

ANGOLA 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. Angola began implementation as a PMI partner country in FY 2006. Please see the [Angola Malaria Operational Plan](#) for more information on PMI's approach and investments.

II. CONTEXT

Angola has an estimated population of about 33,097,671 (Angola National Institute of Statistics, [INE] 2022). Malaria is transmitted throughout Angola, with 100 percent of the population at risk. Malaria continues to be the primary health burden in Angola and the principal cause of morbidity and mortality. Data reported in 2021 by the Department of Epidemiological Surveillance and Hygiene of the Ministry of Health (MOH) show that malaria was the leading cause of low birth weight and anemia and was the primary cause of death reported nationwide (42 percent), followed by accidental trauma (8 percent), HIV/AIDS (7 percent), malnutrition in children under five years of age (6 percent), severe acute respiratory infections (6 percent), tuberculosis (5 percent), arterial hypertension (5 percent), and COVID-19 (4 percent). There is significant geographical heterogeneity in malaria transmission in Angola, with hyperendemicity historically observed in the northeast provinces of Cabinda, Cuanza Norte, Lunda Norte, Lunda Sul, Malanje, and Uige. In the north, the peak malaria transmission season extends from March to May, with a secondary peak in October to November. The central and coastal provinces (Benguela, Bie, Cuanza Sul, Huambo, Luanda, Moxico, and Zaire) are mesoendemic with stable transmission. The four southern provinces bordering Namibia have highly seasonal transmission and are prone to epidemics. These ecological zones and their areas of transition are distinguished by rainfall and other climatic conditions. The rainfall duration ranges from about three months in Cunene province to eight or nine months (October to April or May) in northern and

eastern Angola. The climatic patterns affect vegetation, and most flora and fauna are differentiated across the ecological zones.

The malaria prevalence rate among children less than five years of age remained stable (around 14 percent) from 2011 (Angola 2011 Malaria Indicator Survey [MIS]) to 2015–2016 (Angola 2015–16 Demographic Health Survey [DHS]). A planned nationwide prevalence survey has been postponed to the end of 2022 because of COVID-19 restrictions and other constraints. However, according to the World Malaria Report 2021, Angola is one of the six countries that account for about 55 percent of all the global malaria burden in terms of both malaria cases and deaths. In 2021, Angola reported 13,676 deaths (an increase of 12 percent in comparison with 2020). Despite this overall country trend, in PMI-focus provinces a decrease in malaria deaths by 10 percent was observed over the same time frame (2,987 deaths were reported in 2021 versus 3,302 in 2020) (Angola Health Management Information System, [HMIS]).

With malaria morbidity, the country has reported increases in malaria cases over the years. In 2021, there were 9.2 million malaria cases (91 percent confirmed by microscopy or rapid diagnostic test [RDT]) from which 32.5 percent were in children under five years of age and 3.3 percent in pregnant women. Of approximately 14.8 million fever cases tested at service delivery sites, 53.3 percent were positive for malaria. The increase over the years can be partially explained by the increase of 84 percent since 2006 in the overall number of patients that present for evaluation of fever, both through outpatient clinics and malaria case management at community level through community health and development agents (*agentes de desenvolvimento comunitário e sanitário* or ADECOS), deployed in 2016 (Angola HMIS Data 2006–2020). Furthermore, with the shift from paper-based reports to digital platforms like District Health Information Software Version 2 (DHIS2) supported by PMI, malaria monthly report completeness rates have increased nationwide from 82 percent in 2017 to 91 percent in 2021 while the timely reports rate improved from 55 percent in 2017 to 73 percent in 2021. Also In 2021, 33 percent of all patients seeking health care were diagnosed with malaria (5.6 percent with severe malaria).

Table 1A: General Demographics and Malaria Situation

Population in 2022	33,086,278 (Angola National Institute of Statistics projections 2014–2050, 2016)
Population at risk of malaria	100% (World Health Organization’s [WHO] World Malaria Report Annex V-G, 2021)
Malaria prevalence	13.5% (DHS, 2015-2016)
Malaria incidence/1,000 population at risk	286 (National Malaria Control Program [NMCP], 2021)
Peak malaria transmission	March to May

STRATIFICATION

The National Malaria Strategic Plan (NMSP) 2021–2025 includes an updated Malaria Risk Map Stratification up to the district level developed using routinely collected incidence data and prevalence data from the DHS 2015–2016 and a mini-MIS 2018 in the south of Angola (see Figures 1 and 2). This information was used to tailor a package of interventions for each risk stratum addressing each specific objective within the NMSP 2021–2025. Of note, all PMI-supported municipalities fall into “very high” or “high” strata except for Soyo municipality in Zaire province and Saurimo municipality in Lunda Sul province, which are “moderate.” The packages proposed for “very high” and “high” transmission strata in the NMSP are the same.

