LAST UPDATED: 07/14/2023

CAMEROON 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. Cameroon began implementation as a PMI focus country in FY 2017. Please see the Cameroon Malaria Operational Plan for more information on PMI's approach and investments.

II. CONTEXT

Malaria is the most widespread endemic disease in Cameroon, responsible for greater than 2 million reported malaria cases annually and absenteeism from school and work. *Plasmodium falciparum* (*P. falciparum*) is the predominant species of mosquito responsible for transmission, with *Anopheles (An.) gambiae* s.l. the primary vector. Although the number of cases recorded in health facilities has stagnated since 2011 nationally, there has been an increasing trend starting in 2017. The number of deaths is on a downward trend since 2000. In response to this increasing burden, the Government of Cameroon has made the fight against malaria a priority, highlighting it in the country's Health Sector Strategy (2016–2027).

Table 1: General Demographics and Malaria Situation

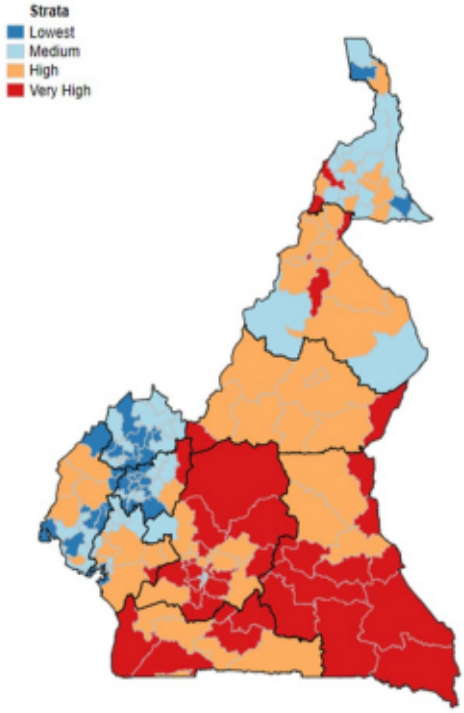
Population	27,795,843 (Cameroon National Institute of Statistics projections, 2022)
Population at risk of malaria	27,795,843 (District Health Information Software 2, 2022)
Malaria prevalence	26% among children 6-59 months via rapid diagnostic test (Cameroon Malaria Indicator Survey, 2022)
Malaria incidence/1,000 population at risk	120.2 (National Malaria Control Program Annual data, 2022)
Peak malaria transmission	Varies by region. In PMI-focus areas, the north and far north regions, peak transmission is from July to November.

STRATIFICATION

Figure 1 shows the overall malaria burden trend by district as estimated during stratification exercises conducted in 2020 and 2023 with the support of the World Health Organization (WHO). The risk categories were created using data on malaria prevalence, malaria incidence, all-cause mortality rate in children under five years of age, and malaria related mortality from health facility routine data. Note that PMI support is currently focused in the north and far north regions of the country. As depicted in Figure 1, malaria risk has mostly decreased between 2020 and 2023, with the highest risk districts concentrated in the southeastern, central and coastal regions of the country.

Figure 1: Malaria Risk Stratification Maps

A: 2020



B: 2023

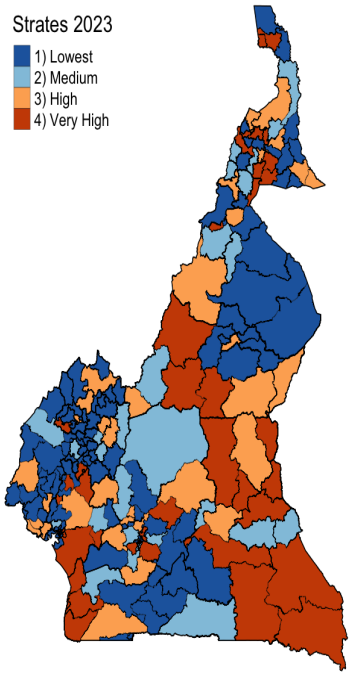
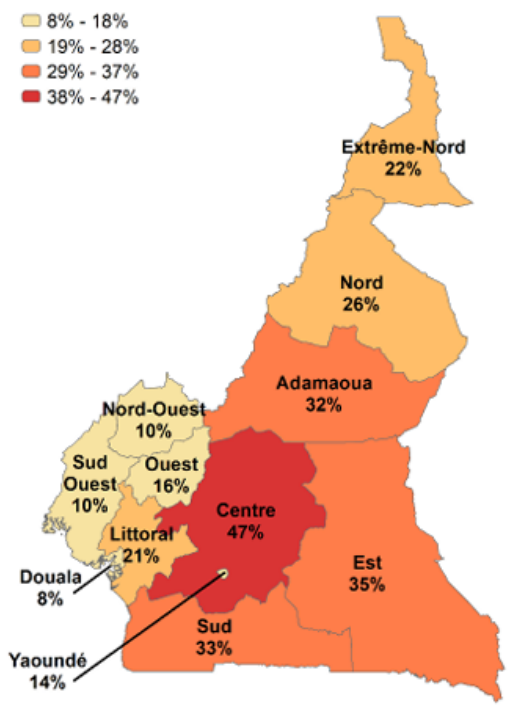
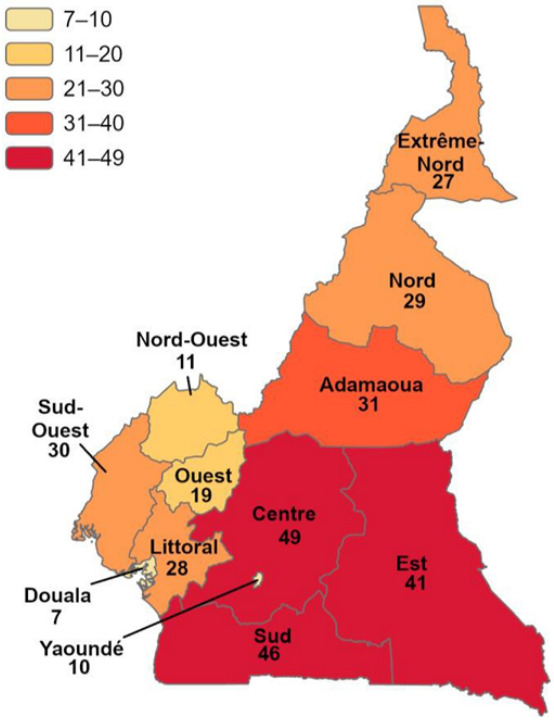


