

## ETHIOPIA 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. Ethiopia began implementation as a PMI partner country in FY 2008. Please see the [Ethiopia Malaria Operational Plan](#) for more information on PMI's approach and investments.

### II. CONTEXT

Ethiopia is located in the Horn of Africa bordering six countries: Eritrea, Djibouti, Somalia, Kenya, South Sudan, and Sudan. The country has an area of 1.1 million sq. kms with an altitude ranging from 4,620 meters above sea level at Ras Dashen Mountain to 148 meters below sea level at the Danakil (Dallol) Depression. More than half of the country lies above 1,500 meters.

According to the Ethiopian National Malaria Strategic Plan (NMSP) the population of Ethiopia was 102.8 million in 2020. Out of this, about 52 percent of the population lived in areas at risk of malaria. In Ethiopia, malaria is highly seasonal and unstable, with epidemic-prone transmission patterns in many parts of the country. *Plasmodium falciparum* (~65 percent) and *P. vivax* (~35 percent) are the major malaria parasites. The highest malaria burden regions are usually areas of stable and intense malaria transmission with altitudes below 1,000 meters located mainly in areas of Gambela, Benishangul-Gumuz, Western Oromia, Amhara, some parts of South Nations, Nationalities and Peoples (SNNP), and Tigray Regions.

In Ethiopia, malaria remains one of the major public health and socioeconomic problems despite its dramatic reduction in the last two decades. Over the last 10 years, reports show that malaria cases decreased from 5.5 million to less than 1 million in 2019. The deaths also decreased from 3,000 in 2010 to 212 in 2021. However, in 2021, the District Health Information Surveillance 2 (DHIS2) report shows that malaria cases in Ethiopia have increased by 55 percent compared to the 2019 data (confirmed malaria

cases in 2019 was 904,495 while in 2021 it was 1,398,750). According to the last Malaria Indicator Survey (MIS) in 2015, the parasite prevalence in Ethiopia was 0.5 percent by microscopy and 1.2 percent by rapid diagnostic tests (RDT) for areas below 2,000 meters and less than 0.1 percent prevalence above 2,000 meters. Data triangulation with previous Public Health Emergency Management and malaria micro-planning reports indicate that more than 80 percent of the malaria burden in Ethiopia is among adults and children who are at least five years of age. Population mobility, mainly seasonal migration, is one of the key drivers of malaria transmission in Ethiopia.

Based on available evidence (Federal Ministry of Health, 2017) there were an estimated 1.8 million seasonal migrant workers annually. However, this figure is believed to have increased with recent megaprojects that host a high number of migrant laborers, including the Great Ethiopian Renaissance Dam and large-scale sugar cane plantations and sugar factories.

The great majority of migrant workers often travel from the high- and mid-altitude areas with relatively low malaria risk to the lowland areas with high malaria risk largely located in Gambella, Benishangul Gumuz, Western Tigray, and Western Amhara. Studies indicate that seasonal migrant workers are at higher risk of malaria compared to the general population. Migrant workers can also expose their local population to the risk of malaria infection when they return home, increasing the potential for malaria outbreaks in the local community. According to the study done by Schiker et al in 2015, the prevalence of malaria was at 53.6 percent among returnee migrant workers from 41 health posts in six districts of Amhara region. Risk factors for malaria among migrant workers include poor housing conditions (grass roofs, open eaves, and houses remaining open day and night as well as those sleeping outside of their house). Currently, there are no preventive measures available and migrant workers have limited access to malaria diagnosis and treatment services in farm-based settings. Furthermore, public health facilities do not take migrant workers into consideration in their planning for malaria services, and there is limited transportation from the farms to health facilities. Most migrant workers seeking employment travel during the peak malaria transmission season making it critical to reduce the risk of transmission at the farms (the source) through enhanced prevention, including long-acting antimalarial drugs and prompt case management. This also includes reducing the risk of importing malaria back to their homes by clearing infections prior to their departure for home or immediately upon their return home.

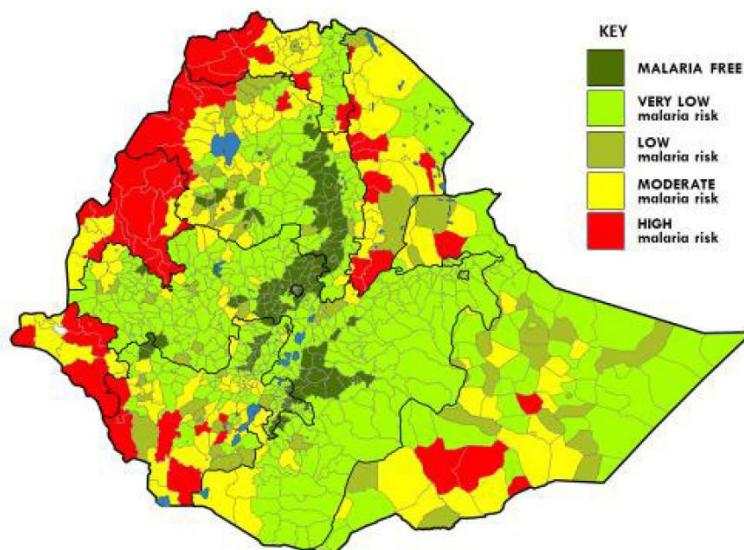
**Table 1: General Demographics and Malaria Situation**