Figure 1: Malaria Risk Stratification Map, by Municipality, 2020

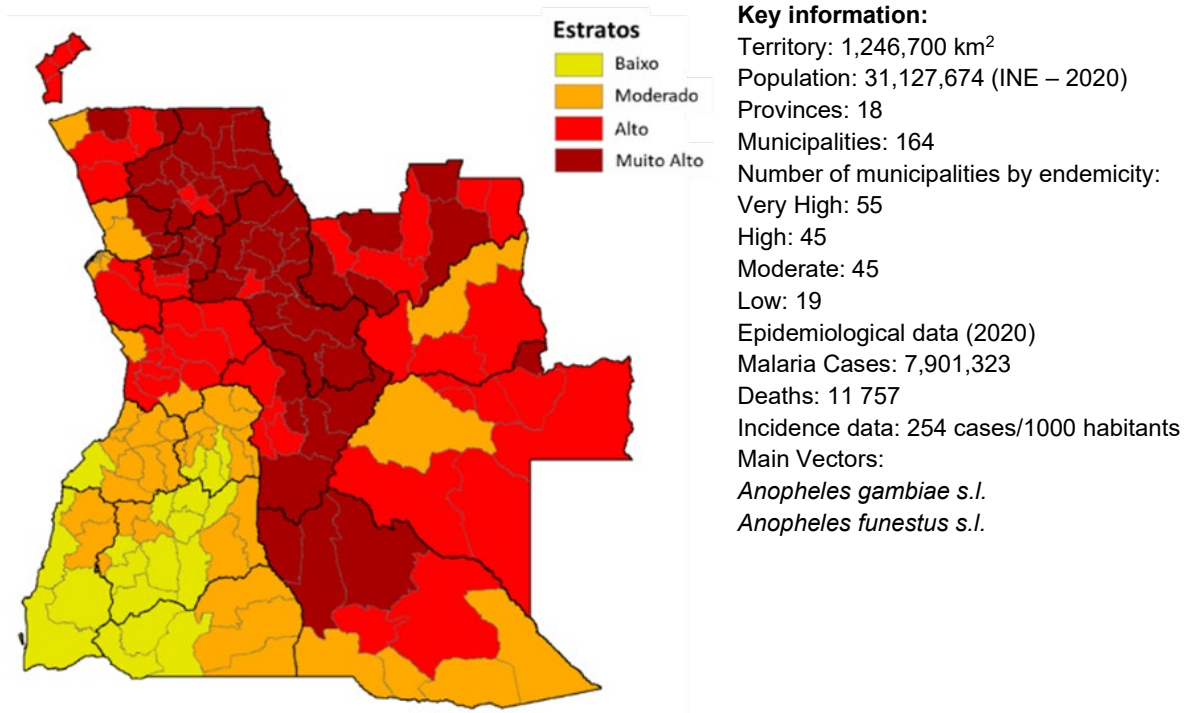


Table 1B: Malaria Risk Stratification and Population Living in Each Category

Strata	Incidence	Prevalence	# Municipalities	Population	Population (%)
Low	<300	< 10%	19	4,836,736	15.5%
Moderate	300 - 500	10 - 30%	45	14,995,436	48.2%
High	500 - 1000	30 - 50%	45	7,346,536	23.6%
Very High	> 1000	> 50%	55	3,948,967	12.7%

Source: NMSP 2021–2025

Table 2: Malaria Parasites and Vectors

Principal Malaria Parasites	<i>Plasmodium falciparum</i> (87 percent), <i>P. vivax</i> (estimated 7 percent), <i>P. malariae</i> (estimated 3 percent), and <i>P. ovale</i> parasites (estimated 3 percent) (NMSP 2021–2025)
Principal Malaria Vectors*	<i>Anopheles gambiae</i> (<i>An. gambiae</i> s.l., and <i>An. arabiensis</i>) and <i>An. funestus</i> s.l. Additionally, frequently captured in houses, <i>An. rufipes</i> , <i>An. squamosus</i> and <i>An. coustani</i> .

* 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

Administratively, according to Law nº18/16 (October 17, 2016), the country is divided into 18 provinces, 164 municipalities, 518 communes, and 44 urban districts. The capital of the Government of the Republic of Angola (GRA) is Luanda.

The country has been implementing a decentralization process that establishes a certain autonomous power, in which the municipality has become a unit of administration and administrative management. This fact has a great impact on the development of social and political capacities to improve health conditions.

Health Care Delivery System and Funding

Health care in Angola is universal and free. The country's health system is coordinated by the MOH. It has been divided into four types of services: (i) public system also called the National Health Service of Angola, (ii) for profit, (iii) non-profit, and (iv) traditional. The public sector also covers the health services provided by the Angolan Armed Force and the Ministry of the Interior, and public-owned companies such as *Endiama and Sonangol*, among others. ADECOS depend on the Ministry of Territorial Administration and not the MOH. The private sector, under the supervision of the General Health Inspection Department, is concentrated in urban and peri-urban areas where the public health service network is limited or non-existent. The traditional sector is unregulated. However, the MOH plays a prominent role in the definition and implementation of health sector policy and in the promotion and execution of the GRA's health programs, which aim to achieve universal health coverage by 2025.

The National Health Service comprises a hierarchical system in four levels of service provision and aggregates at different levels of health management:

- **Central level:** Includes the Directorate of the MOH, supporting bodies and central executive bodies, in articulation with other multi-sectoral bodies.
- **Provincial level:** Includes the provincial health offices bodies, which are administratively and organically dependent on the provincial governments, and technically dependent on the central level of the MOH, in articulation with other multi-sectoral bodies.
- **Municipal level:** Includes the municipal health directorates, which administratively and organically depend on the municipal administration, and methodologically on the provincial health offices, as well as on the MOH central level bodies, in articulation with other multi-sectoral bodies. At the municipal level, the municipal health directorates constitute the highest health authority.
- **Community level:** The promulgation by the GRA of the policy of the ADECOS provides the framework for organization and action to improve family health promotion knowledge on prevention of the main causes of illness and death in the community. Since 2016, ADECOS are authorized and trained to conduct RDTs and treat positive cases of uncomplicated malaria at community level. This policy is still in the implementation and expansion phase nationwide. Along with managing malaria at community level, their terms of reference include increasing community awareness of health prevention interventions, such as basic malaria prevention activities (e.g., use of insecticide-treated nets (ITNs), early treatment-seeking, and compliance with diagnostic outcomes), as well as vaccination, improved sanitation, and access to safe water and other non-health functions.

In the public sector, there are 3,164 health facilities (HFs) structured with three levels of care, namely: primary level with 3,099 HFs; secondary level with 50 HFs and tertiary level with 14 HFs. In terms of type, these HFs are divided into: 15 national hospitals, 32 central and specialty hospitals, and 18 provincial hospitals.

