PMI | U.S. PRESIDENT'S MALARIA INITIATIVE

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LAST UPDATED: 06/01/2023

CAMBODIA 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. Cambodia began implementation as a PMI focus country in FY 2011. Please see the Cambodia Malaria Operational Plan for more information on PMI's approach and investments.

II. CONTEXT

Table 1. General Demographics and Malaria Situation

Population	17,126,530 (Royal Government of Cambodia population estimates, 2022)
Population at risk of malaria	9,355,212 (Cambodia Ministry of Health Malaria Information System, 2022)
Malaria prevalence	N/A*
Malaria incidence/1,000 population at risk	0.24 per 1,000 population (Cambodia Ministry of Health Malaria Information System, 2022)
Peak malaria transmission	May–October

* Malaria prevalence estimates are not available given Cambodia is an elimination setting.

STRATIFICATION

Cambodia's National Center for Parasitology, Entomology, and Malaria Control (CNM) conducted a village risk stratification in 2022 to update distribution of village malaria workers (VMWs) and mobile malaria workers (MMWs). Three parameters were used: (1) annual parasite incidence,; (2) proportion of forest cover; and (3) distance of village to the nearest health facility. Among villages farther than 5 kilometers (km) from the closest health facility, 2,707 villages were identified as having at least medium risk of malaria transmission, all of

which are currently covered by VMWs. Village-level malaria risk stratification from 2022 is shown in Figure 1.

Figure 1. Village Malaria Risk Stratification in Cambodia, 2022

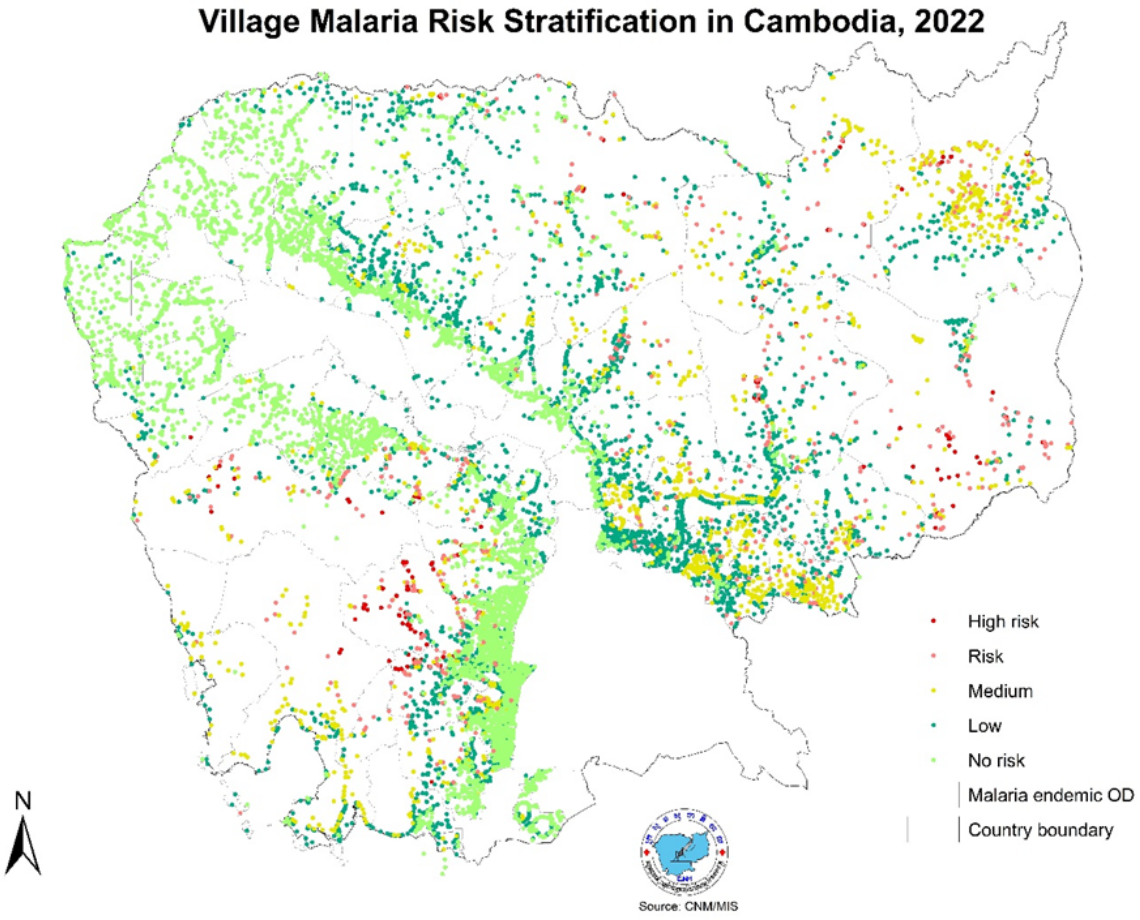


Table 2. Malaria Parasites and Vectors

Principal malaria parasites	*Plasmodium falciparum* (10%), *P. vivax* (90%)
Principal malaria vectors[1]	Primary: *Anopheles dirus*, *An. minimus* Secondary: *An. maculatus*, *An. peditaeniatus*, *An. barbirostris* group, *An. phillipinensis*, *An. vagus*, *An. hyrcanus* group Primary vectors are largely susceptible to pyrethroids where tests have been conducted.