<b>Population</b>	102,850,793 (Ethiopia NMSP, 2021)
<b>Population at risk of malaria</b>	53,577,865, (Ethiopia NMSP, 2021)
<b>Malaria prevalence</b>	0.5 percent (Ethiopia National MIS, 2015)
<b>Malaria incidence/1,000 population at risk</b>	23.4 (Federal Ministry of Health Annual Performance Report, FY 2021)
<b>Peak malaria transmission</b>	September to December

## **STRATIFICATION**

In 2020, in response to the strategic direction of scaling-up of elimination efforts, the National Malaria Elimination Program (NMEP) revised and updated the stratification of malaria risk into different operational strata to fit with the priority that the country had embarked on. A total of 20,831 *kebeles* (smallest administrative unit) and 154,000 enumeration areas were used for the stratification purposes. Accordingly, based on annual parasite index (API) per 1,000 population (per the World Health Organization [WHO] recommendation) plus altitude and expert opinions, a new malaria stratification was developed in 2020. This resulted in stratification of areas in five malaria strata as follows: high, medium, low, very low, and malaria-free areas. Based on this stratification of API in 2020, 4.8 percent of the population of Ethiopia lived in high malaria burden areas where malaria API is above 50/1,000; 13.1 percent lived in moderate malaria burden areas where malaria API is between 50 and 10/1,000; 4.9 percent lived in low malaria burden areas where malaria API is between 10 and 5/1,000; 29.3 percent lived in very low malaria burden areas where malaria API is between 0 and 5/1,000; and 47.9 percent lived in malaria-free areas where malaria API is zero.

**Figure 1: Malaria Risk Map of Districts Categorized by Annual Parasite Index, Ethiopia, 2020**

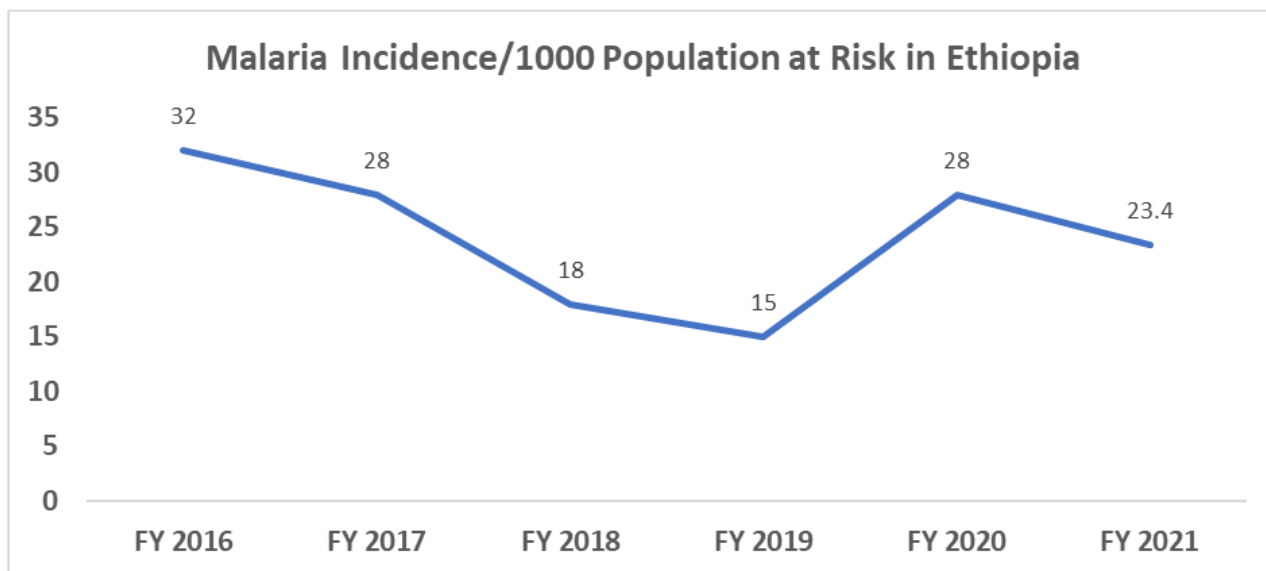


**Table 1: Malaria Stratification with Estimated Population Distribution**

Malaria Strata	Annual Parasite Index (case/1,000)	Population (2020)	% Population	No. of Woreda	% Woreda
Free	0	49,272,928	47.9	236	22.6
Very low	>0 & <5	30,168,016	29.3	485	46.4
Low	>=5 & <10	4,999,818	4.9	80	7.6
Moderate	>=10 & <50	13,480,217	13.1	177	16.9
High	>=50	4,929,814	4.8	68	6.5
Total		102,850,793	100%	1,046	100%

