



## LAO PDR 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. PMI support in Lao People's Democratic Republic (PDR) began in FY 2011 as part of the regional PMI malaria portfolio. Please see the [Thailand, Lao PDR, and Regional Malaria Operational Plan](#) for more information on PMI's approach and investments.

### II. CONTEXT

**Table 1. General Demographics and Malaria Situation**

<b>Population</b>	7,749,595 (2022 est.) (CIA World Factbook) <a href="https://www.cia.gov/the-world-factbook/countries/laos/#people-and-society">https://www.cia.gov/the-world-factbook/countries/laos/#people-and-society</a>
<b>Population at risk of malaria</b>	2,366,068 (Center for Malariaology, Parasitology, and Entomology, 2022 Stratification)
<b>Malaria prevalence</b>	N/A
<b>Malaria incidence/1,000 population at risk</b>	0.31 per 1,000 population (Center for Malariaology, Parasitology, and Entomology 2022)

## STRATIFICATION

Figure 1. Geographic Distribution of Malaria in Lao PDR (2022)

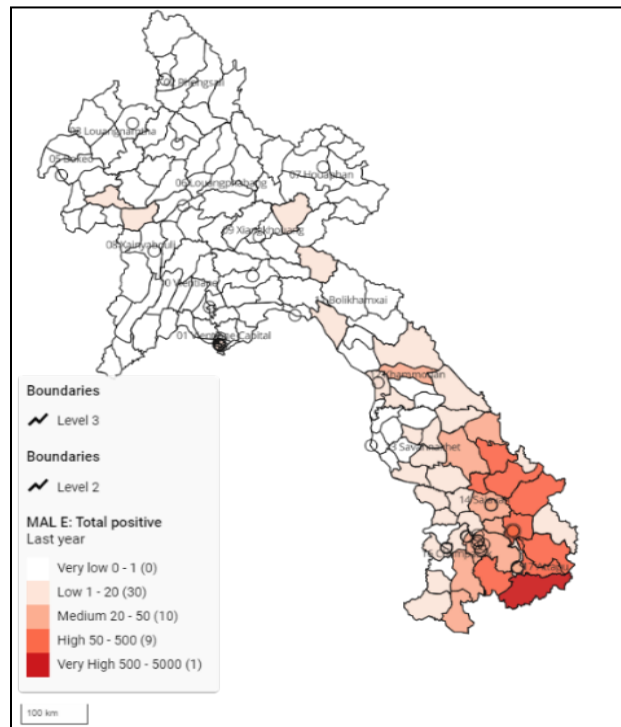
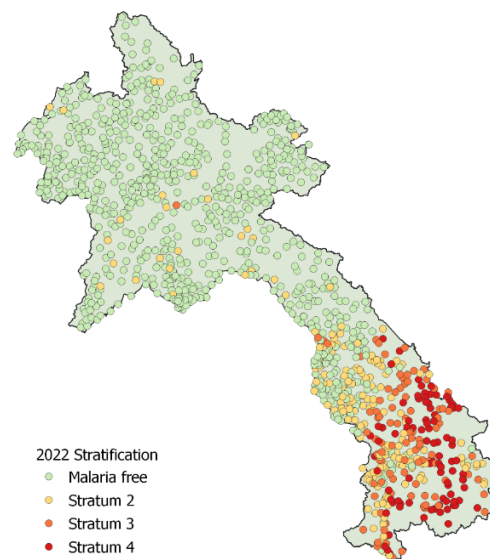


Figure 2. Malaria Stratification Map in Lao PDR (2022)



Source: Stratification of malaria at the health-facility level in the Lao PDR, 2022.

**Table 2. Malaria Parasites and Vectors**

<b>Principal malaria parasites</b>	<i>Plasmodium falciparum</i> and <i>Plasmodium vivax</i> (National Strategic Plan for Malaria Control and Elimination 2021–2025)
<b>Principal malaria vectors<sup>1</sup></b>	<i>An. dirus</i> , <i>An. minimus</i> , <i>An. maculatus</i> , and <i>An. jeyporiensis</i> (WHO, World Malaria Report 2018)

<sup>1</sup> See the entomological monitoring section of the MOP for more details on vector bionomics and insecticide resistance.

## COUNTRY HEALTH SYSTEM

Malaria activities are centralized at the Center for Malariology, Parasitology, and Entomology, which oversees 18 provincial antimalaria stations. Under the stations, there are 140 district antimalaria nuclei and provincial hospitals, including military hospitals. There are 879 health centers serving more than 11,000 villages. Each health center is typically staffed by 1–3 health care providers and is responsible for 5–12 villages in its service area. The centers provide primary health care, basic training and health education, and referrals.

The public health system is predominant, but the private sector is growing. There are around 1,865 private pharmacies and 254 private clinics, mainly in urban areas. The state system is underutilized, especially in peripheral areas. In its efforts to increase access through village-level volunteers and revolving drug funds, the government has managed to reach 5,226 villages.

