PMI | U.S. PRESIDENT'S MALARIA INITIATIVE

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CDC

LAST UPDATED: 07/28/2023

BURKINA FASO 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 3 programs across the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. Burkina Faso began implementation as a PMI partner country in fiscal year (FY) 2017. Please see the Burkina Faso Malaria Operational Plan for more information on PMI's approach and investments.

II. CONTEXT

Table 1. General Demographics and Malaria Situation

Population	22,163,838 (NSP 2021–2025)
Population at risk of malaria	22,163,838 (NSP 2021–2025)
Malaria prevalence[1]	17% (2017–2018 MIS)
Malaria incidence/1,000 population at risk	568/1,000 (SP/Palu), HMIS 2021 (preliminary unvalidated data)
Peak malaria transmission	May to October

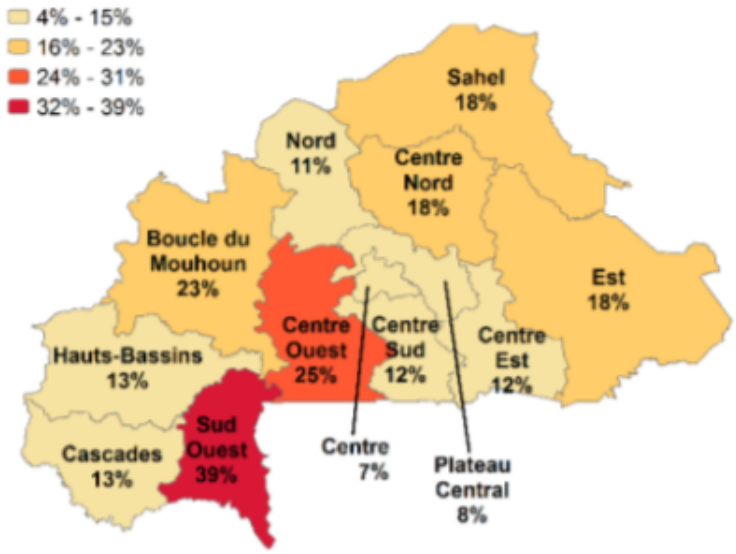
[1] Percentage of children under five years of age with parasitemia by microscopy. HMIS: health management information system; MIS: Malaria Indicator Survey; NSP: National Strategic Plan; SP/Palu: *Secrétariat permanent pour l'élimination du paludisme* (Permanent Secretariat for Malaria Elimination).

STRATIFICATION

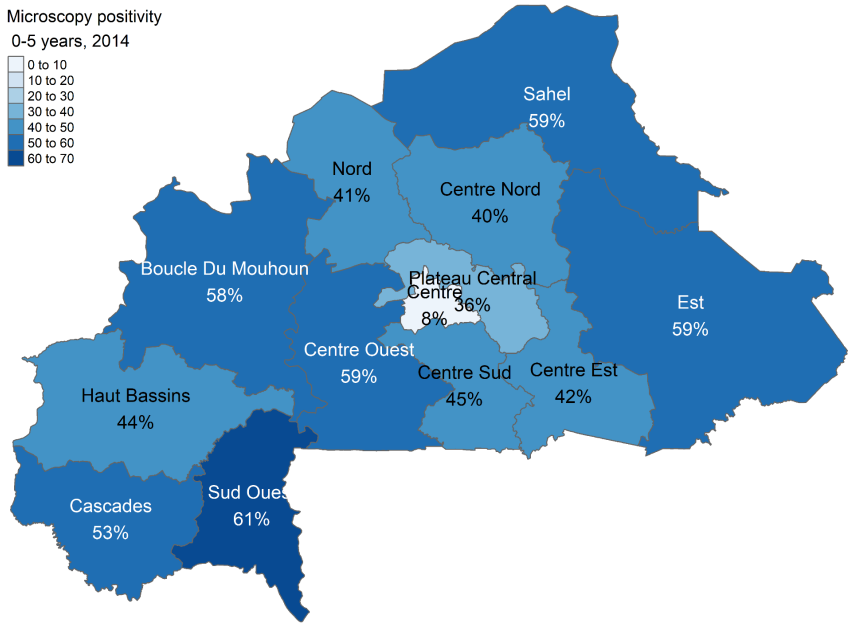
A stratification exercise is currently in progress.