Source: NMEP, June 2020

**Figure 2: Trends in Malaria Incidence**



Source: Federal Ministry of Health Annual Performance Report FY 2012/13

**Table 2: Malaria Parasites and Vectors**

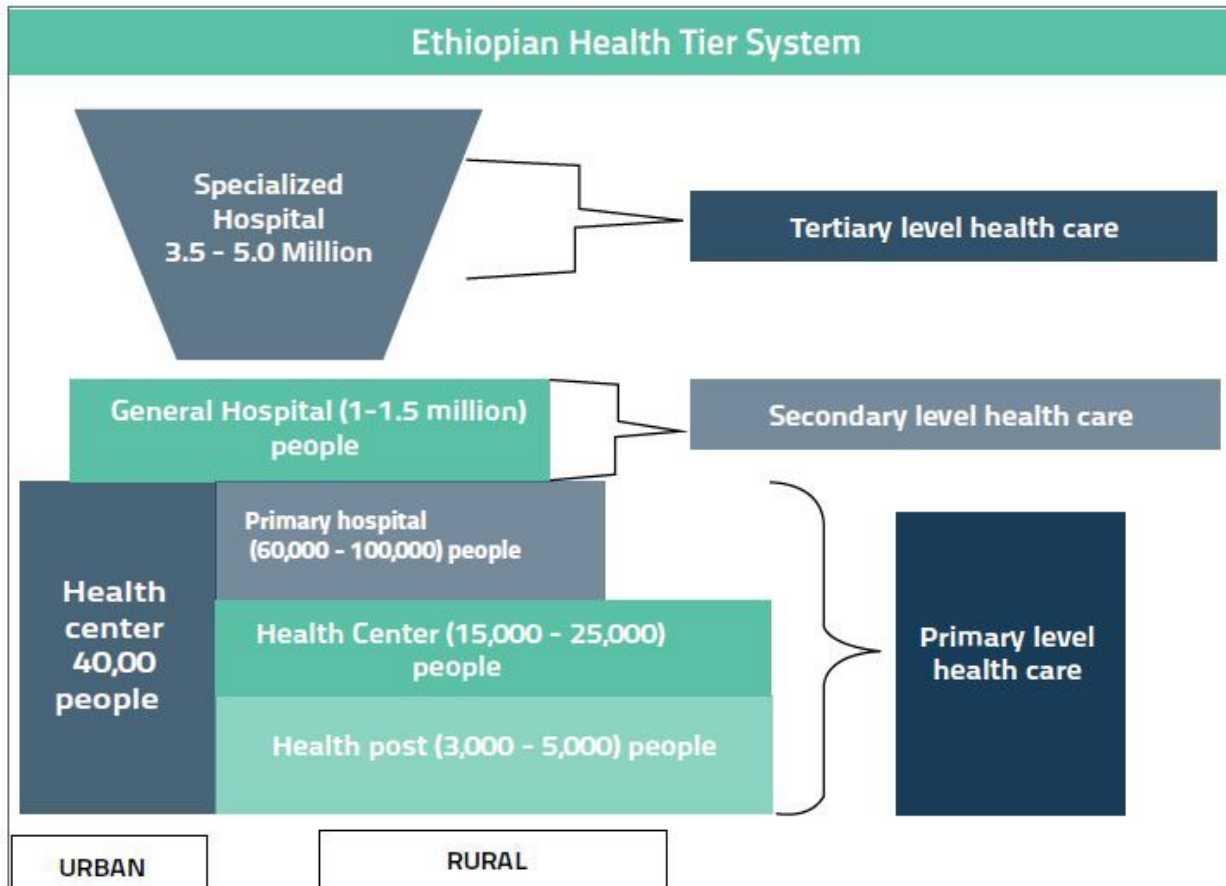
<b>Principal Malaria Parasites</b>	<i>Plasmodium falciparum</i> (65%) and <i>P. vivax</i> (35%) (NMSP 2021)
<b>Principal Malaria Vectors*</b>	<i>An. arabiensis</i> (NMSP 2021), <i>An. funestus</i> , <i>An. pharoensis</i> , <i>An. nili</i> , <i>An. stephensi</i> (emerging vector)

\*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

The health system in Ethiopia is organized into a three-tier system: the primary health care unit consists of a primary hospital, health centers, and health posts, which together serve between 600,000 and 1 million people; secondary level care has a catchment population of 1.5 million; and tertiary level care has a catchment population of approximately 5 million people. The majority of public preventive, promotive, and basic curative health services are offered at the primary health care unit, where PMI support is focused.

