

UGANDA MALARIA PROFILE

I. ABOUT

Launched in 2005, the [U.S. President's Malaria Initiative \(PMI\)](#) supports implementation of malaria prevention and treatment measures as well as cross-cutting interventions. PMI's 2021–2026 strategy, [End Malaria Faster](#), envisions a world free of malaria within our generation with the goal of preventing malaria cases, reducing malaria deaths and illness, and eliminating malaria in PMI partner countries. PMI currently supports 24 countries in sub-Saharan Africa and three programs across the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. Uganda began implementation as a PMI partner country in FY 2006. Please see the [Uganda Malaria Operational Plan](#) for more information on PMI's approach and investments.

II. CONTEXT

One hundred percent of the population of Uganda is considered at risk for malaria, with 95 percent in areas of stable transmission and 5 percent in areas of unstable transmission. Transmission varies significantly among regions with the northern regions of Karamoja, West Nile, Acholi, and Lango, as well as the eastern region of Busoga carrying the highest burden. *Plasmodium falciparum* accounts for 97 percent of malaria infection, and the main malaria vectors are *An. funestus* s.l. and *An. gambiae* s.l.

Uganda has made significant progress in malaria control in partnership with PMI, the National Malaria Control Division (NMCD), the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund), the UK Foreign Commonwealth and Development Office, research institutions, and others. As a result, malaria prevalence in children under five years of age decreased from 45 percent in 2009 to 9 percent in 2019 (Malaria Indicator Survey [MIS] 2019), and all-cause child mortality decreased from 128 to 64 deaths per 1,000 live births between 2006 and 2016 (Demographic Health Survey [DHS] 2016).

Table 1: General Demographics and Malaria Situation

Population	46.5 million as of December 2023/January 2024 (End of month population projections 2015-2040, Uganda Bureau of Statistics)
Population at risk of malaria	100% of the population with 95% in areas of stable transmission and 5% in areas of unstable transmission (Uganda Malaria Reduction and Elimination Strategic Plan [UMRESP] 2021-2025)
Malaria prevalence	9 percent among under five children (Malaria indicator survey [MIS] 2018–2019)
Malaria incidence/1,000 population at risk	302 (Ministry of Health [MOH], Annual Health Sector Performance Report FY 2020/2021)
Peak malaria transmission	March to May and September to December (UMRESP 2021-2025)

STRATIFICATION

In 2019-2020, the NMCD and its partners conducted an analysis of the available body of evidence to support the development of the national malaria strategic plan. They developed a stratification of districts based on epidemiological metrics, such as parasite prevalence, malaria incidence, and all-cause mortality in children under five years of age (Figure 1). This information was combined with district level measures of seasonality, urbanization, and access to care to identify core intervention packages to be implemented in each district, resulting in a district level intervention mix map (Figure 2).

Figure 1: Estimate of Malaria Parasite Prevalence (2018) by District, Incidence (2019), and Mortality Rate of Children under Five Years of Age (2017)

