Republic of Rwanda
Ministry of Health

RWANDA MALARIA PROGRAMME MID TERM REVIEW

AIDE-MÉMOIRE

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I. Purpose

The Malaria Programme Review (MPR) is a periodic joint programme management process for reviewing the progress and performance of a malaria programme in the context of national health and development plans. It is aimed at improving performance or redefining the programme's strategic direction and focus. **This Aide Memoire is neither a Memorandum of Understanding nor a legal document**. It is a joint commitment of the Government of Rwanda and Development Partners to work together to support implementation of proposed recommendations towards achievement of the national vision of a Rwanda free from malaria.

II. Background

In 2019, Rwanda conducted a comprehensive Malaria Programme Review (MPR) of the Extended National Malaria Strategic Plan (MSP) 2013-2020. The ensuing recommendations led to the development of the National Malaria Strategic Plan 2020-2024 with its goal set as the reduction of morbidity and mortality caused by malaria by half of the 2018/19 levels by 2024. The Ministry of Health (MOH) through the Malaria and Other Parasitic Diseases Division (MOPDD/RBC) in collaboration with partners undertook a comprehensive review of the progress and performance of the malaria program for the period of FY 2020/21 to FY 2021/22 towards attainment of the targets therein.
The overall objective of the Mid-Term Review (MTR) was to undertake an evidence-based appraisal of Rwanda's malaria situation and programme performance at **mid-term** of the malaria strategic cycle of 2020-2024. It aims to inform the re-orientation of the current malaria strategic plan, in line with the WHO Global Technical Strategy 2016-2030 and the Fourth Health Sector Strategic Plan (2018-2024).
The specific objectives of the review were:

a) To assess the progress made by the malaria program, towards the epidemiological and entomological impact targets in the Malaria Strategic Plan 2020 – 2024, at 2020-2022 period under review.
b) To review the level of financing of the national malaria programme.
c) To review the capacity of the national malaria control programme to implement planned activities.
d) To review the attainment of programme outcome targets during the period under review.
e) To define the recommendations and programming implications of the lessons learned in the implementation of the malaria strategic plan 2020-2024 to the remaining period.

Review Methods

The review was conducted in three phases. **Phase 1** involved obtaining consensus within the Ministry of Health to conduct a mid-term review, consultation with stakeholders to agree on scope of the review and develop a road map. A proposal was developed to mobilize funding and technical support. **Phase 2** consisted of internal thematic desk reviews using programme implementation reports, published and unpublished sources by teams of national and international experts. The last phase is **Phase 3** and consists of external experts working with the national experts to jointly validate the findings through document reviews, stakeholder's engagement meetings, key informant interviews, field visits to selected districts (Bugesera, Muhanga, Kicukiro and Musanze), district hospitals, Rwanda Medical Supply Ltd Branches at district, health centres, and community health workers/communities.

III. Key Findings

The strategic goal of the Rwanda Malaria Strategic Plan (MSP) is to reduce malaria burden by 50% by 2019 level by 2024.

a) Epidemiological and Entomological Impact

Rwanda has made steady progress towards the epidemiological impact targets set in the MSP 2020-2024. Nationally, the malaria incidence decreased by 76%, from **321 cases** per 1000 persons in 2018/19 to **76 cases** per 1000 persons in 2021/22, surpassing the target of **127** cases per 1000 persons set for 2024. There was a significant **74% reduction** in severe malaria cases from 7,054 (2018/2019) to 1,831 (2021/2022) and a **73% reduction** in malaria deaths from 264 in 2018/19 to 71 deaths in 2021/2022.

Plasmodium falciparum remains the predominant species at 98% while the remaining infections are due to *P. malaria* and *P. ovale*. The malaria parasites are still susceptible to artemether-lumefantrine (ACT drug currently used for malaria treatment in Rwanda). While there are reports of parasites with mutations linked to artemisinin resistance, the extent of spread of the drug resistance mutations and impact on malaria case management require further investigations and mitigation plans.