Figure 2: Malaria Prevalence Maps

A: 2018



B: 2022

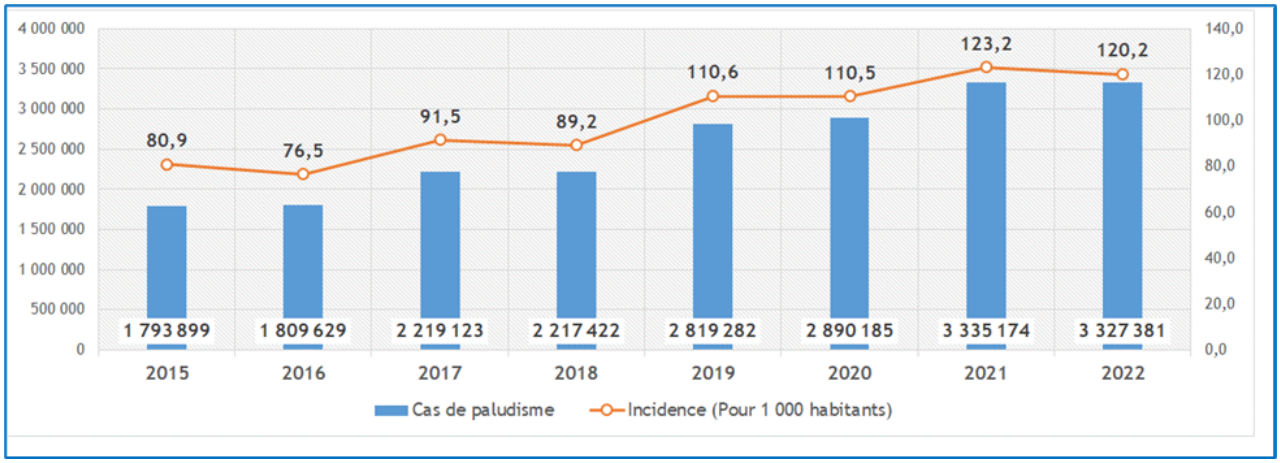


Source: 2018 DHS; 2022 MIS.

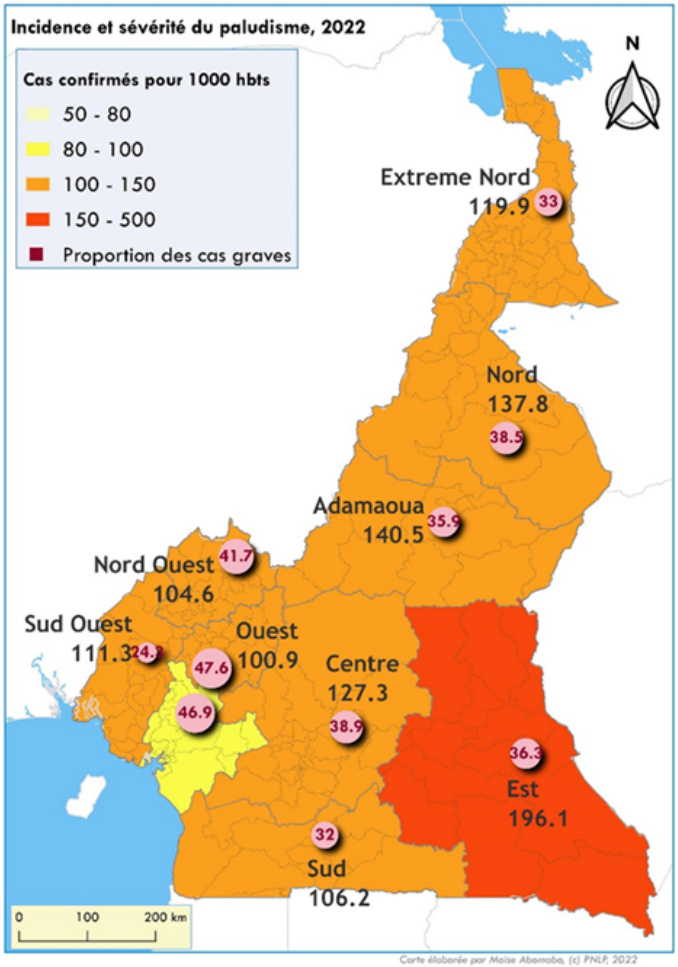
Prevalence of malaria as measured by RDT among asymptomatic children aged 6–59 months by region in the 2018 DHS and the 2022 MIS. Note the difference in categories between the two figures. Data collection for the 2018 DHS was done between June 16 and end of November for most of the country (except the Northwest and southwest regions where security issues were problematic). The 2022 MIS was conducted from August 22-December 1, 2022. Results from these two surveys show increasing malaria prevalence across all regions, though timing of data collection and transmission patterns, particularly in the northern regions with more pronounced seasonality, should be considered when comparing survey prevalence estimates.

Figure 3: Malaria Incidence

A: Trends 2015-2022



B: 2022 by Region



National data on malaria incidence as reported in the HMIS show increasing numbers of malaria cases per population detected between 2015 and 2022 (see Figure 3A). This may be partially due to improved detection and reporting. Reported malaria incidence is highest in the east region and lowest in the Littoral region in 2022 (Figure 3B). Also shown in Figure 3B is the proportion of malaria cases reported to be severe, which ranges from 32 percent in the south to 48 percent in the west.

Table 2: Malaria Parasites and Vectors

Principal Malaria Parasites	*Plasmodium falciparum* (National Strategic Plan, 2019)
Principle Malaria Vectors*	*An. gambiae* s.l. is the primary vector. Other vectors include *An. moucheti*, *An. nili*, *An. funestus*, and *An. arabiensis*. In the 10 sites tested, resistance to pyrethroids, chlorfenapyr, clothianidin was detected and piperonyl butoxide pre-exposure increased mortality but did not fully restore pyrethroid susceptibility. Six sites of the ten sites showed susceptibility of *An. gambiae* s.l. to clothianidin (4 µg/bottle). Seven sites showed susceptibility of *An. gambiae* s.l. to chlorfenapyr (100 µg/bottle) after 72 hours. Secondary vectors *An. paludis* and *An. pharoensis* have also shown resistance to pyrethroids when tested.

*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

Cameroon is a bilingual country with a young population of about 28,758,500 inhabitants and a growth rate of 2.5%. It is divided into ten semi-autonomous administrative regions, 58 divisions, 360 subdivisions with a total of 384 decentralized territorial bodies (regional councils, city councils, municipal councils) in line with the new law no. 2019/024 of December 2019 on decentralization. This law spells out modalities for full participation of decentralized territorial bodies in developing and managing health care facilities.