**Figure 3: Schematic of Ethiopia’s Three-Tiered Public Medical Services**



The health post is managed by health extension workers (HEWs). The Health Extension Program (HEP) is now the cornerstone of the government’s national program for delivery of primary health care, improved pre-service education and in-service training, recruitment, and deployment of other health professional cadres, strengthened systems for essential commodities, medical equipment and supplies, increased availability, and use of health information for evidence-based practices. Ethiopia has achieved substantial progress in improving health outcomes during the past two decades. These achievements were mainly realized after the expansion of primary health care services to households and communities through the implementation of the HEP. The program was launched in 2003 in selected regions and was later tailored to all the regions in 2006 and to urban areas in 2009. A health post is managed by at least two HEWs while a health center has at least two health officers, at least four nurses, and at least one laboratory and pharmacy personnel. In 2020, given the importance of the HEP framework for public health services, the Ethiopian Ministry of Health (MOH) developed

a roadmap optimizing the Ethiopian HEP 2020–2035.<sup>1</sup> In 2018, health worker density was estimated at 1.0 per 1,000 population (considerably lower than the 4.5 per 1,000 population standard proposed by WHO to achieve universal health coverage). The inadequate skill mix of health professionals is another issue; there is a relatively high number of nurses but a shortage of medical doctors, midwives, anesthetists, pharmacists, and medical laboratory technologists. To address this, MOH and the Ministry of Education have committed to scaling up health professional training in public and private universities and colleges.

### **Health Care Costs and Affordability**

According to the Health Sector Transformation Plan (HSTP-II),<sup>2</sup> by 2015 a number of measures were undertaken to enhance health financing and improve the coverage and quality of health services. To mobilize resources for health and protect people from financial hardship, the government implemented several interventions, including provision of a fee waiver for high-impact interventions through an exemptions program, subsidization of more than 80 percent of the cost of care in government health facilities, implementation of community-based health insurance schemes, and full subsidization for the very poor through fee waivers both for health services and community-based health insurance premiums.

According to the 8th National Health Account, 5.3 percent of the national health spending is consumed by malaria. The National Malaria Elimination Strategy 2021–2025 states that malaria services, including diagnosis, treatment, insecticide-treated mosquito nets (ITNs), and indoor residual spraying (IRS) are all provided free of charge to the community. Most of the malaria costs are covered by donor funding, including procurement of drugs, diagnostics, ITNs, and insecticides for IRS.

### **Deployment of RDTs and Microscopy**

In Ethiopia, multispecies RDTs that can detect *P. falciparum* and *P. vivax* are used at health post level to diagnose malaria while microscopy is used at the health center and hospital level to diagnose malaria. Microscopy is also recommended to be used at medium and higher private clinics. According to Service Availability and Readiness Assessment (SARA)–2018, 62 percent of the health posts were using RDTs, and 72 percent of the health centers and 97 percent of the hospitals used microscopy. Similarly, 97 percent of medium clinics and 58 percent of higher clinics were using microscopy to diagnose malaria.

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<sup>1</sup> [A Roadmap for Optimizing the Ethiopian Health Extension Program 2020-2035](#)

<sup>2</sup> [HSTP-II 2020/21-2024/25](#)



## Health Supply Chain and Pharmaceutical Management System

Malaria and other health commodities are managed under the leadership of the Federal Ministry of Health and the technical oversight of the Ethiopian Pharmaceutical Supply Service (EPSS), which is mandated to procure, warehouse, and distribute medicines and medical supplies destined for consumption at public health facilities. Together with donors and in-country stakeholders, the EPSS strives to ensure consistent availability of malaria commodities at service-delivery points nationwide.

Malaria commodities in Ethiopia are primarily procured with PMI and Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) resources. Upon arrival in Ethiopia, malaria commodities are warehoused and distributed through EPSS with significant financial support from donors. Annual malaria quantification exercises are led by the EPSS in consultation with the NMEP, PMI, Global Fund, and other key in-country stakeholders with the final report informing PMI malaria operational planning, Global Fund grant writing, and in-country supply planning.

The supply chain and pharmaceutical management information flows through the Integrated Pharmaceutical Logistics System. Malaria commodities are reported and ordered every two months by hospitals and health centers and delivered by the EPSS to facilities directly or indirectly. Direct delivery sites are facilities that receive malaria commodities directly from EPSS regional hubs whereas non-direct delivery sites are health centers that receive products from regional hubs through *woreda* health offices. Health posts staffed by community health workers (CHWs) report to health centers monthly and collect products from those health centers. The health centers then use the data in the health post report to calculate consumption and resupply quantities.

PMI has been supporting the roll-out of an electronic logistics management information system, but at this stage it has been implemented in relatively few sites, with the vast majority of facilities reporting through a paper-based system. Based on this reporting, Ethiopia has seen a reduction in health center stockouts for artemisinin-based combination therapy (ACTs) and RDTs since the beginning of 2021 with both products being stocked out at less than 10 percent of facilities. RDTs reached the 5 percent stockout target this year set through PMI's Stockout Reduction Strategy, but improvements in the reduction of ACT stockouts has been slower due to facilities not requesting a full resupply of artemether-lumefantrine (AL) when they have at least one other presentation available. Additionally, while there were stockouts of individual AL presentations, reporting showed that Ethiopia's health facilities have consistently been able to treat patients with less than 1 percent reporting being stocked out of all AL presentations.



