PMI | U.S. PRESIDENT'S MALARIA INITIATIVE

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LAST UPDATED: 05/03/2023

GHANA 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 274 countries in Sub-Saharan Africa and three programs across the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. Ghana began implementation as a PMI focus country in FY 2008. Please see the Ghana Malaria Operational Plan for more information on PMI's approach and investments.

II. CONTEXT

Malaria is a public health concern in Ghana, accounting for most outpatient department consultations. It is endemic in Ghana, with seasonal variation in the northern part of the country. Malaria transmission varies by geographic region and rainfall patterns. In the south and central parts of the country, there are two distinct rainy seasons, from April to June and from September to November. In these areas, the transmission season is nine months or more, with a small peak from May to June and a larger peak from October to November. The north, by contrast, is characterized by one rainy season that typically begins in May, peaks in August, and lasts until September or October, although there is some regional variability. Peak transmission in the north is from July to November. Ghana's entire population is at risk for malaria; however, children under five years of age and pregnant women are at higher risk of severe illness.

Malaria in Ghana is primarily caused by *Plasmodium falciparum*; the principal mosquito vectors are *Anopheles (An.) gambiae* and *An. funestus*. More recently, the identification of *An. stephensi* in Accra could lead to increased malaria cases, which may have programming and resource implications and require increased vector surveillance in support of the elimination agenda.

Ghana has sustained its malaria prevention and control interventions for years, which has translated into steady progress in nationwide indicators, including parasite prevalence among children 6 to 59 months (based on microscopy), which declined from 28 percent in 2011 to 14 percent in 2019. Preliminary data from the 2022 Demographic Health Survey (DHS) indicate a further decline in prevalence to 8.6 percent. Based on this steady progress, the fight against malaria in Ghana is gradually shifting the focus from control to elimination.The National Malaria Control Program has been renamed the National Malaria Elimination Program (NMEP). Following a 2019 stratification exercise, NMEP deployed interventions to specific areas in response to the shifts in malaria prevalence and high burden of health facility malaria cases observed in certain areas based on health management information system (HMIS) data, and to mitigate the development of resistance based on data from entomological sentinel sites. Recent implementation progress indicates that the coverage of continuous distribution of insecticide-treated nets (ITNs) has improved at antenatal clinics (93 to 95 percent) and child immunization clinics (92 to 94 percent). Similarly, testing before treating has improved from 94 percent in 2021 to 98 percent in 2022, and intermittent preventive treatment for pregnant women (IPTp)-3 coverage improved from 55 to 60 percent over the same period. As a consequence of these improvements, in-patient malaria deaths have decreased from 275 in 2021 to 151 in 2022.

Table 1. General Demographics and Malaria Situation

Population	31,479,491 (2.1% increase applied to 2021 Census Population)
Population at risk of malaria	100% (Ghana National Malaria Strategic Plan 2021–2025)
Malaria prevalence	8.6% (2022 DHS)
Malaria incidence/1,000 population at risk	165.1 (World Bank Open Data 2020)
Peak malaria transmission	July–November (northern Ghana); May–July and October–November (southern Ghana)

STRATIFICATION

Another stratification exercise was conducted in 2023 by Ghana's NMEP, with limited support from the World Health Organization (WHO) and Malaria Atlas Project. Malaria prevalence and incidence metrics, as well as all-cause mortality among children under five years of age, were used to develop a composite score for each district (Figure 2). The epidemiological data were combined with district-level measures of entomology, insecticide resistance, seasonality, urbanization, and access to care to identify core interventions to be implemented in each district, including case management, IPTp, indoor residual spraying (IRS), seasonal malaria chemoprevention, ITNs, larval source management, and malaria vaccine. Additional interventions proposed are intermittent preventive treatment of malaria in school-aged children, postdischarge malaria chemoprevention, and mass drug administration.

