100%. Furthermore, the households which reported having sufficient ITNs to cover all sleeping increased from 34% in 2010 to 64% in 2015, although this was below the target of 100%. Households that reported having either an ITN or IRS increased to 81% in 2015 from 73% in 2010 against the target of 100%. ITN use among children under five years of age increased from 50% in 2010 to 57% in 2012 and to 59% in 2015, against a planned target of 80%. However, net use remained problematic among school age children aged between 5–19 years old. The data on ITN distribution to different sub-populations (pregnant women, children under-fives, schools, and communities) were not well-captured in the health management information system (HMIS).
- The total number of people protected by IRS increased slightly from 5.4 million in 2010 to 6 million in 2015, against a target of 9.7 million. The population of Zambia has grown from 13 million in 2011 to 15 million in 2015. The percentage of households sprayed within targeted areas remained consistently above 85% from 2010 to 2015. Larval source management (LSM) was not prioritized in the NMSP, as a consequence it was not implemented.
- The review noted that the resources to procure, store, and distribute (supply chain management) vector control commodities were inadequate. Vector control activities were further constrained by late and inadequate funding for procurement and implementation of the IRS programme, inadequate IRS supervision and monitoring, lack of accurate data for eligible structures, inconsistency in the IRS implementation programme and the emergence of insecticide resistance by the main malaria vectors.

Recommendations:
- Update and disseminate vector control guidelines, including the insecticide resistance management plan.
- Conduct timely IRS operations and ensure an operational IRS coverage of above 85%.
- Distribute sufficient ITNs to cover all sleeping spaces during mass campaigns.
- Strengthen routine reporting of ITNs distribution data in the HMIS for different populations (pregnant women, under-five children, schools, and communities).
- Develop policy/guidelines on LSM and establish public sector LSM.

Level of attainment of chemoprevention outcome target
Findings and conclusions:
- Chemoprevention is conducted only for intermittent preventive treatment of pregnant women (IPTp) in Zambia. The treatment guidelines have been updated and currently requires at least four doses for each pregnancy but the HMIS does not record four or more doses of IPT per pregnancy. The coverage of IPTp in Zambia is among the highest within the Africa region, with 78.8% and 60.8% of pregnant women receiving at least two doses and at least three doses, respectively, of sulfadoxine-pyrimethamine (SP) during pregnancy in 2015.
- The 2016 target of pregnant women attending ANC clinics receiving at least two doses of IPTp for malaria was 80%. However, relatively lower uptake of second and third IPTp despite high first antenatal care (ANC) attendance (more than 90%) was recorded because of late commencement of ANC by pregnant women.

Recommendation:
- Update the current HMIS to capture up four or more doses of IPT per pregnancy.

Level of attainment of malaria diagnosis and treatment targets
Findings and conclusions:
- There has been a progressive increase in the proportion of reported confirmed malaria cases and reduction in reported clinical malaria cases. The proportion of confirmed cases increased from about 50% in 2011 to over 80% in 2015. However, malaria testing is still below the 2016 target of universal testing.
- The use of artemether-lumefantrine (AL), the first-line treatment of malaria in Zambia, has increased to 93% in 2015 from 76% in 2010. The number of patients who tested positive and received ACTs are not captured adequately in the routine HMIS. However, the 2015 MIS indicated that among children under five with fever that received an anti-malarial drug, 93% reported receiving AL in 2015, an increase from 76% in 2010.
- The scale-up of training in revised severe malaria management was conducted but not completed.
- The management of severe malaria is not routinely monitored.
- Integrated community case management (iCCM) is being rolled out but there was no segregation between the facility and community data in the HMIS. The 2015 MIS revealed an increase in children under the age of five acquiring anti-malarial medicines from community health workers from 2.1% in 2010 to 25% in 2015, against a target of 80%.

Recommendations:
- Strengthen and support the scale-up of iCCM.
- Establish separate community malaria reporting from health facility malaria reporting.
- Streamline the reporting of positive malaria cases that receive anti-malarial treatment.
- Strengthen the quality of care for severe malaria through accelerated scale-up of severe malaria management trainings, monitoring of severe malaria management, and improved commodity quantification and supply to facilities.
- Include the annual blood examination rates in the next malaria strategic plan.

Level of attainment of procurement Supply Management (PSM) outcome targets

Findings and conclusions:

- Anti-malarial commodities were not consistently available; there were central-level stock-outs of some AL packages reported in 2011, 2012, and 2013. The review further noted that capacities for procurement and supply management (PSM) were limited and the mechanism for monitoring PSM processes was weak.

Recommendation:

- Strengthen the malaria commodities supply chain (system strengthening: personnel, hardware, software, logistics, and transport).

Level of attainment of advocacy, social mobilisation, and social and behaviour change communication (SBCC) outcomes

Findings and conclusions:

- The National Malaria Communication Strategy 2011–2014 was available to provide policy guidance.
- The key challenges noted were the lack of institutionalisation of a focal person at district level, limited research to guide behavioural change communication, and a weak monitoring and evaluation system for behavioural change communication.

Recommendations:

- There is a need to review the communication strategy, including relevant indicators, in line with the health sector priorities to support all malaria interventions. The mechanisms for coordination of SBCC through the SBCC TWG need to be established.
- Other recommended key actions include sustaining community and partner involvement in malaria control/elimination activities, lesson-learning on acceptability of interventions across provinces, strengthening SBCC mentorship at lower levels to ensure effective malaria information communication and action, and strengthening reporting of SBCC.

Level of attainment of epidemic preparedness and response (EPR) outcomes

Findings and conclusions:

- There were no EPR policy or guidelines documents, hence no targets for EPR were included in the M&E log frame.

Recommendation:

- The next strategic plan must anticipate epidemics due to changing epidemiology, hence the need to develop guidelines for EPR and include indicators in the log frame.

Level of attainment of surveillance monitoring and evaluation and operational research (SMEOR) outcome targets

Findings and conclusions:

- All districts have District Health Information Officers for routine reporting.
- The national surveillance reporting system (HMIS) exists and the indicators, baselines, and targets are largely adequate.
- The web-based District Health Information System (DHIS) 1.4 has been upgraded to 2.0 and rolled out to all districts in the country. The reporting tools, namely registers and health service delivery aggregation forms (HIA 1 and 2), were available at facility level.

- A malaria rapid reporting system using mobile phone has been developed and is operational in selected areas. The percentage of districts reporting increased from 73% in 2011 to 87% in 2015 and 44% of districts reported on time in 2015.
- A mid-term review of the NMSP 2011–2015 was conducted in 2013 and MISs were conducted in 2012 and 2015.
- In some facilities, malaria cases seen at health facility and community levels were separated using codes as well as the classification of local cases and imported cases. The main challenges noted were the lack of common understanding of malaria data elements and definitions. Furthermore, HMIS does not differentiate in-patient malaria cases from severe malaria cases. The data on case management, IPTp and ITNs distributed through the ANC/EPI were captured in the HMIS but ITNs distributed through mass campaigns were not captured in the system. Information on consumption of artemisinin-based combination therapy (ACT) collected through electronic logistics information management system did not correspond with malaria disease burden as reported by HMIS. The systems for capturing expenditure for malaria activities expenditure across the districts were either absent or weak.
- Although there was no national agenda on malaria operational research, annual research plans were developed and implemented. The research conducted during the review period included studies on elimination strategies, therapeutic efficacy, insecticide resistance, behavioural change, measurement of transmission intensity, and economic impact of malaria interventions. Additional challenges included the lack of a forum for dissemination of research information among stakeholders and the absence of surveillance, monitoring, evaluation, and operational research policy or guideline documents.

Recommendations:
- Efforts should be made to strengthen the capacity of the malaria programme to generate, store, interpret, and use quality assured data for decision-making and action. The HMIS needs strengthening to capture severe malaria cases.
- It will be important to strengthen surveillance, M&E, and research (close collaboration between universities, colleges, health research institutes, and partners), and develop a prioritized national research agenda and a mechanism for monitoring and providing feedback on research findings to stakeholders. Investments will be required to scale up the weekly rapid malaria reporting system and the mobile technology reporting platforms for real time reporting at all levels, particularly districts, health facilities, and communities.

Functionality of programme management support system
Findings and conclusions:
- Policies, legislation and guidelines exist to support the malaria programme in Zambia. However, the development of some planning documents was not completed and such documents remained in draft form. There was no operational planning at certain levels. Because of lack of harmonisation in the budgeting processes at central and district levels, the district budgets did not reflect resources at NMCC and vice versa.
- The NMCP was not fully staffed. Even if it had been, it would not have been adequate to support the effective implementation of the NMCP. It was further noted that there was a shortage of transport at all levels.

- The NMCP was not in full control of all malaria resources and felt that most partner resources came pre-packaged according to their projects which made fungibility difficult. There was no system in place for tracking resources and the mechanism for project coordination was weak.
- There are no databases for in-service training for health workers and for trained and active community health workers (CHWs).

Recommendations:
- The NMEC should develop a stand-alone policy document on malaria.
- Upgrade the NMEC to a full department/directorate and ensure the development and implementation of an adequate staffing structure for the programme in order to respond to the needs of malaria elimination. Advocate for establishment of malaria focal point persons at provincial, district, health facility, and community levels.
- The NMEP should develop a monitoring plan for programme management and deploy a management tool to monitor activity implementation.
- The NMEP should develop a business plan to facilitate resource mobilisation for the NMESP and also develop and implement a dissemination plan for the NMESP. Furthermore, there is a need to strengthen the health system for malaria elimination (infrastructure, transportation equipment, etc. at all levels), conduct annual review and planning, decentralize the implementation of activities, and ensure appropriate capacity at the lower levels.
- The NMCP should assume full control of all its resources and strengthen partner project coordination mechanisms (regular meetings, prioritisation of interventions, regular reporting, tracking of resources, etc.).

Programming implications of the lessons learned in the implementation of the National Malaria Strategic Plan 2011–2016
Lessons learned:
- Malaria is still a public health priority in Zambia.
- Malaria incidence remained largely unchanged during the review period.
- Malaria mortality has significantly reduced.
- Strong partnership at all levels is cardinal in fighting malaria.
- Late disbursement of funds resulted in delayed implementation of malaria activities, such as IRS implementation and net distribution.
- Supervision is key to ensure quality IRS.
- Inadequate dissemination of guideline hampers operational planning by provinces, districts, health facilities, and communities.
- There are lessons to be learned from Eastern and Southern provinces, where the malaria incidence has significantly reduced.
- Web-based HMIS has improved access of malaria data and use.
- Regular data review and audits are critical at all levels.
- Data from Central Statistics Office (CSO) data does not correlate with head-count data and this impacts adversely on quantification of anti-malarial commodities.

Future strategic directions:
- In order to move towards elimination, Zambia will need to strengthen the capacity of the programme to implement planned activities, establish a package of high impact malaria

elimination interventions driven by epidemiological profile, and strengthen the capacity to track the malaria elimination programme to generate, interpret, and use quality assured data for decision-making and action.

Chapter 1: Introduction

1.1 Background

Implemented by the Zambia Ministry of Health (MOH) Department of Public Health with the support of its partners and stakeholders, the National Malaria Strategic Plan (NMSP) 2011–2015 (extended to 2016) was informed by the 2010 Malaria Programme Review. A mid-term review was conducted in 2013. The NMSP ended in 2016 and this end-term review (ETR) was held to assess progress towards attainment of the targets contained in the plan.

Geography, climate, and malaria transmission

Geo-political profile
Zambia is a land-locked country located in Africa, south of the Sahara. It covers a surface area of approximately 752,612 square kilometres, and shares borders with the Democratic Republic of Congo and Tanzania in the north, Malawi and Mozambique in the east, Zimbabwe and Botswana in the south, Namibia in the southwest, and Angola in the west. Administratively, the country is now divided into ten provinces and 106 districts. Lusaka and Copperbelt provinces are predominantly urban, while the rest of the provinces are mostly rural. The capital city is Lusaka.

Since its independence in 1964, Zambia has remained among the most peaceful and politically stable countries in Africa.

The country has prioritized the fight against malaria, which has continued to receive significant political will and support at all the levels within the Government structures.

Climate
There are two main seasons, the rainy season (November to April) and the dry season (May to October/November). The dry season is subdivided into the cool dry season (May to August), and the hot dry season (September to October/November). The modifying influence of altitude gives the country pleasant, subtropical weather. Rainfall varies over a range of 500 to 1,400mm, annually. The average temperature in Zambia in the summer is 30°C and in the winter (colder season) it can get as low as 5°C. The highest rainfall is in the north, especially the northwest and the northeast, decreasing towards the south; the driest areas are in the river valleys, such as South Luangwa and lower Zambezi.

Malaria transmission
Malaria is endemic in Zambia and transmission occurs year-round with peak transmission during the rainy season, between November and April.

In Zambia, malaria is caused by the four main *Plasmodium* species that infect humans, with *P. falciparum* accounting for 98% of all infections and causing the severest form of malaria. Other species are: *Plasmodium malariae*, *Plasmodium vivax*, and *Plasmodium ovale*.

The species of mosquitoes responsible for malaria transmission in Zambia are members of the *Anopheles gambiae* complex and the *Anopheles funestus* group. The main vector species are *Anopheles gambiae s.s., Anopheles Arabiensis*, and *Anopheles funestus.*

The NMCP first stratified the country into three malaria epidemiological zones based on the parasite prevalence in children under five years of age to better focus their efforts after the 2010 Malaria

Indicator Survey (MIS). This classification was updated after the 2012 MIS. The first zone included areas with parasite prevalence of less than 1%; the second zone corresponded with areas of parasite prevalence between 1% and 14%, and the third zone comprised areas of a prevalence of more than 14%. The malaria incidence distribution is heterogeneous as seen in Figure 1.

Figure 1. Out-patient malaria incidence, Zambia 2015
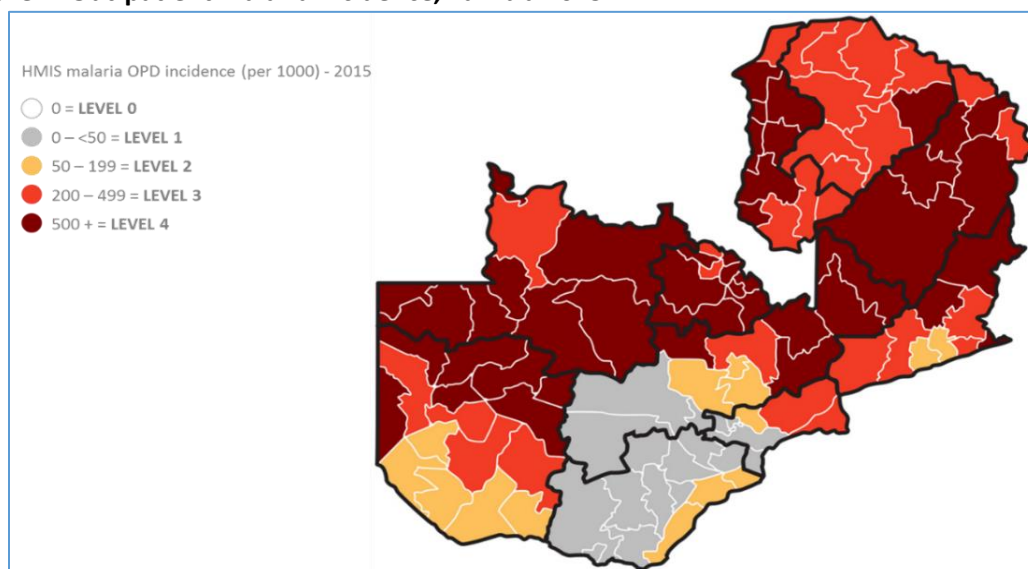
Source: NMCP report 2015

Demography
Zambia has a 2016 estimated population of approximately 15.9 million people, with an annual population growth rate of 2.7% and a life expectancy of just over 53 years (Central Statistics Office). Forty per cent of the population resides in urban areas and 60% in rural areas. The country is divided in to ten provinces and 106 districts. According to the 2013–2014 Zambia Demographic and Health Survey (DHS), infant mortality has fallen from 95 deaths per 1,000 live births in 2001–02 to 45 deaths per 1,000 live births in 2013–14, whereas, child mortality has decreased from 81/1,000 to 31/1,000 over the same period (Table 1). The literacy rate of 15–24-year-olds stands at 81%. Despite these positive trends, Zambia continues to face major challenges. There continues to be an economic divide between the urban and rural populations, with a proportion of the population living in extreme poverty at 13.1% for urban and 57.7% for rural areas (Millennium Development Goals Progress Report, Zambia, 2013).

Table 1. Selected indicators, Zambia 2001–02 to 2013–14

Indicator	2001–02 DHS	2007 DHS	2013–14 DHS
Infant mortality	95	70	45
Neonatal mortality	37	34	24
Post neonatal mortality	58	36	20
Child mortality (1-4yrs)	81	52	31
Under-5 mortality	168	119	75

Source: Central Statistics Office

1.2 The national health system and the national malaria control programme

Organisation of the health system

The MOH is responsible for formulating health policy and planning, issuing policy guidelines, allocating funds, and sourcing key health inputs including drugs and equipment for service delivery. In addition, the MOH provides technical oversight for the implementation of health activities. A basic health care package of high-impact interventions, one of which is for malaria, is offered through the public health system. Services included in this basic health care package are provided free-of-charge or on a cost-sharing basis depending on the location and level of the system. In rural and poor districts these services are free.

Government-run health facilities, which provide the bulk of the health care in Zambia, operate at several levels (Table 2), and malaria control interventions are delivered in all of them:
- Health posts and community outreach
- Health centres
- Level 1 hospitals, Level 2 hospitals, and Level 3 hospitals

The health system is a three-tier system—national, provincial and district.

Table 2. Summary of health facilities by type and provider, Zambia, 2012

Facility type	Total	Percentage of facilities
Health posts	307	15
Rural health centres	1,131	58
Urban health Centres	409	21
Level 1 hospitals	84	4
Level 2 hospitals	19	<1
Level 3 hospitals	6	<1
Total	1,956	100
Health Facilities By Provider		
MOH	1,590	81
Mission	115	6
Private	250	13
Total	1,956	100

Source: Ministry of Health, 2012

The District Health Office (DHO) provides overall planning, coordination, and monitoring of malaria activities within their districts. Health posts are intended to cover 500–1,000 people and are staffed by a nurse or a community health assistant (CHA), who carries out curative services. Health centres serve a catchment area of 10,000 residents and are staffed by a clinical officer, nurse, and environmental technologist. In 2010 it was estimated that in urban areas approximately 99% of households were within five kilometers of a health facility, compared to 50% in rural areas. In 2012, Lusaka Province had the highest number of health facilities (294) followed by Southern Province (253) and Copperbelt Province (250). Muchinga had the lowest number of health facilities (99).

