PMI | U.S. PRESIDENT'S MALARIA INITIATIVE

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CDC

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GUINEA 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 27 countries in sub-Saharan Africa and three programs across the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. Guinea began implementation as a PMI partner country in FY 2011. Please see the Guinea Malaria Operational Plan for more information on PMI's approach and investments.

II. CONTEXT

Guinea's population is about 13,612,861, with a median age of 18 years. Guinea has made progress in reducing the malaria burden over past decades. The death rate for children under five years of age has decreased, from 163 deaths per 1,000 live births in 2005 to 111 in 2018. The country has substantially reduced malaria prevalence in children under 5 years of age, annual malaria incidence, and in-patient deaths. These gains were driven by the rapid scale-up of malaria prevention and control interventions, led by the country's National Malaria Control Program (NMCP) and supported by PMI and the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund). Prevalence of malaria in children 6 to 59 months of age as measured by microscopy was 15 percent in the 2016 Multiple Indicator Cluster Survey (MICS) and 17 percent in the 2021 Malaria Indicator Survey (MIS). However, there is substantial regional variation in malaria parasitemia prevalence with high prevalence in some regions. Since PMI began working with the Government of Guinea, there has been an 18 percent reduction in deaths of children under age five. Also, the percentage of women receiving the recommended three doses of malaria preventive treatment during pregnancy has risen to 50 percent in 2021 from 11 percent in 2012 and 36 percent in 2018. Thirty-nine percent of pregnant women used insecticide-treated mosquito nets (ITNs), up from 28 percent in the two previous surveys.

Despite these successes, health indicators in Guinea remain poor compared to other countries. Malaria is the leading cause of clinical consultations, hospitalizations, and hospital deaths and the biggest killer of children under five years of age (over 14 percent).

Guinea's maternal mortality rate is 553 for every 100,000 women.[1] Approximately 28 percent of all female deaths in Guinea are maternal deaths, with the highest rate at 35.3 percent in the 20–24 age group.[2] In 2021, 6 percent of women did not receive any prenatal care, an improvement from 2005, when 17 percent did not receive such care.[3]

Table 1: General Demographics and Malaria Situation

Population	13,612,861 (Guinea MoH, DHIS2, 2023)
Population at risk of malaria	100%
Malaria prevalence	17% via microscopy; 34% via RDT (2021 MIS)
Malaria case incidence/1,000 population at risk	181 (2022 Guinea DHIS2)
Peak malaria transmission	April to November

DHIS2: District Health Information System 2; MICS: Multiple Indicator Cluster Survey; MIS: Malaria Indicator Survey; MoH: Ministry of Health; RDT: rapid diagnostic test.

STRATIFICATION

PMI uses several sources of data used to estimate the risk and burden of malaria. Malaria prevalence maps are created from nationally representative household survey data. Incidence maps are available in monthly and annual bulletins created from summarizing routinely collected data from the Health Management Information System (HMIS).

Maps of malaria risk, combining morbidity and mortality data from multiple sources have been produced through stratification exercises but have not been finalized. Figures 1 and 2 how malaria prevalence and incidence maps.

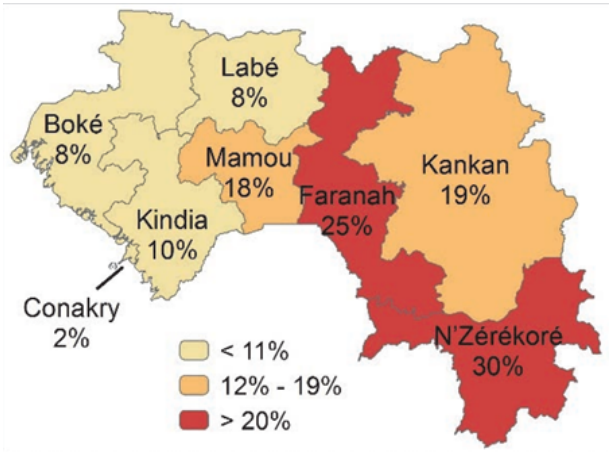
Figure 1 shows two maps of regional malaria prevalence side by side, the first with data from the 2016 Guinea Multiple Indicator Cluster Survey (MICS), the second with data from the 2021 Guinea Malaria Indicator Survey (MIS). Both maps contain data from nationally representative household surveys that estimate point prevalence in children 6-59 months of age measured via rapid diagnostic tests (RDTs). The 2016 map shows regional malaria prevalence ranges from 2 percent in Conakry to 30 percent in N'Zerekore. Malaria prevalence is 8 percent in Boke and Labe, 10 percent in Kindia, 18 percent in Mamou, 19 percent in Kankan and 25 percent in Faranah. The 2021 map shows malaria prevalence ranges from less than 1 percent in Conakry region to 30 percent in N'Zerekore region. Between these two regions are: Faranah (21 percent), Kankan (20 percent), Kindia (18 percent), Boke (14 percent) Mamou (13 percent) and Labe (10 percent).