Figure 1. Stratification Maps

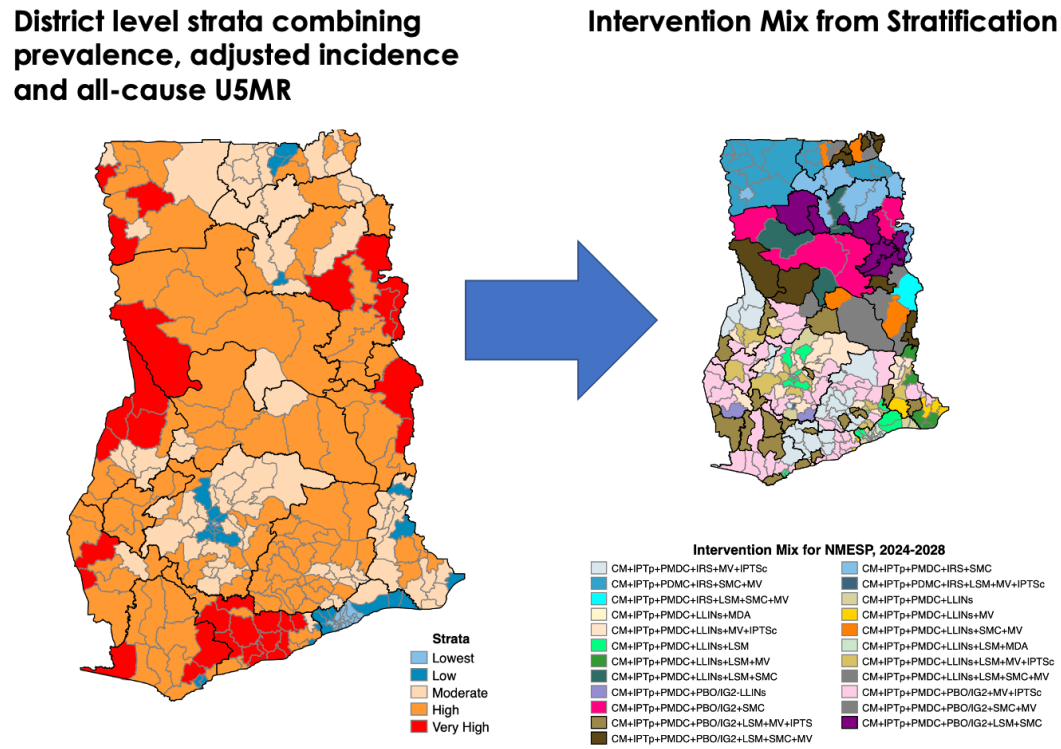
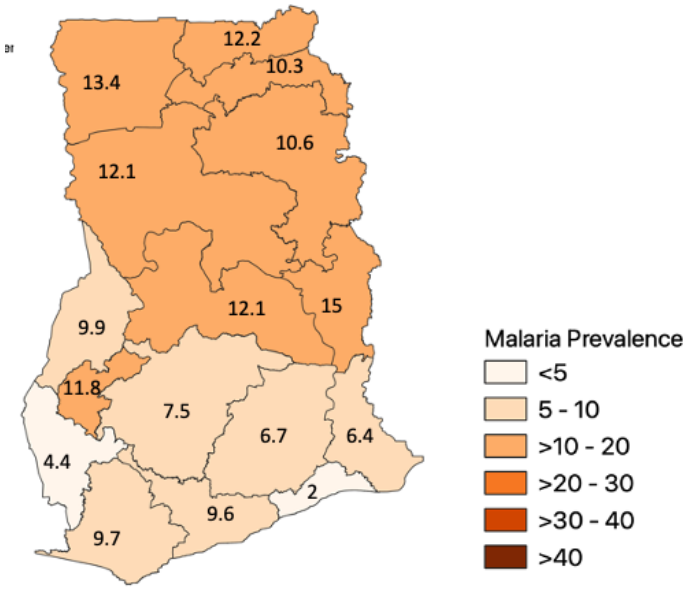
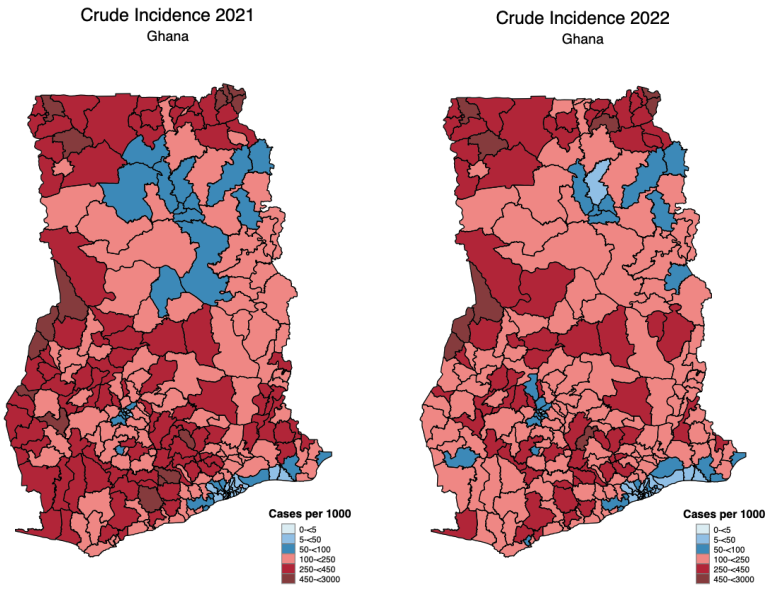


Figure 2. Prevalence Map



Source: Ghana DHS 2022.

Figure 3. Incidence Maps



Source: Ghana HMIS, 2023.