## **Health Management Information System (HMIS)**

During the first HSTP period (2016–2020), the health sector worked toward enhancement of evidence-based decision-making primarily through the development and implementation of the Information Revolution Road map and Information Revolution model district strategy. At the end of the HSTP-I period, the reporting completeness reached more than 89 percent. In terms of digitalization, 3,605 health institutions have been connected to the Health DHIS2, which is a digital HMIS for the collection, storage, validation, analysis, and presentation of routine data; has been implemented in more than 95 percent of public health institutions, Electronic Community Health Information System (eCHIS) implementation was started; and digital standard systems such as Master Facility Registry were developed and implemented. The objective of the current national Health Information System strategy (2021 to 2025) is to improve evidence-based decision-making by ensuring availability, access, and use of quality data that positively impact on access, quality, and equity of health care delivery at all levels. Some of the targets include increasing the information use index from 52 percent to 85 percent, increasing the proportion of health institutions that have functional Performance Monitoring Teams to 100 percent, improving report timeliness and completeness to more than 95 percent, increasing DHIS2 implementation at private health facilities from 1 percent to 25 percent, increasing eCHIS implementation to 50 percent of health posts, and increasing birth notification from 35 percent to 80 percent and death notification from 3.4 percent to 35 percent.

In general, PMI supports the smooth implementation of the Health Information System strategy through the support of DHIS2 data completeness and timeliness as well as improved use of quality data for decision-making through Regular Data Quality Assurance. Specifically, PMI supported eCHIS roll-out and module development, which was designed based on the national guidelines and manuals. The eCHIS is envisioned to improve the performance of the HEWs in Ethiopia. Additionally, support was provided on the maintenance and use of the Health Commodity Management Information System dashboard, including mBrana for ITNs tracking and the launching of Dagu 2.1, a web-based logistics system, which provides real-time consumption data at the health facility level to strengthen last mile delivery and ensure adequate stock on hand through automated alerts system.

## **OTHER CONTEXTUAL INFORMATION**

In the past years, Ethiopia has experienced sporadic ethnic conflicts occurring in different areas. However, there has been an intense civil war since November 2020 affecting the northern part of the country, specifically Tigray, Afar, and Amhara regions, which has led to high displacement of individuals and disruption of health care services in some parts of the country. By February 2022, there were approximately 5.8 million

internally displaced persons in Ethiopia, primarily due to the northern conflict and other regional ethnic conflicts. According to the assessments conducted by the MOH and partners, there were about 1,436 facilities devastated by the northern Ethiopia conflict and out of this, 22 were hospitals, 271 health centers, and 1,143 health posts. The assessment also showed that most of the health facilities were stocked out of antimalarial medicines and the majority of health facilities did not have microscopes because of looting. In addition, reagents, consumables, registers, formats, spray pumps, and other equipment were looted or destroyed. There was also serious damage to the infrastructure of the health facilities. The conflict has severely affected the control and elimination of malaria in Ethiopia and PMI Ethiopia is working with other partners in the health sector to increase access and availability of malaria prevention and control services. In addition, at the same period, there were approximately 789,000 international refugees in Ethiopia with the majority living in malarious areas.

### **III. NMEP STRATEGIC PLAN**

The current Ethiopia NMSP 2021–2025 envisions a malaria-free Ethiopia by 2030 and aims to reduce malaria-related morbidity and mortality nationally while pursuing district-level malaria elimination. Specifically, the NMSP proposes to reduce malaria morbidity and mortality by 50 percent from 2020 baselines and eliminate malaria in districts with an API less than 10 by 2025. According to the 2020 stratification, there were 565 districts with an API of less than 10. By March 2022, a total of 565 districts were selected for elimination in Ethiopia. The criteria for identifying districts for additional malaria elimination support included: selecting districts with low or very low malaria transmission (API less than 10), including districts with API more than 10 if they are adjacent to elimination districts, availability of district level surveillance data, high coverage of vector control interventions, adequate access to treatment, limited cross-border population movement, and logistical feasibility.

#### **STRATEGIC OBJECTIVES**

1. By 2025, achieve adoption of appropriate behavior and practices towards antimalarial interventions by 85 percent of households living in malaria endemic areas.
2. By 2021 and beyond, conduct confirmatory testing for 100 percent of suspected malaria cases and treat all confirmed cases according to the national guidelines.
3. By 2021 and beyond, cover 100 percent of the population at risk of malaria with one type of globally recommended vector control interventions.

4. By 2021 and beyond, conduct case or foci investigation, classification, and response in districts currently having API less than 10 and prevent reintroduction of malaria into areas reporting zero indigenous malaria cases.
5. By 2021 and beyond, generate 100 percent evidence that facilitates appropriate decision-making.
6. By 2021 and beyond, build capacity of all levels of the health offices to coordinate and implement malaria elimination interventions.

The NMSP is fully aligned with policies, guidance, and evidence at global, regional, and national levels and takes into consideration recent developments. After two years of implementation, PMI Ethiopia is exploring options for a subnational stratification and a possible malaria program review to document successes and identify challenges which might require pivots and adaptations to improve impact.