The 2021 MOH Annual Report shows that the coverage of the population with access to health services is at 60 percent, representing an increase by 20 percent since 2014. The National Quantification Report also estimates increasing access to the public sector for health care from 2021–2025, both with increased access to HFs, as well as community case management via ADECOS.

There are considerable challenges in the number of existing antenatal care (ANC) specialized facilities and the quality of family planning and reproductive health services provision is considered suboptimal, like the number of HFs that have laboratories.

With 5,610 physicians and 40,006 nurses for a population of over 33,086,278 in 2022, Angola has 1.69 medical doctors and 12.09 nurses per 10,000 inhabitants (MOH, 2022).

In addition to the insufficient number of health professionals at all levels, the national health system is characterized by an unequal distribution of available human resources for health (HRH) across all services and levels. The imbalance between HRH requirements and HRH available at each tier of the health system remains a huge challenge. There is a dearth of health professionals trained in health sciences, such as public health, epidemiology, statistics, disease program management, pharmacy, logistics and health information technology. In public sector HFs, morale is generally poor due to the low remuneration and limited career development prospects. Poor training and lack of motivation also affect the quality of patient care in the public sector.

These factors also affect staff compliance with MOH regulations, guidelines, protocols, and data reporting requirements; and performance management systems are not enforced in a systematic manner. Table 3 below summarizes the availability of health workers and health services in the six PMI focus provinces.

Table 3: General Demographics and Malaria Situation in the Six PMI focus provinces

Province	Population in 2022	Number of Municipalities	Number of Health Workers	Number of HFs	Number of ANC Clinics	Percent of HFs that have ANC	Number of ADECOS	Number of Laboratories	Percent of HFs that have Laboratories
Cuanza Norte	554,749	10	1,388	119	23	19	0	19	16
Lunda Norte	1,090,897	10	1,566	103	45	44	0	16	16
Lunda Sul	690,073	4	1,220	102	22	21	56	12	12
Malanje	1,247,509	14	2,572	164	39	24	121	13	8
Uige	1,867,157	16	1,838	349	78	22	106	25	7
Zaire	766,430	6	1,232	99	59	60	81	24	24
Total	6,216,815	60	9,816*	936	266	28	364	109	12

Source: INE 2022

* Of 9,816 health workers: 10.7 percent are doctors, 76.0 percent nurses and 13.3 percent laboratory technicians.

Funding remains the single most important constraint facing the health sector in Angola. Although the government budget allocation to the health sector has increased over the years: i) this budget growth is not commensurate with the population growth and has never met the commitment of 15 percent made by African Union Heads of State in Abuja; ii) it remains to be seen how much of the year's GRA expenditure will be on health. According to the *Sistema Integrado de Gestão Financeira do Estado* of the Ministry of Finance, a significant portion of health expenditure is covered by private, family or individual entities; and there is an evident risk that the planned level of GRA expenditure on health may not be realized. Weak and limited health financing is one of the leading causes of the poor coverage and quality of health services.

OTHER CONTEXTUAL INFORMATION

According to the World Economic Forum Gender Gap Index Report (WEF, 2021¹), Angola ranks 119 among 156 countries concerning gender inequality. This represents a slight decrease to 0.64 (range 0-1) in comparison to 2020, meaning that females were

¹ [Global Gender Gap Report 2021](#)

36 percent less likely to have the same opportunities as males in the country. Stronger gender disparities were measured mostly in the category of political empowerment. Angola ranked among the countries lowest performances in sub-Saharan Africa (28th among 36 nations in the region) and where the rate of women’s literacy is significantly lower than that of men (there is less than 67 percent of the literacy gender gap has been bridged to date). A report by Christian Aid sums up the situation in the country with regard to the social determinants of health, pointing out that violence is still rife in homes and communities, and that domestic violence was only outlawed in 2011 and remains endemic. Deep-rooted, harmful gender norms and sexual violence in homes and schools is widespread.² In such a context, income and other social determinants of health, including stigma and discrimination, are more likely to act as a barrier to the access of key and vulnerable populations to health services.

In terms of the epidemiological landscape, despite improvements in the main global health indicators, maternal mortality and teenage pregnancy remain high; there is a high incidence of infectious and parasitic diseases, in particular malaria, HIV/AIDS and tuberculosis (as referred above); and there are persistent outbreaks of cholera and measles. These have impacted health care services, especially outbreaks of yellow fever³ in 2016 and cholera⁴ in 2017–2018.

National treatment guidelines are for both the public and private sectors; however, the private sector often does not follow the established norms and there is not much reinforcement in terms of regulatory authorities to address this issue. Currently, there is no technical working group on private sector case management for malaria. Antimalarials of all kinds — including monotherapies and drugs for severe malaria — are available in private outlets. According to a fever management Reach and Recall study conducted by PMI in 2016 in Uige and Huambo, with 1,068 respondents, 14 percent of respondents went to private sector pharmacies, 4.5 percent visited a private health facility, and 24 percent self-medicated after detecting a fever.