The health system of Cameroon is organized in a pyramidal structure with three levels:

The central level is made up of 11 directorates and 10 health programs of the Ministry of Public Health, the general and central hospitals. This first level handles administrative matters, policies, regulations, strategies, guidelines, norms and standards. It also plays the role of support and guidance to regions, advocacy, coordination, and supervision. It also includes several reference care structures (see table below).

The intermediate level is a strategic level and includes the 10 regional public health delegations, 14 regional hospitals, and the 10 regional funds for health promotion and supply chain management. This level ensures coordination and supervision as well as technical support to health districts and programs.

The operational or peripheral level is organized in 200 health districts and 1,795 health areas placed under the authority of a district medical officer who oversees the implementation of health programs and service delivery. There are 234 district hospitals; 1,384 medicalized health centers; 2,016 integrated health centers, including community participation and their dialogue structures that serve as a platform for co-management and co-financing of health and brings together community representatives and health staff to discuss health issues; and 2,506 ambulatory health centers. The health structures include those of the public sector and private sectors with no clear distinction. National health policies and treatment guidelines, including elimination of user fees, apply the same way in both sectors.

In addition, there are 1,298 structures for dialogue and community participation, including: district health committee (*comité de santé district* or COSADI), district management committee (*comité de gestion district* or COGEDI), management committee (*comité de gestion* or COGE), and health committee (*comité de santé* or COSA).

The operational level equally includes a network of over 9,000 multipurpose community health workers that offer a well defined package of curative, preventive and promotional care services and placed under the technical guidance of the leading health facility of the health area. The MOH receives only 5 percent of the state budget yearly. The operational level carries 85 percent of the disease burden but receives only 29 percent of the operational budget of the MOH excluding salaries (*PHC system cost benefit analysis)*.

Table 3: Levels of the Health System in Cameroon

Level	Administrative structure	Function	Care facilities	Dialogue structures
Central	• Office of the Minister, General Secretariat. • Technical departments (DLMEP, Programs)	• Policy development • Coordination • Regulation • Supervision	• General Hospitals, Hospital and University Center, Central hospitals and CENAME, CPC • CHRACERH,LANACOME, CIRCB, ONSP	• National Council of Health, Hygiene and Social Affairs
Intermediate	• 10 Regional Delegations of Public Health	• Technical support to Health Districts • Coordination • Regulation • Supervision	• Regional and hospitals; Regional Funds for Health Promotion.	• Regional Funds for Health Promotion
Peripheral	• 200 Health Districts (only 197 are functional)	• Service delivery • District Coordination • Regulation	• District Hospitals • Medicalized Health Centers • IHC (including mCHW)	• COSADI; COGEDI • COGE • COSA

CHRACERH: Centre Hospitalier de Recherche et Application en Chirurgie Endoscopique en Reproduction Humaine; CIRCB: Centre Internationale de Recherche Chantal Biya; COGE: Comité de gestion; COGEDI: Comité de gestion District; COSA: Comité de Santé; COSADI: Comité de Santé District; DLMEP: Département de Lutte contre les maladies, épidémies et pandémies; IHC: Integrated Health Center; LANACOME: Laboratoire Nationale de Controle des Medicaments Essentielle; mCHW: multipurpose community health workers; ONSP: Observatoire Nationale de Santé Publique.

The Health Sector Strategy 2016-2027 prioritizes the fight against malaria. The NMCP is the technical structure of the Ministry of Public Health under the disease control department responsible for the coordination and implementation of activities. It is integrated into the National Health System and includes a central technical coordination group and 10 regional technical groups. The NMCP receives technical and financial support from the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund) and PMI as their main partners among others such as BMGF, CRS, and UNICEF.

The provision of routine antimalarial care is integrated into the care packages recommended to the 6,124 public and private health facilities in the country but only 5,795 offer malaria services. Facilities offer malaria services in two ways: 1) supplying health facilities with RDTs, antimalarial drugs, distributing long-lasting insecticide-treated mosquito nets (ITNs), and administering intermittent preventive treatment of malaria to pregnant women (IPTp) received in antenatal care (ANC) consultations; and 2) training actors and the awareness-raising of beneficiary populations. Routine malaria control is periodically strengthened through mass ITN distribution campaigns and seasonal malaria chemoprevention (SMC) campaigns, which involve all levels of the health system.

To achieve its objectives, the NMCP has 41 technical and financial staff at the central level and a team of four to six people in each of the 10 regional technical groups.

- The national management system for medicines and other pharmaceutical products follows the health pyramid (ACT Management Guidelines, page 5). The CENAME ensures the acquisition, storage, and distribution of medicines and medical devices to the ten regional funds for health promotion. At the regional level, these funds ensure the storage and distribution of antimalarial drugs to health facilities. The health facilities ensure the dispensing of medicines to users and the supply of community health workers (CHWs).
- Health financing is provided by households (72.19 percent), the state (11.0 percent) and bilateral and multilateral technical and financial partners (14 percent) (National Health Accounts 2019). Cameroon has not yet met national and international commitments on health financing, including the Abuja commitment. The proportion of the state budget devoted to health is 4-6 percent. Malaria activities are financed by the Global Fund, PMI, the State, and households through cost recovery on inputs. Cameroon has been working towards Universal Health Coverage since 2015. About 45.9 percent of the population is covered by essential health services[1] with only 6.5 percent of the population being covered by a health insurance scheme.[2] Universal Health Coverage is in its first phase, launched on April 12th, 2023 in the east region. Malaria services include free consultation of children under five years of age and free treatment of uncomplicated and severe malaria in all ten regions. It also includes management of registered pregnant women and their newborn babies up to 42 days of age in the far north, north, Adamawa, east and south regions. Pregnant women are expected to contribute 6,000 FCFA to have access to comprehensive services during their pregnancy (including for the newborn). This first phase will cost 95 billion FCFA and the state is committed to provide 49.8 percent and expects the partners to contribute the rest. A coordination structure has been put in place for this first phase led by the regional delegates of public health for each region.
- The Health Information and Monitoring and Evaluation System of the Malaria Control Strategic Plan 2019–2023 is inspired by the Integrated Monitoring and Evaluation Plan of the Health Development Plan 2016–2020. The reporting system is integrated into the National Health Information System. From 2013 to 2022, malaria data reporting improved at the national level. The number of health facilities that report into the system has increased from 3,278 to 6,124. Efforts still need to be made to capture data from all 5,795 health facilities that manage malaria. In addition, malaria indicators are integrated into periodic national household surveys (DHS 2011 and 2018, Multiple Indicator Cluster Survey [MICS] 2014, and the Malaria Indicator Survey [MIS] 2022).
- Regarding the private sector, the Health Sector Strategy 2016–2027 distinguishes three sub-sectors (public, private, traditional). Private sub-sectors include: (i)

[1] World Health Organization. Primary Health Care on the Road to Universal Health Coverage 2019 Global Monitoring Report. (Geneva, Switzerland, 2019): https://www.who.int/docs/default-source/documents/2019-uhc-report.pdf.
[2] OASIS, 2015.