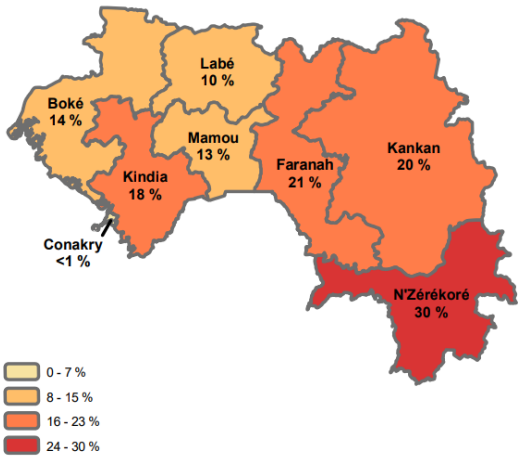
[1]United Nations Maternal Mortality Estimation Inter-agency Group (WHO, UNICEF, UNFPA, United Nations Population Division and the World Bank). Trends in maternal mortality 2000 to 2020: estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division. (Geneva: World Health Organization; 2023): https://www.who.int/publications/i/item/978924006875.

[2] World Bank. Guinea: The Economic Benefits of a Gender Inclusive Society. Washington, DC: World Bank Group, June 2019. Accessed July 23, 2020.

[3] Ibid.

Figure 1: Maps Showing Prevalence of Malaria by Region (2016 MICS, 2021 MIS)

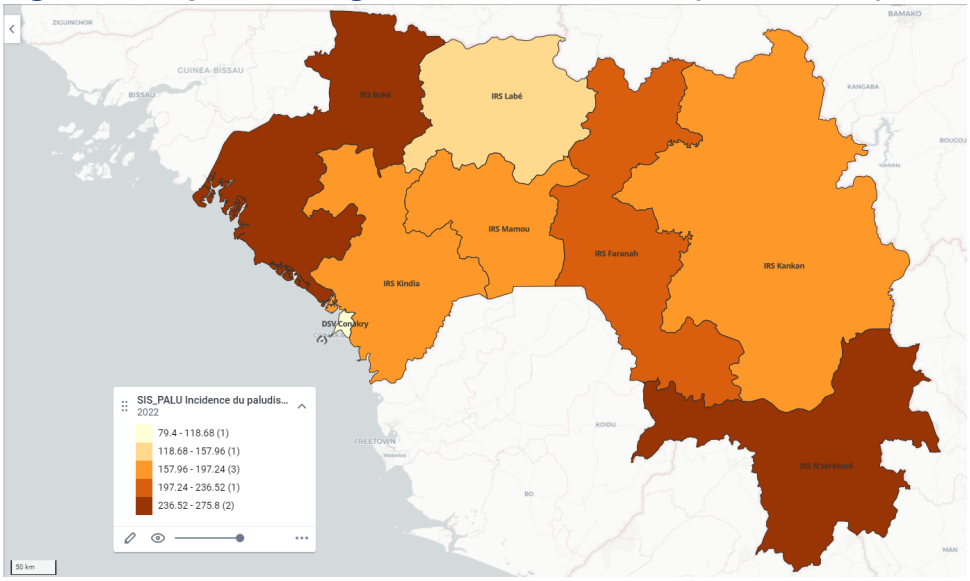




Source: 2016 Guinea MICS

Source: 2021 Guinea MIS

Figure 2: Maps Showing Incidence of Malaria (2022 DHIS2)



Source: Guinea DHIS2

Table 2: Malaria Parasites and Vectors

Principle Malaria Parasites	*Plasmodium falciparum*
Principle Malaria Vectors*	The primary vector is *An. gambiae* s.l. with sibling species, *An gambiae* s.s. (89%), *An. coluzzi* (10%), and *An arabiensis* (1%). Secondary vectors detected are *An. funestus* s.l. Pyrethroid resistance in *An. gambiae* s.l. has recently been reported for all pyrethroids with Piperonyl butoxide (PBO) partially restoring susceptibility. An. gambiae s.l. have been found to be fully susceptible to chlorfenapyr.

*See 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 administrative structure of Guinea's health system is pyramidal. At the summit in the MOH headquarters in the capital city of Conakry, sit ten national health directorates, six disease control programs, and two university hospitals. At the next lower level, there are eight regional directorates, one for each of Guinea's eight governmental administrative regions. Each of these regional directorates covers three to five health districts. There are 38 health districts managed by respective directorates. Under these districts, there are 426 public health centers which collectively cover 961 health posts with their estimated total of 10,000 community health extension workers known locally as *relais communautaires* (RECOs). Altogether, the MOH is currently staffed nationally with about 12,000 paid employees (excluding RECOs).

Guinea adopted the National Community Health Policy (*Politique National de Santé Communautaire* or PNSC) in 2017 to improve access and coverage of rural communities to essential health services. The PNSC planned for a monthly salary of 1 million Guinean Francs for Agents de Santé Communautaires (ASC) who serve as supervisors for RECOs and 450,000 Guinean Francs for RECOs. In 2018, the PNSC began a pilot implementation of this strategy in 40 convergence communes (municipalities) supported by United Nations Children's Fund (UNICEF), the United States Agency for International Development (USAID), and the World Bank. The implementation of the pilot revealed some issues with coordination and lack of clarity about roles and responsibilities. USAID Guinea is supporting a study using funds from maternal and child health (MCH), family planning, and PMI to explore the rollout of the community health policy in Guinea in the context of decentralization. PMI plans to fund training, supervision, and transportation fees of RECOs.