Figure 1. Malaria Prevalence by Geographic Area Among Children 6–59 Months of Age Who Tested Positive for Malaria by Microscopy, 2017–2018 and 2014

2017–2018

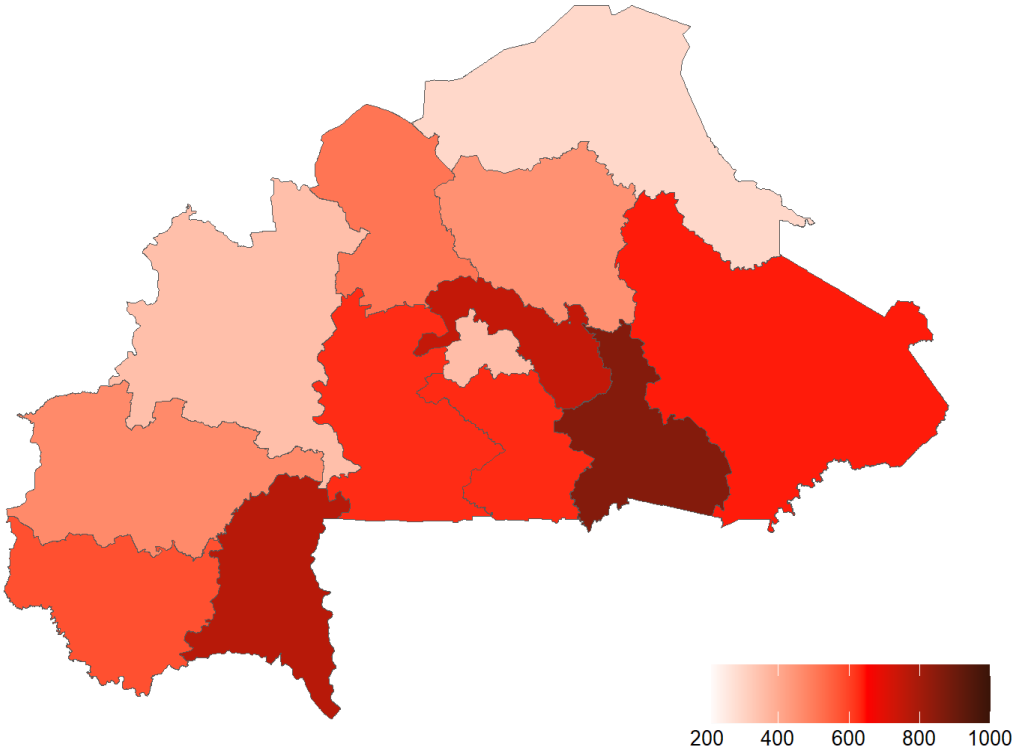


2014



Sources: 2014 MIS; 2017–2018 MIS. Note that the 2017–2018 MIS was implemented in the low-transmission season; therefore, these data may be underestimations.

Figure 2. 2020 Incidence Map by Region



Source: Statistical Yearbooks.

Table 2. Malaria Parasites and Vectors

Principal Malaria Parasites	*Plasmodium falciparum* (NSP 2021–2025)
Principal Malaria Vectors[1]	Members of the *Anopheles gambiae* complex are the principal vectors. In the western and southern part of the country *An. gambiae* predominates, *An. coluzzii* in Centre-Nord and Est regions with *An. arabiensis* interspersed. (NSP 2021–2025)

[1] See the entomological monitoring section of the Malaria Operational Plan for more details on vector bionomics and insecticide resistance and the indoor residual spraying section for details on residual efficacy. NSP: National Strategic Plan.

COUNTRY HEALTH SYSTEM

At the administrative level, the health system in Burkina Faso is organized into three levels:

- The central level is responsible for developing and monitoring the implementation of policies, mobilizing resources, and conducting management, and performance evaluation;
- The intermediate level is responsible for coordination and support to the regions; and
- The peripheral level is responsible for planning, management, and organization of health care provision.

Provision of Health Care Services

In terms of health care provision, there are three subsectors: public, private, and traditional medicine.

In the public subsector, according to the 2020 Statistical Yearbook, the health infrastructure includes five university hospitals at the tertiary level, nine regional hospital centers and one university hospital center at the secondary level, and 2,158 health care establishments at the primary level. In addition, specialized centers are being created for cancer, neurosurgery, physical medicine and rehabilitation, traditional medicine, and integrated care. The positioning of these centers in the architecture of the health pyramid is yet to be determined.