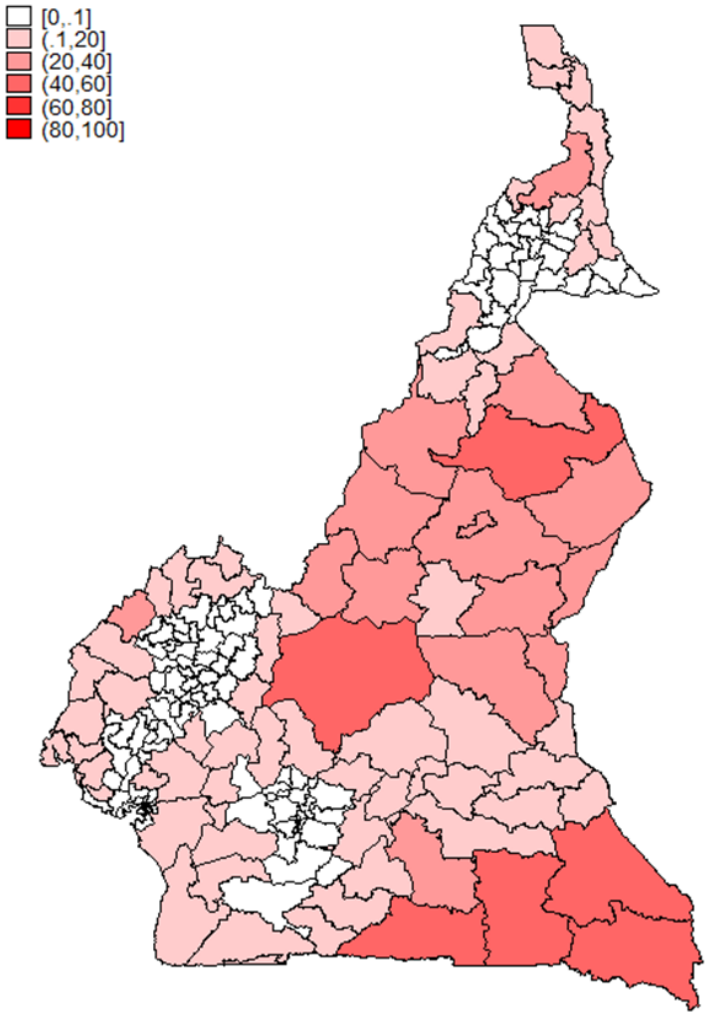
professional representations, (ii) parastatal and private companies integrating health into their social responsibility, (iii) civil society organizations, (iv) dialogue structures, (v) non-governmental organizations, (vi) community-based organizations, and (vii) private health facilities. The private subsector is complementary to the public subsector. They represent 54 percent of the service delivery, including private confessional health facilities (13 percent) and private secular health facilities (41 percent) (DHIS2). The main findings on this sub-sector that stand out are: (i) the private sector is investing in the fight against the three diseases (malaria, HIV and TB) in Cameroon; (ii) the potential and contribution of the private sector in the fight against the three diseases is not documented; (iii) coordination of private sector responses to the response is weak; (iv) there is a lack of knowledge of care providers' care protocols; (v) there are difficulties in collecting data and information to be put at the service of national programs; and (vi) the private sub-sector has untapped assets: program management, logistics, human resources management, and high-level advocacy.[3]

- Community participation is organized through dialogue structures at different levels. These include the health area health committee at the level of each health area, district health committee (COSADI) for each health district, hospital management committee (COGE) for each district hospital, and the regional fund for health promotion at the regional level. The National Council for Health, Hygiene and Social Affairs is the national dialogue structure, which coordinates all community activities at the national level, including community directed initiatives. It ensures the development of concepts, policy, strategies, coordination, and regulation of all community activities at the national level. This council is hardly functional. Its meetings are difficult to convene because this structure is under the authority of the Prime Minister's Office. At the regional level, the Regional Funds for Health Promotion are the structures of the Ministry of Health that play the role of dialogue structure. They provide technical support to health districts in the implementation of community activities. Most health areas had CHWs with different roles and profiles depending on the projects or programs that support them. Since 2016, community-driven interventions (CDIs) have been harmonized based on UNICEF pilot studies and multi-purpose CHWs have been trained to promote health and prevent and manage most health-related disabilities in their communities, including malaria. In total, the country has about 9,519 multi-purpose CHWs in 120 health districts for a total need of at least 11,000 outside the additional needs of insecure areas. The need is defined based on the population size and whether the health area is in an urban or a rural setting (see Figure 4). In rural settings, there is one CHW for 1,000 inhabitants, while in urban areas there is one CHW for 2,500 inhabitants. Areas of insecurity need to be completely covered. These CHWs are funded by different partners, as shown in Table 4. In addition, there are several civil society organizations and community-based organizations working in the field of public health that support the implementation of CDIs. A national CDI strategic plan (2021-2025) has been developed for the

[3] Country Dialogue Report 2020.

institutionalization and ownership of CHWs. A legal framework for community participation has been elaborated with support from PMI and submitted to the prime minister for signature. Aligned with this framework, CHWs in Cameroon are considered to be volunteers and will be eligible for a minimum monthly stipend of 40,000 CFA.