The Guinea health facilities are suffering from a lack of appropriate and properly maintained equipment, stable access to electricity, and safe and hygienic working conditions, which undermines the quality of the services delivered at health facilities. The National Health Development Plan (*Plan National de Développement Sanitaire*, PNDS) states that of the total 1,383 public health facilities in Guinea, 51 percent do not satisfy MOH's minimal physical structure standards. The MOH reports only 16 percent of 1,383 facilities have the

recommended equipment. Furthermore, only nine percent of 1,383 facilities have potable water and three percent have electricity. It is also rare to find usable latrines, food services, and an acceptable system for the disposal of biomedical waste. There is also a huge deficit in hospital beds. Guinea has one bed per 3,396 inhabitants, whereas the WHO recommends one bed per 1,000 inhabitants.

In Guinea, access to health services in and outside the home, especially for rural populations, is limited by a lack of investment in and inadequate distribution of health infrastructure and personnel across the health care system. At least 50 percent of rural Guineans do not have access to health facilities because they reside too far (5 kilometers or more) from a health facility. The poor state of roads also makes it difficult to reach health facilities, even if transport is available and can be afforded. Overburdened staff contribute to long wait times and sometimes poor quality of care. These barriers to accessing health facilities often cause people to consult local traditional healers.

In Guinea, malaria case management activities are planned at the central level and implemented in all hospitals (national, regional, prefectural), in all health centers, at health posts, and at the community level. The malaria case management policy in Guinea is to test first and, if the patient is positive, then treat. However, there are rare cases in which a patient is treated without testing. Diagnosis using microscopy is done at the hospital level, as well as in communal medical centers and health care centers (*Centre de Sante Ameliore*). In the remaining health centers, health posts, and at the community level, malaria is diagnosed with rapid diagnostic tests (RDTs).

Malaria in pregnancy (MIP) services are available in communal medical centers, improved health centers, and some integrated health posts. The national malaria strategic plan recommends pregnant women receive at least three doses of intermittent preventive treatment for pregnant women (IPTp) on a monthly basis, starting at the 13th week of the pregnancy until childbirth. The health workers providing MIP and antenatal (ANC) services have been trained by the Maternal Reproductive Health program at the request of NMCP. Those health workers are regularly supervised by NMCP and its partners. An MIP working group was created in 2021 by NMCP in collaboration with the Maternal Reproductive Health program but it is not yet fully functional due to competing NMCP priorities.

SUPPLY CHAIN

The supply chain system for essential medicines and commodities faces many challenges with planning, distribution, and stock management, which contributes to inefficiencies in commodity use. Different donor and private sector procurement systems make it difficult to track the quantity, type, and destination of medications in Guinea.

Budgets for the procurement of essential medicines (both donor- and government-funded) are often non-transparent and commodity procurement is not based on reliable consumption

information. Important logistical challenges (e.g., lack of roads and transportation, inadequate storage conditions, and shortage of fuel and electricity to maintain cold chains for vaccines) reduce the availability of quality health commodities.

Guinea's public health supply chain has recorded tangible development of supply chain capabilities, specifically in logistics management information systems (LMIS). These developments include standard operating procedures which guide operation of supply chain functions at all levels; automated LMIS, which provides the country with capabilities such as better visibility; improved and institutionalized quantification processes; and skilled central level supply chain cadres that pilot key supply chain capacity building activities at the regional, district, and health facility level. Despite these achievements, Guinea's supply chain remains exposed to systemic challenges related to strategic planning and management, policy, and governance, warehousing and distribution, and waste management. In 2020, a collaboration framework between the main donors for the procurement of malaria commodities was elaborated. PMI procures severe malaria commodities and laboratory supplies. The Global Fund procures ACTs, RDTs, seasonal malaria chemoprevention (SMC) medicines, and sulfadoxine-pyrimethamine (SP) for malaria prevention during the pregnancy. Both PMI and the Global Fund procure ITNs for routine and mass campaign distribution. Even with this collaboration, there are still persistent stockouts. The Central Medical Store of Guinea (*Pharmacie Centrale de Guinee SA*) manages last-mile distribution of malaria commodities.

HEALTH INFORMATION SYSTEMS

In 2016, in the wake of the 2014–2016 West Africa Ebola outbreak, USAID/Guinea and other partners assisted the MOH in its adoption of the District Health Information System 2 (DHIS2) software. Two separate instances of DHIS2 are used to collect, analyze, and report health data; one instance is exclusively used for routine, facility-level data and the other is used for case-based and weekly aggregate Integrated Disease Surveillance and Response (IDSR) health data (See Frontiers | Implementation of DHIS2 for Disease Surveillance in Guinea: 2015–2020 | Public Health). This process took time to transition from purely paper-based collection at all levels to DHIS2. Thus far, data recorded in both instances covers HIV, selected infectious diseases, MCH, child immunization, disease surveillance, and service delivery statistics. The National Agency for Health Security (*Agence Nationale de Sécurité Sanitaire,* ANSS) manages a separate DHIS2 instance for weekly IDSR reporting and outbreak response of selected reportable diseases per International Health Regulations (2005). ANSS and its partners fund and train health facility users at all levels on the collection and use of weekly IDSR data. The Guinea NMCP uses data from the routine aggregate data system for its data needs. With support from PMI, health workers in national, regional, and district hospitals (including six in Conakry) have been trained in the use of the routine DHIS2. This is gradually being expanded to the health center level.