## IV. KEY MALARIA DATA

### EVOLUTION OF KEY SURVEY-BASED MALARIA INDICATORS

**Table 3: Key Survey Indicators**

Indicator	2007 MIS	2011 MIS	2015 MIS	2014 Mini-survey*	2019 Mini-survey*
% Households with at least one ITN	65	55	64	65	67
% Households with at least one ITN for every two people	37	24	32	39	40
% Population with access to an ITN	N/A	N/A	49	N/A	48
% Population that slept under an ITN the previous night	N/A	25	40	43	44
% Children <5 years of age who slept under an ITN the previous night	41	38	45	51	52
% Pregnant women who slept under an ITN the previous night	43	35	44	59	62
% Children <5 years of age with a fever in the last two weeks for whom advice or treatment was sought within 24 hours	16	51	38**	N/A	64

Indicator	2007 MIS	2011 MIS	2015 MIS	2014 Mini-survey*	2019 Mini-survey*
% Children <5 years of age with a fever in the last two weeks who had a finger or heel stick	N/A	17	17	N/A	N/A
% 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	29	89	N/A	N/A
% Women who attended 4 ANC visits during their last pregnancy	N/A	N/A	N/A	32	43
% Women who received three or more doses of Intermittent preventive treatment for pregnant women (IPTp) during their last pregnancy in the last two years	N/A	N/A	N/A	N/A	N/A
Children <5 years of age mortality rate per 1,000 live births	N/A	N/A	N/A	67	59
% Children <5 of age with parasitemia by microscopy	0.6	1.3 <sup>†</sup>	0.6	N/A	N/A
% Children <5 years of age with parasitemia by RDT	1.7	4.5 <sup>†</sup>	1.4	N/A	N/A

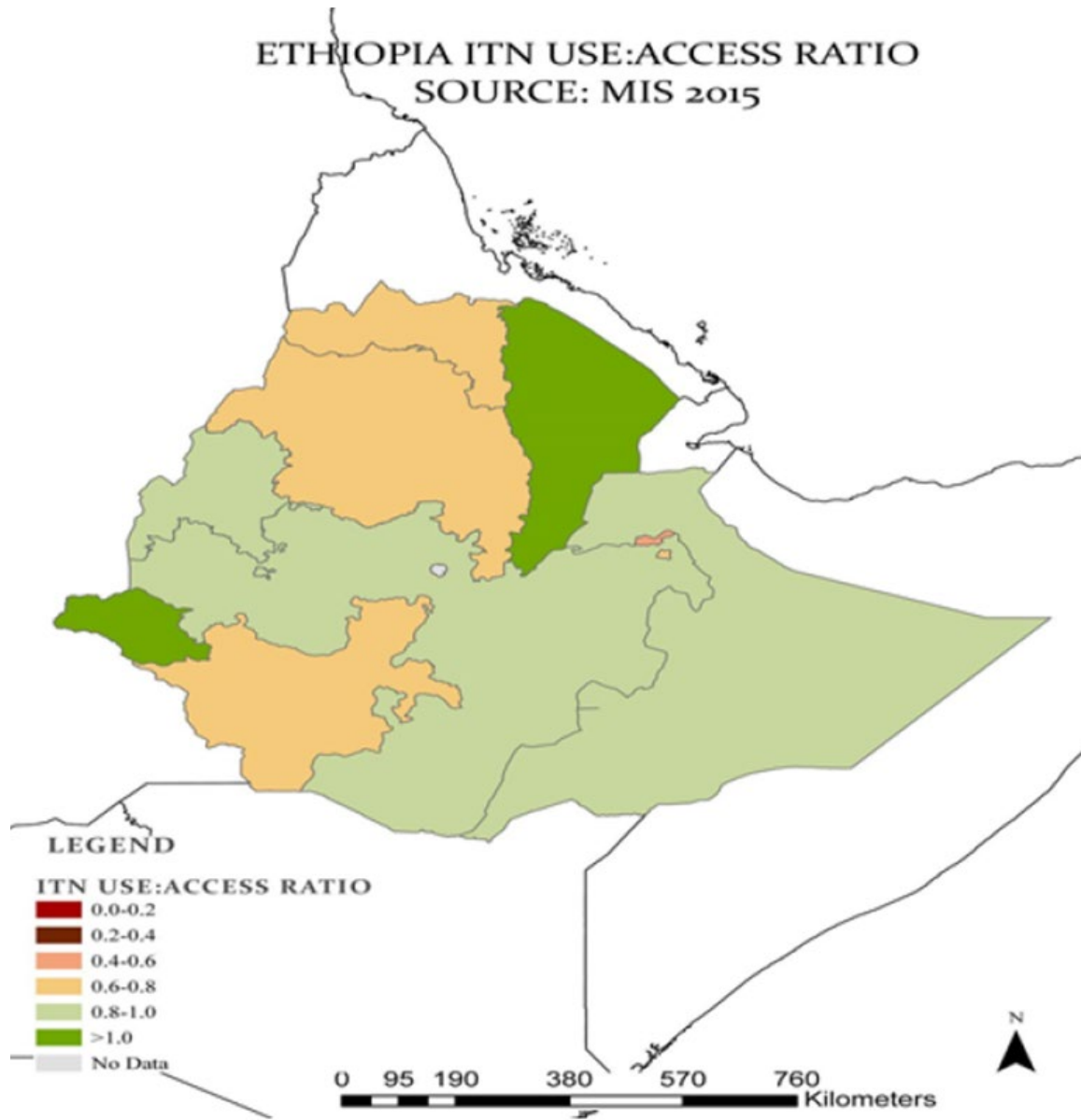
DHS: Demographic and Health Survey (DHS); MICS: Multiple Indicator Cluster Survey; MIS: Malaria Indicator Survey