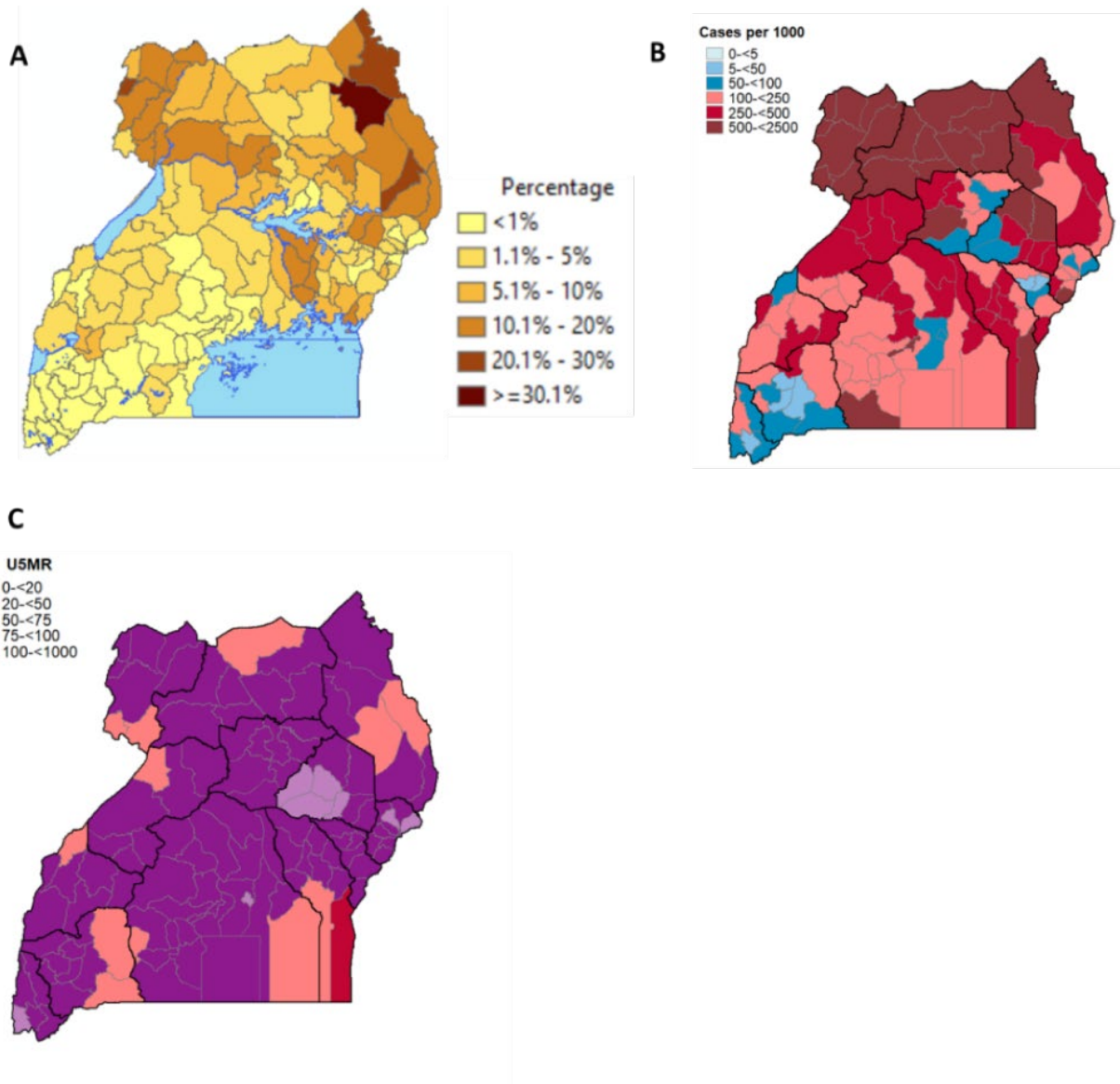


Figure 2: UMRESP 2021–2025 Stratification Map

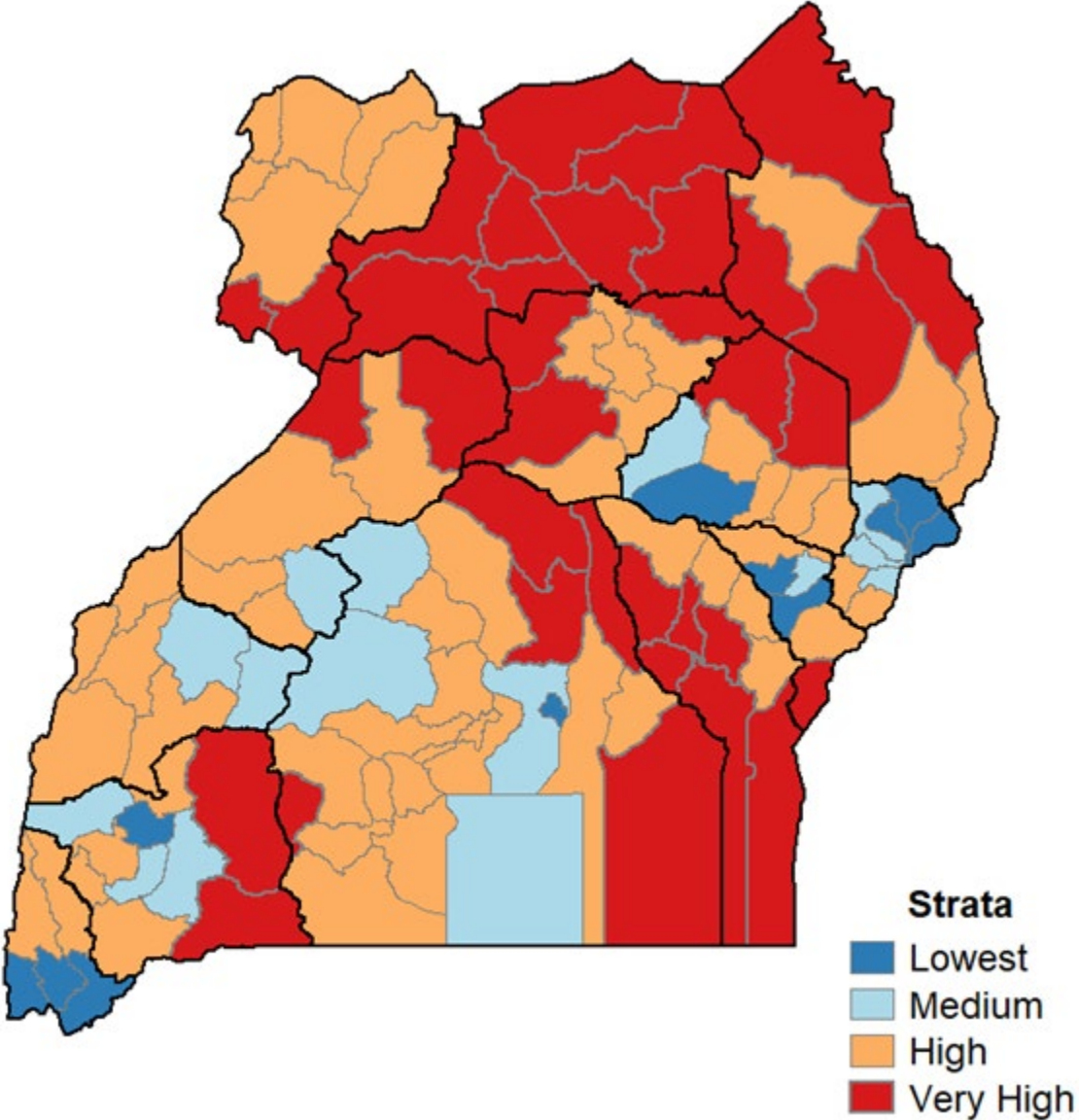
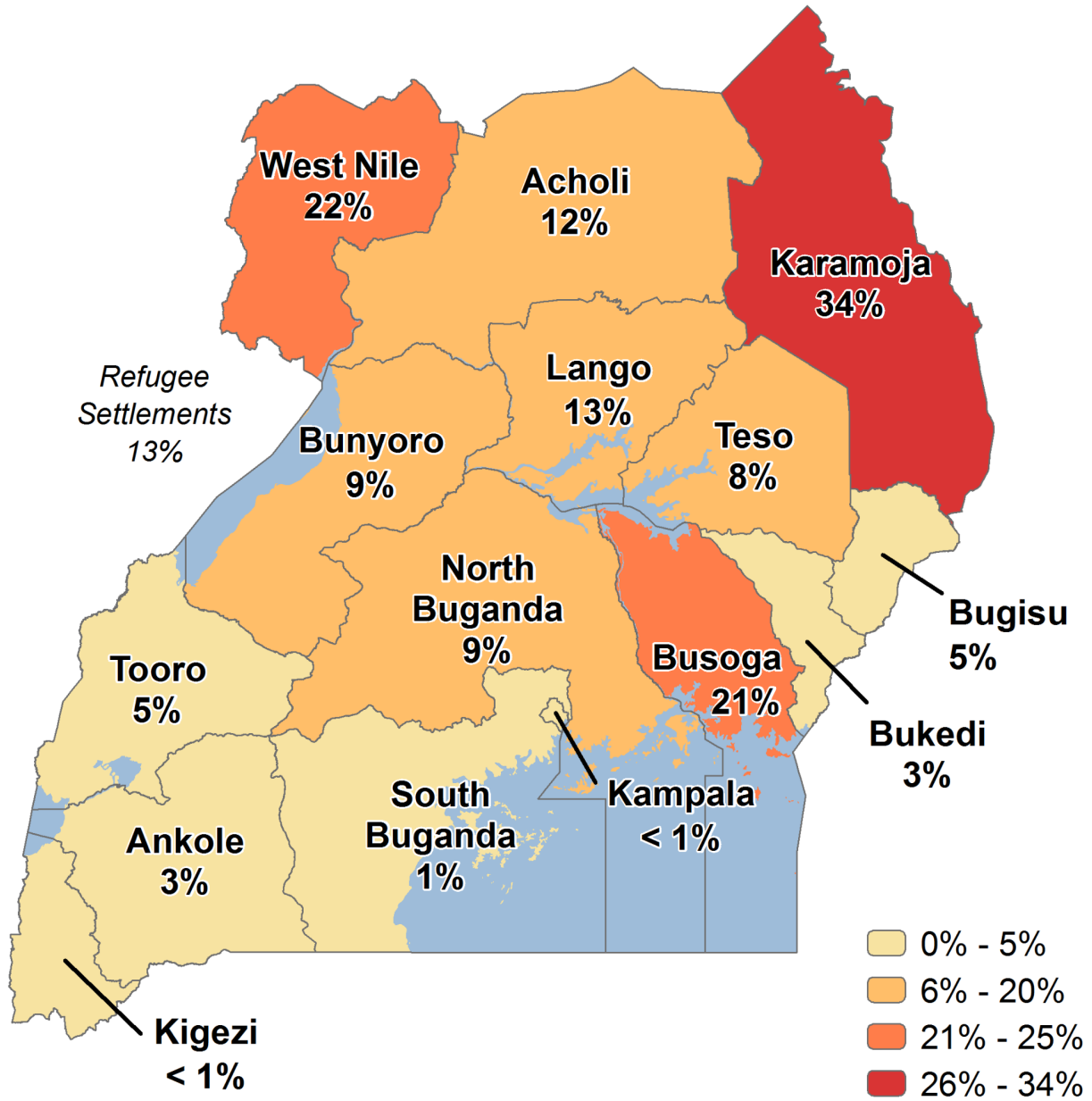


Figure 3: Prevalence Map

The map below shows the percentage of children 6 to 59 months of age tested using microscopy who are positive for malaria.