Private facilities are concentrated in the major cities, with three hospitals at the tertiary level, eight polyclinics at the secondary level, and 286 health care establishments at the primary level, in addition to 593 other health care structures, 243 pharmacies, and 661 pharmaceutical depots. Approximately 30,000 traditional health practitioners work individually in health care offices and herbalist shops.

In addition to the health care facilities, there is also a comprehensive community health system, which includes community health workers (CHWs) *(agents de santé à base communautaire),* community-based organizations, and other civil society actors involved in the health sector.

Under the current strategic plan for community health, there are two CHWs in each village (except in urban and peri-urban areas). The malaria prevention and control activities that the CHWs are permitted to perform depend on their distance from the nearest health facility. CHWs who are less than 5 kilometers (km) from the nearest health facility provide health promotion services, participate in prevention campaigns, and refer people to the nearest health facility. In addition to these functions, CHWs who are 5 km or more from the health facility are also able to provide malaria rapid diagnostic tests (RDTs), treat simple malaria, and in some parts of the country to provide pretransfer treatment for severe malaria with rectal artesunate.

At present, only a small proportion of malaria cases are reported by CHWs (see Table 5). However, the proportion has been increasing each year since the current community health system was introduced under the 2019–2023 National Strategy for Community Health. Additional support for training and supervision of CHWs, as well as for ensuring commodities are consistently available at the community level, is needed to accelerate progress toward increased community-level malaria case management.

All health facilities, including the private sector, provide malaria diagnostic tests as well as malaria treatment. At the peripheral level, the RDT for malaria is used, while at the hospital, microscopy is also available in addition to the RDT.

The *Secrétariat permanent pour l'élimination du paludisme* (Permanent Secretariat for Malaria Elimination, or SP/Palu), collaborates with the Division of Maternal and Reproductive Health through the National Coordinating Committee for Malaria. A technical group on case management and medical prevention, which includes malaria in pregnancy and of which the maternal and child health staff is a member, is hosted by the malaria steering committee and meets to consider relevant technical issues.

Since 2016, Burkina Faso has been implementing a policy of free health care for children under 5 years of age and pregnant women. Although some private insurance and pooled payment options exist in the country, the majority of other health care recipients pay for their care directly.

Supply Chain Management

Malaria commodities, along with all other essential products, are managed through the *Centrale d'achat des médicaments essentiels génériques* (Central Medical Stores, or CAMEG*)*, a nonprofit organization created by presidential decree in 1992. All essential products, regardless of source, enter the supply chain through CAMEG, which provides quality assurance, storage, and distribution services at the health district level. CAMEG does not provide distribution services from the district warehouses to points of care, and representatives from health facilities are responsible for transporting commodities from the district level to their respective facility.

Health Information Systems

There are two major routine health information systems in Burkina Faso. *Système national d'Information sanitaire* (national health information system, referred to as electronic HMIS or ENDOS collects monthly health facility reports from peripheral- and regional-level health information centers in a District Health Information System-2 (DHIS2) platform. There is also an Excel-based system for weekly integrated disease surveillance and response, called "TLOH." SP/Palu produces a weekly malaria bulletin using TLOH data, and annual reports are produced using ENDOS data. In addition to the two major systems, there are many health data sources and systems. A recent evaluation of the health information system identified 110 active databases, applications, and digital tools.

The Ministry of Health's *Direction des statistiques sectorielles* (data management directorate) is in the process of finalizing a new strategic plan for ENDOS. One of the objectives under the new plan is to reduce fragmentation in the system.

In addition to the streamlining efforts underway for the wider routine health information systems, SP/Palu is in the process of developing a DHIS2-based malaria data repository and accompanying dashboards.

OTHER CONTEXTUAL INFORMATION

According to the Global Terrorism Index 2022,[1] Burkina Faso has the fourth highest terrorism impact in the world, with three of the 10 most deadly global terrorist attacks in 2021 occurring in the country. The index also notes that, in 2021, Burkina Faso experienced the second highest number of total terrorism deaths after Afghanistan. The report describes the underlying drivers of the rapidly deteriorating situation in the Sahel as complex and systemic, including poor water utilization, lack of food, malnutrition, strong population growth, and weak governments.