Other than the MOH, the Churches Health Association of Zambia (CHAZ), para-statal organisations, private clinics, and traditional healers also provide health care in Zambia. CHAZ has 135 affiliates

representing 16 different churches, both Catholic and Protestant, with a majority of them based in rural areas of Zambia. The membership is comprised of hospitals, health centres, faith-based organisations and community-based programmes. Altogether, these institutions are responsible for over 50% of formal health services in the rural areas of Zambia and about 30% of health care in the country as a whole. CHAZ also supports health programmes, pharmaceutical services, and institutional development activities, and leverages resources for the collective procurement of drugs and other health-related commodities for its member facilities. CHAZ is also a principal recipient of the Global Fund and is responsible for disbursing grants to faith-based implementers of malaria, HIV/AIDS, and tuberculosis activities. Private companies provide preventive and curative medical services for their workers and families, as well as surrounding communities in some cases. Several of the larger mining companies (First Quantum Mines, Konkola Copper Mines, and Mopani Copper Mines) and Zambia Sugar Company have been carrying out malaria interventions for many years within and around their compounds.

National Malaria Control Programme

National level
The MOH is responsible for policy, legislation, planning, coordination, management, monitoring, and evaluation of the health sector. The National Malaria Control Centre (NMCC), now referred to as the National Malaria Elimination Centre (NMEC) is a department under the recently restructured Department of Public Health.

The NMEC is responsible for providing technical leadership, guidance, coordination, and control of malaria in the country. The NMEC also serves as the secretariat for malaria activities.

The NMEC has established technical working groups (TWGs) in the following areas: vector control, case management, social behavioural change communication (SBCC), monitoring and evaluation (M&E), and operational research. TWG members include NMEC, public sector, development partners, private sectors, and civil society. The TWGs meet quarterly to review and formulate guidance for the implementation of the programme, monitor progress, and assist in the development of various policy and technical guidelines.

The provincial level
The Provincial Health Offices (PHOs) are responsible for providing supervision, technical support and monitoring of the implementation of malaria interventions by the DHOs within their respective provinces. PHOs conduct bi-annual performance assessments.

The district level
The DHOs are responsible for the planning, coordination, management, implementation, and monitoring of all health programmes in the district. At DHO level, malaria control falls under the District Public Health Officer. A health worker within DHO is appointed as a district malaria focal point person, often an Environmental Health Officer. These officers have other public health responsibilities in addition to malaria control responsibilities.

District Malaria Task Forces have been established in districts. These task forces support DHOs to plan, implement, and monitor malaria activities at district level. The membership is derived from government departments, private sector nongovernmental organisations, and community based organisations.

Health facility Level

Malaria control services are provided as an integral part of the basic health care package. Advisory committees have also been established to provide formal linkages between the health delivery systems and the local communities.

Community level
At the community level, neighbourhood health committees and safe motherhood action groups facilitate linkages between the communities and the health system. Their responsibilities include dissemination of information on public health issues, and mobilisation of communities to participate in health sector planning, management, monitoring, and evaluation.

Community health workers (CHWs) are community volunteers who are trained in the provision of community health/malaria education, diagnosis of malaria using rapid diagnostic tests (RDTs), and provision of malaria treatment within the communities. The MOH has developed a CHW strategy to define and standardize the package of support, incentives, and training for CHWs throughout the country. The effective utilisation of CHWs is constrained by inadequate financial support for training, inadequate supervision, and incentives.

In 2010, the Government of Zambia (GRZ) introduced a community health assistant (CHA) programme with the goal of developing a cost-effective, adequately trained, and motivated community-based health workforce to contribute to improved management of malaria, child and maternal health, and common preventable health conditions. About 1,000 CHAs have been trained. CHAs are expected to supervise the CHWs that work in their catchment areas. They are expected to spend most of their time in the community carrying out disease prevention and health promotion activities and part of their time at the health post carrying out curative services. For malaria, the CHAs are expected to diagnose malaria using RDTs and treat with the appropriate medication and support malaria prevention activities, including SBCC and distribution of insecticide treated net (ITNs).

The National Malaria Strategic Plan 2011–2016

- **Vision**
  A malaria-free Zambia

- **Mission**
  To facilitate equity of access to quality assured, cost-effective malaria prevention and control interventions close to the household.

- **Goals**
  By 2016, to:
  - Reduce malaria incidence by 75% of the 2010 baseline.
  - Reduce malaria deaths to near zero and reduce all-cause child mortality by 20%.
  - Establish and maintain five "malaria-free districts" in Zambia.

- **Objectives**
Objective 1: To have 100% of households and persons at risk in targeted areas have access to evidence-based vector control and other preventive interventions by 2016.

Objective 2: By 2016, to have 100% of suspected-malaria cases in all health facilities receive parasitological confirmation (microscopy or RDT) and 100% of the confirmed cases receive prompt and appropriate treatment as detailed in the Zambia Malaria Diagnosis and Treatment Guidelines.

Objective 3: To strengthen surveillance and M&E systems in order to ensure timely availability of quality, consistent, and relevant data on malaria control performance by 2016.

Objective 4: By 2016, to ensure that all prioritized operational research generates evidence to support informed decision-making on policy and implementation of the malaria programme.

Objective 5: To increase knowledge levels of malaria to 100% and improve uptake and correct use of interventions to 80% by 2016.

Objective 6: To improve capacity in coordination, leadership, governance, and resource mobilisation for effective and efficient management of the NMCP.

1.3 The end-term review/malaria programme review

Definition
The end-term review (ETR), or malaria programme review (MPR), is a management tool for evidence-based assessment of the progress made in achieving the goals and objectives of the NMSP 2011–2016 for better programme results and impact.

Justification
The NMSP came to an end in 2016 and it was necessary to conduct an ETR to assess progress. The ETR will inform the development of the next malaria strategic plan.

Objectives
The ETR objectives are to:
- Assess the level of attainment of the objectives and goals against the set targets.
- Assess the implementation status of the activities and strategies.
- Identify achievements, best practices, and lessons learnt.
- Assess capacity, structures, and systems for the delivery of interventions.
- Identify key issues and challenges hindering the achievement of goals and objectives.
- Develop recommendations and solutions for the challenges identified.

Methodology of the end-term review
The NMEC under the Department of Public Health provided leadership for the ETR process and was supported by representatives from partners (the World Health Organization [WHO]; President's Malaria Initiative [PMI]; PMI/Programme for Advancement of Malaria Outcomes [PAMO]; the Malaria Control and Elimination Partnership in Africa [MACEPA], a programme at PATH; the Global Fund to Fight AIDS, Tuberculosis and Malaria; and the United Nations Children's Fund [UNICEF]) for coordination and day-to-day management. The team constituted the ETR Steering Committee, which spear-headed the process. This process included the collection of reference documents; detailed preparations for the TWG meetings, desk review, external-validation field visits, final stakeholder meetings, and launch of the final report. The team was supported by a short-term consultant. External reviewers from WHO provided additional support for the external validation process, guidance, and input to the ETR. The review took

place from October to December 2016 and was preceded by a planning phase in September. The detailed activities of the ETR process are listed in Table 3 below.

Table 3: Timeline for end-term review of NMSP 2011–2016

Phase	Key activities	Time
Phase I	Planning—consultation, preparation, and resource mobilisation.	September 2016
Phase II	Literature review of various components of the national malaria programme.	October 2016
	Pre-retreat meeting to plan for TWG retreat—Ndola	3–7 Oct 2016
	TWG internal review retreat—Ndola	10–14 Oct 2016
	Planning for external validation meeting—Kabwe	25–27 October
	Development of situation analysis for end-term review process and report	30 Oct 2016
	Finalization of external validation tools and guidelines	1–2 Nov 2016
	Production of consolidated thematic reports by TWGs	14 Nov 2016
Phase III	Arrival of external reviewers	18 Nov 2016
	Meeting of internal and external reviewers	21 Nov 2016
	Reviewers depart Lusaka for field visits	22 Nov 2016
	External validation and development of external validation report (North-Western, Eastern, Luapula, Copperbelt, Southern, Central & Lusaka provinces).	22–25 Nov 2016
	Reviewers return to Lusaka	26 Nov 2016
	Development of draft end-term review report by writing team	26–27 Nov 2016
Phase IV	Conclusion meeting	28 Nov 2016
	Presentation of summary of findings and recommendations to the Permanent Secretary, MOH	01 Dec 2016
	Presentation of summary of findings and recommendations to partners	02 Dec 2016
	Finalization of end-term review report. • Updating of elimination strategy • Updating of "business plan" • Updating of year 1 operational plan	Dec 2016
	Launch of the report and action package.	19 Jan 2017

1.4 Outline of the ETR report

This report is organised into the following six chapters:
Chapter 1 provides the introduction.
Chapter 2 describes the assessment of progress towards the epidemiological and entomological impact.
Chapter 3 and **4** present a review of programme financing and effectiveness of the NMSP 2011–2016 to implement planned activities, respectively.
Chapter 5 provides a review of the effectiveness of the health system in delivering malaria services.
Chapter 6 sets out programming implications of the lessons learnt implementing the NMSP 2011–2016.

Chapter 2: Assessment of progress towards epidemiological and entomological impact

2.1 Progress towards epidemiological impact of the NMSP 2011–2016

The NMSP 2011–2016 aimed to achieve the following by 2016:
- Reduce malaria incidence by 75% of the 2010 baseline.
- Reduce malaria deaths to near zero and reduce all-cause child mortality by 20%.

Establish and maintain five "malaria-free districts" in Zambia.

Findings

- In Zambia, malaria is caused by the four main Plasmodium species that infect humans, with *P. falciparum* accounting for 98 percent of all infections and causing the severest form of malaria. Other species are: *Plasmodium malariae, Plasmodium vivax, and Plasmodium ovale.* Data from the 2012 MIS (conducted in April and May 2012) showed that in two malaria hyper-endemic provinces (Eastern and Luapula), of the total *Plasmodium* isolates 88% were P. falciparum, 10.6% were mixed infections, and 1.4% were non-*falciparum* mono infections. Among the mixed infections, the majority were a combination of *P. falciparum* and *P. malariae* (6.5% of all mixed infections).
- The NMCP first stratified the country into three malaria epidemiological zones based on the parasite prevalence in children under the age of five years (MIS 2010 and 2012). The first zone included areas with parasite prevalence of less than 1%; the second zone corresponded with areas of parasite prevalence between 1% and 14%, and third zone comprised areas of a prevalence of more than 14%.
- National malaria incidence has not significantly reduced during the period under review. The cases declined to 335 cases per 1,000 population in 2015 from 343 cases per 1,000 population in 2011 (Figure 2). The national malaria incidence remained stable between 2011 and 2012, at 343 cases per 1,000 population and 339 cases per 1,000 population, respectively. It then increased slightly to 374 cases per 1,000 population in 2013 and then to 407 cases per 1,000 population in 2014. The targeted 75% reduction of the 2010 baseline of 325 cases per 1,000 population by 2016 has yet to be achieved.

Figure 2. National malaria incidence, Zambia, 2011–2015

Source: HMIS
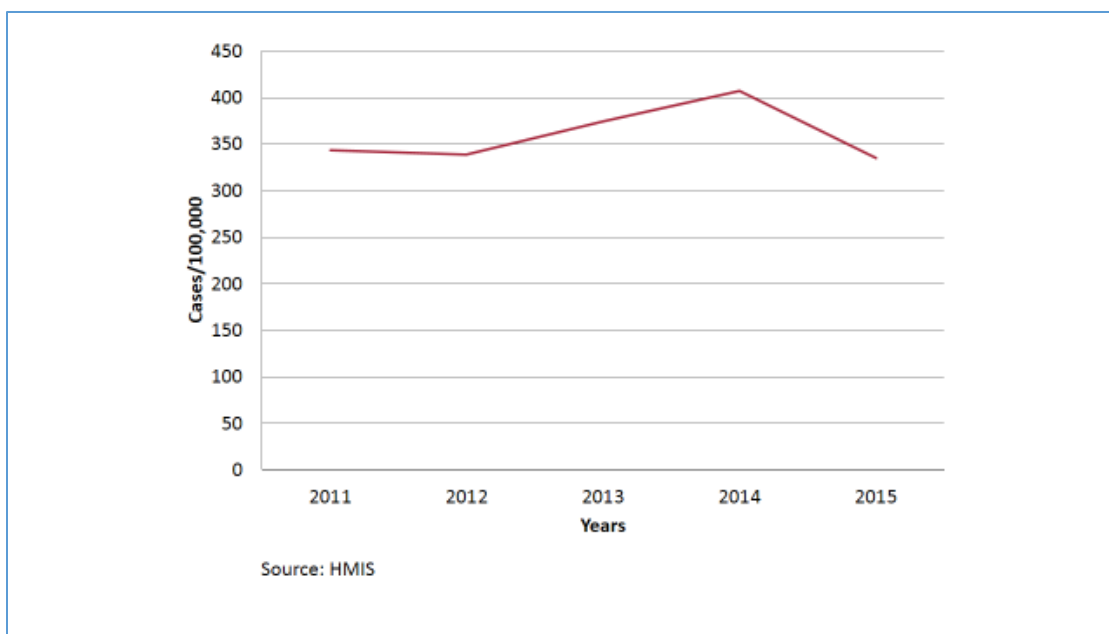
- The national malaria incidence trend masks the local trends. Some provinces have experienced dramatic reductions in incidence while others have noted increases, as seen in Figure 3 below.

Figure 3. Malaria incidence by province, Zambia, 2011–2015

Source: HMIS
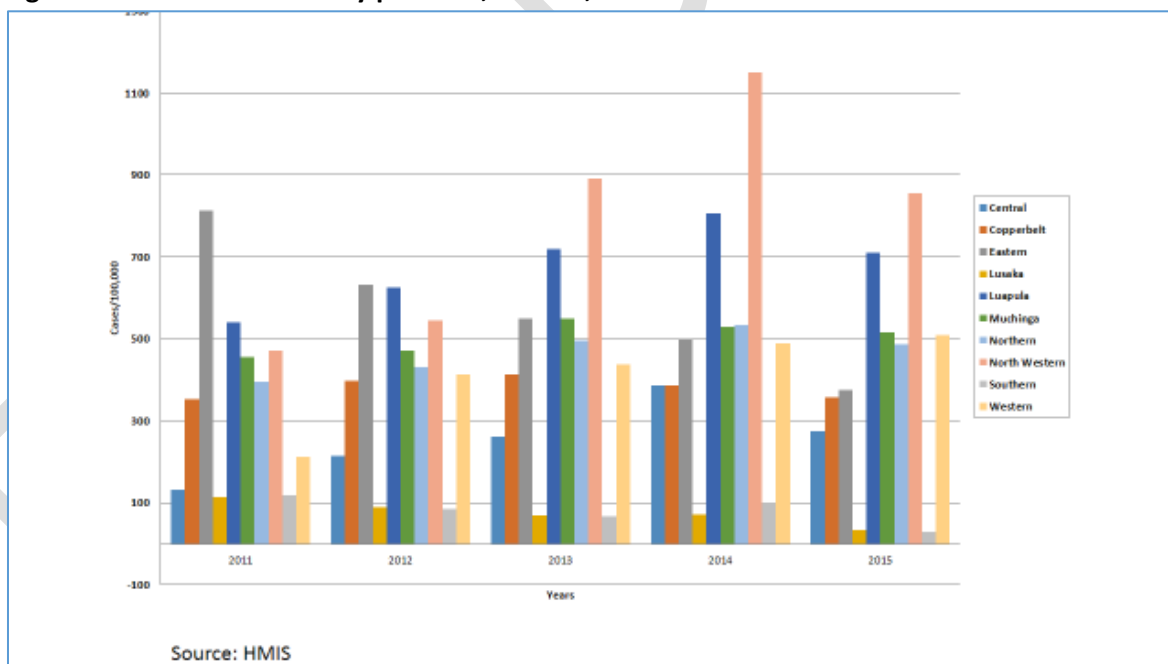
- Malaria prevalence (MIS 2012 and 2015) in children under age five years increased, between 2012 and 2015, from 14.9% to 19.4% (Figure 4). This means that one in five children in Zambia are still infected with malaria. This increase was seen in both rural and urban areas, although rural areas are more malarious than urban areas.

23

Figure 4. Malaria parasite prevalence among children under age five years by urban and rural areas, Zambia, 2006–2015
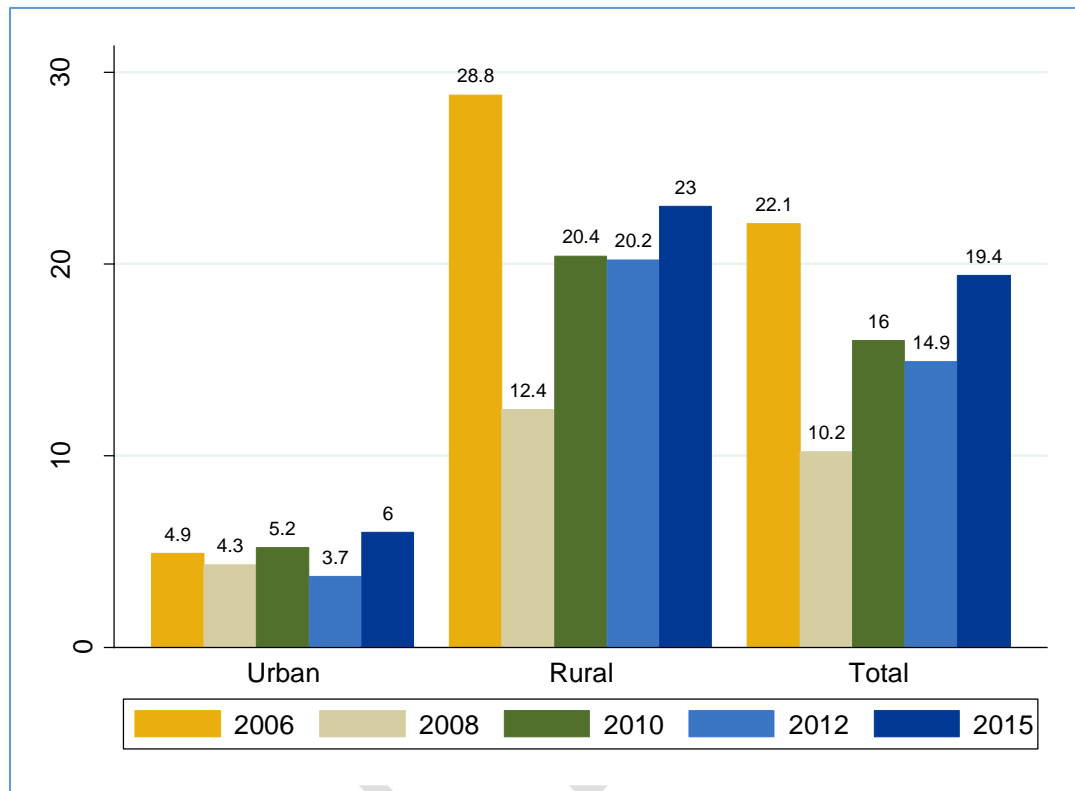
Source: MIS 2015

- The reported severe malaria in-patient attendance declined, as shown in Figure 5, from 15.8 cases per 1,000 population in 2010 to 6.6 cases per 1,000 in 2015, a 58% reduction.