Table 2. Malaria Parasites and Vectors

Principal malaria parasites	*Plasmodium falciparum*: 96.3% (89–98.8%) *Plasmodium malariae*: 1.6% (0.1–8.9%) *Plasmodium ovale*: 1% (0.2–1.9%)
Principal malaria vectors[1]	*Anopheles gambiae s.l.* and *Anopheles funestus*

[1] See the entomological monitoring section of the MOP for more details on vector bionomics and insecticide resistance and indoor residual spraying section for details on residual efficacy.

COUNTRY HEALTH SYSTEM

The Ghana health system has four levels, with malaria diagnosis and treatment and malaria in pregnancy (MIP) services provided at all levels. The four health system levels are:

- **Primary health facilities:** Community-Based Health Planning and Services (CHPS) compounds, maternity homes, and licensed chemical sellers;
- **Secondary health facilities:** Subdistrict health centers, private clinics, polyclinics, and similar institutions;
- **District hospitals:** Currently the first referral from primary and secondary service delivery points; and
- **Tertiary health facilities:** Regional hospitals and teaching hospitals.

Facility-Based Case Management

Ghana Health Services (GHS) has 15 tertiary health facilities (6 teaching referral hospitals and 10 regional referral hospitals), 577 district referral hospitals (including Christian Health Association of Ghana and private hospitals), 67 polyclinics and 1,016 health centers. Regional health authorities supervise district health management teams, which in turn supervise lower-level health centers. Severe malaria cases are referred from the primary to the secondary health facilities and district hospitals for treatment. The NMEP has regional and district malaria focal points who liaise with the regional health authorities and district health management teams to improve malaria case management through training, job aids, and supportive supervision. Ghana also implements malaria-specific laboratory and clinical outreach training and supportive supervision (OTSS) through the NMEP and regional and district health management teams.The GHS also conducts integrated supportive supervision through regional and district interdisciplinary teams using comprehensive integrated checklists that include adherence to treatment guidelines, laboratory standards, supply chain, management, monitoring and evaluation, maternal and child health, nutrition, and malaria prevention and control. The activities complement one another. Both OTSS and integrated supportive supervision should be implemented frequently to achieve good results. Quarterly visits are recommended but, due to limited resources, only two rounds are implemented annually, reaching a maximum of 50 percent of all facilities; and the second round is an abridged version focused on the lowest-performing facilities, usually 20 percent of the facilities visited in the first round. Two rounds of integrated supportive supervision are planned each year, filling the gap for malaria supervision in the months when there is no OTSS. The scope, time, and facilities to visit are considered in the planning process for both efforts to prevent duplication and maximize resources to benefit malaria and the broader health system.

Community Level

In 1999, Ghana adopted the CHPS Initiative to expand health access at the community level, where a trained community health nurse (CHN) and midwife provide integrated community case management (iCCM) and antenatal care (ANC) services in a facility constructed by the community and coordinated through the community health committee. CHPS compounds serve a catchment population of around 5,000 people; and CHPS CHNs and midwives are supported by community health volunteers. Appropriately staffed CHPS compounds provide malaria rapid diagnostic testing (RDT), artemisinin-based combination therapy (ACT) treatment for uncomplicated malaria, distribution of ITNs through ANC and child welfare clinics, rectal artesunate suppositories for prereferral treatment of children under five years of age with severe disease, referral for severe malaria, and IPTp through ANC. (CHPS compounds can initiate the first dose of IPTp only if they have a midwife on the team.) Criteria for referral are described in the case management guidelines; severe malaria cases are to be immediately referred to a hospital after instituting prereferral management. CHPS staff are government employees who receive salaries through the GHS and are supervised and provisioned through

their subdistrict and district health management teams. Ghana CHPS policy continues to evolve, and many new CHPS compounds are constructed, staffed, and accredited annually, improving access.

Private Sector Case Management and National Health Insurance Scheme

Private sector malaria treatment, including pharmacies and medicine sellers, is most common in urban settings. Ghana mandates laboratory confirmation of malaria before initiating treatment; however, at private facilities, patients pay for testing (either RDT or microscopy) and ACT treatment, which can lead to treatment without testing. The NMEP is increasing private sector engagement through its inclusion in supportive supervision to improve compliance with case management guidelines. Currently, some—but not all—private sector health facilities report to HMIS.

The National Health Insurance Scheme aims to ensure access to basic health care services for all residents. All necessary malaria services and medicines are covered at no cost to its members. The scheme reimburses private facilities for the cost of malaria diagnosis and treatment and conducts clinical audits to improve adherence to malaria treatment guidelines.

Coordination of MIP and ANC Services

The Ghana National Malaria Strategic Plan (NMSP) 2021–2025 and the Integrated Reproductive, Maternal, Newborn, Child and Adolescent Health and Nutrition Strategic Plan 2020–2025 provide complementary guidance for ANC and MIP services. Pregnant women receive free ITNs at their first ANC visit, and the first dose of IPTp is administered at 16 weeks of gestation or at quickening. Recommendations for correct malaria case management of pregnant women are provided in Ghana's guidelines for malaria case management.