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

COUNTRY HEALTH SYSTEM

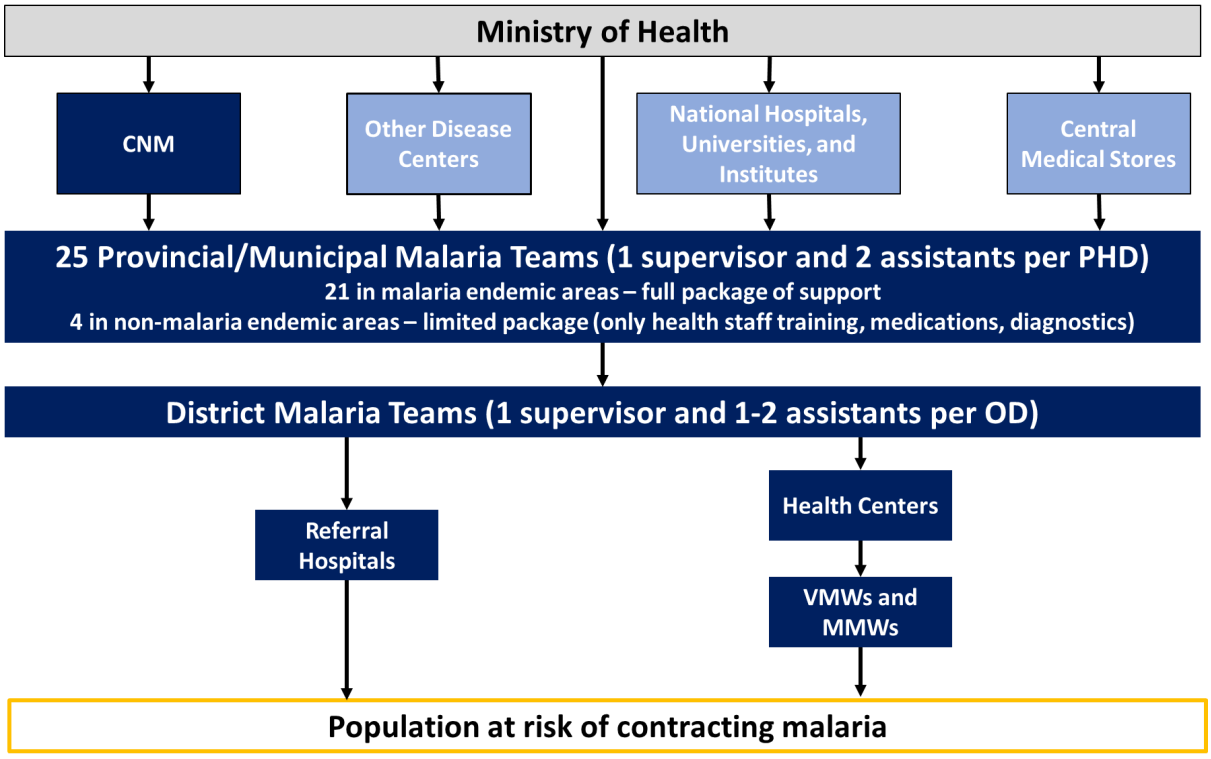
The Ministry of Health oversees the delivery of health care services through the public sector (Figure 2). Health care service delivery is organized into 24 provincial health departments, each with a provincial hospital, and further subdivided into 105 health operational districts,[1] covering approximately 100,000 people each. Phnom Penh has a distinct Municipal Health Department. Malaria transmission persists in 21 of the 25 provinces, including in 55 operational districts. District referral hospitals deliver a complementary package of mostly secondary care. Basic primary care is provided at health centers, which are distributed geographically by population density (with each center covering approximately 10,000–20,000 people).

At the end of 2019, the Ministry of Health launched a decentralization and deconcentration initiative to transfer assets and responsibilities to the provincial health departments under their respective provincial governors. This initiative is still gaining momentum, and the new National Strategic Plan (2022–2030), which has not yet been released, may offer additional guidance on the transition. Until the policy is widely implemented, the ministry will continue to direct the majority of health services at the subnational level.