Figure 5. Reported in-patient attendance, Zambia 2010–2015
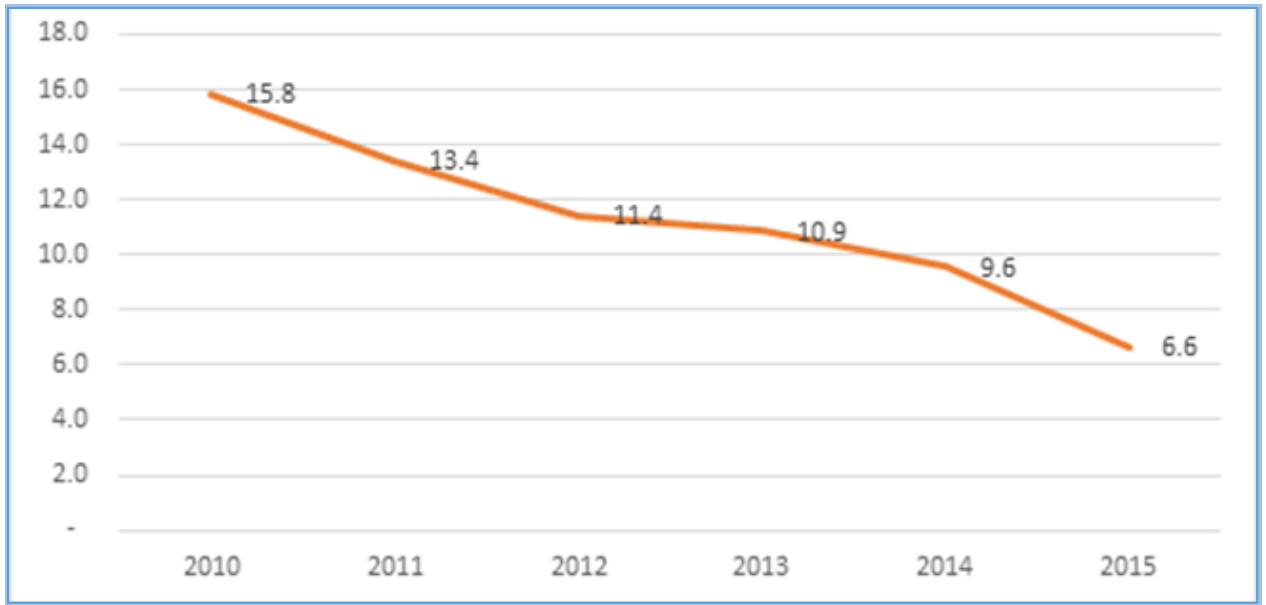
Source: Health management information system (HMIS)

- Malaria deaths declined by 70% from a baseline of 51.2 per 100,000 in 2010 to 15.5 per 100,000 in 2015. Between 2011 and 2015 the mortality due to malaria reduced by half, from 4,597 to 2,389 (Figure 6). Although, the national target of "near zero" deaths (less than 10) is not likely to be achieved by 2016, in Southern Province, near zero deaths will have been achieved by 2016.
- All-cause child mortality declined from 52 per 1,000 in 2007 to 31 per 1,000 in 2013–14, a 40% reduction according to the Zambia Demographic and Health Survey (Table 1).

Figure 6. Malaria deaths, Zambia, 2011–2015.

Source: HMIS
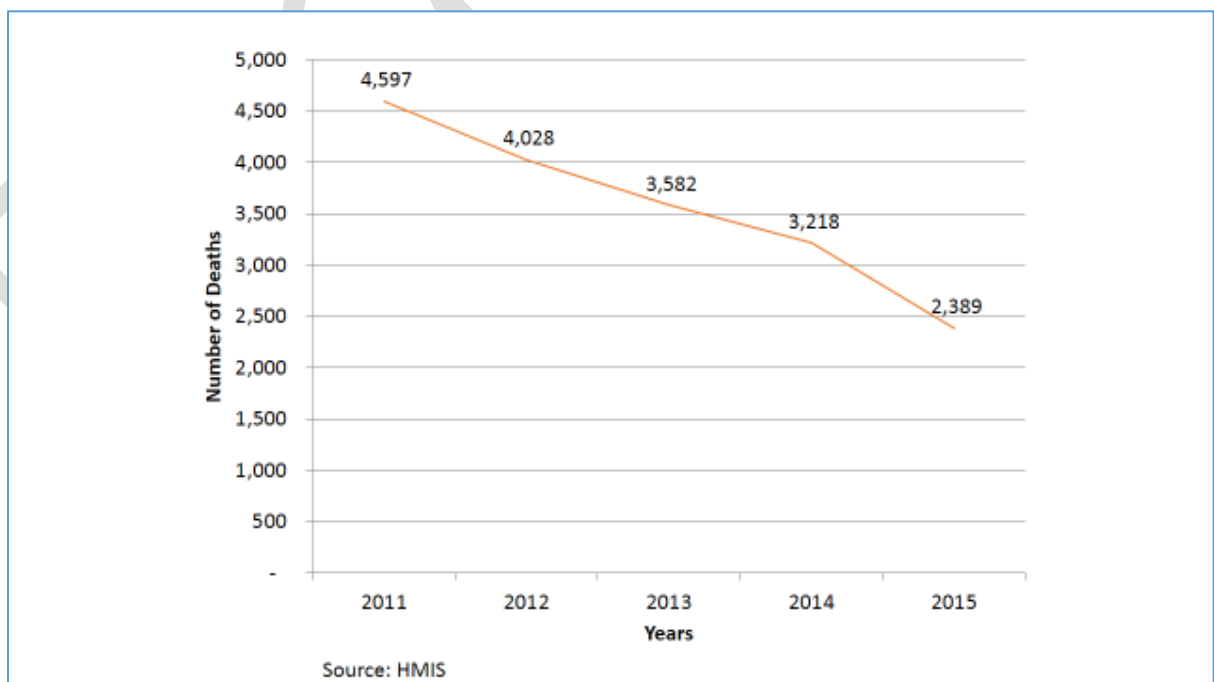
1.2 Progress towards entomological impact of the NMSP 2011–2016

Entomological impact indicators were not standardized at the outset of the NMSP and consequently neither baselines nor targets were established. Notwithstanding, the following information was gathered.

Findings

- The principal malaria transmitting mosquito species in Zambia are *Anopheles gambiae sensu stricto, An. funestus*, and *An. arabiensis* (Figure 7). Among the three, *An. funestus* appears to be more abundant and consequently implicated for a larger portion of transmission during the dry season as it breeds in perennial water bodies that occur throughout the year, while *An. gambiae s.l.* increases during the rainy season as they prefer clean and sunlight-stagnant water bodies which are common in the wet season.

Figure 7. Map showing the distribution of malaria vectors in Zambia
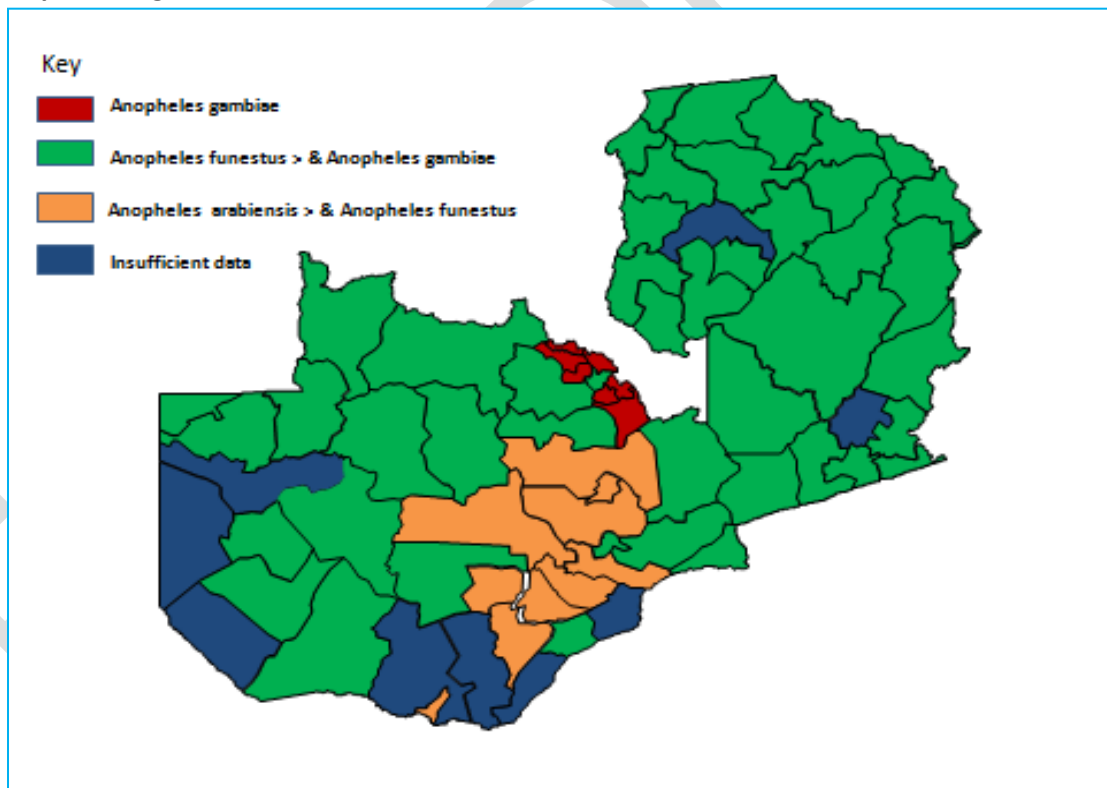
- There are four fully functional insectaries in Zambia; two at NMEC, one at Tropical Disease Research Centre, and one at Macha Research Centre.

- The impact of the IRS campaign on the malaria vectors was assessed from November 2015 to February 2016. The mean indoor resting density of *An. funestus s.l.* dropped from six *An. funestus s.l.* per room per day to two in the intervention sites in January three months after IRS. In the control sites, the indoor resting density per room per day increased from three *An. funestus s.l.* per room per day before IRS to five *An. funestus s.l.* per room per day in January in the control sites.
- The quality assurance of the IRS operations was assessed 24 hours after the spraying and the assessment of decay rate of insecticide sprayed was followed up on a monthly basis. The WHO cone bioassay performed 24 hours and one month after spraying showed 100% mortality of the susceptible malaria vectors exposed to the mud and cement sprayed walls. Pirimiphos-methyl was effective on both mud and cement in four of the entomology surveillance sites in February, four months after the spraying. However, the tested mosquito mortality rate was less than the 80%— the WHO threshold—on the mud and cement sprayed walls in two sites, Milenge and Serenje, four months after spraying. Thus, the residual life of pirimiphos-methyl in these two districts was shorter than expected; the cause of this is being investigated.
- Entomological inoculation rates (EIR) vary across the different transmission zones in Zambia. In Luangwa and Nyimba, from results obtained over four years, in 14 clusters or sentinel sites, the EIR was estimated between 68.6 to 70.1 infectious bites per person per year (Sikaala et al., 2014). In the same areas, the mean catch for *An. funestus* ranged from 0.6 to 13.2 per person night. During the same period, humans who lacked protection from an ITN were largely exposed to *An. funestus* bites and this largely occurred during the hours when individuals were asleep indoors (Hamainza et al., 2016, Seyoum et al., 2012). However, preliminary data from Southern Province indicate an increased outdoor biting rate by *An. gambiae s.l.* as compared to *An. funestus* in other sentinel sites.
- A national insecticide resistance management plan 2014–2016 was developed and implemented. Previous insecticide resistance surveys have reported resistance in the two major malaria vector species, namely, *An. gambiae* and *An. funestus*. The most recent susceptibility tests conducted in 2016 showed both vectors are still resistant to most pyrethroids throughout Zambia. Resistance to bendiocarb (a carbamate) was found for *An. funestus*, particularly in areas of Luapula Province. Figure 8 shows the national distribution of vector resistance over the period of the strategic plan while figures 9 and 10 indicate the current insecticide susceptibility test results from selected parts of the country.

Figure 8. Resistance profiles across Zambia, 2011–2016
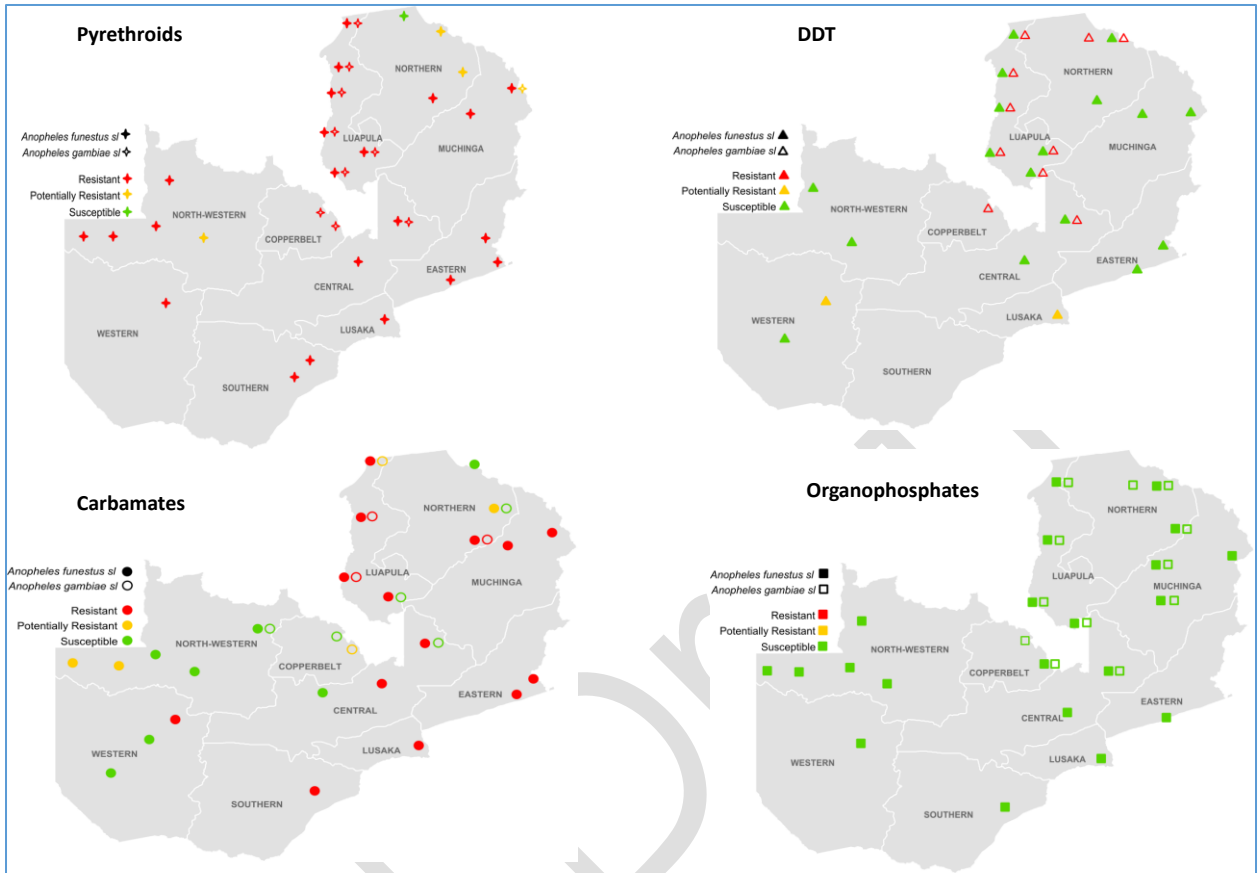
Source: Thomsen *et al.,* 2014

Figure 9. Insecticide susceptibility status *Anopheles funestus s.l.*, 2016
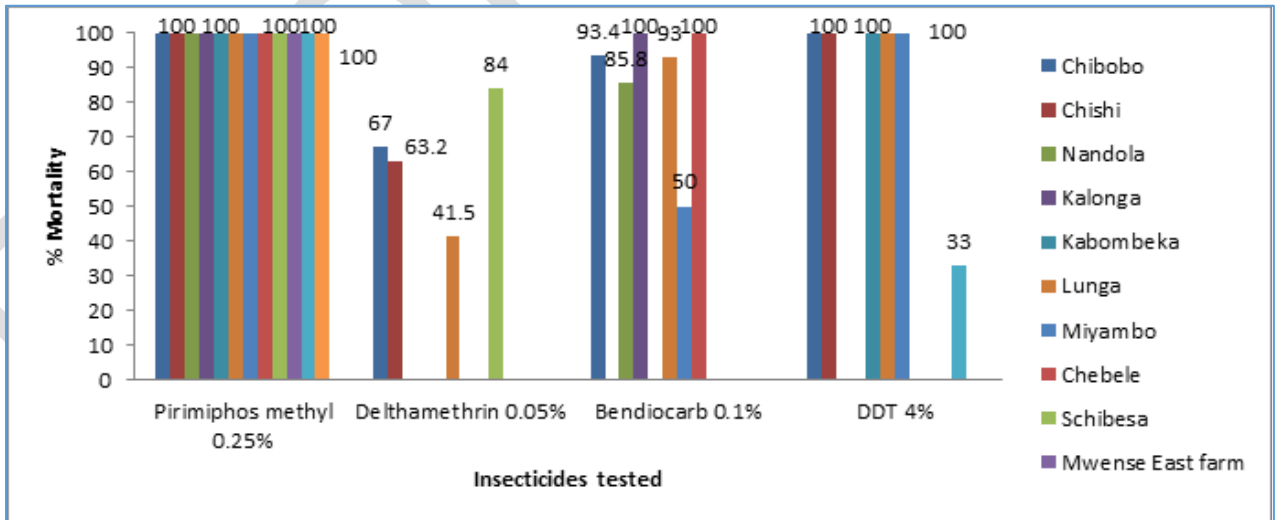
Source: PMI Operational Plan FY 2017

Figure 10. Susceptibility status of *Anopheles gambiae s.l.*, 2016
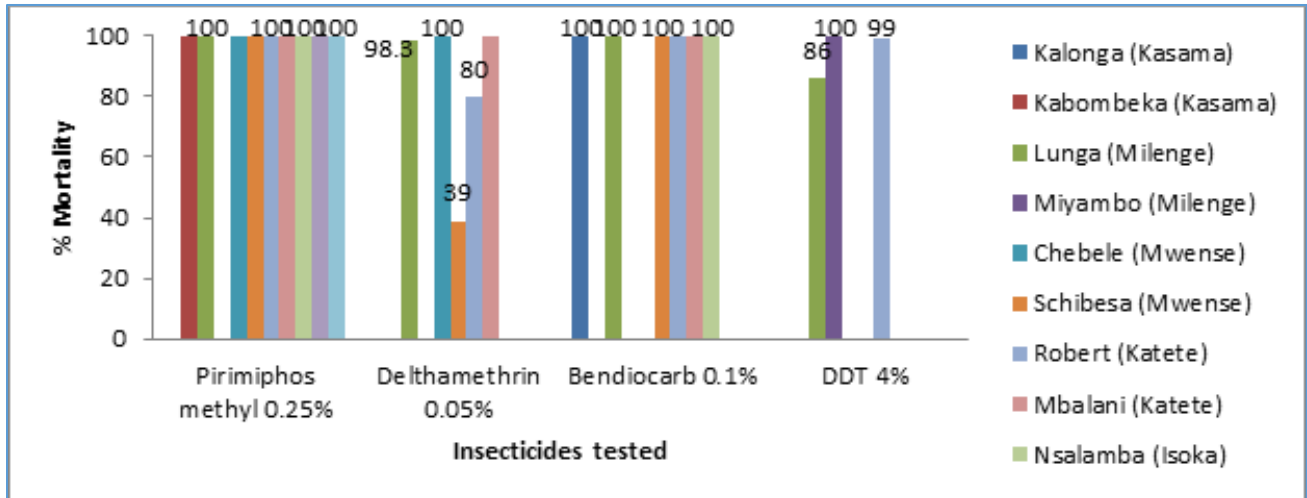
Source: PMI Operational Plan FY 2017

- The emergence of vector resistance to insecticides in Zambia has necessitated the periodic, evidence-based rotation of insecticides for IRS. Figure 11 shows the insecticides used for IRS from 2011 to 2013.