The wide-spread adoption of DHIS2 is a key milestone responsible for improving malaria surveillance reporting. Another area where notable improvement is reported is in the supply chain, particularly improved management at the national warehouse (CECOMA). Through improved relationships between the MOH and development donor partners (World Bank, Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund), PMI, and others), targeted technical assistance strengthened the supply chain at a time when procurements worldwide were thrust into crisis. Through strengthening key

² [Reducing Gender-based Violence in Angola](#)

³ <https://www.who.int/emergencies/disease-outbreak-news/item/14-june-2016-yellow-fever-angola-en>

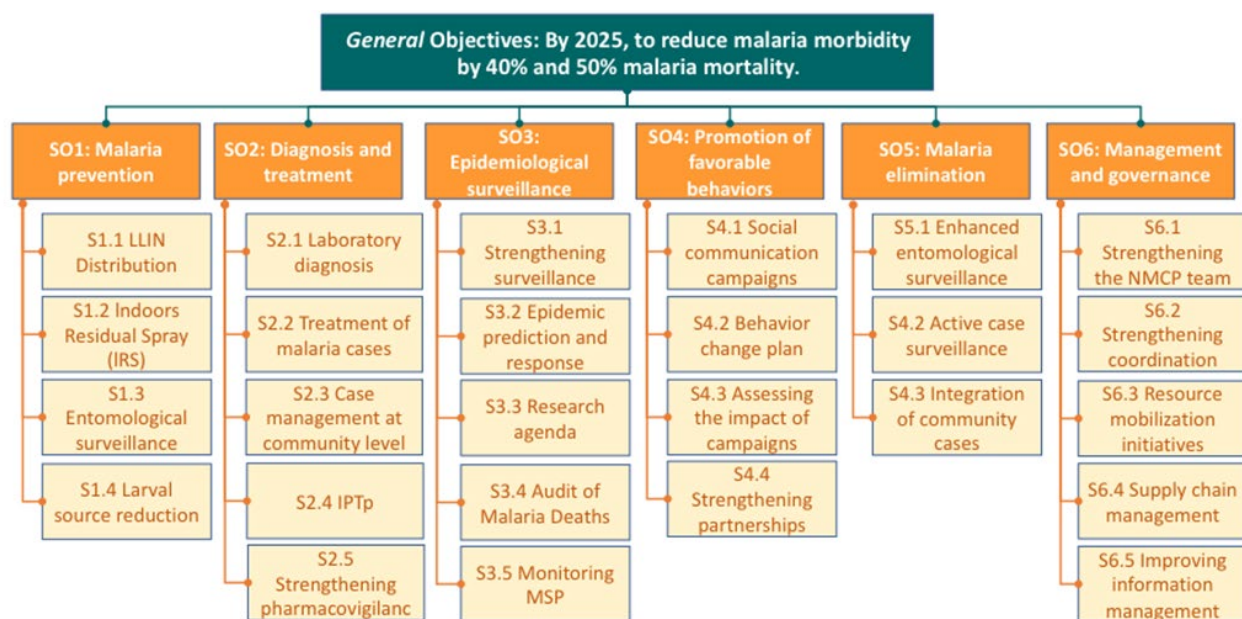
⁴ [WHO Weekly Bulletin on Outbreaks and Other Emergencies](#)

health systems issues such as improving data collection and utilization along with addressing gaps in supply chain, the MOH can now be better able to address stockouts and plan for future health needs, particularly outside of donors' focus geographic scope.

III. NMCP STRATEGIC PLAN

The general objectives of the NMCP, as articulated in the NMSP 2021–2025, developed with technical and financial support of PMI, are to reduce malaria-related morbidity and mortality by 40 and 50 percent respectively by 2025, from 2020 baseline figures. In order to achieve this, the NMSP includes six strategic objectives. The key elements of the NMSP 2021–2025 are summarized in the organigram below:

Figure 2. Strategic Framework Angola NMSP, 2021–2025



MSP = Malaria Strategic Plan (S3.5)

Strategic Objective 1: Malaria prevention — Protect 80 percent of the population at risk with malaria preventive interventions by 2025.

The NMCP's strategy for malaria prevention has four main components: ITNs, prevention of malaria in pregnancy (MIP), spraying (indoor and outdoor), and larvicide application. The NMSP calls for two approaches for ITN distribution: mass campaign distribution to achieve universal coverage and continuous distribution to maintain coverage. Continuous distribution of ITNs occurs through the following channels: ANC clinics and the Expanded Program for Immunization,

and outreach services for communities with no or little access to health services, such as mobile municipal health units.

PMI supports the NMCP's entomological surveillance activities to strengthen vector control interventions. The NMCP integrated vector control strategy also calls for larviciding applications, indoor residual spraying (IRS), and outdoor fumigations to be implemented in targeted areas of epidemic risks and low transmission. However, only small-scale and very focal IRS is currently being implemented by a partner donor in southern Angola at border municipalities between Angola and Namibia within the Southern African Development Council Malaria Elimination 8 Initiative (SADC E8) initiative, a coalition of eight countries working across national borders to eliminate malaria in southern Africa by 2030. Larviciding (Huambo and Luanda provinces) and outdoor fumigation (nationwide on an ad hoc basis) are financed exclusively by the GRA with technical support from the Cuban Cooperation.

Strategic Objective 2: Diagnosis and Treatment — Provide early diagnosis to all malaria suspected cases and early treatment of confirmed cases according to the national guidelines by 2025.

In accordance with WHO guidelines, Angola's NMSP recommends that all suspected cases of malaria be diagnosed parasitological, using either microscopy or RDTs. Only confirmed, uncomplicated, malaria cases should be treated with an artemisinin-based combination therapy (ACT). The country has three alternative PMI-supported first-line ACT treatments: artesunate-amodiaquine (AS/AQ), artemether-lumefantrine (AL), and dihydroartemisinin-piperaquine (DP). National treatment guidelines for severe malaria recommend (in order of preference) parental (IV or IM) artesunate, intramuscular (IM) artemether, and injectable quinine followed by three days of oral ACTs once tolerated. For pre-referral treatment in children under six years of age, rectal artesunate is recommended at a dosage of 10mg/kg. Malaria case management is provided at both the health facility and community level. In addition to distributing ITNs to pregnant women to help prevent malaria in pregnancy, national policy calls for provision of intermittent preventive treatment for pregnant women (IPTp) with sulfadoxine-pyrimethamine (SP) at all HFs with ANC services. The target is that by the end of 2025, at least 50 percent of pregnant women with access to ANC and targeted for IPTp receive at least four doses of SP.