To preserve available classes of insecticide for use in vector control, as both a resistance mitigation and management strategy, Rwanda has been using entomological data to routinely adopt the rotational use of insecticides. This includes the use of next generation indoor residual spraying (IRS) and long-lasting insecticidal treated nets (LLIN) products with new classes of insecticides for public health use. Entomological surveillance data has also been used to measure the impact of interventions. The Entomological Inoculation Rate (EIR) reduced by 93% from 15 to <1 infectious bites per person per year in the review

period (2020-2022). Resistance against pyrethroid insecticides is widely spread, vector species composition remains heterogenous and *An. arabiensis* has replaced *An. gambiae s.s* as the major malaria vector in areas where IRS is deployed. This has important implications for malaria epidemiology and control given that this vector predominately rests and feeds on humans outdoors.

Malaria Stratification

The last malaria transmission stratification was undertaken in 2019, using the Annual Parasite Incidence (API) of 2016 to classify the country into four different transmission zones. As stratification was aimed at the districts level only, it did not address the identification of malaria hot spots at lower levels of disaggregation to allow for better targeting the interventions.

Action Plans

a) Considering the MSP 2020-2024 targets for epidemiological impact indicators have been achieved at mid-term, new targets should be set and included in the revised M&E framework of MSP 2020-24.
b) In the current epidemiology with significant reduction in malaria burden, the use of stratification at sub-district, such as sector and/or village level is more relevant to identify different areas of malaria burden and to better target interventions and maximise impact.
c) Program to revise existing malaria stratification maps informed by the current guidance, changing epidemiology profile, test positivity rates and entomological surveillance data.

b) Financing of the Rwanda Malaria Program

The Government of Rwanda (GoR) allocation to the Health Sector increased over the period under review from 14.7% in 2019-2020 to 16.5% in 2021/22 in line with the Abuja Declaration 2000. From 2019-2021, the available funds surpassed the planned budget due to the commitment of the government to sustain the IRS in 12 districts. A slight increase in health sector budget allocation, noted in FY 2021-2022 was due to the government contribution of Covid19 vaccine procurement.

The malaria program in Rwanda is primarily financed by the GOR, the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFTAM) and the US President's Malaria Initiative (PMI). Of the budget allocated to the health sector, the budget proportion allocated to malaria increased to 14% in 2019/20 and 15.2% in 2020/21 with a slight decrease in 2021/22 (12.1%), but the amount allocated increased from 65 billion RwF in 2019/20 to 78B in 2020/21 and to 89B in 2021/22. Overall partner's' financial contribution has increased over the period from 56.6% of the overall malaria program budget in 2019/20 to 63.2% in 2021/22.

The overall funding of activities was availed mainly from the GoR, the GFATM and the PMI during the period under review. The available allocation by program area ranged from 4% for Surveillance Monitoring and Evaluation Operational Research (SMEOR) up to **57%** for malaria prevention (LLINs and IRS). The MSP program need indicated a funding gap of 21% for malaria prevention which was exacerbated by the increase in unit cost of malaria commodities particularly the LLINs and IRS insecticides. However, this funding gap was addressed by additional funding from Global Fund and reprogramming of funds.

c) Implementation Rate of Planned Activities

The programme had planned to implement 305 activities in five objectives in 2020-2022. Out of these, 81% were fully implemented, 9% were partially implemented and 10% were not implemented. In addition, 29% of the 2019 end term MPR recommendations were fully implemented while 64% were partially implemented and the remaining 7% not implemented due to various reasons. Review found that Covid-19 pandemic impacted negatively on implementation of Malaria program activities including the increase in the unit cost of key malaria commodities (IRS and LLINs), need for additional budget to comply to Covid-19 prevention measures, delays in procurement as well as in implementation of LLINs distribution and IRS campaigns.