Source: MIS 2018–2019

Figure 4: Weekly Malaria Incidence from January 2021 to February 2022

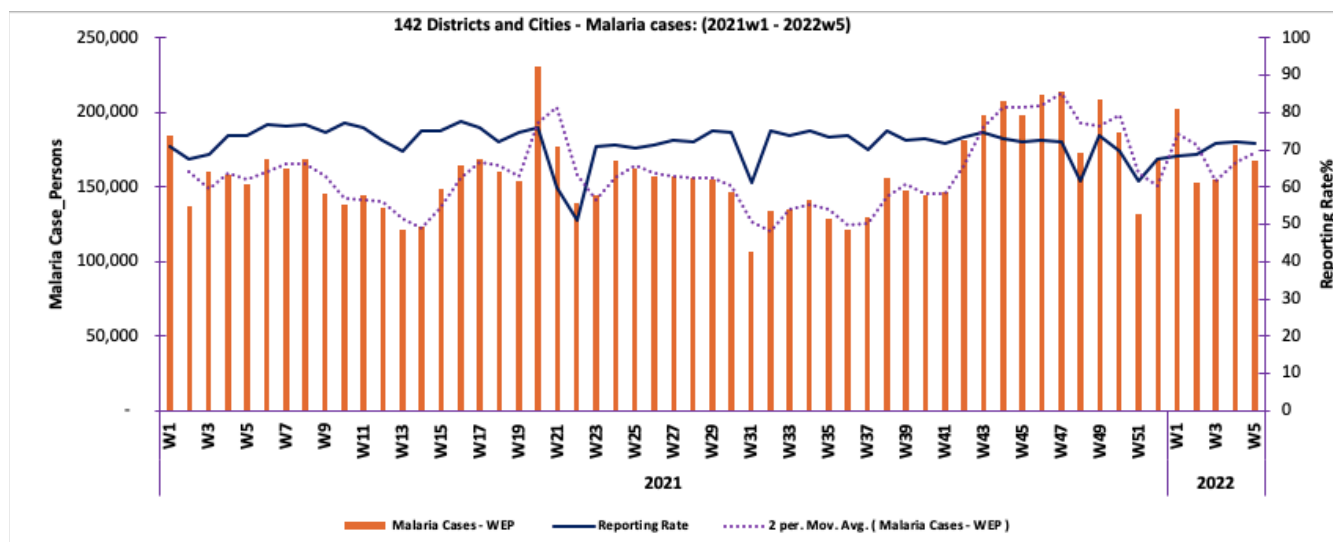


Table 2: Malaria Parasites and Vectors

<p>Principal Malaria Parasites</p>	<p><i>Plasmodium falciparum</i> is the predominant malaria parasite species at 97 percent, followed by <i>Plasmodium malariae</i> and mixed infections (MIS 2018–2019).</p>
<p>Principal Malaria Vectors*</p>	<p><i>Anopheles gambiae</i> s.l. and <i>Anopheles funestus</i> s.l. represent 99 percent of vector species. Vector resistance to pyrethroids and organochlorines confirmed across the country; however, there is general susceptibility to carbamates, neonicotinoids, pyrroles, and organophosphates. (PMI VectorLink Uganda Annual Entomological Monitoring Report 2020).</p>

* See **Entomological Monitoring** section of the Malaria Operational Plan for more details on vector bionomics and insecticide resistance and **Indoor Residual Spraying** section for details on residual efficacy.

COUNTRY HEALTH SYSTEM

Administrative Structure and Governance

Uganda is administratively divided into 135 districts, 255 counties, 10,011 sub-counties, 68,649 villages, and about 7.3 million households.

The Minister of Health is supported by the two ministers of state, one for general duties and the other for primary health care. The Permanent Secretary is the administrative head of the Ministry while the Director-General Health Services is the technical head. Below the Director-General are directors overseeing several departments that constitute planning units and are headed by the commissioner of health. The disease-specific and other public health programs are at the level of divisions and headed by Assistant Commissioners of Health, including for malaria.

At the district level, the chief administrative officer and district health team, headed by the district health officer, are responsible for the strategic and operational management of district health services. These district leaders are under the supervision of the Ministry of Local Government.

Health Care Delivery System and Funding

Uganda counts a total of 6,935 health facilities that all provide malaria case management and malaria in pregnancy (MIP) services. Of those, 45 percent are government-owned, 14 percent are private not for profit (PNFP), 40 percent are private for profit (PFP), while the remaining 1 percent are care sites that serve the community. In the public sector, there are two national referral hospitals at the national level, 13 regional referral hospitals at the regional level, 163 general hospitals at the district level, 222 health center level IVs at the sub-district level, 1,574 health center level IIIs at the sub-county level, 3,365 health center level IIs at the parish/village level, and 62,500 community health workers, commonly known as village health teams (VHTs), which serve the community/household level. In the private sector, there are 1,572 clinics and 24 specialty clinics (National Health Facility Master List 2018 and UMRESP 2021-2025).

Overall, 74 percent of public health facilities positions are staffed, with regional referral hospitals having the lowest staffing rate at 69 percent. The main staffing challenges relate to capacity gaps, absenteeism, and high attrition rates (National Health Facility Master List 2018).

According to the National Health Policy III, 86 percent of the population lives within 5 kms of a public or private health facility, but only 3.9 percent of the population subscribes to health insurance. The National Health Insurance Bill aims to increase this to at least 7 percent but is yet to be approved (Annual Health Sector Performance Report 2020/2021).

Funding remains the single most important constraint facing the health sector in Uganda. Although the government budget allocation to the health sector has increased over the years, this budget growth is not commensurate with the population growth and has never met the Abuja Declaration target of 15 percent of the national budget. To provide the minimum health care package, it is estimated that the government needs to spend at least \$28 per capita. However, the Government of Uganda spends less than half of this amount. The amount of non-wage funds allocated to health facilities is alarmingly low. According to a willingness-to-pay study in Nakasongola district, communities are willing to pay for national health insurance to receive health care in public health facilities, provided the quality of care is improved and the premium is reasonable. Government subsidization is needed for people who cannot afford to pay for health care.

Case Management

When it comes to case management, Uganda has a high care-seeking culture with 87 percent of children under 5 years of age with fever seeking advice or treatment at a health facility. Of these, close to 60 percent of those children go to the private sector for treatment or advice, with 44 percent going to private hospitals or clinics and 14 percent going to private pharmacies (Uganda MIS 2018–2019). The PFP sector's contribution to service delivery has been lacking in coordination and has been fragmented and difficult to measure. Moreover, the midterm review of the previous national malaria strategy indicated minimal adherence to national malaria policies and guidelines in the private for profit sector.

Testing at health facilities is high, as 97 percent of children under 5 years of age who present at a health facility are tested with either microscopy or malaria rapid diagnostic tests (RDTs). RDTs are more commonly used in lower level public facilities and in the community, while microscopy is mostly used in higher level facilities and in the private sector.