Figure 4: Percentage of Population Outside 5 km of Public Health Facilities, 2020



Source: GMP, WHO 2020

Table 4: Mapping of Community Health Workers in Cameroon

Funding Body	Implementing partner	Regions covered	Districts Covered	Health areas covered	Number of CHWs
Global Fund	Plan International	8	53	498	3,790
Global Fund	REACHOUT	2	27	154	1,920
PMI	Impact Malaria	2	16	156	2,104
UNICEF	DRSP	2	21	217	1,440
Mairie Akom 2	Mairie Akom 2	1	1	3	30
JHPIEGO	JHPIEGO	1	1	9	30
Medicine for Humanity	Medicine for Humanity	1	7	11	205
Total				**1,048**	**9,519**

OTHER CONTEXTUAL INFORMATION

The burden of malaria has been steadily on the rise from 2016 to 2022, with incidence increasing from 79.5 cases to 120.2 cases per 1,000 population, respectively. This steady rise especially affects children below five years of age and pregnant women. Mortality has improved but remains high, especially among children under five years of age. The coverage of the country in some key interventions, such as preventive treatment of malaria in pregnancy, ITN use, and community health workers remain low. This is mainly due to poor governance and a 50.6 percent gap in financing of the fight against malaria. Other drivers of the burden include vector diversity and rising vector insecticide resistance to pyrethroids, poor motivation of the workforce, and poor access to health services. The presence of community health workers has enabled access to care for those most in need. In Cameroon, treatment of malaria in children under five years of age is free and several preventive interventions are free to pregnant women and children. Prospects of including municipal councils and engagement of the private sector and civil society are promising. Other important challenges include:

- Weak intersectoral collaboration and weak community participation.
- Supply chain management problems with frequent commodity stockout, and irrational use of injectable artesunate.

PMI plans to buy into the national plan to transform the supply chain which has been elaborated.

Cameroon faces an unprecedented humanitarian situation in the far north, Adamawa, east, north west and south west regions caused by armed conflicts, intertribal wars, and terrorism from Boko Haram. In 2019, Cameroon had 1,214,714 people affected by the humanitarian crisis including 425,570 refugees and asylum seekers, 683,238 internally

displaced persons (IDPs) and 105,906 returnees (former IDPs) (UNHCR). In 2023, the number of refugees was 485,741 (Central Africans [73 percent] and Nigerians [26 percent]). Most CAR refugees are found in the eastern (17,4076) and Adamawa (60,404) regions. Nigerian refugees are mainly found in the far north (136,399) region where they make up a whole health area (Minawao refugee camp) in Mokolo health district. The health problems of refugees and migrants are like those of the host communities including injuries, measles, diarrhoeal diseases (such as cholera and dysentery), severe respiratory infections, and malaria. Epidemics are also very common in these emergency situations. Most health workers responding to emergencies have not been trained to respond effectively and efficiently to the health needs of people in emergencies.

III. NMCP STRATEGIC PLAN

Cameroon's new National Strategic Plan (NSP) for malaria control covers 2024–2028 and is the fifth iteration of a national strategy. The NSP articulates a vision of a Cameroon free from malaria. The stated mission is to ensure universal access to effective and affordable malaria prevention and treatment interventions for all Cameroonians, especially the most vulnerable and marginalized. The strategic focus is to accelerate intervention scale-up to reach universal coverage of key interventions and achieve a lasting impact on malaria morbidity and mortality. In addition to prioritizing the most vulnerable, interventions are targeted to zones with high population density, high endemicity, and intense seasonal transmission as recommended by WHO's High Burden to High Impact Initiative.

The goal of the 2024–2028 NSP is to contribute to improving the health of Cameroonians by reducing the health and socioeconomic burden of malaria. The objectives are to reduce malaria morbidity and mortality by 75 percent from 2015 levels by 2028, to reduce malaria incidence by 75 percent from 2015 levels by 2028, and to reduce malaria transmission to a very low level (pre-elimination threshold) in some health districts in the Sahelian zone of the country (i.e., far north region) by 2028. The NSP outlines specific interventions and activities that fall under six strategic areas. These activities are summarized below along with their associated objectives:

I. **Prevention:** Includes ITN distribution via mass campaigns, schools, and routine channels (ANC, Vaccination), promotion of ITN use, IPTp, SMC for children 3 to 59 months of age in the north and far north regions, and indoor residual spraying (IRS) in 12 health districts in combination with ITNs. The routine ITN distribution strategy will expand beyond distribution to pregnant women through ANC to include the Expanded Program for Immunization platform for children. Introducing IG2 nets with chlorfenapyr will be prioritized with the use of PBO ITNs in regions when necessary. Larval source management will be implemented by municipal councils in the big cities of the ten regions of Cameroon. Advocacy will be carried out to engage these councils to finance the IRS. Chemoprevention will involve routine and community administration of SP to pregnant women for IPTp and children below 2 years of age for perennial seasonal chemoprevention (PMC). SMC will continue in all health districts of the north and far

north regions targeting children 3–59 months through CHWs in most instances per WHO recommendations. The malaria vaccine will be rolled out according to an introduction plan elaborated jointly by the EPI and NMCP programs. In this plan, about 39 health districts will be prioritized all over the country.

II. **Case management:** Includes universal diagnostic confirmation of suspect cases, treatment of confirmed cases at health facility and community level according to national guidelines, use of artemether-lumefantrine (AL) rather than artesunate-amodiaquine (AS/AQ) as the first-line artemisinin-based combination therapy (ACT) in the north and far north regions due to SMC implementation, pretreatment of severe malaria and referral with rectal artesunate (RAS) at the community level, scale-up of integrated community case management (iCCM), pharmacovigilance, and supply chain strengthening. A quality assurance/quality control system will ensure strengthened diagnostics throughout the country.

III. **Communication:** Includes advocacy, behavior change interventions, social mobilization, social marketing and private partnership, and training of health agents, community actors, and journalists.

IV. **Training and research:** Includes training and creation of a critical mass of researchers (epidemiologists, entomologists) and the organization of working sessions on UHC at all levels of the health pyramid.

V. **Surveillance, monitoring, evaluation, and epidemic response:** Includes monitoring and evaluation (M&E) system strengthening, implementation of M&E, epidemiologic surveillance system strengthening, and epidemic response. The NMCP is elaborating a sentinel surveillance model that will focus on ensuring high-quality data from a purposefully selected group of health facilities throughout the country. These sites will also serve as research platforms for therapeutic efficacy studies and other operational research questions prioritized by the NMCP.

VI. Program management: Includes mobilization of funds, financial management, governance, planning, and partnership coordination. PMI works closely with the NMCP and other partners to coordinate support for activities to best support the National Strategy for Malaria Control. PMI and the Global Fund provide the majority of malaria funding to Cameroon. Other development assistance for malaria comes from WHO, the United Nations Children's Fund (UNICEF), and BMGF.

Aside from some central-level activities, most PMI funding supports NMCP activities in the north and far north regions, while the Global Fund focus is in the other eight regions.