Supply Chain Overview

Ghana's current health supply chain involves several layers of storage and distribution. The public supply chain remains in a transition period, which began after the 2015 Central Medical Stores (CMS) fire left product storage splintered across multiple central-level entities. There are two main central-level warehouses: a private sector pharma-grade warehouse in Tema that holds products donated by the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) and USAID and a government CMS in Accra that stores products procured by other donors, the Ministry of Health (MOH), and GHS. These public and private warehouses serve 14 lower facilities—the country's 10 regional medical stores and four teaching hospitals that serve patients directly. Commodities are distributed from the private sector warehouse to the regional medical stores by third-party logistics providers contracted by the Global Fund and USAID through an implementing partner. These deliveries are scheduled to occur six times per year. Some stores send their own trucks to pick up products from the CMS. From each of the 10 stores, products flow directly to service delivery points. Last-mile distribution has been streamlined in recent years, with a bimonthly scheduled delivery of commodities from regional

medical stores to service delivery points, using USAID and/or Global Fund-supported third-party logistics partners or region-owned trucks. Commodities from the public sector warehouses are distributed to the stores and facilities using a mix of its own fleet and third-party logistics services.

Logistics data on malaria commodities are captured through both paper and electronic means. The Ghana Integrated Logistics Management Information System (GhiLMIS) is being rolled out in phases across the country. Completion of the GhiLMIS rollout to all eligible service delivery points is targeted for the end of 2023.

Health Management Information Systems

Data on malaria services are captured through the District Health Information Management Software-2 (DHIMS-2), which is based on the District Health Information System 2 (DHIS-2) platform and was launched in 2008. DHIMS-2 is accessible in all districts and is used by health facilities and district health directorates to collect, collate, transmit, and analyze routine health service data.

OTHER CONTEXTUAL INFORMATION

The uptake of malaria control interventions is impacted by individual and community norms, with regional variations. ITN use by the household population ranges from 19 percent in Greater Accra Region to 66 percent in Upper East Region.[1] Additionally, although IRS campaigns typically achieve over 90 percent coverage each year, relatively high numbers of locked structures and household refusals remain challenging. Reasons for locked structures include household residents leaving for the fields early in the morning to start farming activities or traveling to southern Ghana during the dry season for work. Refusals are often attributed to residents being unwilling to prepare rooms.[2] Lastly, care seeking for children under five years of age with fever is higher in urban areas than in rural areas (74 versus 65 percent).

PMI and the Global Fund jointly supported a malaria behavior survey in 2022 to determine the sociodemographic and ideational characteristics associated with malaria-related behavioral outcomes in Ghana and identify key programmatic elements to improve malaria-related ideational and behavioral outcomes. Survey findings will inform approaches to increase rapid and sustainable uptake of individual and community behaviors for malaria prevention and control.

[1] Ghana Malaria Indicator Survey 2019.
[2] Vector Link. 2022. End of Spray Report, Ghana Spray Campaign, March 2–April 12.

Ghana participated in the pilot implementation of the malaria vaccine RTS,S/AS01 which was implemented in 42 districts. In October 2021, the World Health Organization recommended widespread use of the vaccine. Ghana received approval from Gavi to scale up vaccine implementation to the 51 comparator districts in 2022. The country intends to resubmit a funding request to Gavi for the expansion of vaccine coverage from the current 93 districts to additional 43 districts based on the criteria in the vaccine allocation framework. The promotion, management, and administration of the malaria vaccine will be the responsibility of the Expanded Program on Immunization (EPI), rather than NMEP. NMEP has conducted a thorough analysis of what is needed to promote the acceptance and use of the malaria vaccine. PMI/Ghana will invest in the malaria vaccine program if NMEP and other stakeholders determine relevant needs, and PMI support can fill the gap.

GHS has started implementing a Networks of Practice health care service delivery model to improve service quality—a design model that arranges service delivery assets into a network consisting of an anchor establishment, called the hub, which offers a full array of services, complemented by secondary establishments, called spokes, which offer more limited service arrays. Model health centers serve as the hubs, acting as referral links between district hospitals and CHPS zones.

III. NMCP STRATEGIC PLAN

Ghana's NMSP 2021–2025 has three main goals:

1. Reduce malaria mortality by 90 percent (using 2019 as the baseline);
2. Reduce malaria case incidence by 50 percent (using 2019 as the baseline); and
3. Achieve malaria pre-elimination in at least six districts.

The scope of the strategic plan is to consolidate the achievements gained over the last eight years and build on new interventions and strategies with input from a widening range of stakeholders, including health partners, community members, the research community, academia, and nongovernmental organizations. It defines strategies for achieving NMEP's set goal and guides its partners to restrategize toward accelerated malaria control and pre-elimination in targeted areas of the country.