Malaria in Pregnancy

The Reproductive Health Division (RHD) within the MOH implements MIP in collaboration with the NMCD at antenatal care (ANC) clinics, with the distribution of insecticide-treated mosquito nets (ITNs), intermittent preventive treatment in pregnancy (IPTp), and appropriate case management. PMI supports the NMCD to continuously improve coordination between the malaria and reproductive health programs, which is crucial to ensure that providers follow up-to-date guidelines, as well as optimize IPTp uptake and reduce missed opportunities. The NMCD and RHD jointly implement World Health Organization (WHO) guidelines on MIP and work with malaria partners to mentor health workers on knowledge, skills, and attitudes in providing ANC services. As a result

of these efforts, and innovative approaches such as result-based financing, IPTp3+ coverage for pregnant women increased from 30 percent in 2019/2020 to 50 percent in 2020/2021 ([Annual Health Sector Performance Report 2020/21](#)).

Supply Chain

The Procurement and Disposal of Assets Unit within the MOH is responsible for the central procurement and supply management of pharmaceuticals, and medical, and non-medical health products, but delegates this role to the National Medical Store, which procures, stores, and distributes essential medicines and supplies to public health facilities. The Joint Medical Store plays the same role for the private sector, including PNFPs, using both private sector and Government of Uganda resources. The Quantification and Procurement Planning Unit of the MOH ensures proper quantification of malaria commodities. The NMCD works with all these entities to minimize commodity stockouts and promote redistribution where needed, thereby overcoming the distribution challenges that characterize Uganda's historical push system.

Under the UMRESP 2021–2025, the NMCD has the ambition of further building the capacity of district health management teams and lower-level health facilities in quantification, ordering, and management of malaria commodities. Moreover, the NMCD envisions to support a transition to a pull system where lower facilities will be required to quantify and forward their orders to the District Health Office. The district will then aggregate the orders and forward them to the National Medical Store. It is expected that this bottom-up approach will contribute to the reduction of commodity stockouts in the country while strengthening staff skills in supply chain management.

The NMCD also plans to continue working with the National Drug Authority to conduct post-shipment and market surveillance of antimalarials for quality assurance. Finally, the NMCD plans to continue to implement a private sector co-payment system to supply the private sector with subsidized artemisinin combination therapies (ACTs), with the added use of a monitoring mechanism to ensure the subsidy benefit is passed on to service beneficiaries.

Health Management Information System and Logistics Management Information System

Over recent years, Uganda has made great strides in digitalization of the Health Management Information System (HMIS) into what is referred to as the e-HMIS (electronic Health Management Information System) in order to ease capture, analysis, and visualization of data and thus foster data use. This comprises the District Health Information Software (DHIS2) for monthly or quarterly capture, analysis and visualization of health and Logistics Management Information System (LMIS)

information as well as mTrac for weekly integrated disease surveillance and response (IDSR).

HMIS data comes from providers recording information on each patient in appropriate registers and summarizing that information in monthly reports. At the community level, VHTs submit these reports to the health facilities that supervise them, where they are further aggregated into quarterly reports and submitted to district biostatisticians for entry into DHIS2 on a quarterly basis. Monthly health facility reports containing outpatient and inpatient data are directly submitted to district biostatisticians for entry into DHIS2 on a monthly basis. PNFPs regularly report into DHIS2, but reporting from PFP health facilities is inconsistent and severely incomplete.

LMIS data also feeds into DHIS2, which allows for the concurrent analysis of epidemiological and logistics data. Districts and stakeholders at the national level can view dashboards that show malaria cases and stock position for injectable artesunate, ACTs, sulfadoxine pyrimethamine (SP), and RDTs at the different health facilities (both public and PNFP) and analyze this information to make decisions on stock redistribution. In the PNFP sector, facilities submit LMIS reports directly to the Joint Medical Store on a bimonthly basis, and these reports are used to inform the resupply of facilities with antimalarial commodities.

The IDSR platform aims to report case-based information for notifiable diseases, including malaria. This is an SMS-based system, with community and health facilities reporting weekly via the mTrac mobile application. Emergency events are reported immediately.

HMIS routine data quality audits are conducted as part of quarterly supportive supervision by the district health management team to general hospitals and by health center IVs to health center II and IIIs. Quarterly review meetings with district health teams and facility health workers also help improve quality of services and reporting at health facilities.

The NMCD, district level focal points, and key partners all have access to the DHIS2 platform. Data from DHIS2 and the IDSR weekly report are analyzed to produce the weekly malaria status report used to detect abnormal increases in cases, address stockouts of commodities, and target interventions. The NMCD also publishes a quarterly malaria bulletin using HMIS data.

Routine data has sustained progress in terms of timeliness and completeness. However, key challenges remain, including data quality issues, which are affected by inadequate human and financial resources, as well as excessive volumes of data collection that may not be relevant to the different levels of care and programs. Suboptimal data usage to inform policy and program development and improvement,

strategic planning and advocacy, and service delivery improvements also remains an issue. Finally, HMIS data have to be revised every five years to cater for the ever-changing health information needs, which can lead to lack of consistency in data collection tools, as older versions are sometimes re-introduced (The Uganda Health Information and Digital Health Strategic Plan 2021-2025).

A national malaria data repository does not yet exist, but the NMCD has included this as an objective under the UMRESP 2021-2025. The plan is to link this repository to DHIS2 and use this data to routinely update malaria stratification maps, surveillance channels, and other malaria information products.

OTHER CONTEXTUAL INFORMATION

Political Stability

Although Uganda experienced political violence and conflict over many decades in the past, its current situation is one of relative peace. However, Uganda is involved in complex conflicts and alliances in the Great Lakes Region, and tensions remain in Karamoja. Dissatisfaction among a young population with limited economic prospects and environmental vulnerability also constitute a threat. As noted in a 2017 International Crisis Group report, “Uganda is not in danger of renewed civil war or rebel violence, but it does risk sliding into a political crisis that could eventually threaten the country’s hard-won stability.”

Weather

Uganda is experiencing changing weather patterns. The average temperature in semi-arid areas in Uganda is rising, especially in the southwest. The frequency of hot days has increased while the frequency of cold days has decreased. As a result, the ice caps on the Rwenzori Mountains have shrunk significantly. Changing temperature patterns in Uganda have been linked to more frequent and longer lasting droughts and consequently increased cattle death. Rainfall has decreased, become less predictable and less evenly distributed. Floods, landslides, droughts and other extreme weather events are increasing in frequency and intensity. Droughts have significantly affected water resources, hydroelectricity production, and agriculture.

Recent Epidemics

Traditionally, malaria epidemics have occurred in areas of unstable transmission and or low endemicity. However, the epidemiology of malaria in the country is continuously changing with population growth, population movement, vector resistance to insecticides, and weather variability. The immediate result is the plateauing of progress since 2019, and more frequent epidemics in areas of unstable and low transmission,

such as in late 2021/early 2022, affecting 40 districts, including indoor residual spraying (IRS) districts in the eastern region and those in the southwestern Kigezi region. This stalling in progress is exacerbated by chronic underfunding of the Ugandan health sector, contributing to a weak health system. The budget for the health sector has never reached the Abuja Declaration target of 15 percent of the national budget, but instead, has declined from 8.9 percent in 2010 to 6.1 percent in 2021.