In Cambodia, CNM, a specialized institution set up by the Ministry of Health, is responsible for the control and elimination of vector-borne and parasitic diseases, including malaria. In the 21 provinces experiencing malaria endemic, there is a provincial malaria supervisor in every provincial health department and an operational district malaria supervisor in every operational district to manage and oversee malaria services at health centers, as well as a vast network of VMWs and MMWs.

[1] Operational districts differ from administrative districts, which are the second-tier administrative divisions within provinces that provide local public services, other than health. The geographic boundaries for the two types of districts do not align. As of early 2022, there were 105 operational districts and 198 administrative districts in Cambodia.

Figure 2. Malaria Service Delivery in Cambodia



Source: Adapted from National Malaria Programme Review, Kingdom of Cambodia, 2019.

VMWs and MMWs are community-based lay health workers recruited and trained by provincial malaria supervisors or operational district malaria supervisors and their staff, often with the support of community-based organizations funded by the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) or by PMI. As the name implies, village malaria workers are village-based community health workers who provide specific malaria services, and mobile malaria workers provide malaria services to mobile populations in remote and hard-to-reach areas. VMWs and MMWs are the foundation of case detection, treatment, and surveillance activities for malaria elimination in Cambodia. As of April 2023, 2,948 villages were covered by VMWs or MMWs, and approximately 5,400 malaria workers have been trained. As a result, VMWs and MMWs are often the first access point for diagnosis and treatment of uncomplicated malaria. In 2022, more than 60 percent of malaria cases were diagnosed by a VMW or MMW using point-of-care rapid diagnostic tests rather than at health centers. As malaria has increasingly become diagnosed by VMWs and MMWs, fewer blood smears are being collected to be read by a microscopist at the district referral hospital, although this will need to change to diagnose infections and eliminate all species of malaria from Cambodia. Microscopy is still recommended for initial diagnosis and follow-up of severe cases and to monitor therapeutic efficacy of antimalarial drugs. Since April 2018, the Ministry of Health has banned all malaria diagnosis and treatment in the private sector; private providers are expected to refer patients with suspected malaria to public facilities.

When a case is diagnosed, a VMW, MMW, or health center staff person uses a mobile phones or tablet to upload in real time case details, including geolocated data, to CNM's Malaria Information System, which triggers an alert to malaria response teams at CNM and at the relevant provincial health department, operational district, and health center. This real-time case reporting system, which was expanded nationally in 2020, provides malaria case data down to the village level, allowing for the identification of villages at high risk and rapid response.

OTHER CONTEXTUAL INFORMATION

Cambodia is in its third decade of peace and economic growth and has made great strides in reducing poverty and improving health. With these gains comes better access to services, including malaria testing and treatment. However, significant obstacles remain. Democracy and human rights continue to be a challenge, natural resources have been rapidly depleted through illegal logging and poaching, inadequate nutrition has stunted over 30 percent of children, and human trafficking persists. Illegal forest activities provide new breeding grounds for mosquitoes, disrupt their habitats, and expose populations to their malaria-transmitting bites. In addition, the often long distance from a forest worksite to the nearest health care provider, as well as the opportunity costs and fear of legal reprisal, create barriers to prompt and proper health seeking. As such, some malaria cases may be detected late and treated late, and some individuals may not adhere properly to quality medication. Additionally, a patient might obtain medication from a private provider or other source, despite the ban, that is not in compliance with national treatment guidelines or that is low quality.

The COVID-19 pandemic had a marked effect on health services in general, pushing health providers to increasingly rely on virtual means of communication. While this is acceptable and efficient for some activities, others are less conducive to virtual communication, e.g., community engagement, social and behavior change, and commodity distribution. Also, nonspecific symptoms exhibited by those with malaria, particularly fever, led some health providers to be reluctant to request patient testing and treatment.

Finally, as malaria cases decrease, it becomes harder to keep malaria awareness and practices at acceptable levels. It also makes it harder for populations to continue participating in prophylactic programs (e.g., intermittent preventive therapy for forest-goers with artesunate-mefloquine [AS-MQ] and targeted drug administration for male persons ages 15–49 with AS-MQ) in the presence of side effects (although these would be mitigated as artesunate-pyronaridine [AS-PYR] is fully introduced). Low rates of test positivity and testing fatigue can pose barriers to forest-goers eligible for malaria testing. Such activities would likely benefit from continued quality social and behavior change activities to raise awareness.