Figure 11. Insecticide use in IRS, Zambia, 2011–2013
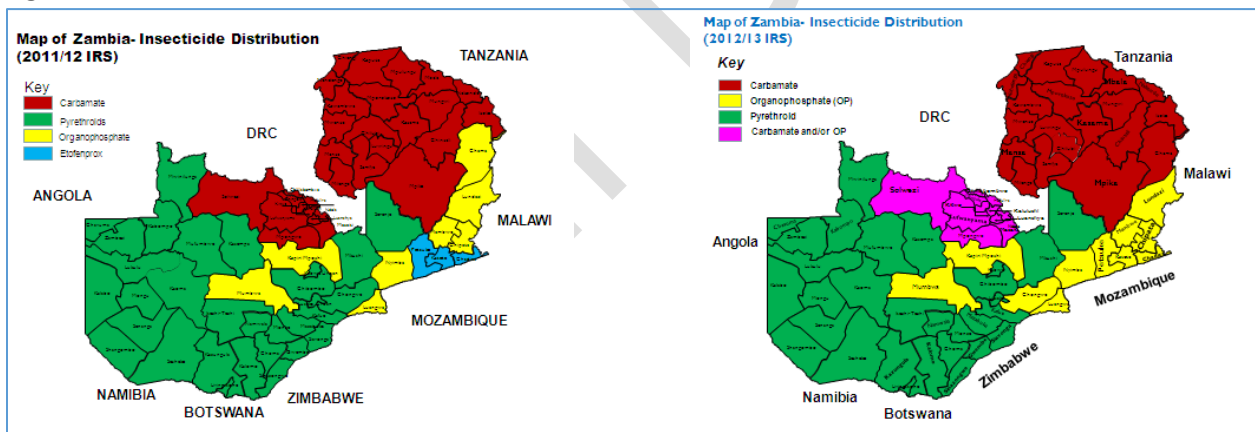
Source: NMEC reports

Figure 12. Insecticide use in IRS in Zambia, 2015
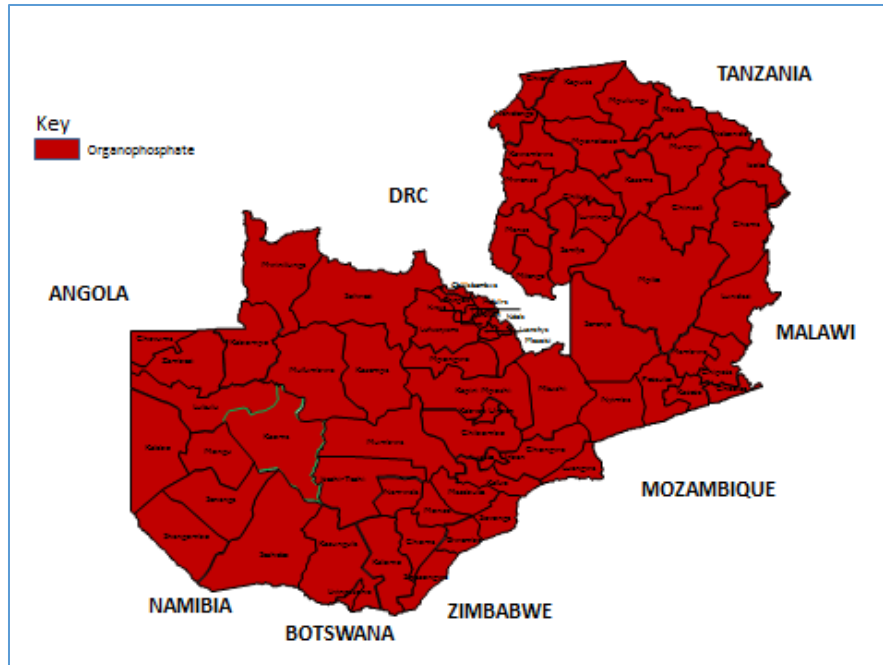
Source: NMEC reports

- During the 2015 spray season, long-lasting organophosphates were used across the whole country (Figure 12). Bioassays were conducted to assess the quality of spraying in the PMI-supported target districts in Northern, Muchinga, Central, Eastern, and Luapula provinces.
- Currently the 22 sites that conduct entomological surveillance (sampling methods, morphological identification of mosquitoes, data entry, and interpretation) represent the various epidemiological profiles in Zambia and 36 environmental health technicians have been trained in these sites.

The following enabling and constraining factors were noted

Enabling factors
- Availability of guidelines for surveys, surveillance, and entomology.
- Availability of technical assistance for measuring epidemiological and entomological impact.
- Availability of infrastructure (e.g., insectaries), mechanisms (e.g., insecticide resistance technical working group and technical advisory committee).
- Strong public-private partnership.

Constraining factors
- Inadequate competency among staff at all levels.
- Limited storage facilities for entomological equipment.
- Insufficient funds for epidemiological and entomological surveillance nationwide.
- Lack of teaching aids/materials on mosquito identification, life cycle, biology, ecology, and distribution.

Conclusions and recommendations

Conclusions

- Mortality has been more than halved during the period under review.
- National malaria incidence has not significantly changed over the years. However, some provinces have experienced dramatic reductions in incidence.
- The malaria indicator surveys conducted in 2012 and 2015 informed policy decision-making (e.g., a shift from targeted to universal coverage of eligible structures) and were instrumental in advocating for continued support to the programme.
- Entomological surveillance was limited by inadequate funding.

Recommendations
- Formulate and implement entomological impact indicators for impact.
- Strengthen malaria surveillance to better understand why severe malaria and mortality declined and yet the incidence remained unchanged.
- Perform annual data reviews at all levels.
- Develop and finalize an M&E plan as an integral part of the next malaria strategy.
- Results/findings from entomological surveillance should be shared with districts for decision-making.

Chapter 3: Review programme financing

Malaria was prioritized in the National Health Strategic Plan 2011–2015 of the Ministry of Health, the Sixth National Development Plan, and the Zambia Vision 2030 document. All stakeholders viewed malaria as a disease of major health and development priority.

3.1 Findings

- Funding for malaria control from the government is still not sufficient to sustain the various malaria control interventions (Table 4).

Table 4. Government financing for health and malaria, 2011–2015 (US $)

		2011	2012	2013	2014	2015
Total GRZ Budget		5,116,695,665	5,539,656,386	6,440,000,000	7,300,000,000	7,070,606,061
Health Budget	$	351,718,415	790,940,795	720,000,000	722,700,000	676,363,636
	%	6.9	14.3	11.2	9.9	9.7
Malaria Budget	$	$279 788*	$185 325*	-	$24,800,000*	$28,000,000**

*Funding for anti-malarial commodities only

- A major achievement towards this has been the decision by the GRZ to allocate US$24.8 million in 2014 and US$28 million in 2015 towards the procurement of anti-malaria commodities. There has also been consistent funding from partners: US$69.2 million in 2011, US$59.2 in 2012, US$81.2 million in 2013, US$54.4 in 2014, and US$54 million in 2015 (Table 5).

Table 5. Malaria financial contributions by source 2011–2016

Funding source	2011	2012	2013	2014	2015
GRZ	$279 788*	$185 325*	-	$24,800,000*	$28,000,000**
Internal funding (%)	0.4%	0.3%	0%	31.3%	34.1%
Global Fund	$8,005,486*	$9,069,648*	$29,335,147*	$24,362,218*	$18,876,269**
PMI	$24,400,000*	$25,700,000*	$24,028,000*	$24,000,000	$24,000,000**
DFID	-	$4,833,820*	$19,235,700*	-	$7,200,000**
Other bilateral	-	$1,850,000*	$3,500,000*	-	-
World Bank	$29,401,235*	$10,454,000*	$4,903,770*	-	-
UN (WHO, UNICEF)	$205,000*	$180,000*	$231,884*	$20,000*	$300,000**
Others (MACEPA, private sector)	$7,215,019	$7,181,165*	-	$6,000,000*	$3,624,832**
Total external funding	$69,226,740	$59,268,633	$81,234,501	$54,382,218	$54,001,101
External funding (%)	99.6%	99.7%	100%	68.7%	65.9%
Total funding	$69,506,528	$59,453,958	$81,234,501	$79,182,218	$82,001,101
Malaria budget (NMSP)	46,351,030§	52,683,340§	52,796,958§	139,425,032***	116,365,368***
Financing gap	50%	12.9%	54%	-43.2%	-29.5%

Source: *World Malaria Report, **PMI Operational Plans, ***NMSP 2011–2016 §NMCP 2011–2015

- In 2011, US$69.5 million was available for malaria activities, mostly from external sources, against a budget of US$46.4 million. Similarly, in 2012 and 2013, the expenditure exceeded the

NMSP budget figures (Table 5). In 2014 and 2015, there was a financing gap of 43% and 30%, respectively.

The following enabling and constraining factors were noted

Enabling factors
- A dedicated GRZ budget for malaria.
- Consistent partner support for malaria.

Constraining factors
- Some partners who previously supported malaria have phased out their support.
- Financial data on GRZ budget are not readily available at both national and district levels.

3.2 Conclusions and recommendations

Conclusions
- There has been a significant increase in domestic funding of the malaria programme in 2014 and 2015 but it is still not sufficient to sustain the various malaria control interventions.
- Most malaria activities are financed from external sources.

Recommendations
- Translate the renewed commitment to increased domestic funding for malaria elimination activities.
- Develop innovative mechanisms to improve investments in malaria elimination including mobilizing funds from the corporate/private sector.

Chapter 4: Review of the capacity of the NMCP to implement planned activities

The capacity of the NMCP to implement planned activities of the NMSP 2011–2016 was assessed in order to further strengthen this capacity. The findings are presented below.

4.1 Findings

Rate of implementation of NMSP 2011–2016 activities
- 36% of the planned activities were fully implemented.
- 43% of the planned activities were partially implemented.
- 21% of the planned activities were not implemented at all.
- In terms of the fully implemented activities, the performance was lowest for SBCC at 11%; then increased to 35% for surveillance, monitoring and evaluation; then to 43% for case management; then to 46% for vector control, and 54% for operational research. Refer to Annex 9 for a detailed analysis of the rate of implementation of planned activities.

The following enabling and constraining factors were noted

Enabling factors
- Consistent funding from partners and an increase in funding from the GRZ.
- Consistent support from implementing partners.
- Sustained Government commitment.

Constraining factors
- Fragmentation of programme implementation due to pre-packaged partner projects.
- Parallel planning between the centre and districts leading to discordance.
- Absence of operational planning at all levels.
- Absence of planned outputs in the medium term expenditure frameworks.
- Failure to finalize documents.
- Absence of a system to track implementation in real time.
- The three-year operational plan was not developed.
- Operations were too centralized.

Status of implementation of the recommendations of the 2013 mid-term review (MTR) of NMSP 2011–2015

The programme adopted and implemented the recommendations of the 2013 MTR as follows:
- 54% were fully implemented.
- 31% were partially implemented.
- 15% were not implemented.

Refer to Annex 9b for the detailed analysis implementation status of the MTR recommendations.

The following enabling and constraining factors were noted

Enabling factor
- Consistent availability of partner support (financial and technical).

Constraining factor
- The implementation of the recommendations were hampered by the vagueness of the MTR recommendations.
- There was no plan to guide implementation of the recommendations.

4.2 Conclusions and recommendations

Conclusions
- The overall implementation rate of the NMSP 2011–2016 planned activities, at 36%, was low. This was due inadequate resources (human resources, finances, transport, equipment, and infrastructure).
- The implementation rate was also constrained by lack of SMART objectives and vague activity descriptions.

Recommendations
- Establish an annual process that ensures that the resources in the GRZ Budget Report, the 'Yellow Book', are aligned with partner resources against planned outputs (operational plans) at all levels for the year in support of the implementation of the NMSP.
- Develop a system for tracking implementation at all levels in real time (management tool).
- Develop a business plan to facilitate resource mobilisation.
- Develop an M&E plan.

Chapter 5: Review of the effectiveness of the health system in delivering malaria services

5.1 Level of attainment of vector control outcome targets

The NMSP 2011–2016 indicators and targets for vector control outcomes were as follows:
- 100% of households in target areas should have at least one insecticide-treated net (ITN) by 2016.
- 100% of households in target areas should have an ITN-to-sleeping-space of at least one to one by 2016.
- 100% of households in target areas should have at least one ITN or been recently sprayed with indoor residual spray (IRS) by 2016.
- 80% of children under five years of age should have slept under an ITN/long-lasting insecticide-treated net (LLIN) on the night before a survey by 2016.
- 80% of pregnant women should have slept under an ITN/LLIN on night before a survey by 2016.
- 9.7 million people in targeted areas should be protected by IRS.

Findings
- The national ITN ownership increased from 64% in 2010 to 68% in 2012 and to 76% in 2015 against a target of 100%.
- The households which reported having sufficient ITNs to cover all sleeping spaces increased from 34.3% in 2010 to 63.9% in 2015, as shown in Figure 13. This was below the target of 100%.

Figure 13. Percentage of households with an insecticide-treated net-to-sleeping-space ratio of least one to one (Zambia 2008–2015)
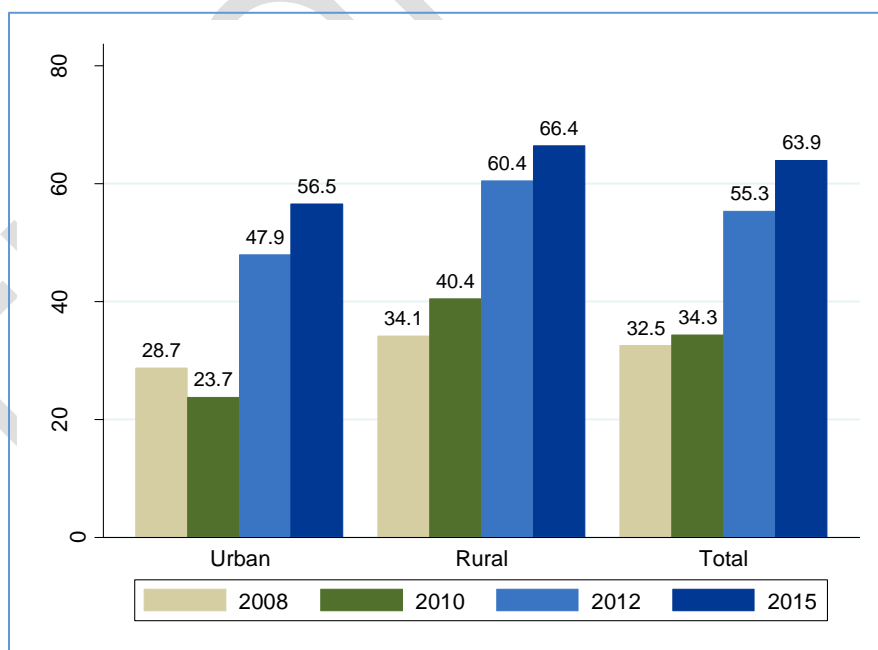
- Households that reported having either an ITN or IRS increased to 80.6% in 2015 from 72.9% in 2010 against the target of 100%.
- ITN use among children under five years increased from 50% in 2010 to 57% in 2012 and to 59% in 2015 (Figure 14) against a planned target of 80%. However, net use remained problematic among children 5–19 years old.