Action Points:

Advocate for establishment of sustainable and innovative financial resource mobilisation mechanisms to ensure implementation of MSP interventions at full scale.

d) Effectiveness of the Health System in Delivering Malaria Services

○ Vector Control

As part of the vector control implementation, LLINs are distributed through mass distribution campaigns and continuous distribution through Antenatal Care (ANC), and the Expanded Programme on Immunization (EPI) clinics using a well-established, quality-controlled system.

The last mass campaign was carried out in FY 2019/20 and due to Covid-19 challenges it was extended to fiscal year that started July 2020/21. Therefore, only a total of 1,550,310 nets were distributed in the period under review. The ongoing FY 2022/23 campaign is scheduled to be completed before the end of 2023. For the 2020 – 2022 period, a total of 1,123,849 LLINs were distributed through routine channels. The DHS 2020 showed (conducted just a few months before the LLINs Mass Distribution of 2020) household ownership of at least one LLIN was 66% and access was 34%, which was below the target. However, the high proportion of people with access to nets use them.

In Rwanda IRS has evolved, shifted from focal spraying in 2016 to blanket coverage in 12 high malaria endemic districts with focal IRS targeting few sectors in three non-IRS districts (Rusizi, Nyamagabe and Nyaruguru) as a malaria upsurge response. There has been a steady expansion of IRS from 621,169 sprayed structures in 2016-2017 to 1,376,832 in 2021/22. The population protected by the IRS also increased from 4.86M people in 2019/20 to 5.17M in 2021/22. The operational coverage for the period under review was around 98%.

Other efforts for vector control include community-based vector surveillance and piloting of larvicide application (larval source management (LSM)) by drones that generated evidence to justify scale up. Moreover, the emphasis is to maintain the implementation of existing interventions and scale up other proven interventions to address the gap in vector control.

Action Points:

a. Mobilise adequate resources (local and external) to increase and sustain effective coverage with both blanket and focal IRS, next generation LLINs and scaling up LSM.

b. Use the stratification map at sub-district level to better target vector control interventions and maximise impact.
c. Evaluate and document the impact of malaria control interventions and identify current gaps to inform effective interventions deployment.
d. Explore introducing Malaria vaccines as an additional prevention tool.
e. Explore the use of new malaria control tools for management of mosquito insecticide resistance and behavioural changes.

○ Malaria Diagnosis and Treatment

The review confirmed the availability of diagnostic and treatment guidelines, job aids and laboratory technical Standard Operating Procedures (SOPs) at all levels of the health care system and noted strong adherence to guidelines and universal access to malaria diagnosis and treatment. The program revised the malaria treatment guidelines and for the first-time, the training and dissemination included private facilities. Universal access to quality diagnosis and treatment was maintained. Through the expanded home-based management of malaria, the Community Health Workers (CHWs) are effectively providing home-based management of malaria which is supported by training, supervision and adequate equipment with appropriate tools and commodities. Currently, 55% of malaria cases are treated at the community level, however this does not exclusively capture the level of effort CHWs put in case management. Parallel to this the number of out-patient department malaria cases, severe malaria, and deaths due to malaria at health facilities has declined to more than 70% compared to the 2018/19 baseline. The National reference laboratory continued to provide a quality assurance and training program for malaria diagnosis. Rwanda also has a well-functioning supply chain management system supported by eLMIS with clearly defined distribution mechanisms including redistribution

of malaria commodities to mitigate the risk of expiration and stockouts.
However, supportive supervision and training of health care providers were found to be irregular at all levels of healthcare service provision; this was especially missing in the private sector. Due to the decreasing malaria burden, there are challenges related to accurate stocking of commodities, re-distribution of commodities, procurement of commodities in low demand and a potential risk of ACT expiring.