Community health workers (CHWs) through the ADECOS project provide education, information, and basic support related to health, water, and sanitation, integrated community case management (iCCM) (as adapted in Angola), and

other community development initiatives. Procurement, warehousing, and distribution of RDTs and malaria medicines, and training and support for health care providers and ADECOS are all supported by PMI. The current NMSP 2021–2025 plans to pilot the introduction of rectal artesunate for prereferral of severe malaria cases at the community level by ADECOS in 2022.

Strategic Objective 3: Epidemiological Surveillance — Strengthen epidemiological and entomological surveillance systems, monitoring, and evaluation so that 90 percent of health units report timely data, aiming at improving decision-making and NMCP’s performance towards achieving the malaria control goals by 2025.

The NMCP has developed a Monitoring and Evaluating (M&E) Plan described in the NMSP 2016-2020 currently being updated to be in line with the NMSP 2021–2025. At the municipal level, there is a malaria municipal supervisor and municipal statistician who regularly collects data reports from the health facilities and enters them in DHIS2. GRA continues to strengthen its epidemiology surveillance system. The National Epidemiological Surveillance System collects weekly reports on clinically diagnosed cases of malaria from the four epidemic-prone provinces in the south — Cuando Cubango, Cunene, Huila, and Namibe. However, since not all municipalities report on a regular basis and there are delays in releasing reports to the NMCP, these weekly data are currently of limited value for detecting and containing malaria epidemics. Support and training for implementation of HMIS using the DHIS2 platform is supported by PMI.

Strategic Objective 4: Promotion of Favorable Behaviors — Cover 80 percent of the population with messages to promote behavior change and the adoption of best practices in malaria prevention and treatment by 2025.

The running NMCP social behavior change (SBC) campaign is *Zero Malária Começa Comigo* (translated as “Zero Malaria Begins With Me”), which integrates different communication channels, from interpersonal communication to digital and mass media, while contextualizing the need for malaria prevention and care-seeking behaviors in the midst of the COVID-19 pandemic. PMI supported the NMCP in drafting the Strategic Communication Plan for Malaria Social and Behavior Change 2017–2020 (SBC Strategy), which outlines NMCP’s priorities and goals related to SBC for malaria. PMI and other partners will participate in the development of the new SBC strategy once drafted to align with the NMSP 2021-2025.

Strategic Objective 5: Malaria Elimination — 80 percent of municipalities with low malaria transmission implement active surveillance activities by 2025.

Interventions planned under this strategic objective aim to strengthen entomological surveillance, active surveillance, M&E, and operational research targeting elimination and integrated surveillance of community case management. The NMCP maintains a close partnership with the SADC E8 for cross-border activities between Angola and Namibia. PMI concentrates its resources on supporting six hyper-endemic provinces where malaria transmission remains high.

Strategic Objective 6: Management and Governance – Improve NMCP’s governance and management capacity in order to achieve programmatic objectives (at all health system levels) for malaria control and pre-elimination by 2025.

PMI supports the NMCP on the development of the NMSP plan and its objectives and related activities are well-aligned with the PMI priorities. Angola was selected as a PMI focus country in 2005 and PMI-funded activities were carried out at the central level as well as throughout all the provinces in the country until 2016. Given the limited progress made in malaria prevention and control up until then, PMI decided to transition to a sub nationally-focused program — starting in FY 2016. Except for varied and evolving, yet targeted, national interventions, as well as continued support at the central level, this new approach concentrates PMI resources on six hyper-endemic provinces (combining for a total population of approximately 6 million) to maximize impact.

PMI also assists with multiple aspects of the NMCP’s strategic plan for supply chain management. Commodity availability analysis, quantifications, inventory management, procurement, warehousing and transportation of commodities, and capacity development of NMCP staff are all supported by PMI to strengthen, or augment, the supply chain.

Table 4: Geographic target areas for PMI interventions

Province Names	Population in 2022 (% of total)	PMI support provided?	Type of support
Cuanza Norte, Lunda Norte, Lunda Sul, Malanje, Uige, Zaire	6,216,815 (19%)	Yes	Procurement and distribution of commodities, Support for prevention interventions (ITNs, IPTp, etc.); Technical assistance for facility and community level service delivery, surveillance, SBC, monitoring and evaluation and improving information systems (HMIS, LMIS, etc.)
Bengo, Benguela, Bié, Cabinda, Cuando Cubango, Cuanza Sul, Cunene, Huambo, Huila, Luanda, Moxico, Namibe	26,869,463 (81%)	Limited	Support to NMCP, central warehouse (CECOMA), MOH's Office of Technology and Information (GTI), pharmaceutical management support to the regulatory agency of medicines and health technologies (ARMED), and other central-level technical assistance also provided (universal ITN campaign planning, training, etc.) PMI-funded RDTs, ACTs, SP, rectal and injectable artesunate needs stored at the central level (CECOMA) for distribution to these provinces.
Cuanza Norte, Huambo, Luanda, Lunda Sul, Malanje, Uige, Zaire	16,850,809 (51%)	Yes	Community-based entomological monitoring in two provinces and insecticide resistance monitoring in seven provinces; technical assistance to National Institute of Health Research (<i>Juventude Informada, Responsável, e Organizada</i> or INIS) for molecular work; equipment and technical assistance to support national level insectaries.