Figure 3. Global Terrorism Index 2022, Impact of Terrorism Ranking

RANK	COUNTRY	SCORE
1	Afghanistan	9.109
2	Iraq	8.511
3	Somalia	8.398
4	Burkina Faso	8.270
5	Syria	8.250

The deteriorating security situation has led to what the United Nations Office for the Coordination of Humanitarian Affairs describes as a multidimensional humanitarian crisis. The Humanitarian Response Plan, published in March 2022, covers all 13 regions of the country and estimates that more than 5 million people are affected by the crisis, with an estimated 3.5 million people currently experiencing an acute need for humanitarian assistance. Additionally, as of February 28, 2022, there were 1.8 million people internally displaced as a result of ongoing violence (up from fewer than 50,000 in late 2018).

The health sector has been both directly and indirectly affected by the worsening security situation. Also, as of February 28, 2022, the Ministry of Health reported that 499 health facilities were affected by insecurity, 160 of which are completely closed, leaving an estimated 1.9 million individuals with restricted access to health care. Health facilities have been targeted

[1] Institute for Economics & Peace. 2022. *Global Terrorism Index 2022: Measuring the Impact of Terrorism*, Sydney. http://visionofhumanity.org/resources.

with violence, and 94 percent of the health facility closures are reportedly due to direct attacks by unidentified armed groups on the facilities themselves. Access to health care is also being indirectly impacted by the pressure on services resulting from large flows of internally displaced persons and lack of access to some populations due to armed groups cutting off and surrounding certain zones.[2]

Burkina Faso is also currently experiencing political instability. After a coup d'état on January 24, 2022, a transitional government is currently in place. Under the current transition charter the transition period is fixed at 36 months.

III. SP/PALU STRATEGIC PLAN

The current National Strategic Plan for Malaria Control (NSP) 2021–2025, draws from the overall National Plan for Economic and Social Development 2020–2022, which emphasizes malaria control and is in line with the Burkina Faso government's long-term vision of eliminating malaria in Burkina Faso by 2030. The NSP 2021–2025 objectives align with the global technical strategy of the World Health Organization (WHO) and PMI's strategy:

- Reduce the malaria death rate in Burkina Faso by 75 percent from 2015 levels by 2025;
- Reduce the malaria incidence rate in Burkina Faso by 75 percent from 2015 levels by 2025; and
- Reinforce SP/Palu malaria program management capacities in Burkina Faso by 2025.

The NSP 2021–2025 builds on the previous NSP and emphasizes the following focus areas:

- Parasitological diagnosis of malaria at public and private health facilities, community levels, and through quality control/quality assurance of laboratories;
- Treatment of malaria cases at public and private health facilities as well as at the community level;
- Prevention of malaria in pregnancy using intermittent preventive treatment for pregnant women (IPTp) with sulfadoxine-pyrimethamine (SP) and by providing insecticide-treated nets (ITNs) through routine distribution channels;
- Seasonal malaria chemoprevention for children 3–59 months of age;
- Vector control through universal access to ITNs, implementation of indoor residual spraying, larval source management in targeted areas, and management of insecticide resistance;
- Strengthening of communication through advocacy and social and behavior change;
- Strengthening commodity supply chain management;
- Surveillance, monitoring, evaluation, and research;
- Epidemic control and emergency management.; and
- Strengthening malaria program management.

[2] Bulletin N°25 du Cluster Santé, Burkina Faso: February 2022.

Of the 10 focus areas highlighted in the NSP 2021–2025, nine are aligned with PMI-supported key intervention areas and receive varying levels of PMI funds. Epidemic control and emergency management is a focus area of the NSP that has not received PMI support to date.