Action Points:

a) Strengthen mechanisms to maintain competency of health workers in diagnosis and malaria case management through a robust refresher training and supportive supervision that includes private sector facilities.
b) Maintain the capacity of the national reference laboratory to continue supporting malaria diagnosis QA/QC activities.
c) Revise procurement, distribution, and re-distribution process of commodities to adequately address the risk of commodity expiration and stockouts.
d) Introduce multiple first line treatment (MFT) strategy to mitigate the emerging drug resistance.
e) Continue monitoring the drug treatment efficacy and put mitigation plans in place.

○ Surveillance Monitoring and Evaluation and Operational Research (SMEOR)

There is a well-functioning Health information management system which includes HMIS, RapidSMS, eLMIS and, SISCom. The completion and timeliness of reporting rates for public health facilities and community health workers was 98%. The private health facilities are part of the HMIS, and the reporting rate for these facilities increased

slightly to 60% compared to 51% observed during the 2019 MPR reviews.

Low utilisation and visualisation of data for decision making was noted at the decentralised level. The country lacks an Epidemic Preparedness and Response (EPR) Plan for malaria. The review found that there was no malaria specific research agenda to feed into the national health research agenda and SMEOR Technical Working Group need revamping to facilitate coordination, and research dissemination to eventually contribute to sharing of malaria research findings.

Action Points:

a) Develop malaria surveillance guidelines including EPR in collaboration with the Epidemiological Surveillance and Response division.
b) Develop a research agenda and mobilise funds for an effective implementation to inform malaria programming.
c) Explore disaggregation of data in HMIS to the identify hotspots at the lowest level (Village).
d) Mobilise resources to build capacity in M&E, data utilisation and visualisation at the decentralised level.
d) Address the malaria high risk groups as identified by Malaria Matchbox Assessment to deploy tailored interventions.
e) Invest in community-based surveillance to understand specific risk factors and infection characteristics in malaria hotspots to inform effective malaria control interventions.

○ Advocacy, Social Mobilization and Social and Behaviour Change Communication (SBCC)

The Rwanda Malaria SBC Strategy (2022-2024) exists to guide implementation of advocacy, social mobilization, and SBC. National Malaria Days and other advocacy events were undertaken during the period under review. These included the commemoration of the World Malaria Day, launching of "Zero Malaria Starts with Me/Kurandura Malariya Bihera Kuri Njye" Campaign, the Launch of Great Lakes Malaria Initiative (GLMI) Strategic Plan, completion of Malaria Matchbox Assessment that identified barriers to uptake of malaria services and population at high risk of malaria. Mass media communication channels used included radio, television, and newspapers. The programme also invested in interpersonal communication using drama, songs, and community meetings. Although many SBC activities were implemented, the review could not track changes in knowledge of malaria and utilisation prevention methods. The 2017 Malaria Indicator Survey provided a baseline for SBC indicators, however, no surveys (either MIS or Knowledge Attitude and Practice survey) were conducted in the reporting period, therefore there was no data to report on the progress.

There is low investment in advocacy, communication, and social mobilisation as well as inadequate budget allocations to these activities. Engagement of local, political leaders, particularly parliamentarians, is commendable and should be maintained. Participation of Civil Society Organizations to undertake SBC should be maintained and extended to cover high risk and vulnerable groups, as identified by Malaria Match Box analysis.

Action Points:

Strengthen human resource capacity for SBC at national level by prioritising and expediting the recruitment of malaria SBC senior officer.

1. Scale up malaria advocacy at national, district and community levels for increased use of malaria interventions.
2. Leverage all levels of the health care including the community and private and non-health sectors to undertake advocacy communication and social mobilisation for malaria with a clear mandate and guidelines.
3. Establish a system to track changes in knowledge of malaria and utilisation of prevention methods. Conduct Knowledge, Attitude and Practices (KAP) survey in order track progress in uptake of malaria services and to inform the revision of IEC/SBC material and messaging.
4. Develop standard messages for adaptation and contextualization by the district and other stakeholders and factor in finding from the malaria matchbox analysis and KAP.

