

MOZAMBIQUE 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. Mozambique began implementation as a PMI partner country in FY 2007. Please see the [Mozambique Malaria Operational Plan](#) for more information on PMI's approach and investments.

II. CONTEXT

Table 1: General Demographics and Malaria Situation

Population	31,616,078 (National Institute of Statistics [INE], 2022)
Population at risk of malaria	31,616,078 (INE, 2022)
Malaria prevalence	39% (Malaria Indicator Survey [MIS], 2018)
Malaria incidence/1,000 population at risk	328 (District Health Information System 2 [DHIS2], known as SISMA, 2021)
Peak malaria transmission	December to April

Figure 1: Prevalence Map

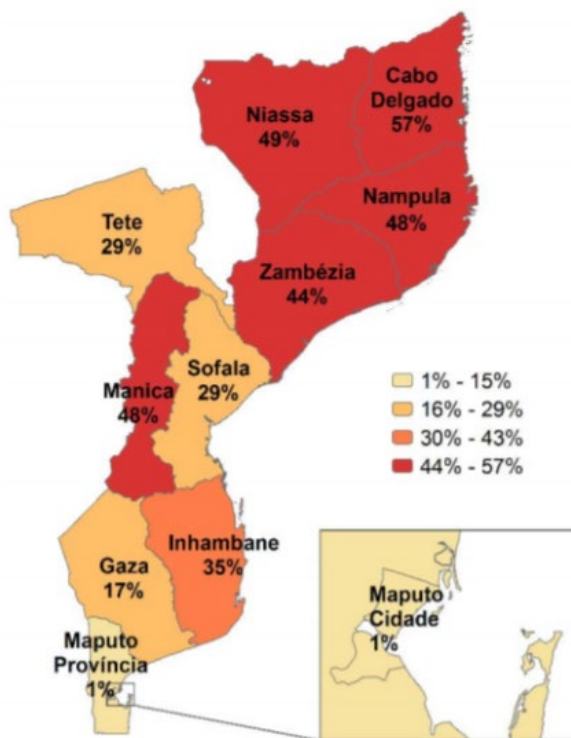
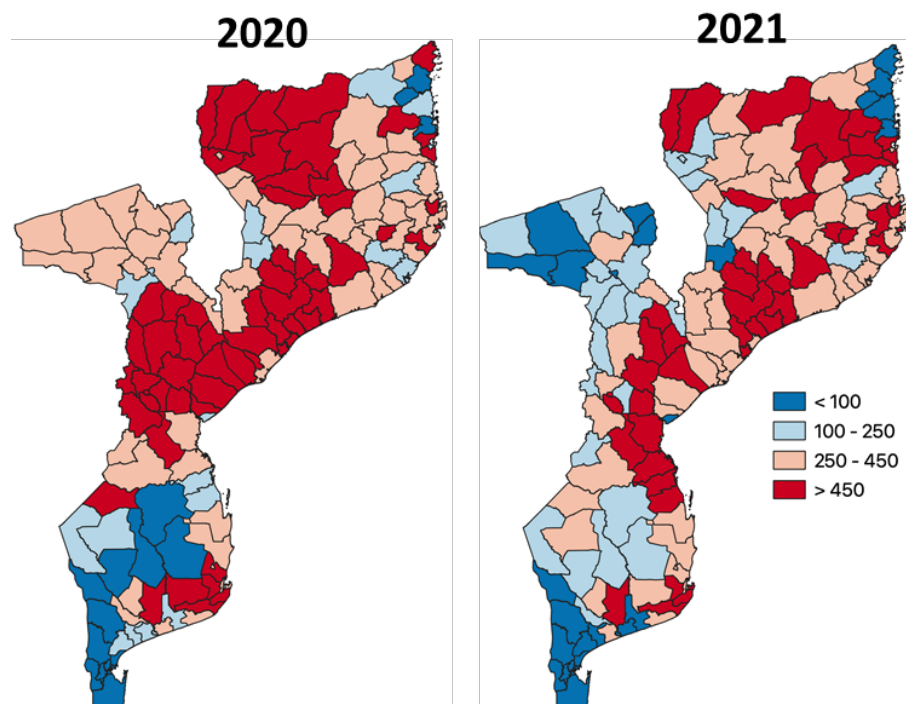