The specific objectives of the NMSP 2021–2025 are to:

1. Protect at least 80 percent of the population at risk with effective malaria prevention interventions by 2025;
2. Provide appropriate diagnosis to all suspected malaria cases and prompt and effective treatment to 100 percent of confirmed malaria cases in accordance with treatment guidelines by 2025;

3. Ensure at least 95 percent of the population will use at least one malaria preventive measure, and 95 percent of those with fever seek care within 24 hours of symptom onset by 2025;
4. Strengthen and maintain capacity for Governance and program management to achieve programmatic objectives at all levels of the health care system toward malaria control and pre-elimination[3] by 2025;
5. Ensure the timely and adequate supply of quality-assured malaria commodities to all service delivery points by 2025;
6. Improve resource mobilization and maximize the efficient use of available resources for greater public health impact by 2025; and
7. Strengthen malaria surveillance and M&E system toward the 2025 malaria control targets.

For each objective, the NMSP describes how those objectives can be reached.

Ghana has targeted six districts for pre-elimination. Specific activities in those districts are described in the NMSP, including:

- Confirm every suspected malaria cases and adhere to all treatment protocols;
- Improve the diagnostic capacity of the districts for fever differentials;
- Report case-based malaria data weekly through the Integrated Disease Surveillance and Response (IDSR);
- Establish thresholds to identify outbreaks;
- Foster a culture of data use for appropriate response and surveillance activities;
- Engage in reactive case detection and treatment;
- Conduct peer reviews in districts targeted for pre-elimination; and
- Migrate the reporting system to case-based at all service delivery sites.

The National Malaria Elimination Strategic Plan (NMESP) is designed following the 2022 Ghanaian government decision to shift the focus from malaria control to malaria elimination. Therefore, the 2024–2028 NMESP starts before the end of the 2021–2025 malaria control strategic plan.

The malaria elimination targets are defined to be achieved gradually. The initial goals of the 2024–2028 NMESP are to:

- Reduce malaria mortality by 100 percent by the year 2028 (using 2022 as baseline); and
- Reduce malaria case incidence by 50 percent by 2028 (using 2022 as baseline).

[3] Areas targeted for or within pre-elimination achieve API and SPR of less than 5 percent over two consecutive years.

The two goals are supported by the following objectives to be achieved by 2028:

- Ensure 100 percent of the population have adequate knowledge, attitudes, practices, and requisite skills for malaria elimination by 2028;
- Ensure 100 percent of the population use at least one malaria preventive measure;
- Ensure that 100 percent of malaria infections are identified by parasitological tests and treatment initiated within 24 hours by 2028;
- Ensure that 100 percent of all confirmed malaria cases are appropriately, effectively, and completely treated with parasite clearance within 72 hours by 2028;
- Strengthen passive and active surveillance and monitoring and evaluation systems by 2028;
- Ensure that 100 percent of all active foci of infection in areas with very low transmission are identified and eliminated through intensified surveillance, targeted vector and environmental management, and human parasite reservoir interventions by 2028;
- Ensure timely and adequate supply of quality-assured malaria commodities to all service delivery points by 2028;
- Strengthen and maintain the capacity for governance and program management to achieve programmatic objectives at all levels of the health care system toward malaria elimination by 2028; and
- Improve resource mobilization and efficiently use available resources toward malaria elimination.