\*The 2014 and 2019 mini surveys were post-ITN distribution cross-sectional, household surveys that were implemented using a standardized questionnaire.

\*\*Seeking care not limited to within 24 hours.

†In all ages.

Figure 4: ITN Use:Access Ratio Map



Source: MIS, 2015

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

Indicator	2017	2018	2019	2020	2021
# All-cause patient consultations	N/A	47,251,175	91,663,455	102,963,078	111,133,602
# Suspect malaria cases <sup>1</sup>	N/A	N/A	N/A	N/A	N/A
# Patients receiving diagnostic test for malaria <sup>2</sup>	6,246,949	6,115,025	5,655,309	6,873,798	5,515,043
Total # malaria cases <sup>3</sup>	1,755,748	1,206,891	993,999	1,509,182	1,220,027
# Confirmed cases <sup>4</sup>	1,530,739	989,182	904,495	1,398,750	1,135,338
# Presumed cases <sup>5</sup>	225,009	217,709	89,504	110,432	84,689
% Malaria cases confirmed <sup>6</sup>	87%	82%	91%	93%	93%
Test positivity rate (TPR) <sup>7</sup>	25%	16%	16%	20%	21%
Total # <5 malaria cases <sup>8</sup>	N/A	N/A	N/A	N/A	201,111
% Cases in children <5 years of age <sup>9</sup>	N/A	N/A	N/A	N/A	16.5%
Total # severe cases <sup>10</sup>	32,345	30,783	15,307	NA	19,140
Total # malaria deaths <sup>11</sup>	356	158	213	212	132
# Facilities reporting <sup>12</sup>	NA	131,226	241,953	244,077	234,581
% Data completeness <sup>13</sup>	NA	50%	93%	93%	89%

1 Number of patients presenting with signs or symptoms possibly due to malaria (this is not captured by DHIS2); 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 defined as admitted 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	1,104,409	1,268,485	1,300,715
Total # of malaria cases reported by CHWs <sup>1</sup>	412,553	470,493	416,092
% of CHW reported cases (among total malaria cases) <sup>2</sup>	25%	23%	25%

1 Includes all ages, confirmed and unconfirmed.

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

**Table 6: Key Elimination Indicators**

Indicator	2019	2020	2021
Total # of districts in Ethiopia	1,046	1,046	1,046
# of districts designated for elimination	239	239	565
Number of districts pursuing elimination	239	239	565
API	<10	<10	4.6
Test Positivity Rate (TPR)	22%	24%	21%
Proportion of cases investigated			80% (13,409/16,867)
Proportion of foci classified			N/A



## V. OTHER IMPLEMENTATION INFORMATION

**Table 7: Results of Durability Monitoring (May 2015 – May 2018)**

Site/Net Type	Survey and Time Since Distribution (months)	Attrition to Wear and Tear (%)	Nets in Serviceable Condition (%)	Optimal Insecticidal Effectiveness in Bioassay (%)
Tigray, Amhara, Oromia, and SNNP regions Standard ITNs	12	22	48.6	100
	24	39.1	39.6	95.3
	36	71.8	15.6	19.0

**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
2017 <sup>†</sup>	Pawe, Arbaminch	Pf/AL	>90%
		Pf/DP	>90%
		Pv/CQ	>90%
		Pv/DP	>90%
2019 <sup>†</sup>	Arbaminch, Abergele, and Bambasi	Pf/AL+ SD-PQ	>90%*
		Pv/CQ+ 14-PQ	>90%*
2020 <sup>†</sup>	Metehara, Shewarobit, Arbaminch, Hamusit	Pf/AL+ SD-PQ	N/A
		Pv/DP+ 14PQ	N/A
		Pv/PY+ 14PQ	N/A

PCR = polymerase chain reaction; AL = artemether-lumefantrine; DP = dihydroartemisinin-piperazine; CQ = chloroquine; N/A = not available; PQ = primaquine; PY: Pyramax (artesunate/pyronaridine); Pf: *Plasmodium falciparum*; Pv: *Plasmodium vivax*; SD = single-dose. AL, ASAQ, DP, and CQ have therapeutic efficacies above the 90% World Health Organization recommended threshold and are well-tolerated in Ethiopia.

<sup>†</sup>Funded by Global Fund

\*Reports not yet available for formal review of the methods.