Figure 2: Incidence Maps, 2020 and 2021



Source: Mozambique NMCP

Table 2: Malaria Parasites and Vectors

Principal Malaria Parasites	<i>Plasmodium falciparum</i> (Mozambique Social and Behavior Change (SBC) Protocol, 2019)
Principal Malaria Vectors*	<i>Anopheles gambiae</i> s.s., <i>An. arabiensis</i> , and <i>An. funestus</i> s.s. (National Malaria Control Program, 2020)

* 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

In Mozambique, the public sector — the National Health Service (NHS) — dominates health service delivery. Although there is a growing private sector, it is largely limited to major cities. The public sector reaches an estimated 60 percent of the population. The NHS consists of four levels. Level I includes health centers and health posts. These level I health facilities provide a package of primary health care services and usually have a maternity ward but do not provide inpatient services. According to a 2004 World Bank report, Level I facilities represent at least 40 percent of all health services and are

typically the first point of contact with the health system for a large portion of the population. Level II includes district, general, and rural hospitals and usually serves as the referral facility for more than one district. Facilities at this level offer diagnostic, surgical, and obstetric services and have general medical doctors on their staff. Level III consists of provincial hospitals, which offer curative services, have diagnostic services/equipment, and are training centers. They are the referral facility for the level II facilities. Finally, Level IV consists of the country's four referral hospitals in Maputo, Quelimane, Beira, and Nampula, serving the southern, central, and northern regions.

Recognizing the limitations of the NHS and the shortage of professionally trained health workers, the country has begun revitalizing the community health worker (CHW) program. The CHWs provide preventive and basic curative services, including malaria diagnosis (using rapid diagnostic tests [RDTs]) and treatment (with artemisinin-based combination therapy [ACT]). In addition to malaria curative and preventative services, CHWs provide services related to integrated community case management (iCCM), family planning, management of postpartum hemorrhage, prevention of umbilical infections in neonates, distribution of vitamin A, and adherence to antiretroviral and tuberculosis treatments. CHWs are expected to cover between 500 and 1,200 inhabitants and work outside the catchment area of the nearest health facility. A new CHW Strategy is under development. Under this new strategy, the plan is to separate the preventive and curative responsibilities among a team of three CHWs per community. A number of national and international nongovernmental organizations also work within the NHS to assist in the provision of health services. Malaria control in the public health system consists of three administrative levels: central, provincial, and district. At the central level the National Malaria Control Program (NMCP) is benefiting from strong leadership, allowing it to improve its ability to manage and coordinate programs. Each province has a provincial malaria team, composed of a program manager and four different focal points covering the following areas: case management; surveillance, monitoring and evaluation (SM&E); SBC; vector control; and entomology. Each district has a malaria focal point, who coordinates all malaria activities at that level.

Prevention of malaria in pregnant women, through the use of sulfadoxine-pyrimethamine (SP) for intermittent preventive treatment for pregnant women (IPTp) and insecticide-treated mosquito net (ITN) distribution, has been promoted in Mozambique since 2006. The country has been implementing the World Health Organization updated guidelines on IPTp since 2014, which recommend administering IPTp as early as possible starting in the second trimester (13 weeks) and at each scheduled antenatal care (ANC) visit, as long as there has been an interval of approximately one month since the last SP dose. Although the NMCP and its partners lead procurement of SP and ITNs for distribution through ANCs, the maternal and child

health (MCH) department manages the implementation of MCH programs. Both entities have identified focal persons for malaria in pregnancy (MIP) and these individuals work very closely together. The priority for the Ministry of Health (MOH) MCH program is the implementation of an Integrated Reproductive Health/Maternal-Neonatal-Child Services Package. In addition, NMCP is also implementing integrated supportive supervision, which includes an MIP module.