III. NMP STRATEGIC PLAN

CNM developed the Malaria Elimination Action Framework (MEAF 2021–2025) based on guidance from the World Health Organization (WHO) Strategy for Malaria Elimination in the Greater Mekong Subregion (2015–2030) and is aligned with the principles of the WHO Global Technical Strategy for Malaria 2016–2030. The framework details three primary objectives for malaria elimination in Cambodia:

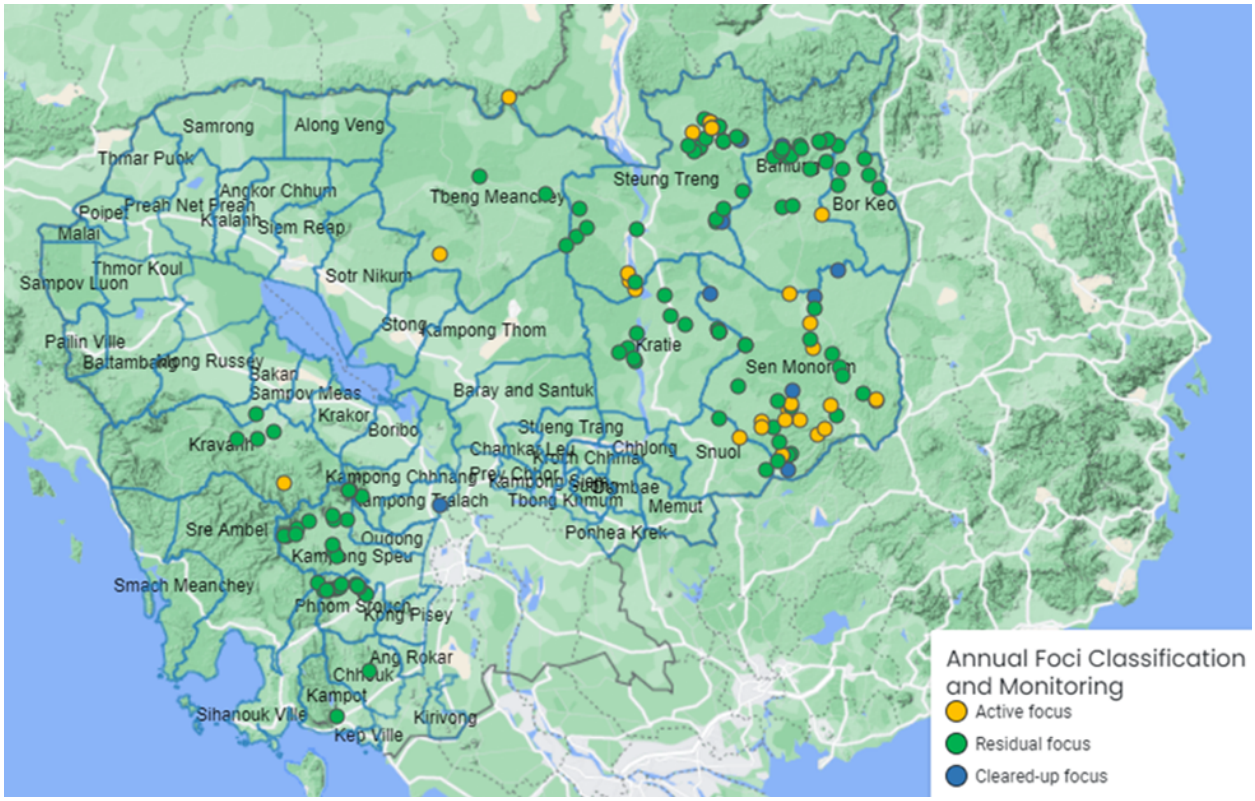
1. Promote early detection and effective and safe treatment of 100 percent of cases and provide effective personal protection to at least 90 percent of the population at high risk.
2. Intensify focal interventions to interrupt transmission in endemic locations with the highest risk (e.g., mobile migrant populations and forest-goers) to eliminate *P. falciparum* by 2023 and all species by 2025.
3. Investigate, clear, document, and follow up 100 percent of cases and foci to interrupt transmission and prevent re-establishment.

Under CNM, Cambodia updated the Surveillance Manual for Malaria Elimination in 2021, in line with the MEAF 2021–2025, to provide a strategic framework for implementing surveillance and a combination of interventions to achieve malaria elimination. It describes the system for determining what interventions to apply based on the idea of a *malaria focus* as transmission is focalized and no longer homogeneous throughout the provinces. The manual defines a *focus* as an individual village that has been identified as the source of infection for a local case (L1). The investigation of a new active focus is triggered by an L1 case and is completed within two weeks. Foci are classified as:

- **Active focus:** A village from which at least one positive case has been investigated and classified as L1 within the past 12 months.
- **Residual focus:** A village from which at least one positive case has been investigated and classified as L1 in the past 12–36 months.
- **Cleared-up focus:** A village formerly defined as an active focus in which no cases investigated and classified as L1 have been detected in more than 36 months.

Once the focus is classified, a response plan that takes into consideration the species of L1 cases will be prepared. The focus investigation determines the level of receptivity and vulnerability of transmission, which determines the type of response by CNM. Figure 3 shows the geographic locations of the active, residual, and cleared-up foci in 2020.