IV. KEY MALARIA DATA

EVOLUTION OF KEY SURVEY-BASED MALARIA INDICATORS

Table 3. Key Survey Indicators

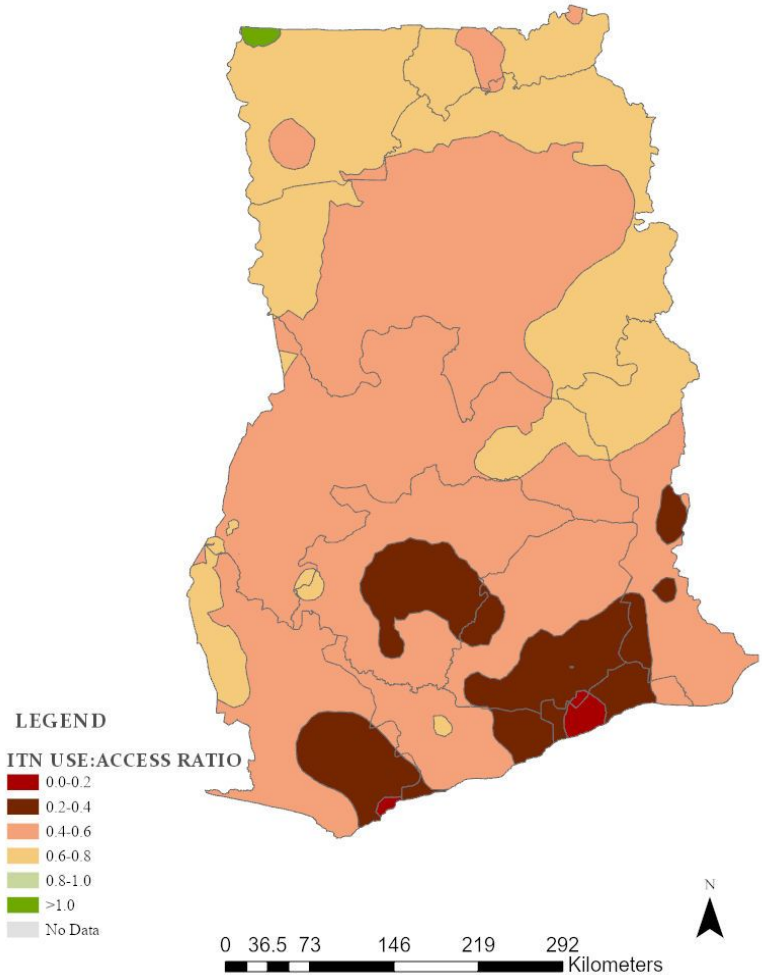
Indicator	2008 DHS	2011 MICS	2014 DHS	2019 MIS
% of households with at least one ITN	41.7	49	68	74
% of households with at least one ITN for every two people	N/A	26	45	52
% of population with access to an ITN	N/A	38	59	67
% of population that slept under an ITN the previous night	N/A	29	36	43
% of children under the age of five who slept under an ITN the previous night	38.7	39	47	54
% of pregnant women who slept under an ITN the previous night	27.4	33	43	49
% of children under the age of five with a fever in the last two weeks for whom advice or treatment was sought	51	50	56	69
% of children under the age of five with a fever in the last two weeks who had a finger or heel stick	N/A	16	34	34
% of children receiving an ACT among children under the age of five with a fever in the last two weeks who received any antimalarial drug	21.5	18	37	46
% of women who attended four ANC visits during their last pregnancy	67.8	N/A	87.3	90.6%
% of women who received three or more doses of IPTp during their last pregnancy in the last two years	45.5[1]	N/A	39	61
Under-five mortality rate per 1,000 live births	80	82	60	N/A
% of children under the age of five with parasitemia by microscopy[1]	N/A	28	27	14
% of children under the age of five with parasitemia by RDT	N/A	48	36	23

[1] The 2008 DHS asked about pregnant women who received two or more doses of IPTp. The 2022 DHS preliminary data show a 8.6 percent parasitemia prevalence among children aged 6–59 months.

ACT: artemisinin-based combination therapy; DHS: Demographic and Health Survey; MICS: Multiple Indicator Cluster Survey; MIS: Malaria Indicator Survey; RDT: rapid diagnostic testing.

ITN access increased steadily from 38 percent in 2011 to 67 percent in 2019, but ITN use has not increased as rapidly, from 29 percent in 2011 to 43 percent in 2019, resulting in a low-to-moderate ITN use-to-access ratio that has remained fairly steady over the same period. The ITN use-to-access ratio is between 0.4 and 0.6 in most of the country, with lower values in urban/peri-urban areas (Figure 3). According to the 2019 MIS, the ITN use-to-access ratio is 0.47 in urban areas and 0.77 in rural areas. This informed the NMCPs decision to reduce the ITNs needed for urban settings for the 2021 mass campaign.

Figure 4. ITN Use-to-Access Ratio Map



Source: MIS 2019.

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

Indicator	2018	2019	2020	2021	2022
# of all-cause patient consultations	31,996,100	28,389,104	25,263,342	29,027,029	26,956,990
# of suspect malaria cases[1]	11,171,478	12,150,408	10,433,887	12,036,437	10,929,524
# of patients receiving diagnostic test for malaria[2]	10,219,893	11,388,698	9,956,501	11,679,876	10,693,162
Total # of malaria cases[3]	6,392,973	6,703,693	5,604,746	6,063,024	5,456,418
# of confirmed cases[4]	5,571,453	6,115,273	5,172,803	5,733,013	5,239,066
# of presumed cases[5]	821,520	588,420	431,943	330,011	217,352
% of malaria cases confirmed[6]	91.5	93.7	95.4	97.0	97.8
Test positivity rate (TPR)[7]	54.5	53.7	52.0	48.1	49.0
Total # of malaria cases in children under the age of five[8]	1,960,712	2,012,352	1,637,401	1,721,459	1,458,994
% of cases in children under the age of five[9]	30.7	30.0	29.2	28.4	26.7
Total # of severe cases[10]	358,538	394,027	308,887	391,052	438,461
Total # of malaria deaths[11]	417	336	308	275	151
# of facilities reporting[12]	5,288	5,718	6,034	6,716	7,945
% of data completeness[13]	82.9	81.8	83.3	84.9	96.5

[1] Number of patients presenting with signs or symptoms possibly due to 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] Number of confirmed cases divided by total number of cases. [7] Confirmed cases divided by the number of patients receiving a diagnostic test for malaria (RDT or microscopy). [8] Outpatient and inpatient, confirmed and unconfirmed. [9] Total number of cases in children under five divided by total number of cases. [10] WHO defines “severe” criteria; based on artesunate vials consumed. [11] All ages, outpatient, inpatient, confirmed, and unconfirmed. [12] Total number of health facilities reporting data into the HMIS/DHIS2 system that year. [13] Number of monthly reports from health facilities divided by the number of health facility reports expected (average for the calendar year).