IV. KEY MALARIA DATA

EVOLUTION OF KEY SURVEY BASED MALARIA INDICATORS

Table 5: Key Survey Indicators

Indicator	2011 DHS-MICS	2011 MIS	2014 MICS	2018 DHS	2022 MIS
% of Households with at least one ITN	36%	36%	71%	73%	72%
% of Households with at least one ITN for every two people	9%	N/A	37%	41%	49%
% of Population with access to an ITN	N/A	N/A	56%	59%	64%
% of Population that slept under an ITN the previous night	15%	15%	48%	54%	N/A
% of Children under five years of age who slept under an ITN the previous night	21%	21%	55%	60%	58%
% of Pregnant women who slept under an ITN the previous night	20%	20%	52%	61%	63%
% of Children under five years of age with a fever in the last two weeks for whom advice or treatment was sought	N/A	67%	33%	61%	56%
% of Children under five years of age with a fever in the last two weeks who had a finger or heel stick	N/A	N/A	16%	21%	27%
% 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	3%	13%	15%	21%	45%
% of Women who attended 4 ANC visits during their last pregnancy	62%	N/A	59%	65%	65%
% of Women who received three or more doses of IPTp during their last pregnancy in the last two years	N/A	N/A	26%	32%	46%
Mortality rate of children under five years of age per 1,000 live births	122	N/A	103	79	N/A
% of Children under five years of age with parasitemia by microscopy	N/A	N/A	N/A	N/A	N/A
% of Children under five years of age with parasitemia by RDT	30%	33%	n/a	24%	26%

DHS: Demographic and Health Survey; IPTp: intermittent preventive treatment during pregnancy; ITN: insecticide-treated mosquito net; MICS: Multiple Indicator Cluster Survey; MIS: Malaria Indicator Survey; RDT: rapid diagnostic test.

Figure 5. ITN Use:Access Ratio Map

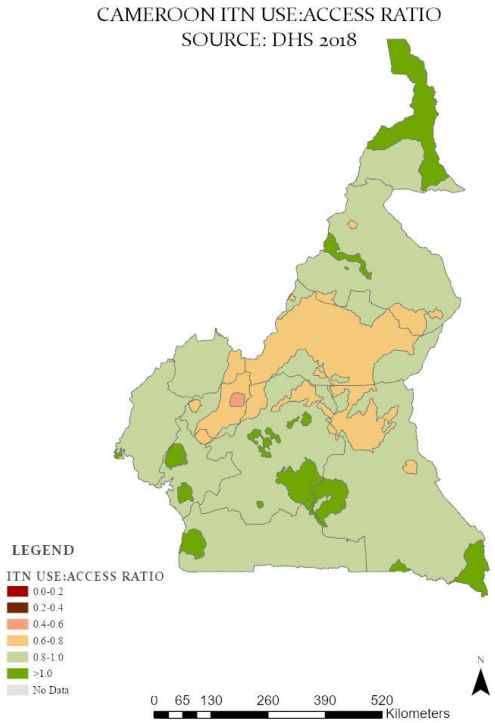


Figure 5 shows very high ITN use given access in the PMI-supported regions in the north and far north. On average, everyone with access to ITNs uses them, with more than two people using every available ITN in most of the far north region. In the rest of the zone, the use:access ratio is between .8 and 1, meaning that almost all who have access to ITNs use them. Note that the data are from the 2018 DHS survey. An updated use:access ration figure should be available soon from the 2022 MIS.

Figure 6 shows trends in the use of ITNs among the population living in households owning at least one ITN, from 2011 to 2022, by region. While great improvements in ITN use are evident from 2011 to 2018, progress appears to have stalled between 2018–2022. Recently, ITN use is highest in the far north and is lowest in the west.

Figure 6. Trends in Household ITN Use, 2011-2022

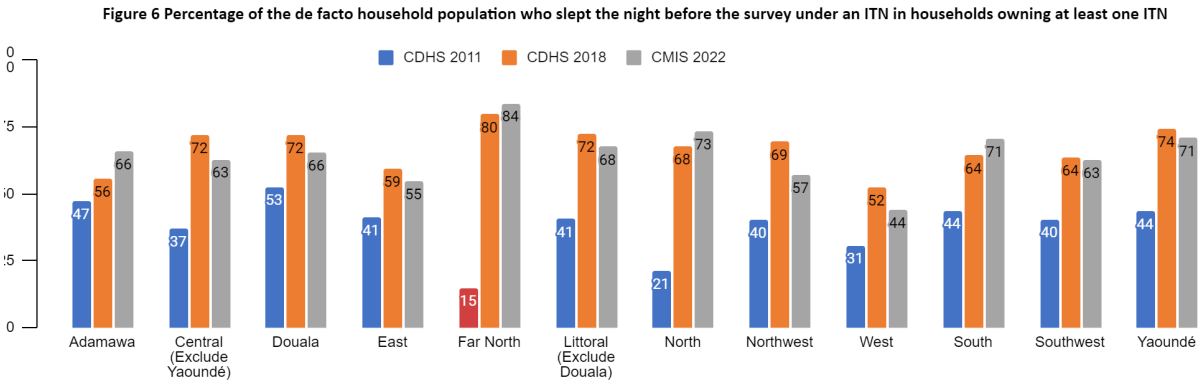
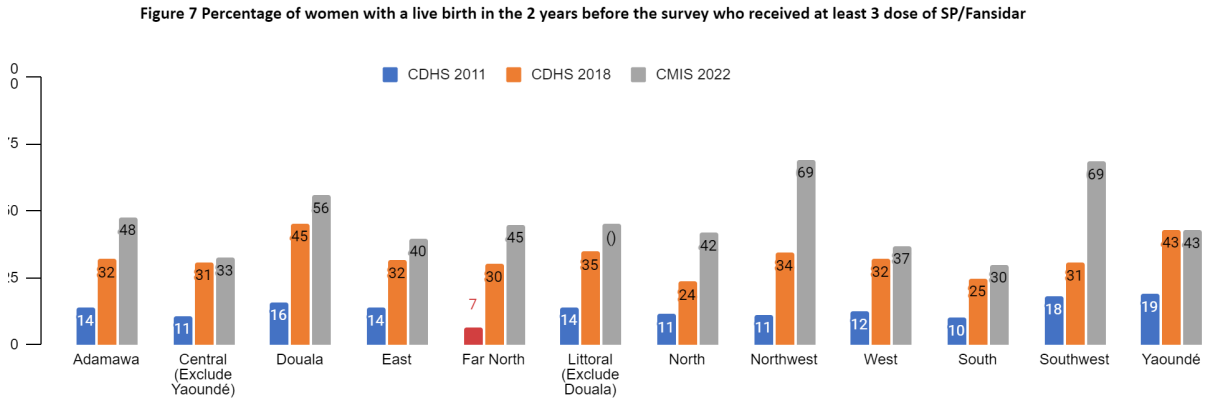


Figure 7 shows trends in the proportion of recently pregnant women receiving at least 3 doses of IPTp from 2011 to 2022, by region. Great progress is evident in IPTp3+ coverage over time. The highest IPTp3+ coverage in 2022 is seen in the northwest and southwest regions (69% in both).