While the data entry and use of the routine DHIS2 is gradually expanded to the health center level, all other health centers send monthly health data in aggregate on paper forms for data

entry at the district level. Health centers do little, if any, analysis of data they collect. Health providers at health center and health post levels collect patient information in forms and registers managed and provided by the National Health Information System (*Système National d'Information Sanitaire*, SNIS). These tools are designed to collect aggregate disease specific data elements, which are reflected in monthly[4] routine DHIS2 data entry at the health center or district levels. These then can be used to calculate program specific indicators, from national to health center level. Other than during data preparation for the monthly bulletin at central level, or quarterly or bi-annual data reviews at regional levels held by the central NMCP and its partners, there is rarely feedback from the central, district or regional levels about data submitted by health centers, health posts, and CHWs.

PMI and other NMCP partners assist with monthly data quality reviews at the district level. Implementing partners with regional offices perform separate malaria data reviews, identify potential changes to expected data, and work with regional, district, and health centers to respond as needed. However, for myriad reasons, aggregate monthly data quality at the health center level, led by health center chiefs and supervised by district health officers, is often inconsistent. This leads to challenges or delays in identifying, investigating, and responding, if needed, to trends of concern occurring at the health center or the associated health post(s) and CHWs reporting their data to the health center.

Another ongoing challenge is expanding the awareness and effective use of an interoperability tool that connects the epidemiology data in the routine DHIS2 and the electronic logistics management information system (eLMIS). The aim of the interoperability tool is to facilitate the use of health center attendance and monthly medication stock data in order to manage stock required for quality, seasonally variable patient health care provision needs. The number of users trained and their geographic extent is currently limited by funding for interdepartmental training and supervision, not by lack of interest. Planned expansion of this capacity is gradual, currently in 247 of 498 public health facilities nationwide. The information generated by the eLMIS is important for stock use calculations, and to highlight pre-stockout and stockout states from central to health center levels. When linked to the routine DHIS2, and consistently implemented correctly at all levels, quality health care provision will improve.

OTHER CONTEXTUAL INFORMATION

Poor governance, corruption, and resultant instability under authoritarian presidents since 1958 have prevented Guinea from becoming one of Africa's leading countries and raising its citizens to a higher level of human development. Its political instability was demonstrated by a military coup on September 5, 2021.

Radio remains the most important source of information for the public, and the only one to reach the entire country. Radio call-in shows are popular, allowing citizens to express

[4] Weekly aggregate IDSR and case-based data are entered into the surveillance system managed by ANSS.

discontent with the government, and offering an opportunity for women to stay civically engaged and active.[5] Nevertheless, only 30 percent of women and 42 percent of men listen regularly to radio, and that figure is lower in urban areas (27 percent of women and 38 percent of men).[6]

The low level of health service use in Guinea is influenced by a number of factors, including financial barriers and perceptions of the low quality of health services and a general lack of confidence in the public health system. Other contributing factors include low and incorrect knowledge, and attitudes about health behaviors and risks. Poor access to health information, particularly among women, is also a factor. Another factor is the inconsistent quality and scale of social and behavior change programming.

Access to health services is exacerbated by unequal gender norms, such as limitations on women's physical mobility, norms requiring women to ask their husband for permission prior to leaving the home, and women's time burden related to household work.[7] Patterns of decision-making also play a role. The 2018 DHS found that only 59 percent of women 15 to 49 years of age reported having sole decision-making authority over their own health care, while 28 percent reported joint decision-making over their own health care. Gendered power dynamics regarding access to and control of resources—including income, patterns of decision-making, familial authority, perpetuation of social norms, and division of labor—affect health-related decisions and behaviors. In Guinea, child care, health, and nutrition are viewed as women's domain.[8] Though women may experience some autonomy within this domain (in deciding what to cook, etc.), they are still very much limited by unequitable decision-making practices that favor men. Men do not consult with their wife/wives on the allocation or use of household resources, including those needed for health-enhancing behaviors.[9] Women's decisions regarding mosquito net use, or where and when to access treatment for health services, may be overridden by male family members, especially if resources are required. In general, mothers-in-law are able to exert control over the behavior of new daughters-in-law, particularly in relation to household care and health-related behaviors.[10] Polygamous households also exhibit notable hierarchy and related patterns of power and division of labor among co-wives. Often, first wives are seen as the most powerful and can sometimes exploit or even abuse younger co-wives.[11] Traditional and religious chiefs exert a similar influence. Through their sermons, they encourage the faithful to sleep under ITNs and to promptly take their children to a health provider in the event of fever.[12]

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[5] United States Department of State, Bureau of Democracy, Human Rights and Labor. 2019 Country Reports on Human Rights Practices: Guinea. (Washington, D.C., 2019).
[6] *Institut National de la Statistique* and ICF. *Enquête Démographique et de Santé en Guinée* 2018. (Conakry, Guinée, and Rockville, Maryland, United States of America, 2019). .
[7] Key Stakeholder Interview/Survey, September 2020.
[8] Key Stakeholder Interview/Survey, August 2020.
[9] Ibid.
[10] Ibid.
[11] Ibid.
[12] Ibid.

The attitudes of health care providers and managers impede access to, and quality of, health services. Common attitudes include impolite and dictatorial staff and a general disrespect for those seeking care, especially in rural areas.[13] There is a prevalent perception that health-related issues will not be kept confidential. Single mothers are particularly susceptible to stigma and stereotyped treatment.[14] In addition, pervasive norms around masculinity prevent men from practicing and supporting appropriate health-seeking behaviors.[15] Informal (and in some instances formal) payment schemes associated with health care limit access to health services, with a disproportionate impact on women and adolescent girls. Insufficient female medical personnel affects female use of health services—in particular, lack of doctors and health center management.