Medicines and other health commodity products are a core component of a functioning health care system. Recognizing the critical need to ensure access to medicines, the MOH adopted, in 2013, the Strategic Plan for Pharmaceutical Logistics (PELF). Given the current and future needs of medicines in the NHS, the PELF aims to ensure that safe and effective, quality-approved, vital, and essential medicines and products are available in sufficient quantities, when and where they are needed to prevent, diagnose, or treat priority health problems. It also aimed to do this at the lowest possible cost to the patient and community. To achieve this goal, PELF established several reforms based on global best practices, such as supply chain optimization design by establishing three regional warehouses and 30 intermediate warehouses. This is one of the PELF key reforms that will decrease cost and increase the sustainability of the operation. The Central Medical Stores (CMAM) is the national entity with primary responsibility within the MOH for all central-level supply chain functions, including procurement of all pharmaceuticals and related health supplies. In collaboration with NMCP, CMAM manages all functions related to forecasting malaria commodities and commodity supply planning, procurement, storage, inventory management, and distribution, except ITNs, from the central level to provincial and intermediate warehouses as they are opened. CMAM distributes malaria drugs and RDTs via two logistics systems: the prepackaged CHW kit and the Classic system. PMI currently supports the local production process of malaria drug kits for the CHWs at CMAM facilities, and their distribution is in conjunction with the essential medicines kit. The CHW malaria kit system was developed in response to the bulky ACT packaging, making it difficult to fit into the essential medicine kit. Malaria medicines kits are distributed to CHWs through health facilities using a push-based system. The second logistics system, the Classic system, distributes medicines (including ACTs and SP) and RDTs quarterly based on requisitions. Products are stored in regional warehouses in Maputo, Beira, and Nampula, from which central hospitals are supplied, and then to the still existing 11 provincial warehouses and the one open intermediate warehouse. Each of the 10 provincial warehouses supplies the provincial, general, and rural hospitals and district warehouses. Malaria drugs are administered within this system, which uses a Logistics Management Information System (LMIS) to generate consumption, stock, loss, and adjustment data. These systems provide the supply chain and NMCP with data for informed management decision-making. Despite these two distribution systems, facility-level stockout challenges persist. Delays in the arrival of shipments are a major cause

of this situation as delayed arrivals at the central level can result in stockouts at service delivery points due to the time it takes to transport commodities from port to province, province to the district, and district to facility and community levels. Additionally, lack of transportation from province level to health facilities, community level, and accessibility constraints during the higher transmission season have resulted in stockouts at the service delivery points. CMAM and NMCP have begun implementation of the PELF to strengthen the system. In particular, the intermediary warehouse concept of eliminating one of the four levels (regional, provincial, and district warehouses in addition to health facilities) of the in-country supply chain and combining the current 11 provincial warehouses and 144 district warehouses into 30 intermediary warehouses optimally located across the territory has begun. By April 2022, three regional warehouses were opened, one in the south (Vilanculos district – Inhambane province) and two in the center (Chimoio city – Manica province and Mocuba district – Zambézia province). Two more regional warehouses are expected to open by the end of October 2022, in Zambézia province.

OTHER CONTEXTUAL INFORMATION

Mozambique is prone to natural disasters, such as drought, cyclones, and floods, which have likely contributed to increases in malaria transmission in recent years, particularly in low-lying coastal areas and along major rivers. In 2019, the country was devastated by back-to-back cyclones, which killed at least 600 people and damaged or destroyed at least 240,000 homes, creating recovery needs estimated at \$3.02 billion. In 2022, by April, the country had already been hit by two cyclones and one tropical storm, which affected more than 300 thousand people.

Additionally, since late 2017, a violent extremist group now linked to the Islamic State and known as Islamic State-Mozambique has carried out over 580 attacks against government and civilians in gas-rich Cabo Delgado, killing nearly 2,000 people and causing more than 662,828 internal displacements.

III. NMCP STRATEGIC PLAN

The focus of the National Malaria Strategic Plan (NMSP) 2017–2022 is on reducing the burden of malaria in high transmission areas and sustaining the gains in low transmission areas to accelerate towards elimination. The new NMSP for the period of 2023–2027 is currently under design.