IV. KEY MALARIA DATA

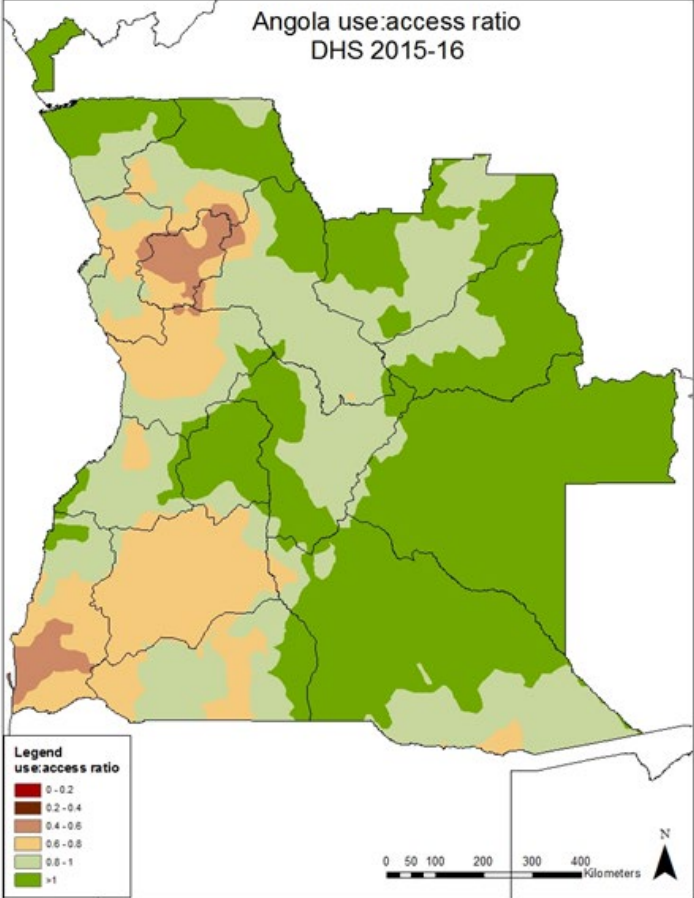
EVOLUTION OF KEY SURVEY-BASED MALARIA INDICATORS

Table 5: Key Survey Indicators

Indicator	2006-2007, MIS	2011, MIS	2015-2016, DHS (IIMS)
% Households with at least one ITN	28	35	31
% Households with at least one ITN for every two people	5	6	11
% Population with access to an ITN	15	19	20
% Population that slept under an ITN the previous night	12	19	18
% Children <5 years of age who slept under an ITN the previous night	18	26	22
% Pregnant women who slept under an ITN the previous night	22	26	23
% Children <5 years of age with a fever in the last two weeks for whom advice or treatment was sought	55	59	51
% Children <5 years of age with a fever in the last two weeks who had a finger or heel stick	N/A	26	34
% Children receiving an ACT among children <5 years of age with a fever in the last two weeks who received any antimalarial drug	6	77	77
% Women who attended 4 ANC visits during their last pregnancy	N/A	N/A	61
% Women who received three or more doses of IPTp during their last pregnancy in the last two years	3	19	38
Children <5 years of age mortality rate per 1,000 live births	118	91	68
% Children <5 or age with parasitemia by microscopy	N/A	10	N/A
% Children <5 years of age with parasitemia by RDT	31	14	14

DHS: Demographic and Health Survey, *Inquérito de Indicadores Múltiplos e de Saúde* (IIMS); Malaria Indicator Survey (MIS)

Figure 3. ITN Use:Access Ratio Map



Source: DHS 2015–2016 Report

Table 6: Evolution of Key Malaria Indicators Reported through Routine Surveillance Systems

Community-level data are integrated into the broader HMIS, and these numbers are inclusive of both community- and health facility-level data.

Indicator	2017	2018	2019	2020	2021
# All-cause patient consultations	18,513,645	21,784,513	28,921,473	24,921,960	27,976,314
# Suspect malaria cases ¹	8,119,298	10,870,446	13,531,799	14,221,626	15,624,710
# Patients receiving diagnostic test for malaria ²	7,493,969	10,092,761	13,055,989	13,659,484	14,816,478
Total # malaria cases ³	4,500,221	5,928,260	7,051,349	7,901,323	9,169,267
# Confirmed cases ⁴	3,874,892	5,150,575	6,575,539	7,349,181	8,325,921
# Presumed cases ⁵	625,329	777,685	475,810	552,142	843,346
% Malaria cases confirmed ⁶	86.1%	86.9%	93.3%	93.0%	90.8%
Test positivity rate (TPR) ⁷	51.7%	52.0%	50.4%	53.8%	53.3%
Total # children <5 years of age malaria cases ⁸	1,588,112	2,077,660	2,722,463	3,090,312	2,982,491
% Cases in children <5 years of age ⁹	35.3%	53.0%	38.6%	39.1%	32.5%
Total # severe cases ¹⁰	396,209	392,439	383,259	446,259	456,707
Total # malaria deaths ¹¹	13,967	11,814	7,923	11,757	13,676
# Facilities reporting ¹²	2,938	2,950	2,952	3,150	3,163
% Data completeness ¹³	82.3%	81.6%	81.9%	84.0%	90.6%

1 Number of patients presenting with signs or symptoms possibly due to malaria who were tested for malaria either through RDT or microscopy and the presumptive diagnosis; 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 "cases hospitalized for malaria" disaggregated by age groups (children under five years of age, 5 to 14 years of age, and +15 years of age) through the health facility's form sent monthly to the municipality level where it's uploaded into DHIS2 platform; 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 7: Disaggregated Community-Level Data

Indicator	2019	2020	2021
# Patients receiving diagnostic test for malaria from a CHW	Not available	987,787	170,574
Total # of malaria cases reported by CHWs ¹	Not available	751,275	112,309
% of CHW reported cases (among total malaria cases) ²	Not available	9.5%	1.2%

1 Includes all ages, confirmed and unconfirmed.

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

The number of ADECOS/CHWs in 2020 were 1,388 and 138 in 2021, which explains the decrease in the ADECOS reporting rate. The decrease in the number of malaria community cases reported by ADECOS from 2020 to 2021 was due to the phasing out of the Global Fund Project from seven provinces where they supported implementation of 1,250 CHWs in 24 municipalities down to two new provinces with 22 districts. ADECOS activities were not carried out in 2021 as planned and only occurred in four districts of Global Fund in Benguela province. PMI scaled up implementation of community case management from four districts to 14, absorbing 226 ADECOS previously supported by the Global Fund, in the last quarter of calendar year (CY) 2021. Since training was required prior to implementation, this delayed the restart of community case management in those districts. In sum, the community level data reported in CY 2021 were mainly ADECOS supported by PMI equaling 138 ADECOS in four districts, and later in the year included 120 ADECOS from four districts supported by the Global Fund.