Figure 3. Annual Foci Classification Exercise, Updated April 2023



In 2019, in response to a significant increase in the number of diagnosed malaria cases, CNM developed and implemented an intensification plan to prevent outbreaks and reduce malaria transmission in the seven highest-burden provinces that accounted for over 80 percent of cases: Kampong Speu, Kratie, Mondulkiri, Preah Vihear, Pursat, Ratanakiri, and Stung Treng. The plan focused on strengthening the training and coordination of VMWs and MMWs to: (1) improve malaria testing and treatment rates; (2) expand the use and knowledge of effective vector control strategies among mobile migrant populations; and (3) facilitate prompt case reporting and investigation (of local or imported cases) into CNM's Malaria Information System to allow for the rapid identification of emerging outbreaks. The plan resulted in substantial declines in cases, especially *P. falciparum*: only 397 *P. falciparum* or mixed cases were diagnosed in endemic areas in 2022. Malaria testing increased from 281,820 tests in 2018 to 974,311 tests in 2022, 79 percent of which were conducted by MMWs and VMWs. With declines in *P. falciparum* cases, *P. vivax* has become the predominant species, causing 90 percent of malaria cases in 2022. In response, CNM recently initiated a nationwide *P. vivax* radical cure program, including glucose-6-phosphate dehydrogenase (G6PD) testing, 14 days of primaquine (PQ) treatment for patients with *P. vivax* and normal G6PD levels, and an 8-week PQ regimen for eligible patients with G6PD deficiency. It is also initiating a shortened, seven-day PQ regimen for patients with normal G6PD.

In 2021, CNM began to more aggressively target the remaining active foci of *P. falciparum* by implementing the national "Last Mile for Malaria Elimination" program, which guides the selection of interventions in active foci based on receptivity and vulnerability scoring. Activities under this program include using VMW and MMWs for passive case detection in villages, distributing long-lasting insecticidal nets (LLINs) to groups experiencing vulnerability, conducting active fever screening, providing intermittent preventive therapy to forest-goers with AS-MQ, and providing targeted drug administration to male persons ages 15–49 with AS-MQ. In 2023, these chemoprevention regimens were in the process of being switched to AS-PYR. Last-mile activities are ongoing in 124 villages in seven provinces. These aggressive strategies support Cambodia's goals to eliminate *P. falciparum* by 2023 and all species nationally by 2025.

IV. KEY MALARIA DATA

EVOLUTION OF KEY SURVEY-BASED MALARIA INDICATORS

Table 3. Key Survey Indicators

Indicator	CMS 2010	CMS 2013	CMS 2017	CMS 2020
% of households with at least one ITN	74.7%	77.8%	61.3%[1]	72.2%[1]
% of households with at least one ITN for every two people	37.7%	53.5%	25.6%[1]	49.9%[1]
% of population with access to an ITN	N/A	N/A	N/A	N/A
% of population that slept under an ITN the previous night	52.6%	52.4%	45.1%[1]	46.3%[1]
% of children under five years of age who slept under an ITN the previous night	56.3%	57.7%	40.2%[1]	N/A
% of pregnant women who slept under an ITN the previous night	59.1%	57.2%	N/A	N/A

[1] For ownership and use in CMS 2017 and CMS 2020, figures are reported from areas targeted for distribution of long-lasting insecticidal nets and hammock nets. CMS: Cambodia Malaria Surveys; ITN = insecticide-treated net.

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

Indicator	2018	2019	2020	2021	2022
# of all-cause patient consultations	N/A	N/A	N/A	N/A	N/A
# of suspect malaria cases[1]	N/A	N/A	N/A	N/A	N/A
# of patients receiving diagnostic test for malaria[2]	281,820	589,744	842,064	816,312	974,311
Total # of malaria cases[3]	65,114	31,791	9,234	4,320	4,053
# of confirmed cases[4]	64,479	31,791	9,234	4,320	4,053
# of presumed cases[5]	N/A	N/A	N/A	N/A	N/A
% of malaria cases confirmed[6]	99	100	100	100	100
Test positivity rate (TPR)[7]	23	5.4	1.09	0.53	0.42
Total # of malaria cases, children under the age of five[8]	947	513	229	107	129
% of cases in children under the age of five[9]	2	2	2	2	3
Total # of severe cases[10]	1,538	327	79	27	58
Total # of malaria deaths[11]	0	0	0	0	0
# of facilities reporting[12]	1,327	1,385	1,385	1,384	1,414
% of data completeness[13]	95	99	100	99	100