To respond to these epidemics, in March 2022, the NMCD and partners developed a response plan that included:

1. An immediate phase (3 months), which focuses on treating cases, preventing complications, averting deaths, and interrupting malaria transmission.
2. An intermediate phase (4-12 months) to further interrupt transmission and bring down the burden of malaria to the pre-epidemic levels.
3. A long-term phase (more than 1 year) to sustain malaria control gains and accelerate malaria burden reduction to pre-elimination level.

The plan also determined that reduction of the high incidence of malaria and effects of climate change on health requires a whole-of-government, whole-of-society, and multisectoral approach, and promoted more investment in IRS, mosquito larvae destruction, chemoprevention, and aggressive surveillance and treatment of malaria cases. This should go hand-in-hand with effective communication and community engagement to influence and ensure behavior change at individual and community level, as well as efforts to boost research and innovations that capacitate medium to long term measures.

Malaria Awareness and Behaviors

Malaria awareness is generally high. According to the MIS 2018–2019 and to a knowledge, attitudes, practice and behavior survey conducted in 2018, the majority of the population knows the correct ways to prevent malaria. Those mentioned most frequently were sleeping under a net, slashing/clearing bushes and grass around the home, denying mosquitoes breeding grounds, and IRS. Pregnant mothers also demonstrate high knowledge about malaria prevention during pregnancy. Over 90 percent of the population knows that malaria is caused by mosquito bites and over 80 percent can mention fever as a symptom of malaria. Some caregivers and decision-makers are able to mention the signs of severe malaria. There are generally positive attitudes from caregivers towards health workers and trained VHTs, and a consensus that malaria is better treated with modern medicines rather than herbal treatments.

Youth and Gender

An analysis of youth and gender considerations regarding malaria prevention and treatment in Uganda conducted by PMI in 2017 showed that individuals between five and 34 years of age are significantly less likely to sleep under a net than other groups. One reason is that routine net distribution programs prioritize children under five years of age and pregnant women. Additionally, it is standard practice for youth (18 to 30 years old) to sleep in groups of two or more with siblings of the same sex, making net usage challenging since nets are designed for only two people. Moreover, many youth interviewed confused hygiene practices, such as hand washing and drinking clean water, with malaria prevention methods. They were found to be likely to self-medicate and use traditional medicine without being tested for malaria, reflecting the need to design youth targeted social behavioral communication (SBC) campaigns, and to support schools to incorporate malaria education.

When it comes to women, the study found that household work that takes place early in the morning or late at night, which are peak mosquito biting times, put them at higher risk of malaria. Women's income-generating activities, such as agriculture and selling goods in the marketplace, also put them at increased risk. Cultural practices such as overnight praying are also risk factors that are more associated with women. With that said, men in certain occupations such as brickmaking and night watchmen are also at increased risk as well as men who are more likely to socialize late at night.

Regarding MIP, the main factor associated with low uptake of preventive services such as IPTp was late attendance to ANC clinics. This was associated with limited access to and control over household resources to cover transportation and medications, men's low prioritization of spending limited resources on health care, loss of productivity when attending health clinics during the day, and low quality of health services. Also, men were reluctant to accompany their partners to ANC visits despite being encouraged to do so.

The use of bed nets was also influenced by gender norms and practices, including sleeping patterns. Women were reported to have authority over decisions related to bed net use. Women also expressed positive views on community case management conducted by volunteers from their community.

This study thus emphasized the need to target women and men at risk with messages on malaria prevention and increase women's and men's awareness of the benefits of attending ANC clinics early, while improving the quality of ANC services and scaling up community care services.

Malaria and Refugees

Conflicts on Uganda's borders are increasingly pushing refugees into the country—particularly the northwest and southwest. This is putting a significant strain on the government, its development partners, and on refugee hosting communities. As there is a large funding shortfall for the refugee response, food rations have been cut, and some refugee settlements are close to full. With no end in sight to the conflicts in neighboring countries such as South Sudan and the Democratic Republic of Congo, refugees will likely continue to flood Uganda with related challenges persisting for the foreseeable future. (Refugees in Uganda: (in)stability, conflict, and resilience, April 2018, GSDRC-Applied Knowledge Services)

Health services for refugees are integrated into the district local government health services and are implemented in line with national health policies. Health care for over 1.5 million refugees across 14 settlements is provided at 100 health facilities of which 72 percent are government and 28 percent are NGO facilities.

Malaria continues to be the leading cause of morbidity among refugees, accounting for 38 percent of all the outpatient consultations, 60 percent of the inpatient admissions, and 12 percent of deaths among refugees. A total of 805,555 ITNs were distributed in the refugee settlements areas during the national mass campaign in FY 2020/2021. All settlements have trained VHTs that provide integrated community case management (iCCM) despite occasional inadequate supplies of malaria commodities for case management both at community and facility levels.

III. NMCP STRATEGIC PLAN

The UMRESP 2021–2025 provides a common framework for the government, its development partners, the private sector, and other stakeholders to accelerate nationwide scale-up of evidenced-based malaria reduction and elimination interventions. Its strategic direction is to move the country towards elimination of malaria by accelerating and sustaining malaria burden reduction in high and moderate transmission areas while reducing transmission intensity in all low transmission areas.

After completing the stratification exercise outlined above and reviewing findings and recommendations from an extensive malaria program review, the NMCD adopted a plan that promotes increased collaboration and integration for timely and effective epidemic prediction, detection and response, and consistent use of quality data for evidence-based decision-making. The strategic plan also aims for sustainability of funding and gains, effective decentralization of implementation to districts, integration of malaria service delivery within other programs, community engagement and ownership through a "bottom-up" approach, and cross border malaria control.

The deployment of new approaches, such as High Burden High Impact and Mass Action Against Malaria, as well as new initiatives, such as Malaria Free Uganda, have refocused the program and brought together actors at all levels to take on responsibility for and accelerate progress towards ending malaria in Uganda.

The goal of the UMRESP 2021–2025 is to reduce malaria infection and morbidity by 50 percent and malaria related mortality by 75 percent by 2025, compared to 2019 levels.

The plan's strategic objectives and related specific objectives are the following:

1. To accelerate access to malaria preventive and curative services to achieve universal coverage in all eligible populations by 2025.
 - a) At least 90 percent of the population at risk are protected through appropriate vector control measures.
 - b) Improve and sustain parasite-based diagnosis.
 - c) At least 90 percent of malaria cases are appropriately managed in public, private, and community facilities.
 - d) At least 85 percent of all pregnant women are protected with quality malaria prevention interventions.
2. Enhance quality of care of malaria services in at least 80 percent of the private health facilities managing malaria according to national guidelines and reporting quality data by 2025.
 - a) Establishment of malaria private sector coordination mechanism at the NMCD.
 - b) Strengthening the capacity of the private sector to deliver quality malaria preventive and curative services.
 - c) Strengthening the private sector accreditation and regulatory environment including data reporting.
 - d) Ensuring sustainable financing of affordable malaria interventions at workplaces and institutions.
3. By 2025, at least 90 percent of the population sustains the acquired knowledge, and utilizes and practices correct malaria management, preventive and curative services.
 - a) Create demand for preventive, curative services/products through increased knowledge for adherence of positive malaria behavioral practices.
 - b) Raise the profile of malaria amongst policy-/decision-makers and actors at all levels.
 - c) Strengthen structures and mechanisms for the delivery of malaria SBC interventions and full operationalization of the Mass Action Against Malaria approach.