Table 5. Disaggregated Community-Level Data

Indicator	2019	2020	2021	2022
# of patients receiving diagnostic test for malaria from a CHW	2,443,211	2,286,224	2,864,764	2,609,347
Total number of malaria cases reported by CHWs[1]	1,823,630	1,727,995	1,998,136	1,818,106
% of CHW-reported cases (among total malaria cases)[2]	27.2	30.8	33.0	33.3

[1] Includes all ages, confirmed and unconfirmed. [2] Total number of malaria cases reported by CHWs divided by the total number of malaria cases in the previous table.

V. Other Implementation Information

Table 6. Results of Durability Monitoring (2018–2021)

Site/Net Type	Survey and Time Since Distribution (months)	Attrition to Wear and Tear (%)	Nets in Serviceable Condition (%)	Optimal Insecticidal Effectiveness in Bioassay (%)
Nanumba South (Olyset)	Baseline: 5.8 (6 months, 2018)	0.3%	97.9% (N=333)	90.0%
	First: 12.7 (12 months, 2019)	2.8%	89.8% (N=245)	43.3%
	Second: 25.9 (24 months, 2020)	21.4%	69.3% (N=150)	40.0%
	Third: 33.5 (36 months, 2021)	29.3%	73.3% (N=101)	63.3%
Zabzugu (DawaPlus 2.0)	Baseline: 5.8 (6 months, 2018)	0.0%	98.6% (N=284)	100.0%
	First: 12.7 (12 months, 2019)	1.2%	96.1% (N=233)	46.7%
	Second: 25.9 (24 months, 2020)	15.5%	80.8% (N=177)	43.3%
	Third: 33.5 (36 months, 2021)	24.3%	72.1% (N=147)	80.0%

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
2015	Wa	ASAQ	100%
2015	Sunyani	ASAQ	100%
2015	Hohoe	ASAQ	100%
2015	Bekwai	AL	96.7%
2015	Begoro	AL	100%
2015	Navrongo	AL	98.1%

2015	Tarkwa	ASAQ	100%
2015	Lekma, Accra	ASAQ	100%
2015	Cape-Coast	AL	91.5%
2016	Bekwai	ASAQ	100%
2016	Begoro	ASAQ	100%
2016	Tarkwa	AL	91.3%
2016	Cape-Coast	ASAQ	96.7%
2017	Navrongo	ASAQ	98.2%
2017	Yendi	AL	96.4%
2017	Hohoe	AL	100%
*	Sunyani	AL	92.9%
2020[2]	Navrongo	DP	90.3%
2020[2]	Hohoe	DP	100%
2020[2]	Cape-Coast	DP	100%

*Specific study year not provided for this sentinel site and drug, however manuscript reports results from 2015–2017.
PCR = polymerase chain reaction; AL = artemether-lumefantrine; ASAQ = artesunate-amodiaquine; DP = dihydroartemisinin-piperaquine.

Noguchi Memorial Institute for Medical Research. “Final report on the 2015–2017 monitoring of the therapeutic efficacy of antimalarial drugs for the treatment of uncomplicated malaria in Ghana.”

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VI. Key Policies

The NMSP 2021–2025 is Ghana’s overarching policy document for malaria prevention and control. It is complemented by additional guidelines and policies for case management, community health, ANC, MIP, SM&E, and the supply chain (Table 8). The NMESP 2024–2028 is currently under development. One of the policy documents—the National Digital Health Strategy—is currently available online.