<sup>1</sup>Ashenafi, A., Mohammed, H., Anand, A., Abera, A., Sime, H., Minta, A.A., Tadesse, M., Tadesse, Y., Girma, S., Berkele, W., Etana, K., Alemayehu, B.H., Teka, H., Dilu, D., Haile, M., Solomon, H., Moriarty, L.F., Zhou, Z., Svigel, S.S., Ezema, B., Halsey, E.S., Woyessa, A., Venkatachalam, U., Hwang, J., & Murphy, M. Therapeutic efficacies of artemether-lumefantrine and dihydroartemisinin-piperazine for the treatment of uncomplicated *Plasmodium falciparum* and chloroquine and dihydroartemisinin-piperazine for uncomplicated *Plasmodium vivax* infection in Ethiopia. Publication pending.

## VI. KEY POLICIES

**Table 9: Policies in Ethiopia**

<b>Ethiopia Malaria Elimination Strategic Plan (2021–2025)</b>	
<b>Surveillance, Monitoring and Evaluation Manual for Malaria Elimination in Ethiopia (February 2017)</b>	
<b>Digital Health Blueprint (August 2021)</b>	
<b>National Social Behavior Change/Communication Strategy (February 2021)</b>	
<b>Revised Pharmaceutical Supply Transformation Plan (2018–2020) (September 2018)</b>	
<b>Vector Control Operational Manual for Malaria Elimination in Ethiopia (April 2017)</b>	
<b>National Malaria Guidelines, Fourth edition (March 2018)</b>	
What is/are the first-line treatment(s) for uncomplicated <i>P. falciparum</i> malaria*?	AL plus single dose (0.25mg/kg) primaquine
What is/are the second-line treatment(s) for uncomplicated <i>P. falciparum</i> malaria*?	Quinine tablets
What is/are the first-line treatment(s) for uncomplicated <i>P. vivax</i> malaria?	Chloroquine plus primaquine (0.25mg/kg) x 14 days without G6PD testing
What is the first-line treatment for severe malaria?	Injectable artesunate followed by full dose of AL
In pregnancy, what is the first-line treatment for uncomplicated <i>P. falciparum</i> malaria in the <u>first trimester</u> ?	AL
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
What is/are the first-line treatment(s) for <i>P. vivax</i> malaria during pregnancy?	Chloroquine
In pregnancy, what is the first-line treatment for severe malaria?	Injectable artesunate

Is pre-referral treatment of severe disease recommended at peripheral health facilities? If so, with what drug(s)?	Yes, rectal artesunate at health posts and first dose of injectable artesunate at health centers (as part of Integrated Management of Childhood Illness algorithm).
Is pre-referral treatment of severe disease with rectal artesunate recommended for community health workers?	Yes
<b>Community Health Policy: <a href="#">A Roadmap for Optimizing the Ethiopian Health Extension Program 2020-2035</a> (July 2020)</b>	
What is the # of CHWs currently providing iCCM?	97.7% of health posts provide iCCM (ARM report 2021, page 37)
What is the country's target for number of CHWs providing iCCM?	100%
What percent of the country's target is met?	97.7%
Does the country have a policy that enables the routine, regular payment of salaries/stipends for CHWs?	Yes, community health workers are paid by the Government
Do CHWs have the authority to test and treat all ages for malaria?	Yes
<b>Prevention of Malaria in Pregnancy Policy: <a href="#">National Antenatal Care Guideline</a> (February 2022)</b>	
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?	IPTp is not implemented in Ethiopia
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?	MOH has started training health professionals at hospitals level, but not yet cascaded to the health centers or health posts level
Have HMIS/DHIS2 and ANC registers been updated to include 8+ contacts?	Yes, it is included in the HMIS

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?	NA
Is ANC/IPTp provided by facility staff conducting ANC outreach to communities?	NA
Can CHWs deliver IPTp and if so, which specific cadres and beginning with which dose?	NA

## VII. PARTNER LANDSCAPE

**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"> <li>• Support for nationwide mass campaign in 2021</li> <li>• Procurement of national needs for ACTs, RDTs, and ITNs</li> <li>• Training and supportive supervision in 9 regions</li> <li>• Malaria elimination surveillance support for 565 targeted districts</li> </ul>	<ul style="list-style-type: none"> <li>• National for ITN campaign</li> <li>• 9 regions for other activities</li> </ul>	\$227 million disbursed <ul style="list-style-type: none"> <li>• 115,537 ACTs box of 30 (arrived)</li> <li>• 101,500 ACTs box of 30 (ordered November 2021)</li> <li>• 102,923 ACTs box of 30 (ordered April 2022)</li> <li>• 214,351 RDTs test of 25 (awaiting shipment)</li> <li>• 243,789 RDTs (ordered April 2022)</li> </ul>	Current grant covers July 2021 to June 2024
Government of Ethiopia	<ul style="list-style-type: none"> <li>• Salaries for NMEP Staff and HEWs</li> <li>• Limited procurement of insecticides and operational costs for IRS</li> </ul>	National	<ul style="list-style-type: none"> <li>• Difficult to track</li> </ul>	Continuous