The goals of this NMSP are to reduce by 2022 malaria morbidity and mortality at national level by at least 40 percent, compared to levels observed in 2015 in order to advance national and sub-national control efforts. In order to reach this vision, the NMSP includes the following six objectives:

1. Program Management: Strengthen program management skills at central, provincial, and district levels, to achieve the Strategic Plan objectives by 2022
2. Prevention: Provide at least 85 percent coverage of the population with a minimum of one vector control intervention, in every district of the country, by 2022
3. Case Management: Test 100 percent of suspected malaria cases and treat 100 percent of confirmed malaria cases, at health facility and community level, as per national guidelines, by 2022
4. SBC: Implement an effective SBC approach to ensure at least 70 percent of people seek appropriate and timely health care and at least 85 percent of the population uses an appropriate protection method by 2022
5. Elimination: Accelerate efforts towards malaria elimination by implementing epidemiologically appropriate interventions by 2022
6. SM&E: Strengthen the surveillance system so 100 percent of health facilities and districts are reporting complete, timely, and quality data by 2020

PMI worked closely with the NMCP in drafting this plan and the objectives and their associated activities are well-aligned with the PMI in-country priorities. PMI provides direct support for all intervention areas described above with the exception of elimination as there is complementary regional donor support (Elimination 8, a coalition of eight countries working across national borders to eliminate malaria in southern Africa by 2030, and the Mozambique, South Africa, and Eswatini fund) in this area. PMI support is also complementary to that of the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund). PMI and Global Fund-procured diagnostics and treatments are pooled and distributed nationwide through the national supply chain. Global Fund procures insecticides for indoor residual spraying (IRS) and ITNs for routine ANC and campaign distribution, complementing PMI support for IRS implementation. Additionally, the Bill & Melinda Gates Foundation (BMGF) supports national and targeted surveillance strengthening that is coordinated and complementary to PMI investments.

PMI supports commodities for the whole country, but currently targets case management, MIP, health system strengthening (HSS), SM&E, and SBC activities in the provinces of Cabo Delgado, Nampula, Zambezia, and Tete, with a plan to expand to Manica province, starting in FY 2023. The selection of these provinces was based on the incidence, prevalence, and unmet service needs in those provinces. PMI covers all non-insecticide operational costs for IRS in targeted districts of Zambezia and provides some technical support to the MOH-led IRS program in Nampula. PMI supports direct entomological data collection in Zambezia and Nampula and provides financial support

for entomological collection in the remaining provinces in the central and northern regions which is complementary to other donor support in the southern region.

IV. KEY MALARIA DATA

EVOLUTION OF KEY SURVEY-BASED MALARIA INDICATORS

Table 3: Key Survey Indicators

Indicator	2007 MIS	2008 MICS	2009 INSIDA	2011 DHS	2015 IMASIDA	2018 MIS
% Households with at least one ITN	16	31	N/A	51	66	82
% Households with at least one ITN for every two people	N/A	N/A	N/A	23	39	51
% Population with access to an ITN	N/A	N/A	N/A	37	54	69
% Population that slept under an ITN the previous night ¹	N/A	N/A	N/A	30	45	68
% Children <5 years of age who slept under an ITN the previous night ¹	7	23	49	36	48	73
% Pregnant women who slept under an ITN the previous night ¹	7	N/A	N/A	34	52	76
% Children <5 years of age with a fever in the last two weeks for whom advice or treatment was sought	36	N/A	N/A	56	63	69
% Children <5 years of age with a fever in the last two weeks who had a finger or heel stick	N/A	N/A	N/A	30	40	48
% Children receiving an ACT among children <5 years of age with a fever in the last two weeks who received any antimalarial drug	N/A	N/A	N/A	60	93	99
% Women who attended four ANC visits during their last pregnancy	N/A	N/A	N/A	N/A	55	N/A
% Women who received three or more doses of IPTp during their last pregnancy in the last two years	N/A	N/A	N/A	N/A	23	41