Figure 14. ITN use by children under age five years by age, Zambia 2006–2015
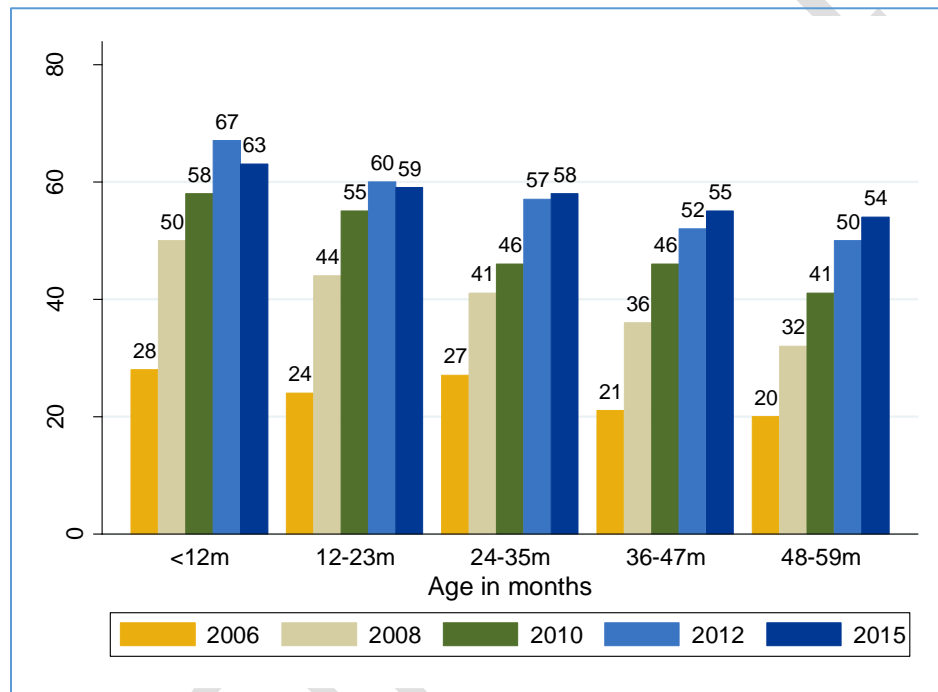
- Indicators on use of ITNs by pregnant women was not available in the 2015 MIS since this indicator was captured as part of the "women of reproductive age" group. Hence, a trend analysis of this indicator was not performed.
- The data on ITN distribution to different sub-populations (pregnant women, children under-fives, schools, and communities) were not well captured in the health management information system (HMIS).
- The total number of people protected by IRS increased slightly from 5.4 million in 2010 to 6 million in 2015, against a target of 9.7 million. The population of Zambia has grown from 13 million in 2011 to 15 million in 2015. The percentage of households sprayed within targeted areas remained consistently above 85% from 2010 to 2015.
- Larval source management (LSM) was not prioritized in the NMSP. As a consequence, it was not implemented.

The following enabling and constraining factors were noted

Enabling factors
- Sustained partner support for malaria prevention.

- Availability of an insecticide resistance management plan.
- Strong leadership and political will at all levels.
- Availability of tools, guidelines, and policies for IRS.
- Presence of qualified staff at national level and some districts.

Constraining factors
- Emergence of insecticide resistance by the main malaria vectors.
- Inadequate resources to procure, store, and distribute (supply chain management) vector control commodities.
- Inadequate supervision and monitoring of vector control activities.
- Limited uptake of key preventive interventions.
- Unclear ITN guidelines on distribution criteria for antenatal care (ANC) and under five.
- Late and inadequate funding for procurement and implementation of the IRS programme.
- Lack of accurate data for eligible structures.
- Inconsistency in the implementation of the IRS programme.
- Late implementation of the IRS programme in most of the districts.
- LSM was not prioritized in the NMSP.

Conclusions and recommendations

Conclusions
- Zambia endeavoured to sustain malaria prevention coverage.
- Zambia developed an insecticide resistance management plan based on evidence collected from sentinel sites.

Recommendations
- Update and disseminate insecticide resistance management plan.
- Strengthen routine reporting of ITN distribution data in the HMIS for different populations (pregnant women, children under-fives, schools, and communities).
- Review vector control indicator definitions in MIS.
- Disseminate all national strategy and guideline documents.
- Review vector control guidelines, particularly IRS.
- Conduct timely IRS operations.
- Achieve IRS coverage of above 85%.
- Procure/hire bikes for IRS campaigns for districts with hard-to-reach areas.
- Strengthen district-level malaria control planning, implementation, monitoring, and evaluation.
- Develop policy/guidelines on LSM.
- Establish public sector LSM.
- Conduct research on indigenous knowledge of malaria control and prevention.
- Distribute sufficient ITNs to cover all sleeping spaces during mass campaigns.

5.2 Level of attainment of chemoprevention outcome targets

The NMSP 2011–2016 indicators and targets for chemoprevention outcomes were as follows:
- 80% of pregnant women attending ANC clinics should receive at least two doses of intermittent preventive treatment during pregnancy (IPTp) against malaria by 2016.
- 80% of pregnant women should have slept under an ITN/LLIN on the night before a survey by 2016.

Findings
- Chemoprevention is conducted only for IPTp in Zambia. The treatment guidelines have been updated and currently require at least four doses for each pregnancy.
- The coverage of IPTp in Zambia is among the highest within the African region, with 78.8% and 60.8% of pregnant women receiving at least two doses and at least three doses, respectively, of sulfadoxine-pyrimethamine (SP) during pregnancy in 2015 (Table 6). The 2016 target is for 80% of pregnant women attending ANC clinics to receive at least two doses of IPTp.
- Relatively lower uptake of IPTp-2 and IPTp-3 despite high first ANC attendance (more than 90%) was recorded because of late commencement of ANC by pregnant women.
- Intermittent presumptive treatment of infants and seasonal malaria chemoprevention are not done in Zambia.

Table 6. Antenatal care attendances (ANC) and IPTp uptake, Zambia 2011–2015

| | Health Management Information System | | | | | | | | | | Malaria Indicator Survey | |
Period	Antenatal 1st visit before 14 weeks	Antenatal 1st visit 14 to 19 weeks	Antenatal 1st visit 20 weeks or later	Total 1st Visits	Antenatal follow up visit	IPT 1st dose to pregnant woman	IPT 2nd dose to pregnant woman	IPT 3rd dose to pregnant woman	IPT 1* coverage	IPT 3 coverage	IPTp2	IPTp3
2011	21	34	433,570	433,625	1,012,095	464,243	351,398	237,930	107.1	54.9		
2012	29	96	439,123	439,248	1,075,190	516,123	403,950	288,767	117.5	65.7	73	54
2013	48,516	108,467	396,306	553,289	1,081,862	504,783	419,978	300,010	91.2	54.2		
2014	79,425	178,284	393,396	651,105	1,144,963	884,548	440,815	320,473	135.9	49.2		
2015	76,432	181,124	404,782	662,338	1,199,463	552,215	467,450	351,332	83.4	53.0	78.9	61

 *High first ANC coverage is due to a low denominators from the data source (CSO) as opposed to head count data

The following enabling and constraining factors were noted.

Enabling factors
- Focused antenatal care, which includes IPTp is provided at all health facilities.
- Availability of maternal and child health outreach programmes.
- Availability of SP.

Constraining factors
- Late first antenatal care bookings lead to a gap between uptake of IPTp 1 and IPTp 3.

- Artificial stock-outs of SP.
- Poor data capturing due to high workloads and inadequate staffing.
- HIV-positive pregnant women on cotrimoxazole prophylaxis do not receive SP during ANC.

Conclusions and recommendations

Conclusions
- The coverage of IPTp in Zambia is among the highest within the African region, with 78.8% and 60.8% of pregnant women receiving at least two doses and at least three doses, respectively, of sulfadoxine-pyrimethamine (SP) during pregnancy in 2015.

Recommendations
- Strengthen the routine reporting of IPTp in the HMIS.
- Update the current HMIS to capture up to four or more doses of IPT per pregnancy.
- Consider interventions that require use of community wide anti-malarial treatments as Zambia pursues the malaria elimination agenda.

5.4 Level of attainment of case management outcome targets

The following indicators and targets for case management outcomes were set out in the NMSP 2011–2016:
- 100% of suspected malaria cases should be tested with microscopy or RDT prior to treatment by 2016.
- 100% of confirmed malaria cases should be treated with artemisinin-based combination therapy (ACT) as recommended in the treatment guideline by 2016.
- 100% of patients admitted for severe malaria should receive the recommended treatment by 2016.
- 100% of health facilities should have no stock-out of recommended treatment for severe malaria by 2016.
- Deaths in patients hospitalized for severe malaria should be reduced to near zero (less than ten deaths) by 2016.
- 80% of caregivers in rural area should be aware of trained CHWs that provide iCCM by 2016.
- 80% of under-five children with recent history of fever should have obtained care from trained CHWs by 2016.
- 100% of children with fever should have been seen by CHWs or CHAs and tested with RDTs prior to treatment by 2016.
- 100% of confirmed malaria cases should be treated by CHWs treated with the recommended ACT by 2016.

Findings
- There was a progressive increase in the proportion of confirmed malaria cases from 2011 to 2015, while the converse was true for clinical cases (Figure 15).

Figure 15. Confirmed Versus Clinical Malaria Cases, Zambia, 2011–2015

Source: HMIS
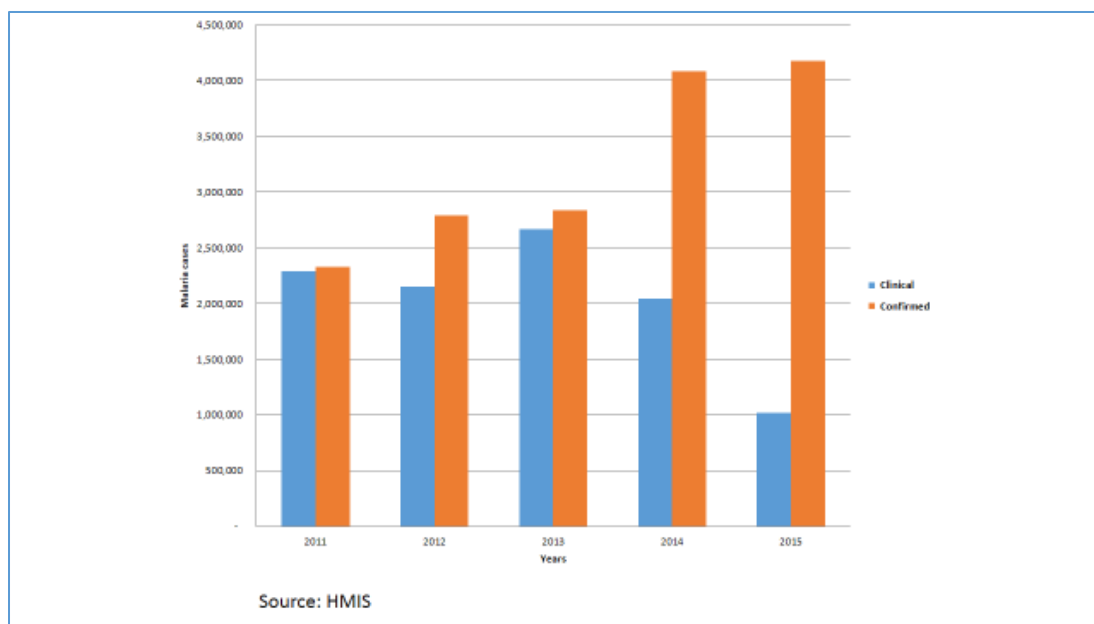
- The 2015 MIS found that, of children under the age of five years that were reported to have had a fever in the previous two weeks, 35.5 percent of children were tested for malaria.
- The use of artemether-lumefantrine (AL), the first-line treatment of malaria in Zambia, has increased. The 2015 MIS indicated that, among children under five with fever that received an anti-malarial drug, 93% reported receiving AL in 2015, an increase from 76% in 2010.
- A total of 69.8 million treatment courses of AL were provided and 65 million rapid diagnostic tests (RDTs) were administered were procured from 2010 to 2015, (Table 7). There were reported stock-outs of AL (two by six dosing packages) at central level in March, April, and May 2011, in January and February 2012, and in September 2013. AL (one by six packages) was overstocked at central level in 2014. In 2015, the AL packages of three by six and four by six were reported below the minimum stock levels at central level. There were no reported stock outs of RDTs at central level. In fact, there was overstocking of RDTs at central level in the latter half of 2015. However, the ETR external validation field visits, which assessed commodity stock-out at the health facility level lasting for more than three months within a year, revealed no stock outs at health facility level. The NMSP 2011–2016 indicator for this was 'percentage of health facilities with no stock-out of ACTs or RDTs (for a week or longer at any time during the past three months).'

Table 7. ACTS and RDTS procured, Zambia, 2010–2016

Year	ACT Packages				Total treatment courses	Comment
	AL 1*6	AL 2*6	AL 3*6	AL 4*6		
2010	2,005,080	728,880	858,060	1,123,720	4,715,740	No central level stock out
2011	1,676,645	330,120	1,359,180	3,064,275	6,230,220	AL 2*6 Stocked out in March, April, and May. 3*6 in Sept and Oct.
2012	5,320,710	1,280,192	1,108,590	3,101,460	10,810,952	AL 2*6 stocked out in Jan and Feb.

2013	5,817,930	2,3145,30	3,230,970	4,114,220	15,477,650	AL 2*6 stocked out in Sept.
2014	8,816,340	2,874,360	3,119,270	5,765,760	20,575,730	Overstocked AL 1*6
2015	4,772,110	2,400,020	2,156,700	2,459,510	11,788,340	AL 3*6 and 4*6 were below minimum stock level throughout the year
Total	28,408,815	9,928,102	11,832,770	19,628,945	69,798,632	
No stock out of all pack sizes at any time was recorded for ACTs						
RDTS						
2010	2011	2012	2013	2014	2015	Total
4,724,535	4,660,400	6,256,825	10,747,000	16,625,060	22,193,775	65,207,595
Central level stock out in March and May	No central level stock out	No central level stock out	No central level stock out	No central level stock out	Central level overstocked from June	

Source: NMEC

- The patients who tested positive and received ACTs were not captured adequately in the routine HMIS. However, reporting of number of positive cases was captured adequately.
- The management of severe malaria was not routinely monitored.
- The scale-up of training in revised severe malaria management was conducted but not completed.
- There has been a 70% reduction of malaria deaths from 2010 to 2015.
- Integrated community case management (iCCM) is being rolled out.
- MIS have revealed an increase in children under the age of five acquiring anti-malarial medicines from CHWs—2.1% in 2010 to 25% in 2015, against a target of 80%.
- 1,078 CHAs were trained in 2016.
- There was no segregation between the facility and community data in the HMIS.

Conclusions and recommendations

Conclusions
- There has been a progressive increase in the proportion of reported confirmed malaria cases and reduction in reported clinical malaria cases.
- The use of AL, the first-line treatment of malaria in Zambia, has increased to 93% in 2015 from 76% in 2010.
- The scale-up of training in revised severe malaria management was conducted but not completed.

Recommendations
- Strengthen and support the scale-up of iCCM.
- Separate community malaria reporting from health facility malaria reporting.
- Streamline the reporting of positive malaria cases that receive anti-malarial treatment.
- Strengthen the quality of care for severe malaria through:
    - Accelerated scale-up of severe malaria management trainings.
    - Monitoring of severe malaria management.
    - Commodity quantification and supply to facilities.

- Include the annual blood examination rates in the next malaria strategic plan.

5.4 Level of attainment of procurement supply management outcome targets

The PSM strategy for the NMSP 2011–2016 mandated programme management to coordinate the forecasting, quantification, and procurement of anti-malarial commodities and supplies to ensure that 100% of health facilities report no stock-out of anti-malarial commodities lasting more than one week.

Findings
- There were central level stock-outs of some AL packages reported in 2011, 2012, and 2013, as illustrated in Table 7 above. However, the ETR external validation field visits, which assessed commodity stock-out at the health facility level lasting for more than three months within a year, revealed no stock-outs at health facility level. The NMSP 2011–2016 indicator was 'percentage of health facilities with no stock-out of ACTs or RDTs (for a week or longer at any time during the past three months).'
- Limited capacities for PSM.
- Late disbursement of funds for IRS.
- Weak mechanism for monitoring PSM processes.

Conclusions and recommendations

Conclusions
- Limited capacities for PSM and funding constraints.

Recommendations
- Build capacity for the PSM process.
- Update the M&E log frame with relevant PSM indicators (e.g., IRS and ITNs).
- Improve collaboration among key players for timely disbursement of funding for PSM.
- Strengthen the malaria commodities supply chain (personnel, hardware, software, logistics, and transport).
- Translate the renewed political commitment to increased domestic funding for malaria control activities.

5.5 Level of attainment of social and behaviour change communication outcome targets

The NMSP 2011–2016 indicators, targets, and results for SBCC are listed in Table 8 below.

Findings
- The National Malaria Communication Strategy 2011–2014 was available to provide policy guidance.

Table 8. Selected SBCC indicators, targets and results, Zambia, 2010–2016

Indicator	2010 Baseline	2012	2015 Results	2016 Target

	Results			
Percentage of women of reproductive age who recognize fever as a symptom of malaria	75.3	77.5	79.7	90
Percentage of women of reproductive age who reported mosquito bites as a cause of malaria	84.7	89.4	85.3	95
Percentage of women of reproductive age who reported a mosquito net treated or untreated as a preventive method	81.7	86.2	91.3	95
Percentage of children with fever who sought treatment from a facility provider same day or next day	31.2	24.5	31.8	60
Percentage of households with at least one ITN per sleeping space	34	55	63.9	
Percentage of children under five years of age who sleep under a net the last night	57.8	67.1	59	60
Percentage of pregnant women who slept under an ITN last night	45.9	58	58.2*	80
Percentage of uptake of IPTp for pregnant women through ANC visits 2nd dose	84.5	84.1	78.8*	80

Source: MIS 2015   **Women of reproductive age group (MIS 2015)

- There was high basic knowledge levels of malaria, which translated to appropriate health-seeking behaviour and ITN use.
- There was a lack of institutionalisation for a focal malaria person at district level.
- There was limited research to guide behavioural change communication.
- The monitoring and evaluation system for behavioural change communication is weak.

Conclusions and recommendations

Conclusions
- There was high basic knowledge levels of malaria, which translated to appropriate health-seeking behaviour and ITN use.

Recommendations
- Review communication strategy, including relevant indicators, in line with the health sector priorities to support all malaria interventions.
- Strengthen reporting of SBCC.
- Establish mechanisms for coordination of SBCC through the SBCC TWG.
- Sustain community and partner involvement in malaria control/elimination activities.
- Learn lessons on acceptability of interventions across provinces.
- Strengthen SBCC mentorship at lower levels to ensure effective malaria information communication and action.

5.6 Level of attainment of epidemic preparedness and response (EPR) outcome targets

The NMSP 2011–2016 indicators for epidemic preparedness and response (EPR) are:

- Proportion of districts with district epidemic preparedness plans.
- Percentage of designated district sites with epidemic preparedness stocks.
- Number of outbreaks/epidemics reported and fully investigated.

Findings
- There are no EPR policy or guidelines documents.
- Targets for EPR are not included in the M&E log frame.

Conclusion
- The NMSP did not anticipate any epidemic. As a result, there are no EPR policy or guidelines documents.

Recommendations
The next strategic plan must anticipate epidemics due to changing epidemiology hence the need to:

- Develop guidelines for EPR.
- Include indicators for EPR in the log frame.

5.7 Level of attainment of SMEOR outcome targets

The surveillance monitoring and evaluation and operational research (SMEOR) indicators and targets outlined in the NMSP 2011–2016 performance framework are:
- 90% of districts reporting on time by 2016.
- 90% of districts reporting completely by 2016.
- 100% of outbreaks/epidemics reported and fully investigated according to the guidelines.
- MIS to be conducted in 2012 and 2015.
- MTR and ETR to be conducted in 2013 and 2016.
- 100% of planned operational research conducted by 2016.