[1] Number of patients presenting with signs or symptoms that could be due to malaria. [2] Rapid diagnostic test 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 (rapid diagnostic test or microscopy). [8] Outpatient and inpatient, confirmed and unconfirmed. [9] Total number of cases in children under the age of five divided by total number of cases. [10] *Severe malaria* refers to a hospitalized patient with confirmed malaria and two or more of the following clinical signs/symptoms: impaired consciousness or unarousable coma (assessed by Modified Glasgow Coma Scale or Blantyre Coma Scale for children); prostration; failure to feed; multiple convulsions; deep breathing or respiratory distress; circulatory collapse or shock; clinical jaundice plus evidence of other vital organ dysfunction, anuria, or oliguria; hemoglobinuria; abnormal spontaneous bleeding; and pulmonary edema (radiological)—or laboratory signs of severe malaria including hypoglycemia, metabolic acidosis, severe normocytic anemia, hyperparasitemia (> 2%/100,000/µl in low-intensity transmission areas or > 5% or 250,000/µl in areas of high stable malaria transmission intensity), hyperlactatemia, and renal impairment. [11] All ages, outpatient, inpatient, confirmed, and unconfirmed. [12] Total number of health facilities reporting data into the HMIS/DHIS2 system that year. [13] Number of monthly reports from health facilities divided by the number of health facility reports expected (average for the calendar year).

Table 5. Disaggregated Community-Level Data

Indicator	2020	2021	2022
# of patients receiving diagnostic test for malaria from a CHW	615,267	650,835	771,232
Total # of malaria cases reported by CHWs[1]	5,582	2,650	2,235
% of CHW-reported cases (among total malaria cases)[2]	60	61	55

[1] Includes all ages, confirmed and unconfirmed. [2] Total number of malaria cases reported by CHWs/total number of malaria cases in the previous table. CHW: community health worker.

Table 6. Elimination Context: Policy and Scope

Malaria Policy and Implementation	Response		
1. Is malaria elimination part of the current malaria strategy?	Yes		
2. Are individual malaria cases investigated? *If yes, please note whether this occurs nationally or subnationally.*	Yes, subnationally		
3. Are foci investigated? *If yes, please note whether this occurs nationally or subnationally.*	Yes, subnationally		
Elimination scope	**2020**	**2021**	**2022**
4.Total number of operational districts in the country	102	102	105
5. Number of districts that have been verified as having eliminated malaria	0	0	0
6.Among districts not verified as having eliminated malaria, how many districts are targeted for elimination (all species)[1]	91	93	105
6A. Among districts targeted for elimination efforts, how many have active elimination activities?[2]	81	85	105
Percent of operational districts pursuing elimination	89.2%	91.2%	100%
Annual parasite incidence	0.57	0.26	0.24
Annual blood examination rate[3]	9.1%	8.7%	5.9%

[1] All operational districts have been targeted for *P. falciparum* elimination since 2020. The number of districts has increased since 2020 because all species are now being targeted. This row includes the number of operational districts targeted for elimination of all *Plasmodium* species that cause human malaria. [2] Elimination activities include but are not limited to reactive ITN and/or indoor residual spraying, reactive case detection, reactive or focal drug administration (intermittent preventive therapy for forest-goers and targeted drug administration), procurement and/or strategies for single dose primaquine for *P. falciparum* or radical cure primaquine for *P. vivax*, social and behavior change for hard to reach or migrant populations, case investigation, foci classification, etc.). [3] The rate presented here was calculated nationally starting in 2022; previous years' rates calculated for endemic provinces only. CHW: community health worker.

V. Other Implementation Information

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 (%)
Battambong operational district SafeNet, Other	First (baseline): 4 months	0	99.7	N/A
	Second: 15 months	0	91.9	N/A
	Third: 27 months	11.1	92.9	N/A
	Fourth: 39 months	6.9	90.2	N/A
Krakor operational district SafeNet, Interceptor, Yorkool, Other	First (baseline): 4 months	0	100	N/A
	Second: 15 months	0	98	N/A
	Third: 27 months	11.7	98.5	N/A
	Fourth: 39 months	30.8	90.5	N/A

LLIN durability monitoring was conducted for 39 months following the mass distribution campaign conducted from January to March 2018 in Battambang operational district in Battambang Province and Krakor operational district in Pursat Province. Interceptor, SafeNet, and Yorkool LLINs and DawaPlus 2.0 LLIHNs were distributed throughout both districts. Fifteen villages in each operational district were randomly selected, from which a total estimated 600 LLINs and 300 LLIHNs were selected from 300 households for monitoring. Attrition due to wear and tear increased while the number of serviceable nets decreased by the final round of data collection. However, net usage remained high, at 89 percent in Battamabang and 96 percent in Krakor operational district.