IV. KEY MALARIA DATA

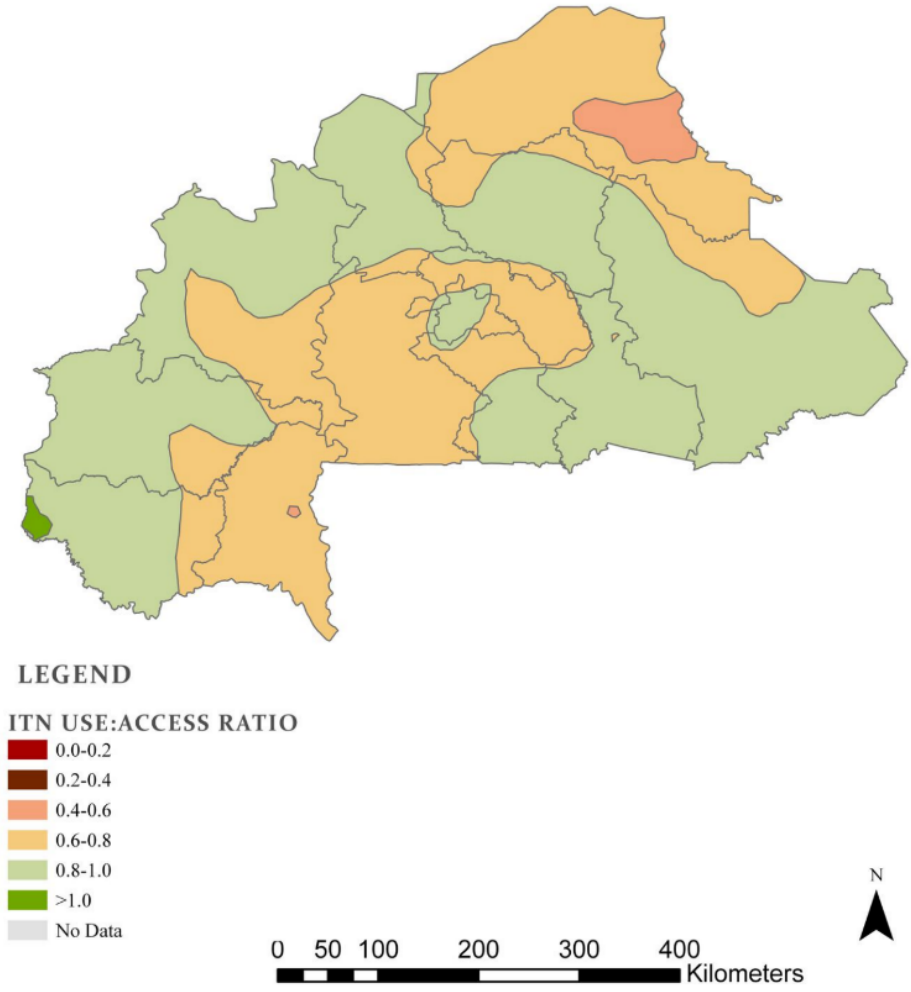
EVOLUTION OF KEY SURVEY-BASED MALARIA INDICATORS

Table 3. Key Survey Indicators

Indicator	2014 MIS	2017–2018 MIS	2021 DHS*
% of households with at least one ITN	90	75	83
% of households with at least one ITN for every two people	49	33	41
% of population with access to an ITN	71	55	64
% of population that slept under an ITN the previous night	67	44	41
% of children under the age of five who slept under an ITN the previous night	75	54	79
% of pregnant women who slept under an ITN the previous night	77	58	83
% of children under the age of five with a fever in the last two weeks for whom advice or treatment was sought	63	74	75
% of children under the age of five with a fever in the last two weeks who had a finger or heel stick	30	49	65
% of children receiving an artemisinin-based combination therapy among children under the age of five with a fever in the last two weeks who received any antimalarial drug	28	79	49
% of women who attended four ANC visits during their last pregnancy	48	82	72
% of women who received three or more doses of IPTp during their last pregnancy in the last two years	23	58	57
Mortality rate of children under the age of five per 1,000 live births	129 (2010 DHS)		48
% of children under the age of five with parasitemia by microscopy	46	17	14
% of children under the age of five with parasitemia by RDT	61	20	28

ANC: antenatal care DHS: Demographic and Health Survey; IPTp: intermittent preventive treatment for pregnant women; ITN: insecticide-treated net; MIS: Malaria Indicator Survey; RDT: rapid diagnostic test.

Figure 4. ITN Use-to-Access Ratio Map



Source: MIS 2017.

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

Indicator	2017	2018	2019	2020	2021	2022
# of all-cause patient consultations	28,158,858	30,501,472		29,739,180	32,789,481	30,849,900
# of suspect malaria cases[1]	N/A	15,339,224	18,116,946	15,109,304	16,954,871	16,460,340
# of patients receiving diagnostic test for malaria[2]	N/A	13,636,115	16,267,503	13,641,055	16,851,052	16,360,650
Total # of malaria cases[3]	11,915,816	11,970,321	13,020,946	11,311,560	12,231,086	11,656,675
# of confirmed cases[4]	10 527 304	10,589,000	12,120,940	10,347,928	11,557,181	11,136,402
# of presumed cases[5]	1,388,512	1,381,321	900,006	963,632	673,905	502,273
% of malaria cases confirmed[6]	88.3%	88.5%	93.1%	91.5%	94.49%	99.4%
Test positivity rate[7]	81%	77%	74.5%	75.9%	68.5%	68.1%
Total # of malaria cases in children under the age of five [8]	6,082,216	5,870,314	N/A	4,885,842	4,868,717	4,300,948
% of cases in children under the age of five[9]	51%	49%	N/A	43.19%	39.8%	36.9%
Total # of severe cases[10]	N/A	506 513	236,909	508,282	605,504	539,508
Total # of malaria deaths[11]	4,144	4,294	3,830	3,983	4,355	4,243
# of facilities reporting[12]	N/A	2,648	3,204	2,831	3,287	
% of data completeness[13]	95%	93%	60.2%	89.3%	96.5%	91.0%