Findings
- The percentage of districts reporting increased from 73% in 2011 to 87% in 2015, and 44% of districts reported in 2015 (2011 timeliness report not reflected in the system).
- A mid-term review of the NMSP 2011–2015 was conducted in 2013 and MISs were conducted in 2012 and 2015.
- The national surveillance reporting system (HMIS) exists and the indicators, baselines, and targets are adequate. The web-based District Health Information System (DHIS) 1.4 has been upgraded to 2.0 and rolled out to all districts in the country.
- All districts have district health information officers for routine reporting.
- Malaria rapid reporting system using mobile phone has been developed and is operational in selected areas.
- Data on case management, IPTp, and ITNs distributed through the ANC/Expanded Programme for Immunization (EPI) is captured in the HMIS while ITNs distributed through mass campaigns were not captured in the system.
- Reporting tools—registers and health service delivery aggregation form (HIA 1 and 2) were available at facility level.

- Malaria cases seen at health facility and community levels were separated using codes in some facilities as well as the classification of local cases and imported cases.
- Some health facilities routinely captured data on mobile and migrant populations accessing health services.
- There was a lack of common understanding of malaria data elements and definitions.
- HMIS does not differentiate in-patient malaria from severe malaria cases.
- There was a discrepancy of data on the HIA 1 forms and registers in some facilities (e.g., more confirmed cases in registers than reported in HIA 1.)
- Flawed record-keeping in some district medical offices and health facilities made it difficult to collect, collate, and utilize the data.
- There were missing reports for 2011 and 2012 in some districts due to the upgrading of DHIS2.
- Tested patients were not captured in HMIS but data were available in the laboratory in some facilities.
- There were no registers to log in reports when they were brought.
- There was a lack of dedicated staff for malaria reporting at facility level.
- Information on consumption of ACTs collected through electronic logistics information management system did not correspond with malaria disease burden as reported by HMIS.
- There was a lack of systems for capturing malaria activities expenditure across the districts or systems for doing so were weak.
- Irregular national, district, and technical review meetings made it difficult to get analyzed information.
- Operational research conducted during the review period included studies on elimination strategies, therapeutic efficacy, insecticide resistance, behavioural change, measurement of transmission intensity, and economic impact of malaria interventions.
- There are no current SMEO policy or guideline documents.
- There were no national malaria research agenda but there were annual research plans (though poorly funded).
- There was no forum for dissemination of research information among stakeholders.

Conclusions and recommendations

Conclusions
- The District Health Information System (DHIS) 1.4 has been upgraded to 2.0 and rolled out to all districts in the country.
- The percentage of districts reporting increased from 74% in 2011 to 87% in 2015 and the districts reporting on time increased from 25% in 2011 to 44% in 2015.

Recommendations
- Recruit additional support staff to deal with data management and reporting at district and health facility levels.
- Improve data management, particularly record-keeping.
- Strengthen data collection procedures and data audit to improve quality.
- Staff orientation on malaria should be continuous, particularly at hospitals with internship programme.
- Scale-up the weekly rapid malaria reporting system.

- Scale-up mobile technology reporting platforms for real-time reporting at all levels, particularly districts, health facilities, and community.
- Improve data capture of in-country mobile population (internal and external) to guide development of strategies and use for decision-making (forecasting and quantification of commodities).
- Update HMIS to capture severe malaria.
- Support training programmes, especially on data use for decision-making.
- Ensure that an M&E log frame is part of the next malaria strategic plan.
- Strengthen surveillance, M&E, and research (close collaboration between universities, colleges, health research institutes, and partners).
- Develop a prioritized national research agenda.
- Develop a mechanism for monitoring and providing feedback on research findings to stakeholders.

5.8 Functionality of programme management support system

Programme management aimed to improve capacity in coordination, leadership, governance, and resource mobilisation for effective and efficient management of the NMCP. The following targets were set for the NMSP 2011–2016:
- Increase the number of technical staff from the current 55% to 100% by 2016.
- Develop a sound investment case for the malaria programme.
- Mobilize at least 80% of financial resources required for efficient and effective programme implementation by 2016.

Findings
- Policies and legislation exist to support the malaria programme in Zambia.
- Guidelines for various malaria interventions are available.
- A sound investment case was not developed.
- In 2011, 2012, and 2013 the expenditure exceeded the budgeted levels but funding gaps of 43% and 30% were experienced in 2014 and 2015, respectively.
- Programme structure was inadequate in terms of staffing (at all levels) and hierarchy.
- The NMEC was not in full control of the malaria resources.
- The NMEC is part of the Ministry of Health and the overall Zambian Government system with links to other line ministries.
- A governance and coordination system is in place. There are political, administrative, and technical leadership and clearly outlined processes and procedures and functional technical working groups.
- Most partner resources come pre-packaged according to projects which makes flexibility difficult.
- Lack of harmonisation in budgeting processes at central and district levels. The district budgets did not reflect resources at NMEC and vice versa.
- There was an organogram for the NMEC but no organogram for NMCP.

- There has been an increase in number of staff at NMEC. This has been achieved by secondment of some officers to NMEC.
- Shortage of transport at all levels.
- Inadequate office space at central level.
- Absence of a database for in-service training of health workers.
- Absence of a database for trained and active CHWs.
- Weak mechanism for coordination of projects.
- Lack of a tracking system for resources.

Conclusions and recommendations

Conclusions
- Policies and legislation exist to support the malaria programme in Zambia and guidelines for various malaria interventions are available.
- No stand-alone policy document on malaria.
- Organogram was not filled fully. Even if it had been filled, it would not have been adequate to support the effective implementation of the NMCP.

Recommendations
- Develop a stand-alone policy document on malaria.
- Develop and implement an adequate staffing structure for the programme in order to respond to the needs of malaria elimination.
- Advocate for establishment of malaria focal point persons at provincial, district, health facility, and community levels.
- NMCP should assume full control of all its resources and should preferably be upgraded to full department/directorate.
- Transform NMCC into a National Malaria Elimination Centre.
- Develop a monitoring plan for programme management.
- Deploy a management tool to monitor activity implementation.
- Strengthen partner project coordination mechanisms (regular meetings, prioritisation of interventions, regular reporting, tracking of resources, etc.).
- Strengthen the health system for malaria elimination at all levels (infrastructure, transportation equipment, etc.).
- Decentralize implementation of activities and ensure appropriate capacity.
- Develop and implement a dissemination plan for NMSP.
- Develop and implement a training package for malaria focal persons.
- Ensure that all facilitators have and use training manuals.
- Develop a business plan to facilitate resource mobilisation for the NMSP.
- Conduct annual review and planning.
- Keep guidelines up to date.

Chapter 6: Programming implications of the lessons learned implementing the NMSP 2011–2016

6.1 Lessons learned implementing the NMSP 2011–2016

- Malaria is still a public health priority in Zambia.
- Malaria incidence has remained largely unchanged during the review period.
- Malaria mortality has significantly reduced.
- Strong partnership at all levels is cardinal in fighting malaria.
- Late disbursement of funds leads to delay in implementation of malaria activities, such as IRS implementation and net distribution.
- Supervision is key to quality IRS.
- Inadequate dissemination of guidelines hampers operational planning by provinces, districts, health facilities, and communities.
- There are lessons to be learned from Eastern and Southern provinces, where the malaria incidence has significantly reduced.
- Web-based HMIS has the improved access of malaria data and use.
- Regular data review and audits are needed at all levels.
- Data from Central Statistics Office (CSO) data does not correlate with head count data.

6.2 Future strategic directions

- Establish a package of high impact malaria elimination interventions driven by epidemiological profile.
- Strengthen the capacity of the malaria elimination programme to generate, interpret, and use quality assured data for decision-making and action.
- Strengthen the capacity to implement interventions.
- Elevate the National Malaria Elimination Programme from a sub-directorate to a full department/directorate.
- Ensure adequate staffing structure for the programme that responds to malaria elimination needs.
- Translate the renewed commitment to increased domestic funding for malaria elimination activities.
- Develop innovative mechanisms to improve investments in malaria elimination including mobilizing funds from the corporate/private sector.
- Establish a forum for effective engagement with partners to discuss malaria elimination issues on a regular basis.
- Ensure that the data collected is sufficient to demonstrate malaria elimination.
- Harmonize the different reporting systems.
- Integrate partner projects fully within national plans and operations.
- Sustain prioritisation of malaria on the development agenda.
- Ensure steady and adequate supply of commodities for implementation of interventions.
- Ensure steady and adequate funding for service delivery.
- Intensify SBCC for malaria elimination.
- Continue community engagement, including advocacy with leaders.
- Ensure generation of countrywide real-time data to support the elimination strategy.
- Decentralize implementation.
- Develop/review malaria policy and guidelines.
- Ensure implementation of a well-established malaria research agenda.

Annexes

Annex 1. Scope of work for consultant for the end-term review of the Zambia National Malaria Strategic Plan for 2011–2016

Background

The National Malaria Control Programme (NMCP), through the Ministry of Health (MOH) National Malaria Control Centre (NMCC), with the support of its partners, has been implementing the current National Malaria Strategic Plan (NMSP) since 2011. The NMSP 2011–2016 focuses on consolidating gains for impact through the continued scale-up of key interventions through a dedicated workforce with substantial financial support and commitment to other resources.

Purpose

The purpose of this scope of work (SOW) is for a consultant to assist the NMCP in reviewing the progress to date with regard to achieving the goals and objectives outlined in the current NMSP 2011–2016. Specifically, the consultant will work closely with established mechanisms, including the malaria subject matter area technical working groups (TWGs), MOH, and partners, to:

1. Support MOH/NMEC to organize and facilitate at least one retreat for TWGs to conduct an internal desk review of relevant malaria programme materials and data. The retreat outcomes will be to:
    - Determine implementation status against progress towards attaining set targets.
    - Identify major programme activities, achievements, best practices, and lessons learnt.
    - Conduct a rapid S.W.O.T analysis of the malaria programme.
    - Assess capacity, structures, and systems for delivery of interventions.
    - Identify key issues challenges and problems hindering additional progress in malaria control—this may differ from province to province.
    - Develop recommendations and solutions for the challenges, bottlenecks, and problems identified.
2. Support external field validation visits to selected districts following the retreat/internal desk review phase.
3. Support the drafting of the final end-term review report and presentations.
4. Support the drafting of a summary of findings on key recommendations of the end-term review in the form of an 'aide memoir' to enable smooth implementation of the next strategic plan.
5. Support MOH/NMEC to organize stakeholder meeting(s) to disseminate findings from the end-term review.

The consultant will undertake the following:

- Phase 1: Prepare. Preparatory phase including document collection, literature review on various components of the national malaria programme; consulting/meeting selected key relevant decision-makers/other stakeholders not participating in TWG malaria meetings; development of situation analysis and finalization of end-term review tools for conducting internal and external reviews (including tools to be used during field visits to districts to validate findings).
- Phase 2: Participate. Participate in TWGs and committee and review meetings for end-term review tool development and completion, including engaging members of the TWGs and their members, collectively and individually; participate in field validation site visits.

- Phase 3: Compilation. Review of data, reports, literature, and documents, and articulation of status, best practices, gaps, strategies and recommendations for malaria control and elimination in Zambia; preparation review of reports, power point presentations, and aide memoirs; briefing of MOH and partners during stakeholder meetings at all levels on the end-term review throughout the review process; facilitation of the revision and finalization of end-term review report for the national malaria strategic plan, and operational and business plans.
- Phase 4: Report. Develop and manage an end-term review report based on the findings through Phases 1–3 and produce final 2016 end term review report.

  Present the results of the final end-term review report to national stakeholders and support final launch of the report.

Deliverables

- Thematic reports produced by TWGs at the end of internal desk review phase.
- External field validation tools to be used during the external field validation phase.
- Final end-term review report of the implementation of the National Malaria Strategic Plan 2011–2016.
- Presentations of findings and recommendations of the end-term review to MOH and partners.

Working tools

Relevant documents and logistics will be provided to the consultants including the following:

- Updated national malaria control database and maps.
- Malaria control documents (national malaria control strategy; malaria mid-term review; annual national malaria control business plans; Global Fund proposals and reports; district annual malaria operational/business plans; partners plans and reports; other malaria project plans and reports; reports of technical support missions; reports of supervisory visits; malaria technical policies, guidelines and tools; published articles and literature; reports of surveys, studies, researches, and other sources of data).
- National policies and frameworks relevant to malaria control (Vision 2030 document, economic recovery strategy, medium-term plan linked to strategic plans of sector, health sector strategic plan, medium term expenditure framework, Zambia Demographic and Health Survey, population census reports).
- Hard and electronic copies of guidelines and tools for field interviews.

Timeline

Phase	Key activities	Dates
Phase I	Literature review on various components of the national malaria programme; development of situation analysis for end-term review process and report.	*October 2016*

Phase II	Participate in TWG internal reviews/retreat; finalize external validation tools and guidelines; produce consolidated thematic reports by TWGs.	*November 2016*
Phase III	Conduct external validation and develop external validation report on knowledge of the current state of progress; develop draft consolidated end-term review report for review by TWG members.	*December 2016*
Phase IV	Facilitate and manage finalization of end-term review report, based on the findings through phases 1–3; summarize findings and recommendations.	*December 2016* Final Report Due: *30 December 2016*
	Present the results of the final end-term review report to national stakeholders; launch of the report.	*16 January 2017*

Annex 2a. Agenda of the end-term review of National Malaria Strategic Plan 2011–2016, October 10–14, 2016

Time (hours)	Activity	Facilitator
Malaria End Term Programme Review **Monday, 10th October, 2016** **Venue:** Protea Hotel, Ndola, ZAMBIA	
Chairperson: Dr. B. Hamainza & Dr. C. Simwanza **Rapporteur: Mr E. Kakoma**	
Time (hours)	**Activity**	**Facilitator**
09.00	• Registration • Opening prayer • Introduction (Chairperson calls upon DD-NMEC to call upon PMO) • Official opening • House keeping • Objectives and Expected Outcomes • Malaria Programme Review: Principles & 2016 Roadmap	Secretariat Secretariat Dr. Mutinta Mudenda Dr. C. Mwale, PMO Copperbelt NMEC Dr. F. Masaninga, WHO Dr. F. Masaninga
10.00-10.30	**Health Break**	**All**

10.30-13.00	• Malaria Situation in Zambia
	   o Epidemiology
	     Discussion
	   o Case Management
	     Discussion
	   o Integrated Vector Management
	     Discussion
		Dr. B. Hamainza
		
		Dr H. Moonga
		
		Dr. C. Sikaala

13.00-14.00	**Lunch Break**	

14.00-16.30	• Malaria Situation in Zambia Continued
	   o Surveillance, M&E and Research
	   o IEC/BCC
	   o Programme Management
	     Discussion
	
	• Introduction to Group Work
	
	• Constitution of TWGs and Identification of Chairpersons and Rapporteurs.
	   o Programme Management
	   o Case Management
	   o Integrated Vector Management
	   o Surveillance, Monitoring, Evaluation & Research
	   o IEC/BCC
	• Announcements
	• Closing Prayer
	• End of Day's Programme
		Dr. H. Hamainza
		Mr. E. Kakoma
		Dr. B. Hamainza
		
		Dr. O. Lulembo
		
		All
		
		Dr. C. Simwanza
		Dr. C. Simwanza

16:30-17:00	**Health Break**	All
17:00-17.30	• Facilitators Meetings	Facilitators

Malaria End Term Programme Review **Tuesday, 11th October, 2016** **Venue:** Protea Hotel, Ndola, ZAMBIA		
Chairperson: Dr. C. Sikaala Kakoma		**Rapporteur:** Mr E.
Time (hours)	**Activity**	**Facilitator**

08:30-09:00
 	
09:00-10:30
	• Opening prayer
	• Recap of Day 1
	• Review of Agenda
	
	• Group Work (Use provided template)
	  o Programme Management TWG
	  o Case Management TWG
	  o Integrated Vector Management TWG
	  o Surveillance, Monitoring, Evaluation & Research TWG
	  o IEC/BCC TWG
		Participant
		Mr. E. Kakoma
		Dr. O. Lulembo
		
		All

10.00-10.30	**Health Break**	All

10.30-13.00	• Group Work Continued
	  o Programme Management TWG
	  o Case Management TWG
	  o Integrated Vector Management TWG
	  o Surveillance, Monitoring, Evaluation & Research TWG
	  o IEC/BCC TWG
		All

13.00-14.00	**Lunch Break**	

14.00-15.30	• Group Work Continued
	  o Programme Management TWG
	  o Case Management TWG
	  o Integrated Vector Management TWG
	  o Surveillance, Monitoring, Evaluation & Research TWG
	  o IEC/BCC TWG
		All

15:30-16:00	**Health Break**	All

16:00-17.30	• Plenary presentation of Update on Group Work Progress
	
	  o Programme Management TWG
	  o Case Management TWG
	  o Integrated Vector Management TWG
	  o Surveillance, Monitoring, Evaluation & Research TWG
	  o IEC/BCC TWG
	
	• Closing Prayer
	• Facilitators meeting
		Dr. C. Sikaala/
		Dr. O. Lulembo
		Chairperson/Rapporteur
		Chairperson/Rapporteur
		Chairperson/Rapporteur
		Chairperson/Rapporteur
		Chairperson/Rapporteur
		
		Participant
		Facilitators

Malaria End Term Programme Review Wednesday, 12th October, 2016 **Venue:** Protea Hotel, Ndola, ZAMBIA		
Chairperson: Dr. J. Banda		**Rapporteur:** Mr E. Kakoma
Time (hours)	**Activity**	**Facilitator**
08:30-09:00	• Opening prayer • Recap of Day 2 • Review of Agenda	Participant Mr. E. Kakoma Dr. O. Lulembo

09:00-10:30	• Group Work Continued
	  o Programme Management TWG
	  o Case Management TWG
	  o Integrated Vector Management TWG
	  o Surveillance, Monitoring, Evaluation & Research TWG
	  o IEC/BCC TWG
		All

10:30-11:00	**Health Break**	All

11:00-13.00	• Group Work Continued
	  o Programme Management TWG
	  o Case Management TWG
	  o Integrated Vector Management TWG
	  o Surveillance, Monitoring, Evaluation & Research TWG
	  o IEC/BCC TWG
		All

13.00-14.00	**Lunch Break**	All

14.00-15.30	• Group Work Continued
	  o Programme Management TWG
	  o Case Management TWG
	  o Integrated Vector Management TWG
	  o Surveillance, Monitoring, Evaluation & Research TWG
	  o IEC/BCC TWG
		All

15:30-16:00	**Health Break**	All
16:00-17.30	• Group Work Continued • Closing Prayer • Facilitators meeting	All Participant Facilitators