- d) Strengthen community-based behavioral change actions to harness and sustain positive malaria practices.
4. Malaria programming at all levels is guided and based on robust data and evidence.
 - a) Develop a malaria surveillance framework to guide decision-making at all levels.
 - b) Strengthen HMIS data collection, quality, and use at facility and community levels.
 - c) Establishment of a National Data Repository for malaria.
 - d) Support learning, adaptation, innovation, best practices, and operations research.
 - e) Conduct periodic evaluations and reviews.
 - f) Strengthen malaria epidemic prevention, preparedness, and response at all levels.
 5. By 2025, transform malaria programming in targeted districts from control to elimination
 - a) Assessing malaria elimination readiness.
 - b) Mobilization of resources for elimination readiness.
 - c) Capacity building and implementation of sustainable structures at the district level.
 - d) Transforming the surveillance systems from routine to case-based surveillance.
 6. By 2025, 80 percent of districts will have strengthened their enabling environment to deliver malaria interventions and measure progress through coordinated partnership and multi-sectoral collaboration.
 - a) Strengthen human resource capacity for malaria programming at all levels (national, sub-national, private sector, and community).
 - b) Improve governance and stewardship for malaria programming.
 - c) Ensure multi-sectoral, partnerships and collaboration for malaria response.
 - d) Mobilize resources for malaria program.
 - e) Ensure malaria commodity security at all levels.
 - f) Enhance an efficient and effective malaria service delivery system at all levels (national, district, and community)
 - g) Strengthen institutional capacity through WHO's transfer of technical support skills for integrated Malaria control and elimination

IV. KEY MALARIA DATA

EVOLUTION OF KEY SURVEY-BASED MALARIA INDICATORS

Table 3: Key Survey Indicators

Indicator	2011 DHS	2014-2015 MIS	2016 DHS	2018– 2019 MIS
% Households with at least one ITN	60	90	78	83
% Households with at least one ITN for every two people	28	62	51	54
% Population with access to an ITN	45	79	65	72
% Population that slept under an ITN the previous night	35	69	55	68
% Children <5 years of age who slept under an ITN the previous night	43	74	62	60
% Pregnant women who slept under an ITN the previous night	47	75	64	65
% Children <5 years of age with a fever in the last two weeks for whom advice or treatment was sought	84	82	81	87
% Children <5 years of age with a fever in the last two weeks who had a finger or heel stick	26	36	49	51
% Children receiving an ACT among children <5 with a fever in the last two weeks who received any antimalarial drug	69	87	88	88
% Women who attended 4 ANC visits during their last pregnancy	48	N/A	60	N/A
% Women who received three or more doses of IPTp during their last pregnancy in the last two years	27	49	46	72
Children <5 of age mortality rate per 1,000 live births	90		64	
% Children <5 years of age with parasitemia by microscopy	N/A	19	N/A	9
% Children <5 years of age with parasitemia by RDT	N/A	30	30	17

Figure 4. ITN Use:Access Ratio Map

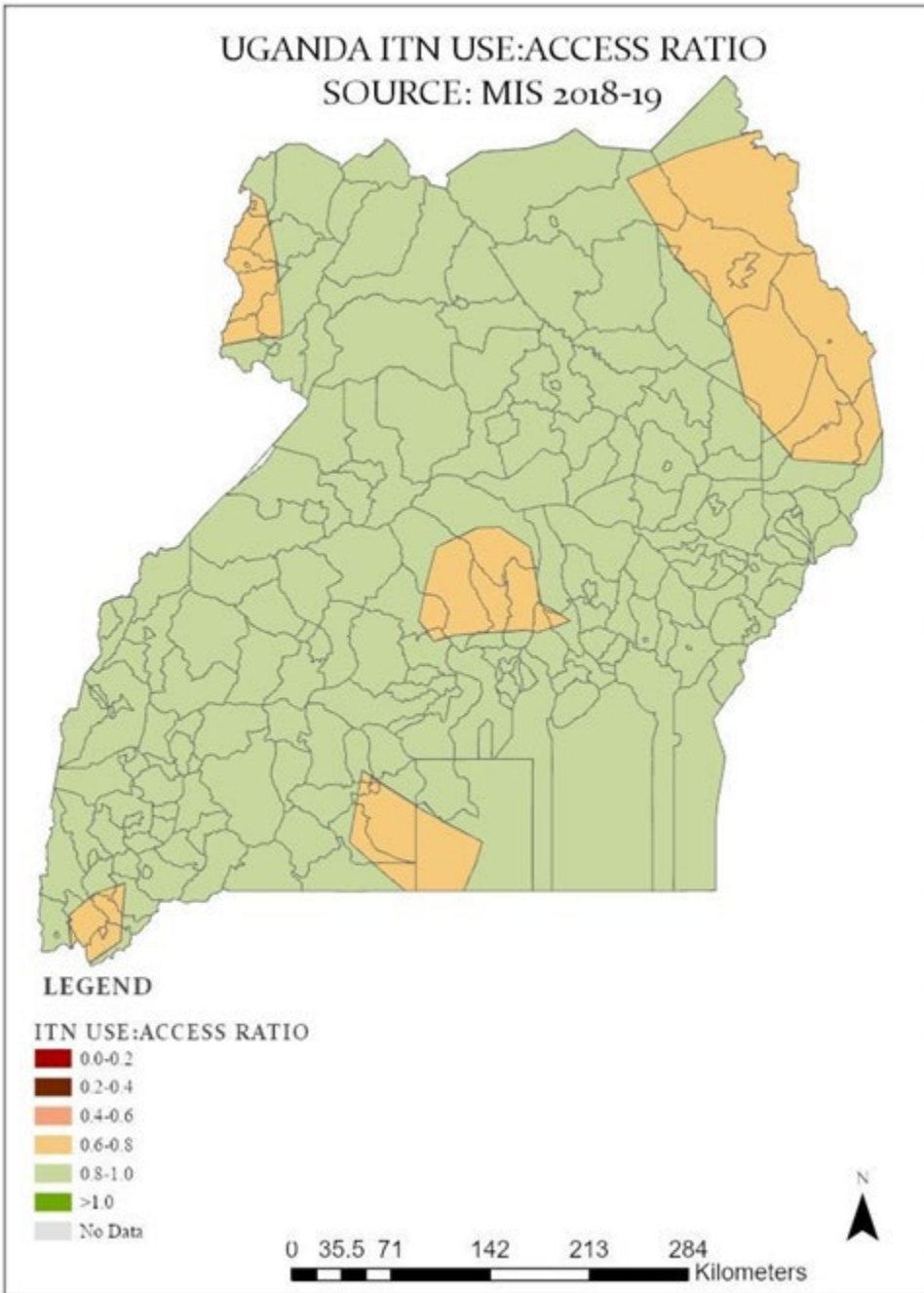


Table 4: Evolution of Key Malaria Indicators Reported through Routine Surveillance Systems