Note: Community-level data are integrated into the broader HMIS, and these numbers are inclusive of both community- and health facility-level data. [1] Number of patients presenting with signs or symptoms possibly due to malaria (presenting with fever or history of 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] Number of confirmed cases divided by total number of cases. [7] Confirmed cases divided by 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 the age of five cases divided by total number of cases. [10] Number of confirmed cases with at least one of the clinical or biological signs of severity as listed in SP/Palu case management guidelines. [11] All ages, outpatient and inpatient, confirmed, and unconfirmed. [12] Total number of health facilities reporting data into the HMIS/DHIS2 system that year. [13] 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	127,617	243,397	367,844	420,308
Total # of malaria cases reported by CHWs[1]	86,471	171,048	247,746	279,155
% of CHW reported cases (among total malaria cases)[2]	0.66%	1.51%	2,03%	2,39%

[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. CHW: community health worker.

V. OTHER IMPLEMENTATION INFORMATION

PMI supports standard durability monitoring of all three types of ITNs distributed during the 2019 mass campaign: Interceptor G2, a dual-active ingredient ITN, in Banfora health district (Comoé province); Interceptor, a standard pyrethroid ITN, in Gaoua health district (Poni province); and PermaNet 3.0, a pyrethroid ITN with the insecticide synergist piperonyl butoxide, in Orodara health district (Kénédougou province). The 2019 mass distribution campaign took place in three stages between June and October, with differing distribution timing among study sites: PermaNet 3.0 ITNs were distributed between June and July, Interceptor ITNs in August and dual active ingredient (G2) ITNs in October.

The study compared the attrition, physical durability, survivorship, and bio-efficacy of nets distributed, and sought to identify major determinants of field performance. Baseline data collection was conducted in December 2019; the 12-month data collection survey was carried out between August and November 2020, and the 24-month data collection survey was carried out between July and November 2021. During each follow up, ITNs labeled at baseline were monitored for physical integrity of nets still present in the household and details recorded for any nets no longer present in the household (attrition). Potential factors affecting net durability were explored through a household interview. Information on ITNs obtained by the household outside of the 2019 campaign were also collected. ITN samples were also tested for bio-effectiveness and chemical content analysis.

Insecticides bioassays and tunnel tests conducted at 24 months for insecticide effectiveness showed differences in bio-effectiveness. Interceptor samples (from Gaoua) and G2 (Banfora) had optimal effectiveness while PermaNet 3.0 (Orodara) achieved 97 percent effectiveness (with the side panels showing reduced effectiveness compared with the roof panel). Results of available chemical test of ITN samples showed that after 13 months of field usage, there was 45 percent loss alpha-cypermethrin in Interceptor, 27 percent loss of chlorfenapyr, and 4 percent loss of alpha-cypermethrin in interceptor G2 while PermaNet 3.0 showed 18 percent loss of deltamethrin and an average of 62 percent loss on piperonyl butoxide content.

Table 6. Results of Durability Monitoring

Site/Net Type	Survey and Time Since Distribution (months)	Attrition to Wear and Tear (%)	Nets in Serviceable Condition (%)	Optimal Insecticidal Effectiveness in Bioassay (%)
Banfora/G2	1.4	0	100	-
	12	1.4	96.5	-
	24.1	13.9	84.2	-
Orodara/PermaNet 3.0	5.5	0	94.7	-
	14.4	5.1	95.7	-
	24.2	15.9	90.4	-
Gaoua/Interceptor	4.3	0	98.7	100
	13.1	9.7	97.1	100
	24.1	26.0	88.4	100