Malaria End Term Programme Review

Thursday, 13th October, 2016		
Venue: Protea Hotel, Ndola, ZAMBIA		
Chairperson:		**Rapporteur:** Mr E. Kakoma
Time (hours)	**Activity**	**Facilitator**
08:30-09:00	• Opening prayer • Recap of Day 3 • Review of Agenda	Participant Mr. E. Kakoma Dr. O. Lulembo

09:00-10:30	• Introduction to End Term Review Checklist
	  Discussion
	• Schedule of Activities for Field Validation of Findings
	  Discussion
		Mr. E. Kakoma
		
		Mr. E. Kakoma

10:30-11:00	**Health Break**	All

11:00-13.00	• Plenary Presentations
	
	  o Integrated Vector Management TWG
	    Discussion
	  o Case Management TWG
	    Discussion
	  o Surveillance, Monitoring, Evaluation & Research
	    TWG
	    Discussion
	  o IEC/BCC TWG
	    Discussion
		Chairman/Dr. Lulembo
		
		Chairperson/Rapporteur
		
		Chairperson/Rapporteur
		
		Chairperson/Rapporteur
		
		Chairperson/Rapporteur

13.00-14.00	**Lunch Break**	All

14.00-14.30	• Plenary Presentations Continued
	
	  o Programme Management TWG
	    Discussion
		Chairman/Dr. Lulembo
		
		Chairperson/Rapporteur

14:30-15:30	• Group Work – Finalize Report Incorporating Input from
	  Plenary
	  o Programme Management TWG
	  o Case Management TWG
	  o Integrated Vector Management TWG
	  o Surveillance, Monitoring, Evaluation & Research
	    TWG
	  o IEC/BCC TWG
		All

15:30-16:00	**Health Break**	All

16:00-17.00	• Group Work Continued – Finalize Report Incorporating
	  Input from Plenary
	  o Programme Management TWG
	  o Case Management TWG
	  o Integrated Vector Management TWG
	  o Surveillance, Monitoring, Evaluation & Research
	    TWG
	  o IEC/BCC TWG
	
	• Closing Prayer
		All
		
		Participant

	• Facilitators Meeting	Facilitators

Malaria End Term Programme Review **Friday, 14th October, 2016** **Venue:** Protea Hotel, Ndola, ZAMBIA	

Chairperson:	**Rapporteur:** Mr E. Kakoma	
Time (hours)	**Activity**	**Facilitator**
08:30-09:00 **09:00-10:30**	• Opening prayer • Recap of Day 4 • Review of Agenda • Planning for the next steps of End Term Review General Discussion	Participant Mr. E. Kakoma Dr. O. Lulembo Facilitators
10:30-11:00	**Health Break**	All
11:00-13.00	 • Closing Ceremony • Closing Prayer • End of Programme	
13.00-14.00	**Lunch Break & Departure**	All

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Annex 2b. List of participants of the retreat of the end-term review of National Malaria Strategic Plan 2011–2016, October 10–14, 2016. Ndola

Annex 3. Agenda and participants list for the end-term review steering committee meeting, October 25–27, 2016, Walusungu Guest House, Kabwe

- Chairperson's remarks
- Housekeeping issues
- Adaptation of the checklist and development of the tool for field visits
- Consider and reconfigure the desk review findings, conclusions, and recommendations along the four work streams proposed in the WHO Operational Manual for Malaria Programme Review (MPR) and Malaria Strategic Plan Mid-Term (MTR) Review, 2016 Edition
- Finalize preparations of field visits
- Steps post validation field visits—consolidation of field visit reports, stakeholders debrief/feedback, report writing leading to final report and aide memoire

Participants List

Dr Chila Simwanza (Chair)	Dr Busiku Hamainza (Rapporteur)
Dr Victor Chalwe	Prof. Philip Nkunika
Dr Chadwick Sikaala	Mr Japhet Chiwaula
Mrs Mercy Mwanza Ingwe	Mrs Ketty Ndhlovu Sichalwe
Dr Oliver Lulembo	Ms Brenda Sichone

Annex 4a. Agenda of the orientation meeting for the external validation for the end-term review of the National Strategic Plan 2011–2016, Lusaka, November 21, 2016

- Chairperson's remarks
- Self-introductions
- Update on progress of the end-term review process
- Review the teams, schedule, and logistics for the field visits
- Orientation on the external validation tools for:
    - National level consultations
    - District level consultations
    - Health facility level consultations
    - Community level consultations
- Any other business
- Close of meeting

Annex 4b. Participants list of the orientation meeting for the external validation for the end-term review of the National Strategic Plan 2011–2016, Lusaka, November 21, 2016

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Annex 4c. External validation teams and sites visited, November 22–26, 2016, Zambia

Province`	Districts	Team		
		Leader	Coordinator	Members
Copperbelt	Ndola Chingola Masaiti	Dr. Chila Simwanza Dr. Rogers Mwale	Ms. Ketty Sichalwe	Mr. Japhet Chiwaula Mr. Nicky Simfukwe Ms. Nzala Dr. Chomba Sinyangwe (Partner)
Central	Kabwe Mkushi Chitambo	Prof. Philip Nkunika,	Mr. Willy Ngulube	Dr. Evaristo Kunka External reviewer C. Nielsen (Partner)
Eastern	Chipata Katete Vubwi	Ms. Pauline Wamulume	Mr. Japhet Chiwaula	Dr. Jonathan C. Mpundu Dr. Godfrey Lingenda Mr. Maurice Pengele Mr. Billy Mweetwa
Luapula	Mansa Chembe Kawambwa	Dr. Victor Chalwe	Mr. Jacob Chirwa	Dr. Vivian Mwala Mr. Bright Katai (Partner) Dr. James Banda (Partner)
North-Western	Solwezi Kasempa Manyinga	Mr. Ernest Kakoma	Mr. Ernest Kakoma	Mr. Mulonda Mate Dr. Charles Sakulanda Mr. Anderson Ms. Victoria Kalota (Partner)
Southern	Choma Kazungula Sinazongwe	Dr. Hawela Moonga	Mr. Alex Chilabi	Mr. William Ngosa Mr. Tadius Chimombe Prof. James Chipeta
Lusaka	Lusaka Chongwe	Dr. John Chimumbwa	Ms. Cynthia K Changufu	Dr. Anthony Yeta Dr. Mudenda Chilufya Dr. Abdi Mohamed Dr. John Banda Dr. Freddie Masaninga Dr. Oliver Lulembo Dr. Nancy Kasese Dr. Tina Chisenga Ms. Doreen Shempela Ms. Martha Mulenga Ms. M. M. Ingwe Dr. Evan Mathenge (external reviewer) Prof. Joris Likwela (external reviewer)

Annex 4d. Terms of reference for field team leaders and coordinators for the end-term review of the National Malaria Strategic Plan 2011–2016

Team leaders

- To provide overall coordination of the field team.
- To ensure that all team members are familiar with the checklist.
- To develop the field report.
- To develop Power Point presentations covering
  - o Malaria epidemiology
  - o Key findings
  - o Conclusions
  - o Recommendations
- To communicate by email (by November 25, 2016) a summary (bullet points) of key findings, conclusions, and recommendations to members of ETR Steering Committee copying Dr. Yeta (anthonylyeta@yahoo.com), Dr. J. Chimumbwa (jchimumbwa@path.org), Dr. F. Masaninga (masaningaf@who.int), Dr. O. Lulembo (Lulemboo@gmail.com) and Dr. E. Mathenge (mathengeevan@gmail.com).
- To hold daily conference calls with the ETR Steering Committee on progress.

Team coordinators

- To coordinate the logistics for the team, including appointments for key persons in the field.
- To ensure availability of transportation.
- To ensure availability of checklists and other documents (Consolidated Thematic Report, NMSP 2011–2016, MTR, MIS 2015).
- To ensure that copies of reports/relevant documents from the sites are secured.
- To facilitate taking of pictures of the sites visited.

Annex 4e. Adapted checklists for national and sub-national level consultations for the end-term review of the National Malaria Strategic Plan 2011–2016

Introduction

The national level stakeholders include: Permanent Secretary, heads of relevant departments of Ministry of Health (MOH), relevant non-health sector ministries, department and parastatals, universities and institutions, and development partners—bilateral and multi-laterals. This checklist will backed by a supplementary questionnaire.

Aim of consultation

The aim is to mobilize relevant health sector and non-health sector partners to support implementation of new malaria strategic plan that will result from the end-term review process.

Focus area of the consultation

Introduce the malaria end-term review and its processes and focus the discussion on the following:

1. Assessment of views on the status of malaria control in the country and the **performance** of the national malaria control programme.

2. Exploration of the **current role** and contributions of the organisation or department or parastatal in malaria control in the country. Discuss how the action links to the five-year strategic plan.

3. Exploration of **future roles** and contributions of the organisation to malaria control in the country.

4. Exploration of the existence of malaria data reports and planned operational studies likely to generate malaria programme data.

5. Exploration of the adequacy of **resources**. *Was there a resource mobilisation strategy? If yes, in your opinion how effective was the strategy?*

6. Exploration of **key issues** and **suggestions** on strengthening the malaria programme.

Annex 4f. Adapted checklists for district-level consultations for the end-term review of the National Malaria Strategic Plan

CHECKLIST FOR VALIDATION VISITS DURING MPR/MTR/ETC – DISTRICT LEVEL

Focal Issues	Indicators	2011	2012	2013	2014	2015
Aim of first visit		To validate some of the information contained in the thematic reports especially in relations to strategic thematic areas				
MEDICAL RECORDS/SURVEILLANCE						
- Annual trends of completeness of monthly reports from health facilities – last 3 years, for each year calculate [# reports monthly received/# monthly reports expected x 100%] and review the trends	# Report monthly received					
	# monthly report expected					
	Completeness on monthly reports (%)	#DIV/0	#DIV/0	#DIV/0	#DIV/0	#DIV/0
- Annual trends of timeliness of report – last 3 years, for each year calculate [# reports monthly received on time/# monthly reports expected x 100%] and review the trends	# reports received on time					
	# monthly report expected					
	Timeliness of reports (%)	#DIV/0	#DIV/0	#DIV/0	#DIV/0	#DIV/0
- Confirmed cases (Microscopy/RDT)-Trends of annual parasite incidence – last 3 years; calculate for each year the API [# positive/CSO Population at risk x 100,000]	# positive					
	CSO Population at risk					
	Annual parasite incidence	#DIV/0	#DIV/0	#DIV/0	#DIV/0	#DIV/0
- Clinical cases – Trends of annual incidence – last 3 years; calculate for each year the API [# positive/CSO Population at risk x 100,000]	# clinical cases					
	CSO Population at risk					
	Annual parasite incidence	#DIV/0	#DIV/0	#DIV/0	#DIV/0	#DIV/0
***National API to be estimated at National level**						
DISTRICT PUBLIC HEALTH NURSE/ INCHARGE OF ANC + MEDICAL RECORDS						
- Trends of IPTp1 coverage: last 3 years, for each year calculate [# IPT1/First ANC x 100%] and review trends	# IPT1					
	# First ANC					
	IPT1 coverage	#DIV/0	#DIV/0	#DIV/0	#DIV/0	#DIV/0
- Trends of IPTp2 coverage: last 3 years, for each year calculate [# IPT2/First ANC x 100%] and review trends	# IPT2					
	# First ANC					
	IPT2 coverage	#DIV/0	#DIV/0	#DIV/0	#DIV/0	#DIV/0
- Trends of IPTp3 coverage: last 3 years, for each year calculate [# IPT3/First ANC x 100%] and review trends	# IPT3					
	# First ANC					
	IPT3 coverage	#DIV/0	#DIV/0	#DIV/0	#DIV/0	#DIV/0
- Trends of gap between IPTp1 and IPTp2 coverages and the reasons for the gap: last 3 years, for each year calculate [# PW given IPT1 minus # PW given IPT2] and review trends	# PW given IPT1 minus # PW given IPT2	0	0	0	0	0
	Comments on trends					
- Trends of gap between IPTp2 and IPTp3 coverages and the reasons for the gap: last 3 years, for each year calculate [# PW given IPT2 minus # PW given IPT3] and review trends	# PW given IPT2 minus # PW given IPT3	0	0	0	0	0
	Comments on trends					
- Trends of gap between ANC1 coverage and IPTp1 and reasons for the gap: last 3 years, for each year calculate [# First ANC attended ANC1 minus # PW given IPT1] and review trends	# First ANC					
	Gap between ANC1 coverage and IPT1	0	0	0	0	0
	Comments on trends					

68

DISTRICT VECTOR CONTROL OFFICER/ IN CHARGE OF ITN DISTRIBUTION AND/OR IRS

• Clarification of vector control policy being implemented in the district	National vector policy being implemented					

						2015
• Availability of ITNs in stock: Calculate Average monthly # of ITNs distributed last year (for routine distribution at ANC and EPI clinics – total for last year divided by 12) and determine if there is enough in stock to last for 3 months	Routine distribution at ANC and EPI clinics					
	Total number of ITNs distributed in previous year					
	Average monthly # of ITNs distributed					0

		2011	2012	2013	2014	2015
• Estimate effective crop of ITNs within the populace (ITNs less than 3 years since distribution) and calculate effective ITN administrative coverage (100 x 2 x total effective ITN crop/total CSO population at risk) – this is an estimate of ITN coverage of population at risk and assumes everybody with access to ITN sleeps under it	Estimate effective crop of ITNs within the populace (ITNs less than 3 years since distribution)					
	effective ITN administrative coverage	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

		2011	2012	2013	2014	2015
• Regularity of IRS; confirm dates of last IRS, target (whole district or part of it) and the coverage achieved outcome	Commencement date of IRS campaigns					
	End date of IRS campaigns					
	Target (sprayable structures)					
	Coverage achieved					

		2011	2012	2013	2014	2015
• Estimate effective insecticide coverage: 100/CSO population at risk ((population at risk x IRS administrative coverage/100) ÷ # of people in households sprayed)%	# of people protected in households by IRS					
	Estimate effective insecticide coverage	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

How is the quality of indoor residual spraying assessed? (Probe on supervision, training, financing, storage, transport, logistics arrangement, entomological assessments etc)	

		2011	2012	2013	2014	2015
Assessment of IRS coverage in the lowest and highest coverage catchments in the district	Name of catchment with lowest coverage of IRS					
	IRS Coverage in the lowest coverage catchment area					
	Name of catchment with highest coverage of IRS					
	IRS Coverage in the highest coverage catchment area					

Comments on IRS coverage in the lowest and highest coverage catchments in the district	

Are entomological assessments conducted in this district? (tick appropriate)	Yes	No	

If Yes does this information influence programming for vector control in any way	

Do you conduct any larval source management activities ? If yes provide details	

Aim of field visit	To assess the level of programme management support for malaria control at district level				
DMOH AND/OR MALARIA FOCAL PERSON					
1. *Organisation and management of malaria control programme in the district*		2011	2012	2013	2014	2015
- Existence [identification of the focal person by name and training] of malaria focal person within the DHMT	Name of malaria focal point person				
[Assumption: Existence of a malaria control focal person who is a member of the DHMT is an indirect measure of high priority given to malaria control in the district]	Designation				
2. Evidence that malaria focal point person is a member of DHMT		2011	2012	2013	2014	2015
- Evidence [DHMT meeting minutes] that malaria program is discussed at regular district health team meetings	Above 50% as evidenced from the minutes [cross as applicable]				
	Below 50% as evidenced from the minutes [cross as applicable]				
3. *Business and operational planning and review*		2011	2012	2013	2014	2015
- Availability of malaria business plan or annual operational plan integrated into the health sector medium term expenditure framework [review plan the plan to ensure that malaria is appropriately included]	Malaria business plan or malaria term expenditure framework is available for the year [cross as applicable]				
[Assumption: Availability of a malaria business plan or annual operational plan of malaria integrated into the sector plan is evidence of prioritization of malaria control in the district]					
4. *Program financing*		2011	2012	2013	2014	2015
	District Malaria planned budget				
- Documented evidence of allocation and use of district health funds for malaria [ask for the evidence of use of DHMT funds for malaria and explore future use of DHMT funds for malaria]	District Malaria actual expenditure				
[Assumption: Allocation and use of district health sector fund for malaria control is evidence of prioritization of malaria control in the district]	Total district budget				
	Percentage of district expenditure on malaria out of total budget	xxx%	xxx%	xxx%	xxx%	xxx%
5. *Technical guidance*		2011	2012	2013	2014	2015
- Availability of appropriate guidelines and tools:	Availability of treatment guidelines [cross as applicable]				
i. Treatment guidelines;	Availability of treatment algorithms [cross as applicable]				
ii. Treatment algorithms					
[Assumptions: Availability of appropriate guidelines and algorithms is evidence of management support to implementation of uncontinued policy for malaria control]					
6. *Perception and position of malaria focal point*					
Is the position of malaria focal point required at the district? [Probe: availability of staff, work load, challenges, suggestions on how to make the position more effective]					

Annex 4g. Adapted checklists for health facility-level consultations for the end-term review of the National Malaria Strategic Plan