Figure 7. Trends in IPTp3+ coverage, 2011-2022



Sources: Cameroon Demographic and Health Survey 2011; Cameroon Demographic and Health Survey 2018; Cameroon Malaria Indicator Survey 2022.

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

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

Indicator	2018	2019	2020	2021	2022
# of All-cause patient consultations	8,294,473	9,396,959	9,108,771	13,187,423	11,230,193
# of Suspect malaria cases[1]	3,410,077	3,991,275	4,000,258	5,202,307	5,162,188
# of Patients receiving diagnostic test for malaria[2,*]	3,652,991	4,024,154	3,972,167	4,841,366	4,905,754
Total # of malaria cases[3]	2,551,923	2,858,570	2,847,622	3,595,156	3,382,676
# of Confirmed cases[4]	2,139,482	2,641,083	2,719,953	3,335,174	3,327,381
# of Presumed cases[5]	412,441	197,994	125,822	159,982	55,295
% of Malaria cases confirmed[6]	83.8%	92.4%	95.5%	92.8%	98.4%
Test positivity rate[7,**]	59.8%	66.1%	68.5%	68.9%	67.8%
Total # of children under five years of age malaria cases[8]	792,507	942,069	909,655	1,193,688	1,153,758
% Cases in children under five years of age[9]	31%	32.9%	31.9%	33.2%	34.1%
Total # of severe cases[10, ***]	1,070,005	1,281,379	1,333,907	1,447,874	1,280,288

Indicator	2018	2019	2020	2021	2022
Total # of malaria deaths[11]	3,263	4 ,528	4 ,218	3,782	2,481
# of Facilities reporting[12]	5,846	5,065	5,617	5,795	6,015
% of Data completeness[13]	82.2%	85%	83%	89.2%	90.5%

Data sources and comments:

* In Cameroon, some suspected cases receive both tests (microscopy and RDT) resulting in # of diagnostic tests being higher than suspected cases.

** Lower than the actual situation because of an artificial increase in the denominator (see note above).

*** All malaria cases during pregnancy were considered severe until 2019, the new policy will be implemented in 2020.

Definitions:

[1] Number of patients presenting with signs or symptoms considered to be possibly due to malaria (e.g., this could be the number of patients presenting with fever or history of fever in the previous 24 or 48 hours);

[2] Number of patients receiving a diagnostic test for malaria (RDT or microscopy). All ages, outpatient, inpatient;

[3] Total # of cases: Total number of reported malaria cases. All ages, outpatient, inpatient, confirmed and unconfirmed cases;

[4] # of confirmed cases: Total diagnostically confirmed cases. All ages, outpatient, inpatient;

[5] # of presumed cases: Total clinical/presumed/unconfirmed cases. All ages, outpatient, inpatient;

[6] % of Malaria Cases confirmed: # of confirmed cases (# of 4 above) / Total # of cases (#3 above);

[7] Test Positivity Rate (TPR): Number of confirmed cases (#4 above)/Number of patients receiving a diagnostic test for malaria (RDT or microscopy) (#2 above);

[8] Total # of children under five years of age cases: Total number of children under five years of age cases. Outpatient, inpatient, confirmed, and unconfirmed;

[9] Total # of cases of children under five years of age (#8 above) / Total # of cases (# 3 above);

[10] Total # of hospitalized malaria cases plus all presumed and confirmed cases of malaria during pregnancy;

[11] Total # Malaria Deaths Reported: All ages, outpatient, inpatient, confirmed, and unconfirmed;

[12] Total # of health facilities reporting data into the HMIS/DHIS2 system for that year'

[13] Data completeness: Number of monthly reports received from health facilities/Number of health facility reports expected (i.e., number of facilities expected to report multiplied by the number of months considered).

Table 7: Disaggregated Community-Level Data

Indicator	2019	2020	2021	2022
# of Patients receiving diagnostic test for malaria from a CHW	235,838	287,358	327,726	597,338
Total # of malaria cases reported by CHWs[1]	265,459	308,636	440,021	490,681
% of CHW reported cases (among total malaria cases)[2]	9.3%	10.8%	12.0%	14.7%

CHW: Community health worker.

[1] Includes all ages, confirmed and unconfirmed.

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

V. Other Implementation Information

Following the 2022-2023 ITN mass campaign, streamlined durability monitoring has been planned for dual AI (IG2, 100 denier) and PBO (Duranet Plus, 150 denier) ITNs in Lagdo and Pitoa, where the campaign dates were September 2022 and December 2022, respectively. The pre-distribution time point bioassays and chemical content analyses are ongoing as of July 2023 and 12 month reporting is planned for December 2023.

Table 8: 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 (%)
Lagdo (north region)	12	Expected Dec 2023	Expected Dec 2023	Expected Dec 2023
Pitoa (north region)	12	Expected Dec 2023	Expected Dec 2023	Expected Dec 2023

Table 9: 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
2021	Center region: District Hospital Akonolinga, District Hospital Mfou, District Hospital Soa, District Hospital Mbalmayo, District Hospital Mbanjock, CMA Matomb	AL, AS/AQ	The study reported a high crude efficacy and tolerability of AS-AQ and AL for the treatment of uncomplicated P. falciparum malaria among children in Cameroon. The results showed a high frequency of the wild-type K76 allele in Pfcrt and the wild-type N86 allele in pfmdr1. The high frequency of the wild-type form of these two genes supported a population of CQ drug-sensitive. With the advent of ACT resistance in Southeast Asia and Africa, there is a need for continuous monitoring of the ACTs through therapeutic efficacy studies.
2022	North region: Guider District hospital, Figuil District Hospital	AL, DHA-PPQ	This study reported cure rates lower than the 90% WHO threshold for both drugs. However, AL and DHA-PPQ are safe for the treatment of uncomplicated P. falciparum malaria. Low rates of pfcrt 76T [mean VAF = 3.61% (0-15,99%)] were observed, suggesting a circulating parasite that may be sensitive to chloroquine. There's an urgent need to keep monitoring ACTs through therapeutic efficacy studies because of the spread of drug resistance.
2021[1]	Center region: Akonolinga, Mfou, Soa, Mbalmayo, Mbanjock, Matomb	AL	96.6%
2021[1]	Center region: Akonolinga, Mfou, Soa, Mbalmayo, Mbanjock, Matomb	ASAQ	100%
2022[1]	North region: Guider, Figuil	ASAQ	93.8%
2022[1]	North region: Guider, Figuil	DP	90.5%
2022[1]	North region: Guider, Figuil	AL	93.8%