Effective and consistent regulation, oversight, and performance monitoring of the health workforce are compromised by societal norms. These norms often encourage allegiances to social networks that guarantee promotions to higher paying posts, rather than to clients, managers, and supervisors. This lack of accountability, combined with an arbitrary health facility fee-based system, and low to non-existent government salaries, creates opportunities for health sector workers to find other means for supporting themselves, which can translate into corrupt activities (e.g., selling otherwise free commodities and the addition of hidden costs to otherwise "free" services).

III. NMCP STRATEGIC PLAN

The overall goal of the National Malaria Strategic Plan (NMSP) 2023–2027 is to contribute to the improvement of the health status of the population by significantly reducing the burden of malaria by the end of 2027. This falls within the framework of the country's vision, "A Guinea without malaria for sustainable socio-economic development."

The objectives of this vision are to:

1. Reduce malaria incidence by at least 80% compared to 2022.
2. Reduce malaria mortality by at least 80% compared to 2022.
3. Strengthen and maintain program management capacity at all levels by the end of 2027.

The malaria program's mission is to ensure universal access to quality malaria prevention and care services for the entire population in accordance with the national health policy. Through this strategic plan, the NMCP will intensify coordination, planning, partnership, resource management, advocacy for resource mobilization, and governance. Guinea NMCP has

[13] Key Stakeholder Interview/Survey, August 2020.
[14] Key Stakeholder Interview/Survey, September 2020.
[15] Laura Groggel, Aissatou Billy Sow, and Raymond-Marie Augustin Gnimassou. USAID/Guinea Country Development Cooperation Strategy Gender Analysis Report. (Banyan Global, Washington, D.C., November, 2020).

created a research committee to coordinate malaria research activities in Guinea in order to have visibility on the diverse malaria research projects in the country and to guide and prioritize activities based on NMCP strategy.

In 2021, Guinea conducted a malaria subnational tailoring risk stratification exercise with financial support from the Global Fund, technical assistance from WHO and the participation of all malaria stakeholders. The draft stratification report presented four models to the NMCP. They have not yet had the discussion around which scenario will be selected for Guinea.

IV. KEY MALARIA DATA

Malaria is endemic throughout Guinea. The country has made important progress in malaria control and prevention, substantially reducing malaria prevalence in children under 5 years of age, annual malaria incidence, and in-patient deaths. These gains were driven by the rapid scale-up of malaria prevention and control interventions, led by the country's NMCP and supported by PMI and the Global Fund. Comparison of indicator data from several surveys shows a substantial decrease in the prevalence of malaria parasitemia in children 6 to 59 months of age between the 2012 and 2016 surveys, and a slight increase in 2021 (Table 3). There is substantial regional variation in the ratio of bednet use to access across all regions (Figure 3). This may partially be related to the timing of national mass bed net campaigns every three years: 2013, 2016, 2019, and 2022.

EVOLUTION OF KEY SURVEY-BASED MALARIA INDICATORS

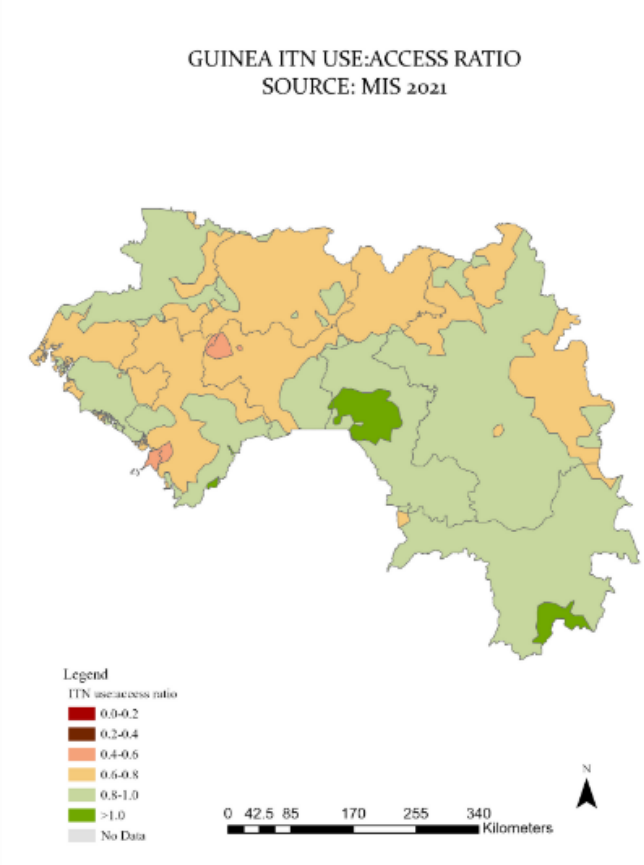
Community-level data are integrated into the broader HMIS, and these numbers are inclusive of both community- and health facility-level data.