Table 8. Policies in Ghana

Ghana National Malaria Strategic Plan (2021–2025)	
Ghana National Malaria Elimination Strategic Plan (2024–2028) (draft)	
National Malaria Control Monitoring and Evaluation Plan (2021–2025)	
National eHealth Strategy (2008)	
Social and Behavior Change Communication Strategy for the National Malaria Control Program (2015–2020)	
Health Commodity Supply Chain Master Plan (2021–2025)	
Reproductive Maternal Newborn Child and Adolescent Health and Nutrition Strategic Plan (2020–2025)	
Antimalarial Medicine Policy (September 2022)	
Integrated Malaria Vector Management Policy (2022)	
What is/are the first-line treatment(s) for uncomplicated *P. falciparum* malaria*?	Artemether-lumefantrine Artesunate-amodiaquine
What is/are the second-line treatment(s) for uncomplicated *P. falciparum* malaria*?	Dihydroartemisinin-piperaquine Artesunate-Pyronaridine
What is the first-line treatment for severe malaria?	IV/IM artesunate IM artemether IV/IM quinine
In pregnancy, what is the current first-line treatment for uncomplicated *P. falciparum* malaria in the **first trimester**?	Artemether-lumefantrine
Given the WHO policy change to recommend AL as treatment for uncomplicated malaria in the first trimester, does the MOH plan to update the policy on treatment of MIP in the first trimester? And if so, what is the status of this policy change and implementation of the new policy? (please include any plans for training providers on the new policy)	The Antimalarial Medicines Policy was updated in 2022
In pregnancy, what is/are the first-line treatment(s) for uncomplicated *P. falciparum* malaria in the **second and third trimesters**?	Artemether-lumefantrine Artesunate-amodiaquine
In pregnancy, what is the first-line treatment for severe malaria?	V/IM Artesunate IM Artemether IV/IM Quinine
Is prereferral treatment of severe disease recommended at peripheral health facilities? If so, with what drug(s)?	Yes IM artesunate Rectal artesunate (in children under 6) IM artemether IM quinine
Is prereferral treatment of severe disease with rectal artesunate recommended for community health workers?	Yes, at CHPS level (not by community health volunteers)

Community Health Policy	
Community-based Health Planning and Services Policy: Accelerating Attainment of Universal Health Coverage and Bridging the Access Inequity Gap (March 2016) **CHPS National Implementation Guidelines** (September 2016)	
What is the # of CHWs currently providing iCCM?	NA
What is the country's target for the number of CHWs providing iCCM?	NA
What percent of the country's target is met?	NA
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, as defined by Ghana: CHWs at CHPS compounds are CHN and /or midwife.
Prevention of Malaria in Pregnancy Policy	
Ghana Reproductive, Maternal, Newborn, Child and Adolescent Health and Nutrition Strategic Plan 2020–2025	
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?	16 weeks
Do the national ANC guidelines reflect the WHO 2016 recommendation of eight 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 eight or more contacts?	This has been integrated into case management training, which has been conducted in all regions.
Have HMIS/DHIS2 and ANC registers been updated to include eight or more contacts?	Yes
Are ANC/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 six months prior?	IPTp data collected by a single month.
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? How many districts are targeted for c-IPTp implementation?	Yes, midwives at CHPS compounds can initiate the first dose, CHN can resupply.

VII. PARTNER LANDSCAPE

Partner support for malaria activities in Ghana is not geographically targeted. PMI and the Global Fund jointly fund the nationwide procurement of most commodities and implementation of most interventions. Currently, the Global Fund supports IRS in 16 districts in three different regions (Ashanti, Upper East, and Upper West), and PMI supports IRS in nine districts in two regions (North East and Northern). The Ghanaian government also procures some malaria commodities, supports the implementation and monitoring of malaria interventions by NMCP and staff at other levels of the health system, and is the sole supporter for larval source management activities implemented in 100 target districts across the country.

Table 9. Partner Landscape

Partner	Key Technical Interventions	Geographic Coverage	Funding Amount or In-kind Contribution	Time Frame
Global Fund	• Procurement of malaria commodities, including SP, RDTs, ACTs, severe malaria medicines, and ITNs for routine distribution during ANC and child welfare clinic visits • Training and supportive supervision for malaria service delivery (including OTSS) • Cross-cutting interventions, including SBC and pharmaceuticals management, and GhiLMIS rollout and implementation • NMCP human resources and grant management	Nationwide (jointly with PMI); central	$103,000,000	The new grant covers 2024 through 2026 and the budget is being developed at the time of submission. The funding listed here is from the previous grant.
	Procurement and distribution of ITNs for the CY 2024 mass campaign	Nationwide, with the exception of some urban centers and all IRS districts (jointly with PMI)		
	Procurement of sulfadoxine-pyrimethamine + amodiaquine (SPAQ) and implementation of seasonal malaria chemoprevention	Bono East (5 districts), Northern, North East, Oti, Savannah, Upper East, Upper West (jointly with PMI)		
	Implementation of IRS	Ashanti (2 districts), Upper East (3 districts), and Upper West (11 districts) regions		

Partner	Key Technical Interventions	Geographic Coverage	Funding Amount or In-kind Contribution	Time Frame
Ghanaian government	● NMCP and other health system staff implementation and and monitoring of malaria control activities ● Procurement of specific malaria commodities, including SP, ACTs, and ITNs for high School students and for TB/HIV patients ● Implementation of malaria vaccine	Nationwide		May to December
	Larval source management	105 out of 261 districts of the country	$1,643,835	
Ghanaian government/ EPI PATH	Implementation of malaria vaccine	93 out of 261 districts		