Table 8. Summary of Completed Therapeutic Efficacy Studies and Drug Efficacy Surveillance for *P. falciparum* and *P. vivax*

Year	Site	Treatment Arm(s)	Efficacy (PCR-corrected adequate clinical and parasitological result) for Each Drug at Each Site	
2017	1. Oral, Kampong Speu 2. Veal Veng, Pursat 3. Siem Pang, Stung Treng 4. Veun Sai, Ratanakiri 5. Koh Nhek, Mondulkiri	AS-MQ AS-MQ AS-MQ AS-PYR AS-PYR	100% 100% 100% 96.7% 98.4%	
2018	1. Veun Sai, Ratanakiri 2. Koh Nhek, Mondulkiri 3. Ksim, Kratie 4. Trapaing Cho, Kampong Speu 5. Veal Veng, Pursat	AS-PYR AS-MQ AS-MQ AS-PYR AS-MQ	98.1% 100% 100% 98.3% 100%	
2019	1. Veun Sai, Ratanakiri 2. Ou Kreang, Kratie 3. Oral, Kampong Speu 4. Trapaing Cho, Kampong Speu 5. Chhue Tom, Pursat	AS-MQ AS-MQ AS-MQ AS-MQ AS-MQ	100% 100% 100% 100% 88%	
2020	1. Veun Sai, Ratanakiri 2. Siem Pang, Stung Treng 3. Chambok, Kampong Speu 4. Trapaing Cho, Kampong Speu 5. Kravan, Pursat	AS-MQ AS-PYR AS-MQ AS-PYR AS-MQ	100% 100% 100% 100% No *Pf* cases identified	
2021	1. Veun Sai, Ratanakiri 2. Siem Pang, Stung Treng 3. Chambok, Kampong Speu 4. Trapaing Cho, Kampong Speu	AS-MQ AS-MQ AS-MQ AS-MQ	*P. falciparum* No cases identified No cases identified 100% No cases identified	*P. vivax* 100% 100% 100% 100%
2022	National, after expected full scale up in 2024	AS-MQ	Results pending	

Note: All treatment efficacies listed are for treatment of *Plasmodium falciparum* unless otherwise noted. Integrated drug efficacy surveillance began in 2022 to replace TES. AS-MQ: artesunate-mefloquine; AS-PYR: artesunate-pyronaridine.

VI. Key Policies

Table 9. Policies in Cambodia

National Strategic Plan National Strategic Plan Cambodia has three national plans: ● The **National Strategic Plan for Elimination of Malaria** (2011–2025) was endorsed by the Cambodian Prime Minister in March 2011. ● The **Malaria Elimination Action Framework** (2021–2025) was developed and built on the Malaria Elimination Action Framework (2016–2020), to align with Malaria Elimination in the Greater Mekong Subregion 2015–2030 and WHO's Global Technical Strategy for Malaria (2016–2030). The Cambodia Malaria Elimination Action Framework 2021–2025 was endorsed by the Ministry of Health in December 2019 and is available on CNM's website. ● The **Fourth Health Strategic Plan** (2021–2025) is in development (as of May 2023).	
National Surveillance, Monitoring, and Evaluation Plan ● The **Cambodia Malaria Monitoring and Evaluation Plan** (2016–2020) developed and endorsed by CNM in September 2016. Updated draft in development (as of May 2023). ● The **Surveillance for Malaria Elimination** (Surveillance Guidelines) was endorsed by CNM in September 2021.	
National Digital Health Strategy Draft in development (as of May 2023)	
National Social Behavior Change/Communication Strategy (March 2019)	
National Supply Chain Strategy/Master Plan ● National Strategic Plan for Drugs (2013–2018) ● National Guideline for Drugs and Health Commodity Management (2008) at Health Center Level ● National Guideline for Drugs and Health Commodity Management (2016) at Referral Hospital Level ● National Guideline for Drugs and Health Commodity Management (2014) at Operational District Level	
National Vector Control Strategy and/or Integrated Vector Management Plan No National Vector Control Strategy exists.	
Malaria Case Management Policy National Treatment Guidelines for Malaria in Cambodia—Draft awaiting endorsement (as of May 2023)	
What is/are the first-line treatment(s) for uncomplicated *P. falciparum* malaria*?	AS-MQ for 3 days + single low-dose PQ 0.25 mg base/kg.
What is/are the second-line treatment(s) for uncomplicated *P. falciparum* malaria*?	AS-PYR for 3 days + single low-dose PQ 0.25 mg base/kg.
What is/are the first-line treatment(s) for uncomplicated *P. vivax* malaria?[1]	AS-MQ x 3 days + PQ 0.25–0.5 mg base/kg x 14 days (7-day regimen also being piloted) for patients with normal G6PD levels; AS-MQ x 3 days + PQ weekly 0.75 mg base/kg x 8 weeks for patients with deficient G6PD levels or women with intermediate G6PD levels.
What is the first-line treatment for severe malaria?	IV artesunate is first-line treatment; intramuscular artemether is an acceptable alternative.
In pregnancy, what is the current first-line treatment for uncomplicated *P. falciparum* malaria in the **first trimester**?	Oral quinine for seven days with artemisinin-based combination therapy indicated only if quinine is not immediately available.