Table 3: Key Survey Indicators

Indicator	2012 DHS	2016 MICS	2018 DHS	2021 MIS
% of households with at least one ITN	42	84*	44	63
% of households with at least one ITN for every two people	10	48*	17	22
% of population with access to an ITN	25	69*	31	42
% of population that slept under an ITN the previous night	19	64*	23	33
% of children under five years of age who slept under an ITN the previous night	26	68*	27	38
% of pregnant women who slept under an ITN the previous night	28	70*	28	39
% of children under five years of age with a fever in the last two weeks for whom advice or treatment was sought	53	42	62	61
% of children under five years of age with a fever in the last two weeks who had a finger or heel stick	9	17	21	28
% of children receiving an ACT among children under five years of age with a fever in the last two weeks who received any antimalarial drug	5	17	18	38
% of women who attended 4 ANC visits during their last pregnancy	22	49	35	58
% of women who received three or more doses of IPTp during their last pregnancy in the last two years	11	30	36	50
Rate of mortality rate among children under five years of age per 1,000 live births	123	88	111	N/A
% of children under five years of age with parasitemia by microscopy	44	15	N/A	17
% of children under five years of age with parasitemia by RDT	47	30	N/A	34

DHS: Demographic and Health Survey (DHS); ITN: Insecticide-treated mosquito net; MICS: Multiple Indicator Cluster Survey; MIS: Malaria Indicator Survey, District Health Information Software (DHIS2)
* ITNs indicators in 2016 were higher because the MICS survey was done after the ITNs mass distribution campaign.

Figure 3. ITN Use:Access Ratio Map



Source: MIS 2021

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

Indicator	2018	2019	2020	2021	2022
# of all-cause patient consultations	4,396,928	4,877,836	5,160,176	6,064,246	4,952,655
# of suspected malaria cases[1]	2,706,206	3,077,841	3,431,609	4,159,171	4,309,563
# of patients receiving diagnostic test for malaria[2]	2,693,952	3,036,927	3,396,830	4,113,163	4,176,597
# of malaria cases[3]	1,552,159	1,791,268	2,009,081	2,422,445	2,409,886
# of confirmed cases[4]	1,552,159	1,791,268	2,009,081	2,422,445	2,409,886
# of presumed cases[5]	0	0	0	0	0
% of malaria cases confirmed[6]	100	100	100	100	100
Test positivity rate[7]	58%	59%	59%	59%	58%
# of malaria cases among children under five years of age[8]	574,864	654,548	719,044	855, 084	804,907
% of cases among children under five years of age[9]	37	37	36	35	33
# of severe cases[10]	143,810	160,057	151,063	180,961	155,250
# of malaria deaths[11]	1,848	1,676	1,119	1,029	1,371
# of facilities reporting[12]	542	542	542	542	542
% of data completeness[13]	96	98	99	100	100

[1] Number of patients presenting with signs or symptoms possibly due to malaria (all patients presenting with a notion of fever or having a fever);
[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] # of confirmed cases divided by total # of cases;
[7] Confirmed cases divided by # of patients receiving a diagnostic test for malaria (RDT or microscopy);
[8] Outpatient and inpatient, confirmed and unconfirmed;
[9] Total # of cases of children under five years of age divided by total # of cases;
[10] Cases of *Plasmodium falciparum* malaria with at least one sign of severity*;
[11] All ages, outpatient, inpatient, confirmed, and unconfirmed;
[12] # of health facilities reporting data into the HMIS/DHIS2 system that year;
[13] # of monthly reports from health facilities divided by # 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	181,065	308,597	416,960	566,015
# of malaria cases reported by CHWs[1]	100,603	133,384	171,452	306,653
% of CHW reported cases (among total malaria cases)[2]	16%	19%	19%	13%

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

V. Other Implementation Information

Standard durability monitoring was done after the 2019 ITN mass distribution campaign in Guinea. Forécariah prefecture (receiving Yorkool ITNs) and Koundara prefecture (receiving PermaNet 2.0) were selected to conduct the monitoring. Of the 300 households recruited at baseline, 96 percent were still active after 12 months in Forécariah and 96.7 percent were still active in Koundara. Of the 776 campaign nets included in the cohort at baseline, 52.4 percent were still active after 12 months in Forécariah and 68 percent were still active in Koundara. At 24 months, the percentage of households that ever had holes in nets was significantly higher in Koundara (53.8 percent) compared to Forecariah (33.3 percent). At baseline, significantly more campaign nets were hung in Koundara (78.3 percent) than in Forécariah (57.6 percent) ($p<0.001$); however, at 12 months and 24 months, the difference was not significant due to a decrease in the percentage of campaign nets hanging in Koundara (62.3 percent at 12 months and 43.5 percent at 24 months). Overall, the percentage of campaign nets surviving in serviceable condition did not vary significantly by site for nets ever used (69.5 percent). Results from bio-assays of the 30 campaign nets sampled at each site showed higher effectiveness in Forécariah (Yorkool) than in Koundara (PermaNet 2.0).

Table 7: Results of Durability Monitoring

Site/Net Type	Survey and Time Since Distribution (months)	Attrition to Wear and Tear (%)	Nets in Serviceable Condition (%)	Optimal Insecticidal Effectiveness in Bioassay (%)
Forécariah/Yorkool	2019 campaign (24 months)	13.1	48.6	46.6
Koundara/PermaNet 2.0	2019 campaign (24 months)	17.9	58.2	30.0