Indicator	2007 MIS	2008 MICS	2009 INSIDA	2011 DHS	2015 IMASIDA	2018 MIS
Children <5 years of age mortality rate per 1,000 live births	N/A	N/A	N/A	64	N/A	N/A
% Children <5 years of age with parasitemia by microscopy ¹	38	N/A	N/A	35	N/A	N/A
% Children <5 years of age with parasitemia by RDT ¹	51	N/A	N/A	38	40	39
% Children <5 with severe anemia (Hb<8gm/dl)	12	N/A	N/A	9	8	14

Demographic and Health Survey (DHS); MICS: Multiple Indicator Cluster Survey; MIS: Malaria Indicator Survey, INSIDA: National Survey on the Impact of HIV and AIDS in Mozambique; IMASIDA: Survey of Indicators on Immunization, Malaria, and HIV/AIDS in Mozambique

¹ DHS and MICS are generally fielded during the dry season, whereas MIS are deliberately fielded during the high-transmission season, which should be taken into consideration when interpreting these indicators.

Figure 3: ITN Use:Access Ratio Map

MOZAMBIQUE ITN USE:ACCESS RATIO
SOURCE: MIS 2018

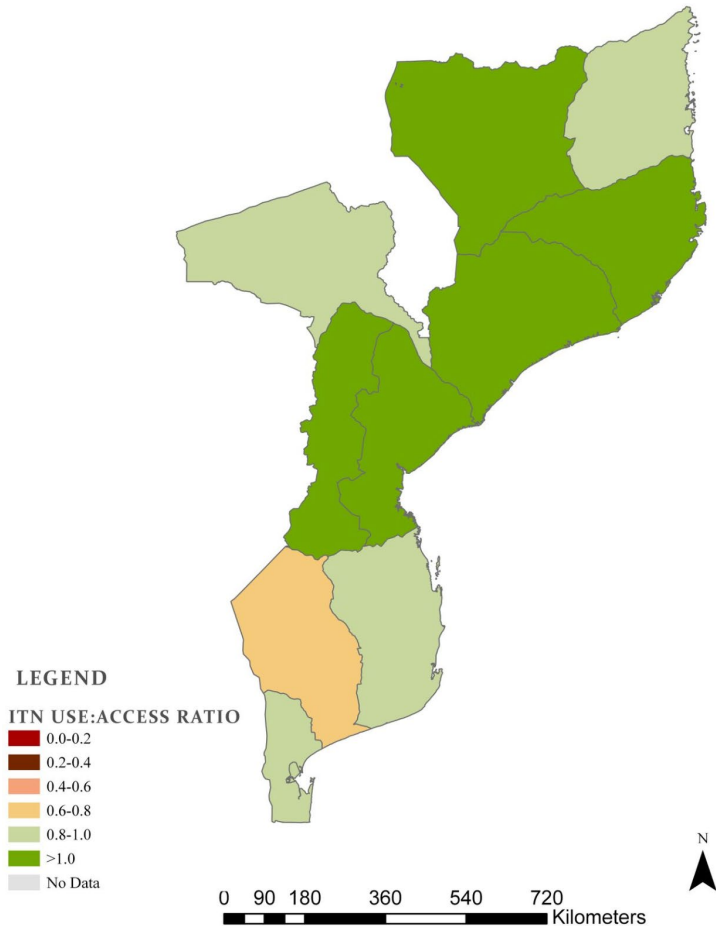


Table 4: Evolution of Key Malaria Indicators Reported through Routine Surveillance Systems