○ Programme Management

In a well-defined organisational structure, MOPDD is housed as a Division within the Rwanda Biomedical Centre which in turn falls under the MoH. Within the MOPDD Division, there are separate units for malaria vector control, prevention, case management, and epidemiology.

MOPDD operates within an environment of strong political will and committed funding for malaria control and elimination by the Government of Rwanda and partners. Oversight and guidance of the malaria program is provided by the MOH and RBC leadership, with the

malaria program as a mainstream program in the RBC structure. The programme has skilled and committed human resources, and development partners are engaged to assist with technical aspects of the program delivery. However, some already approved key positions within the programme unfilled, these include case management and SBC senior officers and three supervisors. Also, approved capacity building of staff, PhD in epidemiology and entomology, is still pending. Rwanda has championed the setting up the Great Lakes Malaria Initiative (GLMI), a sub-regional collaborative framework to address malaria, which was launched in April 2019 and a strategic plan 2021 – 2025 development under the auspices of the East African Community (EAC). Several interventions have been implemented under GLMI initiative, including establishment of cross border health posts, GLMI experts TWG, and the development of the GLMI structure and the baseline survey at different borders areas is being conducted. Review found that the establishment of the End Malaria council wasn't completed, although the program developed the concept note and the cabinet paper of its establishment.

Field validation noted stock out and/or low commodity stock levels at some district, health facility and community level. These commodities and stock management challenges could be a result of transitioning of RMS into a lower level of health delivery system.

There is no formalised structure for ongoing collaboration with intersectoral stakeholders. The technical working groups meet only intermittently on ad hoc basis and thus operate sub-optimally. The bulk of malaria case management is now delivered at the community level through volunteer community health workers (55% treated by CHWs) resulting in high workload not matching the current compensation.

Action Points:

a) The MOPDD should strengthen annual review and planning meetings to deliberate and document progress made and outline priorities and milestones for the following year; this will help to critically review the strategy implementation across all objectives.
b) Strengthen capacity at the malaria programme by filling approved positions, creating new relevant positions such as Supply Chain Coordinator and training existing staff.
c) Enhance stock management of malaria commodities at all levels including the community given that more than 50% of cases are now managed at community level. To track the indicator on proportion of CHW reporting no stock out of ACT/RDT, the recommendation is to revise the reporting system to include a data element on the number of CHWs who reported no stock out.
d) The government considers reviewing the CHWs compensation amounts for missed working days for example during collection of medicines and attending monthly meetings, in line with the current inflation, in addition to reviewing the CHWs Performance-Based Financing (PBF) and adaptation to epidemiological status of reduced malaria burden.
e) Establish an End Malaria Council (EMC) as part of integrated disease council, a country-owned forum to convene senior leadership from Government, the private sector, and community leaders to support the National Malaria Control Programme (NMCP) and the implementation of the malaria strategic plan.
f) Coordination and collaboration of RBC divisions and units and relevant partners should be enhanced through TWGs.
g) Continue to support EAC efforts and operationalization of the Great Lakes cross border malaria initiative.

IV. Conclusion

- Strong political and technical commitment towards malaria control and elimination.
- Exemplary commitment and dedication from health workers at all levels of the health system
- A malaria-free future is feasible in Rwanda considering significant reduction in malaria burden observed during the 2020 – 2022 period under review.
- The programme should increase and sustain efforts to reduce the burden further to position the country firmly on the path towards the vision of *a malaria free Rwanda*.

V. Commitment

Statement of Commitment

We, the Ministry of Health, and Partners supporting the MOPDD/RBC in Rwanda commit ourselves to the implementation of the malaria programme review action points to accelerate and scale-up malaria control interventions towards universal access with a vision of having *a malaria free* country. The participants specifically acknowledge that this Aide Memoire is not an obligation of funds, nor does it constitute a legally binding commitment by any participant or create any rights in any third party.

Signed on Behalf of the Government of Rwanda and Partners

for Makuza

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Kigali on 10th March 2023

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