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
2016[1,2]	Maferinyah	AL	100%
2016[1,2]	Maferinyah	AS/AQ	100%
2016[1,2]	Labé	AL	99%
2016[1,2]	Labé	AS/AQ	99%
2017[2]	Dabola	AL	97.1%
2017[2]	Dabola	AS/AQ	99%
2017[2]	Nzérékoré	AL	99%
2017[2]	Nzérékoré	AS/AQ	98%
2018[2]	Labé	AL	94.2%
2018[2]	Labé	AS/AQ	92.3%
2018[2]	Maferinyah	AL	92.4%
2018[2]	Maferinyah	AS/AQ	95.8%
2019[2]	Dabola	AL, AS/AQ	>90%*
2019[2]	Nzérékoré	AL, AS/AQ	>90%*
2021[2]	Dabola	AL	100%
2021[2]	Labé	AL	98.9%
2021[2]	Nzérékoré	AL	100%
2021[2]	Maferinyah	AL	100%
2021[2]	Nzérékoré	ASPY	97.3%*
2021[2]	Dabola	ASPY	94.2%*

AL = artemether-lumefantrine; ASAQ = artesunate-amodiaquine; ASPY: artesunate-pyronaridine
*PCR-uncorrected efficacy, PCR-corrected efficacy unavailable; PCR = polymerase chain reaction
[1] Beavogui, Abdoul Habib, Alioune Camara, Alexandre Delamou, Mamadou Saliou Diallo, Abdoulaye Doumbouya, Karifa Kourouma, Patrice Bouedouno, et al. “Efficacy and Safety of Artesunate–Amodiaquine and Artemether–Lumefantrine and Prevalence of Molecular Markers Associated with Resistance, Guinea: An Open-Label Two-Arm Randomised Controlled Trial.” Malaria Journal 19, no. 1 (June 24, 2020). https://doi.org/10.1186/s12936-020-03290-w.
[2] PMI study report

Guinea has a total of four fixed sites for therapeutic efficacy monitoring throughout the country: Maferinyah, Labé, Dabola, and Nzérekoré. Normally, two sites are active and rotate every

year. These studies prospectively assess the efficacy of and tolerance to ACTs used in Guinea for the management of simple malaria cases in children with uncomplicated malaria. Currently, therapeutic efficacy studies (TES) evaluate artemether-lumefantrine (AL) and artesunate-pyronaridine (ASPY), types of antimalarials.

Results: In the September 2021–February 2022 TES in N'Zerekore and Dabola, a study included a total of 420 at both sites. Of these,184 (43.8 percent) participants belonged to the ASPY arm and 236 (56.2 percent) to the AL arm. The preliminary results of this study showed an adequate clinical and parasitological response rate of 94.2 percent for ASPY in Dabola, 97.3 percent for ASPY in N'Zerekore, 92.6 percent for AL in Dabola, and 97.4 percent for AL in N'Zerekore.

The study conducted testing to assess resistance to sulfadoxine pyrimethamine (SP) on TES samples. A total of 869 samples from *Plasmodium falciparum* positive participants in TES conducted in 2017-2019 in N'Zérékoré, Dabola, Labé, and Forécariah prefectures in Guinea were sequenced for molecular markers of resistance that included *pfdhfr* (pyrimethamine) and *pfdhps* (sulfadoxine). While all three notable pfdhfr mutations were found at near fixation, rates of the key *pfdhps* K540E (3.3-7.7 percent) and A581G (1.1-3.4 percent) mutations were well below the World Health Organization (WHO) thresholds for meaningful SP resistance (prevalence of 95 percent for K540E and 10 percent for A581G). There was no indication of high-level SP resistance in any of these four sites.

VI. Key Policies

Table 9: Policies in Guinea

National Strategic Plan (2023–2027)	
National SM&E Plan (2018–2023)	
National Digital Health Strategy (2021–2025)	
National Social Behavior Change/Communication Strategy (2018–2023)	
National Supply Chain Strategy/Master Plan (2017–2024)	
National Vector Control Strategy and/or Integrated Vector Management Plan (2018–2022)	
Malaria Case Management Policy (February 2021,)	
What is/are the first-line treatment(s) for uncomplicated *P. falciparum* malaria*?	Artemether + Lumefantrine (AL) Artesunate+Pyronaridine (Pyramax)
What is/are the second-line treatment(s) for uncomplicated *P. falciparum* malaria*?	Artemether + Lumefantrine (AL) Artesunate+Pyronaridine (Pyramax)
What is the first-line treatment for severe malaria?	Injectable artesunate 60 mg
In pregnancy, what is the current first-line treatment for uncomplicated *P. falciparum* malaria in the 1st	Oral quinine Artemether + Lumefantrine (AL)

trimester?	
In pregnancy, what is the first-line treatment for uncomplicated *P. falciparum* malaria in the second and third trimesters?	Oral Artemisinin-based combination therapies (ACTs)
In pregnancy, what is the current first-line treatment for severe malaria?	Parenteral quinine
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? If so, what is the status of this policy change and implementation? (please include any plans for training providers on the new policy)	Yes, the MOH plans to update the policy on treatment of MIP in the first trimester. At this time we do not have a date when this policy will be updated. The case management manual will also be updated according to the new WHO recommendations.
Is pre-referral treatment of severe disease recommended at peripheral health facilities? If so, with what drug(s)?	Yes, specific pre-transfer treatment with artemisinin derivatives intramuscularly or as a suppository before being referred.
Is pre-referral treatment of severe disease with rectal artesunate recommended for community health workers?	Yes, specific pre-transfer treatment with Artesunate suppository.
Community Health Policy (2017)	
What is the # of CHWs currently providing Integrated community case management (iCCM)?	10,055. NB, while CHWs trained in iCCM and are furnished with malaria RDTs and treatment for simple cases, the government has yet to provide the remaining iCCM commodities, per its agreement with funders.
What is the country's target for the number of CHWs providing iCCM?	18,945
What percent of the country's target is met?	53%
Does the country have a policy that enables the routine, regular payment of salaries/stipends for CHWs/RECOs?	Yes. However, the current payment is supported by partners.
Do CHWs/RECOs have the authority to test and treat all ages for malaria?	Yes, They have been trained in malaria diagnosis at the community level with RDTs.
Prevention of Malaria in Pregnancy Policy (2014)	
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?	Second trimester (from week 13)
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, 2017.
What is the status of training ANC providers on the	The training encourages more than four contacts.