The Ministry of Health has called for more integrated approaches, particularly for maternal and child health and immunization; decentralized service delivery methods; improved methods of health care financing; a unified and simplified health information system; and an emphasis on improving service quality over the next five years.

## III. NMCP STRATEGIC PLAN

The recently updated National Malaria Strategic Plan for 2021–2025 sets a goal to eliminate all forms of nonzoonotic, human malaria in Lao PDR. The second part of a three-phase approach to eliminate all forms of malaria in Lao PDR, the plan strengthens interventions in the southern part of the country to reduce the primary malaria burden and expands and enhances efforts to eliminate malaria in low-burden focal areas across the rest of the country. Specifically, the plan seeks to:

- Eliminate the transmission of *P. falciparum* in the 13 northern provinces by 2021;
- Eliminate the transmission of *P. falciparum* in the entire country by 2025;
- Eliminate the transmission of *P. vivax* in the 13 northern provinces by 2025;
- Reduce the incidence of indigenous cases of *P. vivax* to <1 per 1,000 in the southern provinces by 2025; and
- Prevent the re-establishment of malaria in areas where it has been eliminated.

The third and final phase of the malaria-elimination approach, the National Malaria Strategic Plan for 2026–2030 aims to:

- Eliminate the transmission of malaria in the entire country by 2030;
- Prevent the re-establishment of malaria in areas where it has been eliminated; and
- Initiate the process for certifying malaria-free status by 2030.

In line with the Global Technical Strategy, the strategic plans outline the following strategic objectives and supporting elements.

### **Strategic Objectives**

1. Maintain universal access to quality malaria diagnosis, increase testing to reach national annual blood examination rate targets, and provide effective treatment to 100 percent of cases.
2. Ensure that effective and evidence-based preventative and communication measures are delivered to high-risk populations by 2025.
3. Ensure an effective nationwide and integrated surveillance system that is elimination-capable by 2022.

### **Supporting Elements**

1. Expand operational research and use of technology to address bottlenecks in operations, and find innovative ways to address residual malaria transmission and effectively deliver services to hard-to-reach populations.
2. Strengthen the enabling environment by bolstering sustainable human resources, increasing program and financial management capacity, coordinating and aligning partners, and enhancing district-level empowerment.

## IV. KEY MALARIA DATA

### EVOLUTION OF KEY SURVEY-BASED MALARIA INDICATORS

**Table 3. Key Survey Indicators<sup>1</sup>**

Indicator	2006, MICS	2012, LSIS	2017, LSIS-II
% of households with at least one ITN	45	50	61
% of households with at least one ITN for every two people	N/A	N/A	38
% of population with access to an ITN	N/A	N/A	52
% of population that slept under an ITN the previous night	N/A	N/A	51
% of children under five years of age who slept under an ITN the previous night	41	43	50
% of pregnant women who slept under an ITN the previous night	N/A	43	52
% of children under five years of age with a fever in the last two weeks for whom advice or treatment was sought	15	14	60
% of children under five years of age with a fever in the last two weeks who had a finger or heel stick	N/A	9%	9
% 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	0.1	0.2	4
% of women who attended four ANC visits during their last pregnancy	N/A	37	62
% of women who received three or more doses of IPTp during their last pregnancy in the last two years	N/A	N/A	N/A
Under-five mortality rate per 1,000 live births	83	79	46
% of children under five years of age with parasitemia by microscopy	N/A	N/A	N/A
% of children under five years of age with parasitemia by rapid diagnostic test	N/A	N/A	N/A

ANC: antenatal care; ITN: insecticide-treated bed net; LSIS: Lao Social Indicator Survey; MICS: Multiple Indicator Cluster Survey.

<sup>1</sup> There are plans to conduct the next LSIS-III survey in 2023.

Sources: MICS (2006): <https://www.aidsdatahub.org/sites/default/files/resource/lao-pdr-mics3-2006.pdf>;

LSIS (2012): <https://lao.unfpa.org/sites/default/files/resource-pdf/LSISReportEnglish2011-2012%20%281%29.pdf>; LSIS-II (2017):

<https://www.unicef.org/eap/sites/unicef.org/eap/files/2018-06/Summary%20Survey%20Findings%20Report%20an%20statistic%20snapshots%20of%20Lao%20Social%20Indicator%20Survey%20II.pdf>.