Table 7. Summary of Completed Therapeutic Efficacy Studies

Year	Site	Treatment Arm	Efficacy (PCR-corrected adequate clinical and parasitological result) for Each Drug at Each Site
2017–2018	Gourcy	AL	76% [66, 83]
2017–2018	Nanoro	AL	74% [64, 83]
2017–2018	Niangoloko	AL	92%
2017–2018	Gourcy	DP	84% [75, 89]
2017–2018	Nanoro	DP	89% [81, 94]
2017–2018	Niangoloko	DP	97%

PCR: polymerase chain reaction; AL: artemether-lumefantrine; DP: dihydroartemisinin-piperaquine.
Source: Gansané, A., L.F. Moriarty, D. Ménard, D., et al. 2021. “Anti-malarial efficacy and resistance monitoring of artemether-lumefantrine and dihydroartemisinin-piperaquine shows inadequate efficacy in children in Burkina Faso, 2017–2018.” *Malar J* 20 (48). https://doi.org/10.1186/s12936-021-03585-6.

VI. KEY POLICIES

Table 8. Policies in Burkina Faso

National Strategic Plan *2021–2025*, December 2020	
National Surveillance, Monitoring, and Evaluation Plan (*Guide de Surveillance*) November 2021	
National Health Information System Strategy 2021–2025 (plan in development)	
National eHealth Strategy: Proposed (development not yet in progress)	
2021–2025 Integrated Vector Management Plan: November 2020	
Malaria Case Management Policy: National Malaria Treatment Guidelines December 2020	
What is/are the first-line treatment(s) for uncomplicated *P. falciparum* malaria*?	DHA-PPQ, ASPY, and AL
What is/are the second-line treatment(s) for uncomplicated *P. falciparum* malaria*?	N/A
What is the first-line treatment for severe malaria?	Injectable artesunate and injectable artemether
In pregnancy, what is the first-line treatment for uncomplicated *P. falciparum* malaria in the **first trimester**?	Quinine
In pregnancy, what is/are the first-line treatment(s) for uncomplicated *P. falciparum* malaria in the **second and third trimesters**?	DHA-PPQ, ASPY, and AL
In pregnancy, what is the first-line treatment for severe malaria?	First trimester: quinine, second and third trimesters: injectable artesunate and injectable artemether
Is prereferral treatment of severe disease recommended at peripheral health facilities? If so, with what drug(s)?	Yes: Injectable artesunate, injectable artemether, and quinine
Is prereferral treatment of severe disease with rectal artesunate recommended for community health workers?	Yes
Community Health Policy: *La Stratégie nationale de santé communautaire* 2019–2023, December 2018	
What is the # of CHWs currently providing iCCM?	9,899 (2021, third quarter)
What is the country's target for the number of CHWs providing iCCM?	17,668 (target: 100% of CHWs)
What percent of the country's target is met?	56%
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: except for children under two months, pregnant women, and when severe malaria is suspected (CHWs more than 5 km from a health facility only).

P**revention of Malaria in Pregnancy Policy National Guidelines for Management of Malaria**, December 2020	
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?	Four ANC contacts are currently scheduled, but adoption of WHO recommendation is ongoing.
What is the status of training ANC providers on the WHO recommended eight or more contacts?	Not started yet. Adoption of WHO recommendation is ongoing.
Have HMIS/DHIS2 and ANC registers been updated to include eight or more contacts?	Not yet
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 six months prior?	
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?	Ongoing in pilot areas.

AL: artemether and lumefantrine; ANC: antenatal care; ASPY: artesunate pyronaridine; CHW: community health worker; DHA-PPQ: dihydroartemisinin-piperaquine; DHIS2: District Health Information System-2; HMIS: health management. information system; iCCM: integrated community case management; IPTp: intermittent preventive treatment in pregnancy; MCH: maternal and child health care; SP: sulfadoxine-pyrimethamine; WHO: World Health Organization.

VII. PARTNER LANDSCAPE

Table 9. Partner Landscape

Partner	Key Technical Interventions	Geographic Coverage	Funding Amount or In-kind Contribution	Time Frame
Global Fund	● Support for nationwide mass campaign in 2022 ● Procurement of national needs for SP ● Training and supportive supervision in 10 regions ● Social and behavior change nationwide ● Community health system strengthening	● National for ITN campaign ● 10 of 13 regions for other activities	$92.3 million	Current grant covers 2021 to 2024
Malaria Consortium	● Support for seasonal malaria chemoprevention campaign	27 districts	$7.3 million	Annually

ITN: insecticide-treated net; SP: sulfadoxine-pyrimethamine.