CHECKLIST FOR VALIDATION VISITS DURING MPR/MTR/ETR - HEALTH FACILITY LEVEL						
Focal Issues	**Indicators**	2011	2012	2013	2014	2015
Aim of filed visit	To validate some of the information contained in the thematic reports especially in relations to strategic thematic areas					
1. MEDICAL RECORDS:						
Focus: Malaria surveillance including epidemiological and entomological surveillance						
• Availability of file copies of all monthly reports for the last 2 years	Monthly epidemiological reports available (cross as applicable)					
	Monthly entomological reports available (cross as applicable)					
2. LABORATORY (LAB)		2011	2012	2013	2014	2015
Focus: Malaria surveillance including epidemiological and entomological surveillance	Suspected cases of malaria					
• Registration of suspected cases;	Number tested (microscopy and RDT)					
• Trends of annual test positivity rates – last 5 years	Number positive (microscopy and RDT)					
	Annual test positivity rate	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Focus: Review of the capacity of the health facility to test all suspected cases:						
• Trends of ABER – last 5 years (ABER = 100 x (Number of people receiving parasitological test [Microscopy and RDT] /District Total Population)	Number tested (microscopy and RDT)	0	0	0	0	0
	District total population					
	Annual blood examination rate (ABER)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
		2011	2012	2013	2014	2015
• Annual trends of proportion of suspected malaria cases tested	Total OPD					
	Number suspected malaria					
	Annual trends of proportion of suspected malaria cases tested	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
• Annual trends of proportion of clinical malaria cases	Number clinical malaria cases					
	Annual trends of proportion of clinical malaria cases	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
• Annual trends of proportion of confirmed malaria cases	Number confirmed malaria cases					
	Annual trends of proportion of confirmed malaria cases	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3. STORE/PHARMACY		2011	2012	2013	2014	2015
Focus: Procurement and distribution of malaria commodities						
• Number of RDTs stock-out lasted more than 3 months within the year	RDTs stockouts that lasted more than 3 months (cross as applicable)					
• Number of ACTs stock-out lasted more than 3 months within the year	ACTs stockouts that lasted more than 3 months (cross as applicable)					
• ITNs stock-out last 3 months	ITN stockouts that lasted more than 3 months (cross as applicable)					
• Number of SP stock-outs lasted more than 3 months within the year	SP stock-outs lasted more than 3 months within the year					
4. ANTENATAL CLINIC (ANC)		2011	2012	2013	2014	2015
Focus: IPTp coverage						
• Gap between ANC1 attendants and number of pregnant women given IPTp1 and reasons for the gap;	ANC1 Attendants					
	Number given IPT1					
	Difference between ANC1 attendants and number given IPT1	0	0	0	0	0
	Comments on gap					
		2011	2012	2013	2014	2015
• Gap between number of pregnant women given IPTp1 and number given IPTp2 and the reasons for the gap	Number given IPT1	0	0	0	0	0
	Number given IPT2	0	0	0	0	0
	Difference between IPT1 and IPT2	0	0	0	0	0
	Comments on gap					
Focus: Distribution of ITNs		2011	2012	2013	2014	2015
• Gap between number of pregnant women attending ANC 1 and the number given ITNs and the reasons for the gap	ANC1 Attendants	0	0	0	0	0
	Pregnant women given ITNs					
	Difference between ANC1 attendants and pregnant women given ITNs	0	0	0	0	0
	Comments on gap					
5. IMMUNIZATION OR CHILD WELFARE CLINIC (EPI/CWC)		2011	2012	2013	2014	2015
Focus: Distribution of ITNs						
• Annual trends of the gap between number of children receiving measles vaccine and the number of children given ITNs and the reasons for the gap	Number receiving measles vaccine					
	Number of under 5 children given ITNs					
	Difference between number receiving measles vaccine and number of under 5 children given ITNs	0	0	0	0	0
	Comments on gap					
6. OUTPATIENT DEPARTMENT (OPD)	Description of the process:					
Focus: Testing and treatment of suspected malaria cases						
Review/interrogate and describe process at health facility level for						
• Registration of suspected cases;	Registration of suspected cases;					
• Documentation of people tested and laboratory results;	Documentation of people tested and laboratory results;					
• Management of test positive cases including review of results by clinician;	Management of test positive cases including review of results by clinician;					
• Counselling of positives and negatives	Counselling of positives and negatives					
• Prescription and dispensing of ACT;	Prescription and dispensing of ACT and DOTs of ACT;					
7. INPATIENT DEPARTMENT (IPD)						
Focus: Testing and treatment of suspected malaria cases						
Trends of management of severe malaria according to policy – review inpatient register and case record of at least two malaria cases (first case and last case of the year 2015) and describe the management and outcomes including reasons for particular outcome	Case 1					
	Case 2					
Explore the availability of emergency services (emergency corner, ICU) and blood transfusion services)						
Trends in severe malaria cases		2011	2012	2013	2014	2015
	Number of severe malaria cases					
	Proportion of malaria cases that are severe	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Annex 4h. Adapted checklists for community-level consultations for the end-term review of the National Malaria Strategic Plan 2011–2016

CHECKLIST FOR VALIDATION VISITS DURING MPR/MTR – COMMUNITY LEVEL	
Aim of field visit	To validate some of the information contained in the thematic reports especially in relations to strategic thematic areas
FOCAL ISSUES	**RESPONSES**
FOCUS: Community availability and perception of malaria services	
At CHW level : Explore CHW perception of his or her role in malaria control	
Diagnosis and treatment including use of RDTs	
Vector control	
IEC/BCC	
others	
Explore/confirm the CHW reporting lines, periodicity of reporting and compliance of the CHW	
Explore/interrogate the mechanisms in place for supervision of the CHW, the regularity and adherence to it by supervisors	
Interrogate whether CHW receives incentives or not.	
Interrogate how CHW is linked with the the community and the health facility.	

Explore any other issues that may be important to the CHW and in relation to malaria control in the community	
At CHA level : Explore CHA perception of his or her role in malaria control	
Interrogate CHA role in various interventions (vector control, case management, SBCC, etc)	
Interrogate how CHA is linked with the the community and the health facility.	
At community level – meeting with community members (about 8 people, gender-balanced group)	
Explore community perception of the place of malaria as a priority disease in the community	
Explore community members' knowledge of malaria symptoms and signs	
Explore community members' knowledge of appropriate action to take when malaria symptoms occur	
Explore community members' knowledge of malaria prevention interventions	
Interrogate community members on payment for malaria services – whether it exists or not and the impact of payment for malaria services on access to malaria services	
Do the CHWs provide outreach services to the community	
Of what value to the community are the CHW services?	
Collate suggestions by community members on how to improve malaria services	

Annex 5a. Conclusion workshop for the end-term review of the NMSP 2011–2016, November 28 to December 01, 2016, Taj Pamodzi Hotel, Lusaka

Agenda

November 28, 2016		
Chairperson: Dr. S. Chila Simwanza	**Rapporteur:**	
Time (hours)	**Activity**	**Facilitator**
	- Registration - Introductions - Welcome Remarks - Progress on the ETR process - Presentations of Field Reports - Group Work on Consolidation of Thematic & Field Reports - Next Steps - Close of Meeting	
November 29, 2016		
Chairperson: Dr. Chila Simwanza **Rapporteur**:		
	- Group work continued - Firming up preparations for the Partners meeting	
November 30, 2016		
Chairperson: Dr. Chila Simwanza **Rapporteur**:		
	- Drafting the Zambia Aide Memoire - Thematic report writing	
December 01, 2016		
Chairperson: Dr. Chila Simwanza **Rapporteur**:		
	- Follow up on meeting with PS - Firm up appointments with Partners - Print agenda for the stakeholders meeting - Draft bullet points for PS welcome remarks - Follow up on thematic group reports from the Conclusion meeting - Review of the ETR draft report - Update draft Aide Memoire after PS input.	

Annex 5b. Participants list of the conclusion workshop for the end-term review of the NMSP 2011–2016, November 28 to December 01, 2016, Taj Pamodzi Hotel, Lusaka

Serial No.	Name	Organisation	Designation	Contact No.	E-mail Address
		November 28, 2016			
1	Brian Chirwa	PMI/AIRS	Deputy Chief of Party	0979700210	Brian_chirwa@africairs.net
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Annex 6a. Agenda for stakeholders meeting for the end-term review of the NMSP 2011–2016, December 02, 2016, Pamodzi Hotel, Lusaka,

Government of the Republic of Zambia
Ministry of Health

Chairperson: Ministry of Health		**Rapporteur:** Dr. Oliver Lulembo
Time (hours)	**Activity**	**Facilitator**
10:00	• Registration and Tea	Secretariat
	• Opening prayer	Participant
	• Introductions	All
	• Chairperson calls upon the Director to introduce the Permanent Secretary.	
	• Welcome remarks by the Permanent Secretary, Ministry of Health	
	• Presentation of the Zambia Aide Memoire	Dr. Evan Mathenge, External Reviewer Permanent Secretary, MOH
	• Remarks from Partners	
12:30	• Closing Remarks	Permanent Secretary, MOH
	Lunch	

Annex 6b. Participants list for the stakeholders meeting for the end-term review of the NMSP 2011–2016, December 02, 2016, Pamodzi Hotel, Lusaka

No.	Name	Organisation	Position	Cell No.	E-mail
1	John Banda	MOH-GF	Malaria Programme Officer	0977848212	Longo95@yahoo.com
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Annex 7a. Capacity of the programme to implement planned activities

MSP OBJECTIVES	DESCRIPTIONS	PERCENTAGE OF ACTIVITIES FULLY IMPLEMENTED	PERCENTAGE OF ACTIVITIES PARTIALLY IMPLEMENTED	PERCENTAGE OF ACTIVITIES NOT IMPLEMENTED	TOTAL NUMBER OF ACTIVITIES
Objective 1: To have 100% of communities and households in targeted areas have access to evidence-based vector control interventions, and maintain through 2016	Number of planned activities	Repeat mass campaigns; routine and continuous distribution; ITN durability study; developed ITN communication; implementation of IRS; training of trainers and cascade training; impact of IRS and insecticide degradation study; sentinel sites expanded; expand and equip NMEC insectary; collaborate with local, regional and international institutions; research on insecticide and vector bionomics = 10	Monitoring and evaluation of ITN distribution; timely procurement and distribution of IRS commodities; supervision and monitoring of IRS; predict impact of interventions on transmission potential (MTC Project); determine optimal cost effective use of interventions; entomological and epidemiological training; collaborate with the reproductive health TWG on IPTp; disseminate and train health workers (public and private sector) on the revised IPTp guidelines; promote behaviour change communication on focused antenatal clinic visits through	Determine trends in malaria transmission and access risk of persistent transmission: national assessment and mapping; evidence informed source management interventions; conduct the ANC outreach services. = 3	22

			safe motherhood action groups = 9		
	Percentage of total	45.5	40.9	13.6	

Objective 2: By 2016, 100% of suspected-malaria cases in all health facilities receive parasitological confirmation (microscopy or RDT) and 100% of the confirmed cases receive prompt and appropriate treatment as detailed in the Zambia Malaria Diagnosis and Treatment Guidelines	Number of planned activities	Collaborate with PSM to quantify, procure, and efficiently distribute adequate supplies of quality-assured ACTs and RDTs to stock-outs; the District Health Management Teams; Update pre-service curriculum by working with health training institutions; support the malaria reference laboratory for quality control/assurance, training, and research; develop a training plan for hospital staff and a phased roll out plan for implementation for the new severe malaria case management guidelines; collaborate with PSM to quantify and procure new	Train health workers (public and private sector) on the revised Malaria Diagnosis and Treatment Guidelines; conduct supervision and monitoring of malaria diagnosis and treatment in public and private health facilities; scale-up the quality control/assurance activities in malaria diagnosis and case management in the public and private sector; re-produce and disseminate the revised Malaria Diagnosis and Treatment Guidelines to first-, second-, and third-level hospitals; support the supervision and monitoring of hospital staff; collaborate with MCDMCH to support provision of job aids, kits, and motivation for CHWs and CHAs; increase demand for iCCM and malaria-specific services (including LLINs)	Implement the malaria pharmaco-vigilance system in collaboration with Zambia Medicines Regulatory Authority, formerly the Pharmaceuticals Regulatory Authority = 1	14

		first-line treatment for severe malaria management; support the scale-up of training of CHWs and community health assistants (CHAs) in iCCM for malaria, pneumonia, diarrhoea, and malnutrition in targeted districts = 6	through advocacy, sensitisation, community mobilisation, and use of appropriate IEC and behaviour change communication strategy = 7		
	Percentage of total	42.86	50.00	7.14	

Objective 3: To strengthen surveillance and M&E systems in order to ensure timely availability of quality, consistent, and relevant data on malaria control performance by 2016	Number of planned activities	Strengthen coordination surveillance, monitoring, and evaluation; conduct regular meetings of TWG and RBM partners to review and act on issues relating to surveillance monitoring and evaluation; ensure evaluative surveys are conducted (household and facility levels); provide for the conduct of midterm and end-term review of the current and subsequent NMSP in the programme budget and financial plan; ensure evaluative surveys are conducted (household and facility levels); provide for the conduct of midterm and end-term review of the current and	Supporting efforts towards stronger integration and harmonisation of information management systems within the health sector; ensure data collected through routine and ad hoc systems are guided by the M&E plan and reflect indicators stipulated in the strategic plan; standardize use of appropriate case definitions at all levels (community, clinical, district, provincial, national); promote the use of a standard data collection format at community and facility levels and use of standard analysis format at all levels; provide system of periodic reports to provide data for decision-making to districts, provinces, and national levels and integrate malaria burden data planning and quantification of	Integrate epidemic detection thresholds and alerts into surveillance analysis formats; collaborate with the national EPR coordinating unit to ensure that malaria is adequately provided for in the national emergency preparedness policy guidelines and response strategy; strengthen existing structures for malaria EPR at all levels; revise the epidemic detection and response guidelines; support the training of appropriate staff on epidemic detection threshold detection and response guidelines; ensure use of district-level data in forecasting and development of epidemic and emergency response plan; establish and maintain a functional malaria early warning system, including monitoring of entomological, meteorological, epidemiological data = 5	20

| | | subsequent NMSP in the programme budget and financial plan; support efforts towards stronger integration and harmonisation of information management systems within the health sector; develop the framework for considering an area as malaria-free and supporting the generation of evidence to inform policy and planning for transition from control through pre-elimination to elimination in designated areas = 7 | malaria commodities; strengthen capacities of health personnel at community, facility, district, provincial, and national levels in malaria surveillance through training, supervision, and mentoring to improve quality and timeliness of case detection and reporting; strengthen malaria surveillance systems necessary to track progress of malaria elimination; support line-listing of malaria cases within areas targeted for malaria elimination; ensure availability of EPR stocks of commodities (IRS, LLINs, and ACTs) = 8 | | |
| | Percentage of total | 35 | 40 | 25 | |

Objective 4: By 2016, ensure that all prioritized operations research generates evidence to support informed decision-making on policy and implementation of the malaria programme.	Number of planned activities	Conduct impact studies for interventions; undertake health systems research; explore emerging technologies; carry out economic studies; perform effectiveness studies of IRS and ITNs; conduct clinical trials to test therapeutic efficacy and safety of new and existing drugs; establish and strengthen linkages with research institutions and individual researchers; undertake joint research proposal development and research implementation = 7	Conduct joint planning, priority setting, and development of research agenda with collaborating institutions and researchers; improve capacity of malaria control personnel in research methods by training selected health workers at provincial, district, and facility levels in malaria research methodology; mobilize resources to fund developed proposals; disseminate research findings; publish research findings in journal, newsletters, NMEC website, and presentation at conferences = 4	Perform behaviour change research; conduct formative research on caregiver, client, and provider attitude, behaviour, and practice to inform adoption or revision of service delivery options; develop a funding stream and contracting mechanism for programme responsive research = 2	13
	Percentage of total	53.85	30.77	15.38	

Objective 5: To increase knowledge levels in malaria to 100% and improve uptake and correct use of interventions to 80% by 2016	Number of planned activities	Design, production, and dissemination of IEC/BCC materials for malaria prevention and control including cross-border malaria initiatives =1	Strengthen mechanisms for joint planning, coordination, monitoring, and evaluation at all levels; convene regular IEC/BCC TWGs and establish or reactivate district malaria task forces; strengthen community response by establishing community-driven initiatives for malaria prevention and control; sustain the implementation of the Malaria, Maternal, New-born Child Health and Nutrition integrated campaign (Stop Malaria Campaign) = 4	Increasing evidence-based and targeted multi-media campaigns; train/orient the media on malaria prevention and control; update malaria communication strategy 2011–2014 and accelerate the implementation of the malaria communication strategy; conduct formative research and strengthen monitoring and evaluation of IEC/BCC activities including monitoring the implementation of the malaria communication strategy at all levels = 4	9
	Percentage of total	11.11	44.44	44.44	

Objective 6: To improve capacity in coordination, leadership, governance, and resource mobilisation for effective and efficient management of the NMCP	Number of planned activities	Participate in regional joint review and planning meetings = 1	Facilitate recruitment of technical staff and increase the number of technical staff from the current 55% to 100% by 2016; facilitate the training of enough CHWs to meet the need for this cadre of health workers to provide iCCM and other community-based interventions in yet unreached communities; coordinate the forecasting, quantification, and procurement of anti-malarial commodities and supplies to ensure that 100 % of health facilities are reporting no stock-out of anti-malarial commodities lasting more than 1 week; organize and participate in national joint planning meetings; strengthen cross-border collaboration for malaria prevention and control; harmonize/synchronize malaria cross-border	Strengthening resource mobilisation effort by developing a sound investment case for the malaria programme to mobilize at least 80% of financial resources required for efficient and effective programme implementation by 2016; constitute a malaria PSM TWG as a sub-committee of the national PSM to the NMEC coordination structure; monitor and motivate the committee to ensure efficiency; programme management TWG to coordinate all TWGs; conduct supervisory visits to provinces/districts/health facilities, and CHWs = 4	12

		initiatives; strengthen collaboration between MCDMCH and MOH and other line ministries by facilitating joint planning, implementation, supervision, monitoring and evaluation of malaria prevention and control = 7			
	Percentage of total	8.33	58.33	33.33	
TOTAL FOR MSP	Number of planned activities	32	39	19	90
	Percentage of total	35.56	43.33	21.11	

Annex 7 b. Rate of implementation of recommendations of the mid-term review of NMSP 2011–2015

Recommendation	Fully implemented	Partically implemented	Not implemented	
· Examine approaches of maximizing the use of existing prevention and treatment interventions in combinations in order to have the greatest impact on localized malaria burden, including targeting the parasite reservoir that contributes to ongoing transmission.		x		
· Schedule technical working group (the primary coordinating mechanism of the National Malaria Control Program and its partners) meetings regularly to make progress in implementing a coordinated malaria control and elimination agenda. It is recommended that TWGs, which were not meeting regularly, be re-activated and, if necessary, restructured.		x		
· Advocate for malaria focal point persons, especially in districts that have the greatest challenges.			x	
· Support the malaria surveillance officer position at district level in order to help coordinate district malaria surveillance efforts.			x	
· Share, as much as possible and where available, timely and quality evidence through the local authorities, NMCC, and TWGs to inform good decision-making.		x		
Re-establish high ITN ownership and use in areas of the country where they dropped between 2010 and 2012, including Southern, Western, and Central provinces.	x			
· Encourage continued sustained coverage of ITN uptake among all households and household members throughout the country.	x			
· Maximize resources during ITN distribution efforts to ensure the highest level of coverage and use among those targeted.	x			
· The NMCP should continue to strategically offer IRS services to malarious areas to maximize the potential of malaria burden reduction. Greater attention should be given to surveillance, monitoring, evaluations, and operations research (SMEO) and IEC/BCC, as these will become the major drivers of the other interventions.		x		
· Do not prematurely withdraw prevention activities from the malaria-free areas.	x			
· Consider the introduction of primaquine in areas where low transmission has been achieved in order to clear out malaria infections that may still be evident.	x			
· Continue to monitor the successful deployment of existing malaria control for efficacy, efficiency, and effectiveness.	x			
· Continue to develop new strategies that will effectively reduce malaria where current strategies, despite successful implementation, have not yielded optimal results.	x			
Total	7	4	2	13
%	53.85	30.77	15.38	

Annex 8. References

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