AL: artemether-lumefantrine; ASAQ: artesunate-amodiaquine; DHA-PPQ: Dihydroartemisinin–piperaquine; DP: dihydroartemisinin-piperaquine; PCR: polymerase chain reaction;

[1]Fomboh, C., Deme, A., Nji, A,. Bigoga, J., Niba, P., Achu, D., Joel, A., Ngandeu, N., Cavros, I., Amhed, J., Mouliom, A., Mukamba, J., Tata, F., Chedjou, J., Souleymanou, S., Hedje, J., Diallo, M., Sy, M, Ngom, B., Gaye, A., Ndiaye, G., Sow, D., Sene, A., Ndiaye, I., Ndiaye, D., & Mbacham, W. Efficacy of artemether-lumefantrine, artesunate-amodiaquine, and dihydroartemisinin-piperaquine for the treatment of uncomplicated *Plasmodium falciparum* malaria among children in the center and North Regions of Cameroon, 2021–2022. (Pending publication)

VI. Key Policies

Table 10: Policies in Cameroon

National Strategic Plan (2024-2028)	
National Surveillance, Monitoring, and Evaluation Plan (2019)	
National Digital Health Strategy (2020–2024) ***Plan Stratégique National de Santé Numérique*** (2020–2024) **National Digital Health Strategic Plan**, Ministry of Public Health (2020–2024)	
National Social Behavior Change/Communication Strategy (2019–2023)	
Plan Stratégique pour le Renforcement de la Chaîne d'Approvisionnement de Santé Publique au Cameroun (2022-2026) (March 2022)	
N**ational Insecticide Resistance Management Plan** (2022, in preparation for publication)	
Malaria Case Management Policy ***Guide de Prise en Charge du Paludisme au Cameroun à l'Usage du Personnel*** (June 2019)	
National Community Health Strategy 2021-2025 Nov 2021	
Investment Case for Community Health 2021-2025; June 2021	
Cost-benefit analysis for primary health care in Cameroon (June 2022)	
What is/are the first-line treatment(s) for uncomplicated *P. falciparum* malaria*?	AL, ASAQ (Except in north and far north where SMC is done], DHAP
What is/are the second-line treatment(s) for uncomplicated *P. falciparum* malaria*?	
What is the first-line treatment for severe malaria?	Injectable artesunate
In pregnancy, what is the current first-line treatment for uncomplicated *P. falciparum* malaria in the first trimester?	Quinine tablets
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?	The NMCP to revise and validate the case management guide by the end of 2023. This is funded under the current Global Fund grant. This revision will include WHO policy change of using AL as treatment of uncomplicated malaria in the first trimester. After validation of the new guide, PMI through its bilateral projects will support the refresher training of health workers on MIP and case management.
In pregnancy, what is/are the first-line treatment(s) for uncomplicated *P. falciparum* malaria in the second and third trimesters?	Same as for non-pregnant adults
In pregnancy, what is the first-line treatment for severe malaria?	Injectable quinine in the first trimester and injectable artesunate from the second and third trimester.
Is pre-referral treatment of severe disease recommended at peripheral health facilities? If so, with what drug(s)?	Yes, Injectable artemether

Is pre-referral treatment of severe disease with rectal artesunate recommended for community health workers?	Yes
Community Health Policy (November 2021)	
What is the # of CHWs currently providing iCCM?	9,000
What is the country's target for CHWs providing iCCM?	15,000
What percent of the country's target is met?	86.5%
Does the country have a policy that enables the routine, regular payment of salaries/stipends for CHWs?	In process
Do CHWs have the authority to test and treat all ages for malaria?	Yes
Prevention of Malaria in Pregnancy Policy (addressed in the NSP, 2019-2023)	
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?	13 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 8+ contacts?	Ongoing
Have HMIS/DHIS2 and ANC registers been updated to include 8+ 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 6 months prior?	Single months
Is ANC/IPTp provided by facility staff conducting ANC outreach to communities?	Yes, but not very frequently
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, but only from the second dose and in areas of armed conflicts. Primary focus will be on the northwest, southwest and far north regions, but the new NSP plans to scale this up nationally.

AL: Artemether-lumefantrine; ANC: antenatal care; ASAQ: Artesunate -Amodiaquine; ASPY: Artesunate-pyronaridine; CHW: community health worker; DHAP: Dihydroartemiscinin-piperaquine; IPTp: intermittent preventive during pregnancy; MIP: malaria in pregnancy. SMC: seasonal malaria chemoprevention.

VII. PARTNER LANDSCAPE

Table 10: Partner Landscape

Partner	Key technical interventions	Geographic coverage	Funding amount or in-kind contribution	Timeframe
Global Fund	• Support for nationwide mass campaign in 2025 • Procurement of malaria commodities for 8 regions • Training and supportive supervision in 8 regions • Vector control • Surveillance, monitoring, and evaluation	• National for ITN campaign • 8 of 10 regions for other activities	€110,367,028	New funding cycle grant will cover 2024 to 2026
UNICEF	• Training of community health workers • Support in health management information and reporting system	• 16 Health districts in the north, far north and Adamaoua regions for iCCM • National for HMIS	US$3.5M	CY 2023
GIZ	• Health Dialogue structures strengthening • Project BackupHealth	• Nationwide • Global program	€2M	2020-2023
Bill & Melinda Gates Foundation	• (Still targeting activities)	• Nationwide		
Government of Cameroon	• Support for ITN mass campaign • HMIS • Coordination	Center, southwest and south regions for ITN campaign Nationwide for HMIS and coordination		
Others (AKOM 2 council, IHS tower)	• CHWs support • SBC	1 Health District in the south region for AKOM II council north and far north for IHS tower		

HMIS: health management information system; iCCM: integrated community case management; ITN: insecticide-treated mosquito net.