WHO recommended 8+ contacts?	
Have HMIS/DHIS2 and ANC registers been updated to include 8+ contacts?	Not yet, for the moment it is just mentioned four contacts or more.
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?	Enabling system is in place, in Global Fund focus regions, IPTp data are collected as single months and in PMI focus regions IPTp data are cohort data.
Is ANC/IPTp provided by facility staff conducting ANC outreach to communities?	Yes
Can CHWs/RECOs deliver IPTp and if so, which specific cadres and beginning with which dose? How many districts are targeted for c-IPTp implementation?	No

VII. PARTNER LANDSCAPE

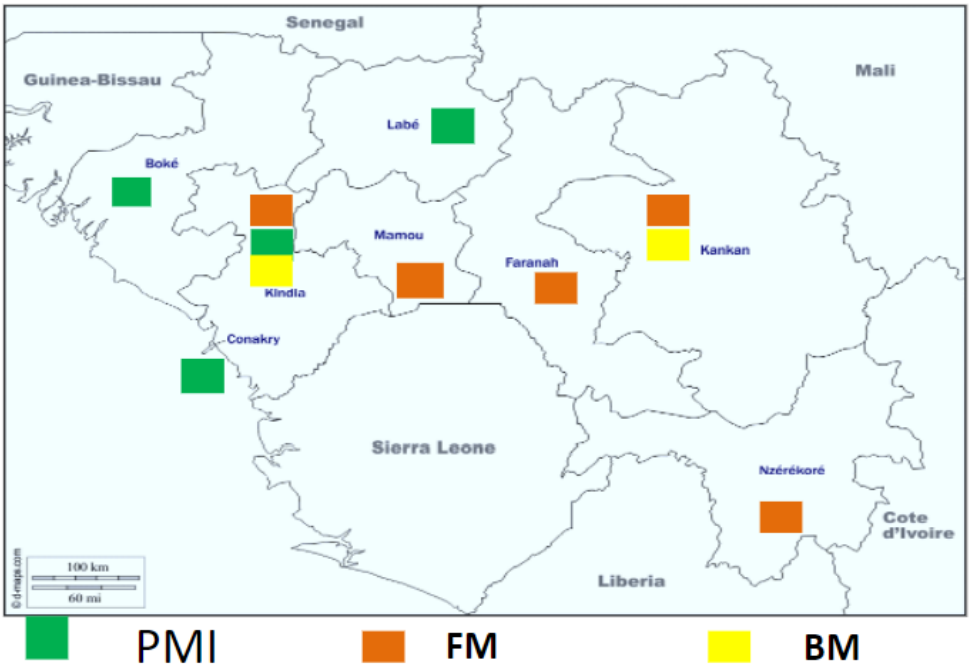
Table 9: Partner Landscape

Partner	Key technical interventions	Geographic coverage	Funding amount or in-kind contribution	Timeframe
Global Fund	• Support for 2022 nationwide mass campaign in 4/8 regions and 2 districts • Procurement of ITNs for mass campaign • Procurement of national needs for SP, ACTs, RDTs, and AS/AQ • Procurement of ITNs for routine distribution in 4/8 regions and 2 districts • Training and supportive supervision for all interventions (except IRS, entomology monitoring) in 4/8 regions and 2 districts. • Support the SMC in 10/17 SMC-eligible districts in the country	• Regions of Mamou, Faranah, Kankan, Nzerekore and two districts of Kindia for ITN campaign, and support for case management, MIP, SMC, and other routine malaria prevention and control activities • Some national support for HSS activities	$72,000,000 The country is now working on the Grant Cycle Seven (GC7) with $81,506,179 from Jan. 2024–Dec. 2026	Current NFM3 grant covers Jan. 1, 2020–Dec. 31, 2023.
Government of Guinea	• Procurement of ITNs		1,100,000 ITNs	2022

Partner	Key technical interventions	Geographic coverage	Funding amount or in-kind contribution	Timeframe
Against Malaria Foundation	• Procurement of ITNs for 2022 mass campaign	• Labe, Boke and three communes of Conakry	$4,903,034	2021
Impact SMC*	• Pilot of Pyramax in Siguiri district • Pilot of the 5th round of SMC in Dabola district	• Siguiri district • Dabola district	$600,000	2021-Ongoing
World Bank	• Support to CHWs: salary, training	2 districts in Kindia's region and all 5 districts in Kankan.	$137,000	2021, 2024

* Impact SMC, funded by Korea International Cooperation Agency, and implemented by Catholic Relief Services, London School of Hygiene and Tropical Medicine, Malaria Consortium, and Medicines for Malaria Venture.

Figure 4: Donor Support by Region



BM = Banque Mondiale (World Bank); FM = Fond Mondial (Global Fund).