Indicator	2017	2018	2019	2020	2021
# All-cause patient consultations	41,731,206	46,550,843	47,786,613	43,526,510	43,502,461
# Suspect malaria cases ¹	N/A	N/A	19,776,616	19,516,184	19,231,932
# Patients receiving diagnostic test for malaria ²	17,375,330	18,752,761	19,737,180	19,503,860	19,221,147
Total # malaria cases ³	9,980,677	10,336,065	10,904,113	11,331,009	10,105,075
# Confirmed cases ⁴	9,892,473	10,301,229	10,864,667	11,318,685	10,094,290
# Presumed cases ⁵	88,204	34,836	39,436	12,324	10,785
% Malaria cases confirmed ⁶	99.1%	99.7%	99.6%	99.9%	99.9%
Test positivity rate (TPR) ⁷	56.9%	54.9%	55.0%	58.0%	52.5%
Total # children <5 years of age malaria cases ⁸	4,543,335	4,796,243	5,031,140	5,064,404	4,338,001
% Cases in children <5 years of age ⁹	45.5%	46.4%	46.1%	44.7%	42.9%
Total # severe cases ¹⁰	72,309	70,676	72,941	57,703	47,316
Total # malaria deaths ¹¹	1,685	1,114	734	563	411
# Facilities reporting ¹²	19,080	19,512	19,656	19,855	20,244
% Data completeness ¹³	92.0%	98.8%	95.5%	96.4%	97.7%

1 Number of patients presenting with signs or symptoms possibly due to malaria (“suspect malaria cases” are defined as the sum of presumed cases and the number of patients receiving diagnostic tests for malaria); 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 those hospitalized with malaria and reported to HMIS here; 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	1,396,957	2,211,731	2,163,706
Total # of malaria cases reported by CHWs ¹	877,403	1,404,804	1,276,696
% of CHW reported cases (among total malaria cases) ²	8.8%	12.4%	12.6%

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: Results of Durability Monitoring

Site/Net Type	Survey and Time Since Distribution (months)	Attrition to Wear and Tear (%)	Nets in Serviceable Condition (%)	Optimal Insecticidal Effectiveness in Bioassay (%) ¹
Mandimba, Niassa/Royal Guard	12 months	8.7	79	—
Changara, Tete/OlysetPlus	12 months	5.6	67	—
Guro, Manica/Interceptor G2	12 months	0.0	93	—

1 Bioassay testing for 12-month nets is underway.

Table 7: Summary of Completed Therapeutic Efficacy Studies

Year	Site	Treatment arm(s)	Efficacy (PCR-corrected adequate clinical and parasitological result) for each drug at each site
2018	Massinga	AL, AS/AQ	AL: 95.4% ASAQ: 100%
2018	Moatize	AL, AS/AQ	AL: 100% ASAQ: N/A
2018	Montepuez	AL, AS/AQ	AL: 100% ASAQ: 100%
2018	Mopeia	AL, AS/AQ	AL: 95.5% ASAQ: 98.8%

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

N/A = not applicable

Both AL and AS/AQ have therapeutic efficacies above the 90% World Health Organization recommended threshold and are well-tolerated in Mozambique.

1 Nhama, A., Nhamússua, L., Macete, E., Bassat, Q., Salvador, C., Enosse, S., Candrinho, B., Carvalho, E., Nhacolo, A., Chidimatembue, A., Saifodine, A., Zulliger, R., Lucchi, N., Szigel, S. S., Moriarty, L. F., Halsey, E. S., Mayor, A., & Aide, P. (2021). [In vivo efficacy and safety of artemether-lumefantrine and amodiaquine-artesunate for uncomplicated Plasmodium falciparum malaria in Mozambique, 2018](#). *Malaria journal*, 20(1), 390. .

VI. KEY POLICIES

Table 8: Policies in Mozambique

National Strategic Plan (2017-2022)	
National SM&E Plan (2017-2022)	
National SBC/Communication Strategy (2021-2027)	
National Supply Chain Strategy/Master Plan (2012)	
Integrated Vector Management Plan (2021-2026)	
Malaria Case Management Policy (2017)	
What is/are the first-line treatment(s) for uncomplicated <i>P. falciparum</i> malaria*?	AL AS/AQ
What is/are the second-line treatment(s) for uncomplicated <i>P. falciparum</i> malaria*?	N/A
What is the first-line treatment for severe malaria?	Artesunate, injectable
In pregnancy, what is the first-line treatment for uncomplicated <i>P. falciparum</i> malaria in the <u>first trimester</u> ?	Quinine
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 AS/AQ
In pregnancy, what is the first-line treatment for severe malaria?	Artesunate, injectable
Is pre-referral treatment of severe disease recommended at peripheral health facilities? If so, with what drug(s)?	Yes, it is recommended. Drug: Artesunate, injectable
Is pre-referral treatment of severe disease with rectal artesunate recommended for community health workers?	Yes, it is recommended.
Community Health Policy (NMSP, 2017-2022)	
What is the # of CHWs currently providing iCCM?	7,329