Given the WHO policy change to recommend AL as treatment for uncomplicated malaria in the first trimester, does the Ministry of Health 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?	This has already been updated in the treatment guidelines, and providers have received training, although AL serves as an acceptable alternative if quinine is not available.
In pregnancy, what is/are the first-line treatment(s) for uncomplicated *P. falciparum* malaria in the **second and third trimesters**?	AS-MQ for three days.
What is/are the first-line treatment(s) for *P. vivax* malaria during pregnancy?	First trimester: Oral quinine for seven days, with artemisinin-based combination therapy indicated only if quinine is not immediately available. Second/third trimester: AS-MQ for three days
In pregnancy, what is the first-line treatment for severe malaria?	IV artesunate + AS-MQ for three days (regardless of trimester)
Is prereferral treatment of severe disease recommended at peripheral health facilities? If so, with what drug(s)?	No
Is prereferral treatment of severe disease with rectal artesunate recommended for community health workers?	No
Community Health Policy There is a draft Community Participation Policy from 2008, but it was never approved. There are ongoing discussions on strengthening community engagement, including standardizing packages and policies. There is no general CHW cadre in Cambodia. The most active community health cadres have been linked to specific vertical programs, particularly malaria.	
What is the # of CHWs currently providing iCCM?	Specific to malaria, 2,707 VMWs and 241 MMWs cover a total of 2,707 villages, testing and treating malaria cases and providing health education.
What is the country's target for the number of CHWs providing iCCM?	Specific to malaria, 2,707 VMWs and 241 MMWs cover a total of 2,707 villages, testing and treating malaria cases, and providing health education, which meets the current CNM target.
What percent of the country's target is met?	One hundred percent of the target is met, but due to staff turnover, services may be performed by staff who have not been formally trained or who have only received orientation training.

Does the country have a policy that enables the routine, regular payment of salaries/stipends for CHWs?	There is currently no national policy on a routine package of services, remuneration, or training of VMWs or MMWs in the country. Payment structures differ by donor. While in some provinces VMWs and MMWs receive direct routine payment, in PMI-supported provinces they are rather given a performance-based incentive according to outreach, case reporting, treatment monitoring, and investigation activities. Each VMW receives approximately $45 to $60 per month. While integration of VMWs and MMWs into existing CHW system (specifically the Village Health Support Group members [VHSG]) is being explored, VHSG members are also not routinely paid, but rather provided benefits (e.g., partially subsidized health care) for serving in this role. The Community Participation Policy Development Working Group is revising this policy and developing operational guidelines. The remaining challenge is to find an institutional home for this community structure and to link this structure to local administration (e.g., commune: *Sangkat*).
Do CHWs have the authority to test and treat all ages for malaria?	VMWs have been specially recruited and trained to perform rapid diagnostic tests for malaria and provide treatment for uncomplicated malaria for all ages. VMWs and MMWs refer all cases of severe malaria, treatment failure, PQ side effects, and malaria occurring during pregnancy to appropriate health facilities.
Prevention of Malaria in Pregnancy Policy	
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?	Not applicable in Cambodia
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?	
What is the status of training ANC providers on the WHO recommended 8+ contacts? Have HMIS/DHIS2 and ANC registers been updated to include 8+ contacts?	
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?	

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

[1] An alternate regimen of seven-day PQ (0.50 mg base/kg) for G6PD normal patients is being implemented but are not incorporated into the NTGs as of March 2023. AL: artemether and lumefantrine; ANC: antenatal care; AS-MQ: artesunate-mefloquine; AS-PYR: artesunate-pyronaridine; CHW: community health worker; CNM: National Center for Parasitology, Entomology, and Malaria Control; DHIS2: District Health Information System-2; G6PD: glucose-6-phosphate dehydrogenase; HMIS: health management information system; iCCM: integrated community case management; IPTp: intermittent preventive treatment for pregnant women; PQ: primaquine.

VII. PARTNER LANDSCAPE

Table 10. Partner Landscape

Partner	Key Technical Interventions	Geographic Coverage	Funding Amount or In-kind Contribution	Time Frame
Royal Government of Cambodia	Operation costs, including staff salary for CNM	National	$0.93 million	Funding for 2021
Global Fund	Case management; surveillance, monitoring, and evaluation; vector control	National	$35.4 million	Current Regional Artemisinin-resistance (RAI3E) Initiative grant covers 2021 to 2023
Bill & Melinda Gates Foundation	Technical assistance to CNM on policy and guidelines development and malaria information system; outreach, training, and supportive supervision; case management, including *P. vivax* radical cure and surveillance, monitoring, and evaluation; regional platforms	National	Roughly $15 million	Various projects spanning 2018–2024. Some projects have different timelines, making it difficult to clearly define Cambodia's share of regional projects.