V. OTHER IMPLEMENTATION INFORMATION

Therapeutic Efficacy Studies (TES)

The effectiveness of ACTs is monitored regularly every two years in Angola, usually by the NMCP with strong support from the U.S. Centers for Disease Control and Prevention (CDC). AL has shown efficacy less than 90 percent in Zaire in 2017 and in Lunda Sul in 2019, leading PMI to only procure AS/AQ. Capacity of the NMCP, together with the National Institute for Health Research, to lead the TES in 2021 was accelerated by the COVID-19 pandemic context and the inability of (CDC) to provide direct support to implementation. This success has led to improving the sustainability of timely and regular antimalarial efficacy monitoring in Angola. Preliminary data from 2021 TES, not yet PCR corrected, showed AL efficacy below 90 percent (77 percent in Zaire and 86 percent in Lunda Sul) and AS/AQ efficacy below 90 percent in Zaire province (80 percent) and 100 percent in Lunda Sul. Pyronaridine-artesunate (PA) showed efficacy below 90 percent (86 percent) and DP showed efficacy of 98 percent in Benguela province.

Planned next steps for continued capacity building to allow Angola to independently implement the biannual TES including a south-south collaboration with Manhica Health Research Center in Mozambique to allow trained Angolan laboratory technicians to perform molecular analyses with Mozambican colleagues using the Angola TES 2021 samples.

Table 8: 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
2019 ¹	Benguela	AL	98% (96, 100)
2019 ¹	Benguela	AS/AQ	100%
2019 ¹	Zaire	AL	92% (87, 98)
2019 ¹	Zaire	AS/AQ	96% (91, 100)
2019 ¹	Lunda Sul	AL	88% (81, 95)

Year	Site	Treatment arm(s)	Efficacy (PCR-corrected adequate clinical and parasitological result) for each drug at each site
2019 ¹	Lunda Sul	AS/AQ	100%
2021	Benguela	PA, DP	TBD
2021	Zaire	AL, ASAQ	TBD
2021	Lunda Sul	AL, ASAQ	TBD

PCR = polymerase chain reaction; AL = artemether-lumefantrine; ASAQ = artesunate-amodiaquine; DP = dihydroartemisinin-piperaquine; As-Pyr = artesunate-pyronaridine; TBD = to be determined

1 Dimbu PR, Horth R, Cândido ALM, Ferreira CM, Caquece F, Garcia LEA, André K, Pembele G, Jandondo D, Bondo BJ, Nieto Andrade B, Labuda S, Ponce de León G, Kelley J, Patel D, Szigel SS, Talundzic E, Lucchi N, Morais JFM, Fortes F, Martins JF, Pluciński MM. Continued Low Efficacy of Artemether-Lumefantrine in Angola in 2019. *Antimicrob Agents Chemother.* 2021 Jan 20;65(2):e01949-20. doi: 10.1128/AAC.01949-20.

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

VI. KEY POLICIES

Table 9: Policies in Angola

National Strategic Plan (2021-2025)	
National Surveillance, Monitoring, and Evaluation Plan (2022-2025)	
National Social Behavior Change/Communication Strategy (2017-2020)	
National Supply Chain Strategy/Master Plan (2016-2021)	
National Vector Control Strategy and/or Integrated Vector Management Plan (2020-2024)	
National Guidelines for Diagnosis and Treatment of Malaria (2022)	
Insecticide Monitoring and Resistance Plan (2019)	
What is/are the first-line treatment(s) for uncomplicated <i>P. falciparum</i> malaria*?	AL AS/AQ

	Dihydroartemisinin + Piperaquine (DHA + PPQ)
What is/are the second-line treatment(s) for uncomplicated <i>P. falciparum</i> malaria*?	Angola only has the recommended ACTs and any of the first-line available can be used to treat uncomplicated malaria.
What is/are the first-line treatment(s) for uncomplicated <i>P. vivax</i> malaria?	ACT (one of the first-line treatments above) plus Primaquine 15 mg / daily for 14 days
What is the first-line treatment for severe malaria?	Artesunate intravenous (IV) or intramuscular (IM)
In pregnancy, what is the first-line treatment for uncomplicated <i>P. falciparum</i> malaria in the <u>first trimester</u> ?	Oral Quinine+Clindamycine
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 DHA + PPQ
What is/are the first-line treatment(s) for <i>P. vivax</i> malaria during pregnancy?	ACT (AL, AS/AQ or DHA)
In pregnancy, what is the first-line treatment for severe malaria?	Injection Artesunate (IV or IM)
Is pre-referral treatment of severe disease recommended at peripheral health facilities? If so, with what drug(s)?	Artemether IM Artesunate suppository 100mg
Is pre-referral treatment of severe disease with rectal artesunate recommended for community health workers?	Yes (currently being piloted)
Community Health Policy (2016)	
What is the # of CHWs currently providing iCCM?	At present (July 2022) 441 ADECOS (364 supported by PMI, 77 by SADC E8) An additional 660 ADECOS supported by the Global Fund project are currently being trained and will start carrying out community case management in the upcoming months making a total of 1,101 ADECOS and 120 from