What is the country's target for number of CHWs providing iCCM?	8,800
What percent of the country's target is met?	83%
Does the country have a policy that enables the routine, regular payment of salaries/stipends for CHWs?	Yes
Do CHWs have the authority to test and treat all ages for malaria?	Yes
Prevention of Malaria in Pregnancy Policy (NMSP, 2017-2022)	
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 maternal and child health?	13 weeks
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 13-16 weeks)? If not, how many ANC contacts are recommended?	Yes
What is the status of training ANC providers on the WHO recommended 8+ contacts?	All have been trained
Have HMIS/DHIS2 and ANC registers been updated to include 8+ contacts?	No
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?	Cohort data is used
Is ANC/IPTp provided by facility staff conducting ANC outreach to communities?	Yes
Can CHWs deliver IPTp and if so, which specific cadres and beginning with which dose?	No

VII. PARTNER LANDSCAPE

PMI emphasizes the importance of partner alignment for malaria control, recognizing that different partners bring complementary expertise and resources. In recent years, PMI, the Global Fund, and the BMGF have harmonized financial, supply chain, and programmatic data. In particular, PMI and the Global Fund agreed to a harmonized financial taxonomy to aid comparison of our investments to better identify potential overlap or gaps.

Due to the U.S. government FY budget cycle and approximate timing of annual appropriations, PMI Malaria Operational Plan resources fund activities that largely occur during the following fiscal year. For example, this FY 2023 Malaria Operational Plan is anticipated to largely fund implementation of activities starting in 2024. Global Fund resources are based on the calendar year and planned for a three-year grant cycle. Most partner country governments and other partners also budget-based on the calendar year.

The figures below summarize contributions by key external partners and partner country governments in calendar years 2020–2023, providing insight into total country investments. Because new grants funded through the Global Fund 2021–2023 grant cycle are just beginning, or will begin later in 2021, Global Fund country investments may still evolve in some countries. The partner country government invests substantial funding into the national-to-local infrastructure and service delivery that benefits malaria programs and many others. However, it is not always possible to attribute funding for malaria specifically from the partner country government without a standardized method. There may be similar challenges for attributing other partner funds.

Table 9: Partner Landscape

Partner	Key technical interventions	Geographic coverage	Funding amount or in-kind contribution	Timeframe
PMI	<ul style="list-style-type: none"> • Procurement of ACTs and RDTs • Procurement of SP needs • Procurement of rectal artesunate needs • Support to indoor residual spraying in Zambézia province • Training and supportive supervision in three provinces • Support to HSS activities in three provinces 	<ul style="list-style-type: none"> • National for procurement of commodities • One province for IRS • Three regions for training and supportive supervision and HSS activities 	\$29,000,000	Annually
Global Fund	<ul style="list-style-type: none"> • Support for nationwide mass ITN campaign in 2022/23 • Procurement of ACTs and RDTs • Procurement of insecticides for indoor residual spraying • Procurement of supplies for malaria microscopy • Training and supportive supervision in seven provinces • Support to HSS activities 	<ul style="list-style-type: none"> • National for ITN campaign, procurement of commodities and HSS activities • Nine regions for training and supportive supervision 	MOH Malaria Grant \$144,600,000 World Vision Malaria grant \$67,400,000 Total: \$212,000,000	Current grant covers 2021 to 2023
BMGF	<ul style="list-style-type: none"> • Co-financing MOSAWA (Mozambique, South Africa, and Eswatini) regional grant • Program management support • Technical assistance and capacity development support focusing on: surveillance systems, data quality, data use, case management, genomic epidemiology, entomological surveillance, analytics, and modeling 	<ul style="list-style-type: none"> • Primarily support to central MOH with additional support for surveillance and program management in four provinces 	\$50,000,000	Current grant covers 2018 to 2023