Indicator	2017	2018	2019	2020	2021
# All-cause patient consultations	42,640,456	36,218,158	39,527,516	40,252,886	39,775,044
# Suspect malaria cases ¹	23,754,918	19,912,582	23,566,813	23,040,029	22,443,007
# Patients receiving diagnostic test for malaria ²	30,263,002	25,896,321	33,887,015	27,146,894	23,191,937
Total # malaria cases ³	14,485,313	10,481,632	12,476,118	14,725,532	12,503,671
# Confirmed cases ⁴	10,251,007	7,878,334	11,087,640	13,133,497	11,593,985
# Presumed cases ⁵	4,234,306	2,134,124	1,388,478	1,592,035	909,686
% Malaria cases confirmed ⁶	71%	75%	89%	89.2%	92.7%
Test positivity rate (TPR) ⁷	34%	30%	34%	48%	50.0%
Total # children <5 years of age malaria cases ⁸	3,566,893	2,745,493	2,782,646	3,301,546	2,928,280
% Cases in children <5 years of age ⁹	25%	26%	22%	22.4	23.4%
Total # severe cases ¹⁰	750,171	466,107	353,192	593,174	610,062
Total # malaria deaths ¹¹	6,079	3,067	4,896	5,093	4,255
# Facilities reporting ¹²	4,883	5,237	5,224	5,848	5,771
% Data completeness ¹³	97.8	98.2	98.5	36.1	49.5

1 Number of patients presenting with signs or symptoms possibly due to malaria (“suspect malaria cases” defined as fevers); 2 RDT or microscopy, all ages, outpatient and inpatient; 3 Total reported malaria cases; all ages, outpatient and inpatient, confirmed and unconfirmed cases; 4 Diagnostically confirmed; all ages, outpatient and inpatient; 5 Clinical/presumed/unconfirmed; all ages, outpatient and inpatient; 6 # confirmed cases divided by total # cases; 7 Confirmed cases divided by # patients receiving a diagnostic test for malaria (RDT or microscopy); 8 Outpatient and inpatient, confirmed and unconfirmed; 9 Total # children <5 years of age cases divided by total # of cases; 10 “Severe cases” are reported as inpatient malaria cases); 11 All ages, outpatient, inpatient, confirmed, and unconfirmed; 12 Total # of health facilities reporting data into the HMIS/DHIS2 system that year; 13 # monthly reports from health facilities divided by # health facility reports expected (average for the calendar year).

Table 5: Disaggregated Community-Level Data

Indicator	2019	2020	2021
# Patients receiving diagnostic test for malaria from a CHW	N/A	2,628,828	2,724,200
Total # of malaria cases reported by CHWs ¹	2,262,749	2,260,519	2,334,696
% of CHW reported cases (among total malaria cases) ²	14	14	16

1 Includes all ages, confirmed and unconfirmed.

2 Total # malaria cases reported by CHWs/Total # malaria cases in previous table.

V. OTHER IMPLEMENTATION INFORMATION

Table 6: Summary of Completed Therapeutic Efficacy Studies

Year	Site	Treatment arm(s)	PCR-corrected efficacy for each drug at each site
2013–2014 ¹	Apac	AL	98%
2013–2014 ¹	Apac	ASAQ	100%
2013–2014 ¹	Mubende	AL	96%
2013–2014 ¹	Mubende	ASAQ	100%
2013–2014 ¹	Kanungu	AL	99%
2013–2014 ¹	Kanungu	ASAQ	100%
2015–2016 ²	Arua	AL	100%
2015–2016 ²	Arua	DP	99%
2015–2016 ²	Gulu	AL	95%
2015–2016 ²	Gulu	DP	99%
2015–2016 ²	Mbale	AL	98%
2015–2016 ²	Mbale	DP	99%
2018–2019 ³	Aduku	AL	94%
2018–2019 ³	Aduku	DP	97%
2018–2019 ³	Arua	AL	92%
2018–2019 ³	Arua	DP	94%
2018–2019 ³	Masafu	AL	87% [79, 93]
2018–2019 ³	Masafu	DP	92%

PCR=polymerase chain reaction; AL=artemether-lumefantrine;
ASAQ=artesunate-amodiaquine; DP=dihydroartemisinin-piperaquine

For drugs with a failure rate >10% (including both upper and lower bounds of the 95% confidence interval), alternative ACTs should be considered or, at the very least, confirmatory studies should be performed.

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²Yeka, A., Wallender, E., Mulebeke, R., Kibuuka, A., Kigozi, R., Bosco, A., Kyambadde, P., Opigo, J., Kalyesubula, S., Enzoga, J., Vinden, J., Conrad, M., & Rosenthal, P.J. (2019). [Comparative Efficacy of Artemether-Lumefantrine and Dihydroartemisinin-Piperaquine for the Treatment of Uncomplicated Malaria in Ugandan Children](#). *The Journal of Infectious Diseases*, 219(7), 1112–1120.

³Ebong, C., Sserwanga, A., Namuganga, J.F., Kapisi, J., Mpimbaza, A., Gonahasa, S., Asua, V., Gudoi, S., Kigozi, R., Tibenderana, J., Bwanika, J.B., Bosco, A., Rubahika, D., Kyabayinze, D., Opigo, J., Rutazana, D., Sebikaari, G., Belay, K., Niange, M., Halsey, E.S., ...Yeka, A. (2021). [Efficacy and safety of artemether-lumefantrine and dihydroartemisinin-piperaquine for the treatment of uncomplicated Plasmodium falciparum malaria and prevalence of molecular markers associated with artemisinin and partner drug resistance in Uganda](#). *Malaria Journal*, 20(1), 484.

Source: <https://malariajournal.biomedcentral.com/articles/10.1186/s12936-021-04021-5>

VI. KEY POLICIES

Table 7: Policies in Uganda

Uganda National Malaria Control Policy (June 2011, a new policy is under development)	
Uganda Malaria Reduction and Elimination Strategic Plan (2021–2025) (Not publicly available yet)	
Uganda National Monitoring and Evaluation Pan for the Uganda Malaria Reduction and Elimination Strategic Plan (2021–2025) (Draft, not publicly available yet)	
MIP Prevention and Treatment Protocol (MOH, 2018)	
Uganda Health Information and Digital Health Strategic Plan (2021–2025) (Draft, not publicly available yet)	
National Communications Strategy for Malaria Control in Uganda (December 2015, A new strategy is under development)	
National Pharmaceutical Services Strategic Plan (2020/2021–2024/2025)	
10-Year Roadmap for Government of Uganda’s Health Supply Chain Self-Reliance (2021/2022 – 2031/2032)	
Integrated Vector Management Strategy for Malaria Reduction in Uganda (February 2017, not publicly available yet)	
Insecticide Resistance Management Plan for Malaria Vectors in Uganda (May 2017) Integrated Vector Management Implementation Guidelines for Uganda	
Health Services for Refugees in Uganda, United Nations High Commissioner for Refugees Uganda (2021)	
What is/are the first-line treatment(s) for uncomplicated <i>P. falciparum</i> malaria*?	Artemether lumefantrine (AL) and artesunate amodiaquine (ASAQ) (alternative)
What is/are the second-line treatment(s) for uncomplicated <i>P. falciparum</i> malaria*?	Dihydroartemisinin piperaquine and quinine (alternative)
What is the first-line treatment for severe malaria?	Intravenous or intramuscular artesunate and parenteral artemether (alternative)
In pregnancy, what is the first-line treatment for uncomplicated <i>P. falciparum</i> malaria in the <u>first trimester</u> ?	AL In the current policy, there are NO differences in the treatment of both severe and uncomplicated malaria for pregnant women across all trimesters