	Southern African Development Community Elimination 8.
What is the country's target for the number of CHWs providing iCCM?	1,080 ADECOS in the first phase of implementation and 14,100 ADECOS by 2025 to reach all rural vulnerable people.
What percent of the country's target is met?	7.8 percent (1,101 out of 14,100 by the end of 2022)
Does the country have a policy that enables the routine, regular payment of salaries/stipends for CHWs?	Yes, the policy is called <i>Política Nacional dos Agentes de desenvolvimento Comunitário e da Saúde</i> or the National Policy of Community Health and Development Agents
Do CHWs have the authority to test and treat all ages for malaria?	Yes, but in two provinces community case management is only being done for children under five years of age.
Prevention of MIP Policy (National Diagnosis and Treatment Guidelines and Manual for the Prevention and Treatment of Malaria in Pregnancy, 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?	13th week of gestation
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, reflect the WHO 2016 recommendation of at least eight ANC contacts.
What is the status of training ANC providers on the WHO recommended 8+ contacts?	The current National Diagnosis and Treatment Guidelines (2022) and the Manual for the Prevention and Treatment of Malaria in Pregnancy (2022) and the e-training platforms include an orientation package for health workers used for training ANC providers to encourage at least eight contacts.
Have HMIS/DHIS2 and ANC registers been updated to include 8+ contacts?	The Angolan HMIS/DHIS2 have been updated to include at least eight contacts. The ANC registers are not updated to include at least eight contacts and reflect more than four ANC visits.
Are IPTp data collected as single months where the January 2022 data represent the number of doses administered in January 2022, or cohort data,	IPTp data is collected as single months representing the number of doses administered for each category (IPTp1, IPTp2,

representing the cumulative data from pregnancies which began 6 months prior?	IPTp3 and IPTp4 or more).
Is ANC/IPTp provided by facility staff conducting ANC outreach to communities?	No, IPTp is not implemented through facility staff conducting ANC outreach to communities
Can CHWs deliver IPTp and if so, which specific cadres and beginning with which dose?	No; But the NMCP has expressed an interest in piloting community-based IPTp in the near future.

VII. PARTNER LANDSCAPE

The NMCP recognizes the importance of partner alignment for malaria control, emphasizing that different partners bring complementary expertise and resources.

The table below summarizes contributions by key external partners and partner country governments in CY 2021–2024, providing insight into total country investments. Because new grants funded through the Global Fund 2021–2024 grant cycle are in progress (in the provinces of Benguela and Cuanza Sul), and MOH is in the process of submitting the Prioritized Above Allocation Request for extension to the provinces of Bie and Cuando Cubango, Global Fund country investments may still increase. 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 host government without a standardized method. There may be similar challenges in attributing other partners’ funding levels.

The U.S. government and NMCP remain strongly committed to continue its push for additional private sector engagement. A success worth highlighting is the developed key sustained and effective partnerships with the private sector (e.g., largest mobile service provider of Angola UNITEL, commercial bank *Banco Fomento de Angola*, and ExxonMobil) an illustration of the combined engagement on malaria control. The public private partnership with UNITEL leverages technology and workforce in support of the national malaria control efforts, such as the national ITN campaigns and the transition to digital data systems. It also includes engaging target populations with malaria-specific behavior change messages via channels such as SMS, TV, and radio. UNITEL also provides URLs for the deployment of the PMI-supported health management information system (DHIS2) as well as access to the on-line health workers training platform (KASSAI).

Under its corporate social responsibility, ExxonMobil, through its Block 15 and ExxonMobil Foundation, continues to be a key and reliable GRA partner in support of

the reduction of malaria cases and decrease of malaria-related morbidity supporting malaria prevention and the National Malaria Partners Forum. Complementary to this ongoing effort, *Banco Fomento de Angola* has left its footprint in support of the national ITN campaign operations cost in the six PMI focus provinces.

The key partners within the public sector which support NMCP on behavior change messages dissemination are the national public television station (TPA) and the national public radio (RNA) where both regularly air free (under public service announcements approaches) malaria spots nationwide conveying the three target malaria prevention messages.

Table 10: Partner Landscape

Partner	Key technical interventions	Geographic coverage	Funding amount or in-kind contribution	Timeframe
Global Fund	<ul style="list-style-type: none"> • Support for ITN mass campaign in 2022 followed by continuous distribution • Procurement ACT and RTD needs for both community and facility level, injectable artesunate, and SP • Case management • Entomological monitoring • Cross-cutting HSS 	Benguela and Cuanza Sul province	\$31 million	June 2021 to May 2024
Government of Angola	<ul style="list-style-type: none"> • Vector control • Case Management • IPTp-MIP • Surveillance, monitoring and evaluation and research • Cross-cutting HSS 	Countrywide	N/A	Not available
ExxonMobil	<ul style="list-style-type: none"> • Malaria prevention and control activities 	Six PMI-focus provinces (Cuanza Norte, Lunda Norte, Lunda Sul, Malange, Uige and Zaire)	\$500,000	2020-2022

Partner	Key technical interventions	Geographic coverage	Funding amount or in-kind contribution	Timeframe
Southern African Development Community Elimination 8	<ul style="list-style-type: none"> • IRS (up until 2022) • Case Management at community level • Surveillance at health facility and Community levels 	<p>Cunene province (Curoca, Ombadaja, Namacunde districts)</p> <p>Cuando Cubango province (Rivungo, Cuangar, Dirico and Calai districts)</p>	\$2.7 million	October 2021 - September 2024
UNITEL	<p>Allows DHIS2 users to access the platform for free as long as the SIM card is valid.</p> <p>2022 ITN mass campaign: Free Application Access; ITN procurements Smartphones for activists</p>	Countrywide	N/A	Not available
BFA (Banco de Fomento Angola)	Co-financing of 2022 ITN mass campaign	Six PMI-focus provinces (Cuanza Norte, Lunda Norte, Lunda Sul, Malange, Uige and Zaire)	\$50,000	2022