In pregnancy, what is/are the first-line treatment(s) for uncomplicated <i>P. falciparum</i> malaria in the <u>second and third trimesters</u> ?	AL In the current policy, there are NO differences in the treatment of both severe and uncomplicated malaria across all trimesters.
In pregnancy, what is the first-line treatment for severe malaria?	Parenteral artesunate
Is pre-referral treatment of severe disease recommended at peripheral health facilities? If so, with what drug(s)?	Yes, with single intramuscular dose of artesunate or single intramuscular dose of artemether or intramuscular quinine (alternative)
Is pre-referral treatment of severe disease with rectal artesunate recommended for community health workers?	Yes, 10mg/kg body weight for children under 6 years old
Community Health Extension Workers Strategy in Uganda (2015/16–2019/20) (A new strategy for routine community health activities is under development)	
What is the # of CHWs currently providing iCCM?	62,500
What is the country's target for number of CHWs providing iCCM?	138,688
What percent of the country's target is met?	53.1%
Does the country have a policy that enables the routine, regular payment of salaries/stipends for CHWs?	No, but the creation of a new cadre of community health workers, the community extension workers or CHEWs is being piloted. CHEWs will sit at the parish level, supervise VHTs, and receive a salary.
Do CHWs have the authority to test and treat all ages for malaria?	No, they are limited to testing and treating only children under five years of age for now, but the NMCD is advocating for this to expand to all ages.
Prevention of MIP Policy (2018, MIP Prevention and Treatment Protocol)	
At what gestational age is the first dose of IPTp-SP to be given to pregnant women according to the national guidelines for malaria and MCH?	Starting as early as possible in the second trimester, with doses given at least one month apart until the time of delivery.
Do the national ANC guidelines reflect the WHO 2016 recommendation of 8 ANC scheduled contacts (plus one additional contact for early initiation of IPTp at	Yes, the national ANC guidelines reflect the WHO 2016 recommendation of 8 ANC scheduled contacts.

13-16 weeks)? If not, how many ANC contacts are recommended?	
What is the status of training ANC providers on the WHO recommended 8+ contacts?	Very good, approximately 5000 providers in 53 focus PMI districts were trained in MIP prevention and treatment and ANC guidelines.
Have HMIS/DHIS2 and ANC registers been updated to include 8+ contacts?	Yes
Are IPTp data collected as single months where the January 2022 data represent the number of doses administered in January 2022, or cohort data, representing the cumulative data from pregnancies which began 6 months prior?	IPTp data is collected as single months i.e, January 2022) data represents the number of doses administered in January 2022.
Is ANC/IPTp provided by facility staff conducting ANC outreach to communities?	No
Can CHWs deliver IPTp and if so, which specific cadres and beginning with which dose?	Not currently.

VII. PARTNER LANDSCAPE

Table 8: Partner Landscape

Partner	Key technical interventions	Geographic coverage	Funding amount or in-kind contribution	Timeframe
The Global Fund	<ul style="list-style-type: none"> • Support for nationwide mass campaign in June 2020 through March 2021 • Procurement of most of the national needs for ACTs, RDTs and artesunate injections • Training and supportive supervision in most of the districts in the country • Surveillance, 	<ul style="list-style-type: none"> • National for ITN campaign in 136 districts • 90% of the public facilities in 136 districts 	\$282.1million	Current grant covers 2021 to 2023

Partner	Key technical interventions	Geographic coverage	Funding amount or in-kind contribution	Timeframe
	Monitoring, and Evaluation (SM&E)			
Government of Uganda	<ul style="list-style-type: none"> Procurement of the national needs for ACTs Procurement of most of the national needs for SP Printing of SM&E tools 	<ul style="list-style-type: none"> Gap filling (10%) Nationwide in 136 districts (100%) 	<p>\$1,200,000</p> <p>\$1,500,000</p>	<p>Annually</p> <p>Annually</p>
Against Malaria Foundation (AMF)	<ul style="list-style-type: none"> Support for nationwide mass campaign in June 2020 through March 2021 Post net distribution monitoring 	<ul style="list-style-type: none"> In collaboration with the Global Fund in 40% of the districts 	Contributed 35-40% of the ITNs for the campaign.	Every Three years
International Medical Group	<ul style="list-style-type: none"> Provides comprehensive health care services through its medical centers, including malaria preventive, diagnostic, and curative services 	<ul style="list-style-type: none"> Network of 23 private clinics spread across all the major towns of Uganda 	Unknown	Routine clinical services
Sugar Corporation of Uganda Limited (Mehta Group)	<ul style="list-style-type: none"> Conducts annual ITN distributions for staff, as well as vector control interventions through IRS and larval control in the sugar plantations, staff quarters, and recreation areas of the company Provides malaria case management for staff, families, and communities at 	<ul style="list-style-type: none"> Primarily targets its employees and the communities in Buikwe, Mukono, Kayunga, and part of Jinja districts 	ITNs, IRS, case management commodities	Annually ITN, IRS, larval source management and routine case management

Partner	Key technical interventions	Geographic coverage	Funding amount or in-kind contribution	Timeframe
	company hospitals and clinics, and funds community awareness campaigns on malaria prevention.			
Hima Cement Industry	<ul style="list-style-type: none"> Distributes ITNs to staff annually Conducted IRS campaigns in the past Malaria case management for over 2,000 staff at company clinics; community outreach by peer educators with village health teams; and annual medical camps 	<ul style="list-style-type: none"> In factory grounds (last IRS conducted in 2013) 	ITNs, IRS, case management commodities	Annual ITNs distribution
Total Exploration & Production Co	<ul style="list-style-type: none"> Total is working with the government of Uganda (MOH, districts, health facilities, and VHTs to implement measures aimed at strengthening malaria prevention, diagnosis, case management, and reporting in the region. 	<ul style="list-style-type: none"> In the Albertine region 	N/A	Unknown
Rotary International	<ul style="list-style-type: none"> Training and equipping over 1,000 VHTs with bicycles and medicines. The three partners working with Rotary International are Malaria Fund Uganda, World Vision, and the BMGF. 	<ul style="list-style-type: none"> Katakwi and Soroti 	\$1.2M (Each partner is providing \$400k. In addition Rotary provided \$4k to transport blood in areas with an upsurge.)	3 year program

Partner	Key technical interventions	Geographic coverage	Funding amount or in-kind contribution	Timeframe
Malaria Free Uganda (MFU)	<ul style="list-style-type: none"> Engages several stakeholders largely in the private sector, Ministries, Departments and Agencies (MDA's) to the achievement of a malaria-free Uganda through advocacy, resource and action mobilization. MFU seeks to avail the private sector a multisectoral collaboration framework and platform with NMCD in addressing program's interventions. Advocacy and SBC against malaria. 	<ul style="list-style-type: none"> National 	<p>Examples include: Ecobank has committed \$125k/year; Centenary has given airtime worth \$10k; Prime Media has given billboard advertisements, DHL has committed to transport needed materials, including for the distribution of mosquito nets</p>	<p>Launched in 2020, ongoing</p>