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

Indicator	2018	2019	2020	2021	2022
# of patients receiving a diagnostic test for malaria	288,019	567,679	576,985	644,943	844,698
# of confirmed cases <sup>1</sup>	9,045	6,695	3,552	3,926	2,338
# of Pf cases	4,828	2,168	1,577	1,345	483
Test positivity rate <sup>2</sup>	3.10%	1.30%	0.69%	0.62%	0.26%
Total # (%) malaria cases in children under the age of five	313 (5%)	1080 (16%)	472 (14%)	292 (7.5%)	103 (4.5%)
Total # of malaria deaths	6	0	0	1	1
# of facilities reporting	1,526	1,526	1,526	1,526	1,526

Pf: *Plasmodium falciparum*;

<sup>1</sup> Diagnostically confirmed by microscopy or rapid diagnostic test; all ages.

<sup>2</sup> Confirmed cases divided by # of patients receiving a diagnostic test for malaria (rapid diagnostic test or microscopy).

**Table 5. Disaggregated Community-Level Data**

Indicator	2019	2020	2021	2022
# Patients receiving diagnostic test for malaria from a CHW	61,816	84,281	45,427	199,289
Total # of malaria cases reported by CHWs	433	560	240	724
% of CHW reported cases (among total malaria cases) <sup>1</sup>	6.5%	15.8%	6.1%	35.5%

<sup>1</sup> Total number of malaria cases reported by community health workers/total number of malaria cases.

**Table 6. Elimination Context: Policy and Scope**

Malaria Policy and Implementation	Response		
1. Is malaria elimination part of the current malaria strategy?	Yes. The national goal is to eliminate indigenous human malaria by 2030.		
2. Are individual malaria cases investigated? <i>If yes, please note whether this occurs nationally or subnationally.</i>	Yes. The 1-3-7 approach is only implemented in 134 malaria elimination districts (out of 148 total districts).		
3. Are foci investigated? <i>If yes, please note whether this occurs nationally or subnationally.</i>	Yes. The 1-3-7 approach is only implemented in 134 malaria elimination districts (out of 148 total districts).		
Elimination Scope	2020	2021	2022
4. Total # of districts in the country (admin 2)	148	148	148
5. # of districts that have been verified as having eliminated malaria <sup>1</sup>	0	0	0 <sup>2</sup>
6. Among districts not verified as having eliminated malaria, how many districts are targeted for elimination efforts?	121	125	134
6A. Among districts targeted for elimination efforts, how many have <b>active elimination activities</b> ? <sup>3</sup>	121	125	134

<sup>1</sup> Malaria elimination is the interruption of local transmission, i.e., no local malaria cases for three years. This refers to NMP-led subnational verification only. It is not referring to “elimination certification,” which can only be granted by WHO for an entire country.

<sup>2</sup> At the end of 2022, Laos had zero malaria cases reported for the previous three years in 3 out of 18 provinces (Phongsali, Bokeo, and Houaphan), but these provinces have not yet been verified as malaria-free.

<sup>3</sup> Elimination activities include but are not limited to reactive insecticide-treated bed nets and/or indoor residual spraying, reactive case detection, reactive or focal drug administration, procurement and/or strategies for single dose primaquine for *P. falciparum* or radical cure primaquine for *P. vivax*, social behavior change for hard to reach or migrant populations, case investigation, foci classification, etc.)

## V. Other Implementation Information

**Table 7. Summary of Completed Therapeutic Efficacy Studies**

Year	Site	Treatment Arm(s)	Efficacy (PCR-corrected adequate clinical and parasitological result) for Each Drug at Each Site
2019–2020 (TES)	1. Saravanh 2. Savannakhet 3. Champassak	1. AL 2. AL 3. AL	1. 100% (Pf, n=21); 100% (Pv, n=93) 2. 100% (Pf, n=82); 100% (Pv, n=26) 3. 96% (Pf, n=4); 100% (Pv, n=65)
2019 (iDES)	1. Luang Prabang 2. Phongsaly	AL	Pf: n=0, Pv: n=3 (100%)
2020 (iDES)	1. Luang Prabang 2. Phongsaly	AL	Pf: n=0, Pv: n=14 (100%)
2021–2022 (TES)	1. Savannakhet 2. Sekong 3. Attapeu	AL	1. 100% (Pf, n=39); 100% (Pv, n=15) 2. N/A (Pf, no patients enrolled); 100% (Pv, n=58) 3. 94.4% (Pf, n=36); 100% (Pv, n=57)

AL: artemether and lumefantrine; iDES: integrated drug efficacy surveillance; Pf: Plasmodium falciparum; Pv: Plasmodium vivax; TES: therapeutic efficacy study.

The report for the Tenth meeting of the Greater Mekong Subregion Therapeutic Efficacy Study Network, which took place on November 28–29, 2022, in Bangkok, Thailand, is not yet available.



## VI. Key Policies

**Table 8. Policies in Lao PDR**

<b>Malaria National Strategic Plan (2021–2025)</b>	
<b>Health Sector Reform Strategy and Framework (2014–2025)</b>	
<b>Lao PDR Malaria Elimination Surveillance Guidelines</b>	
<b>Overview of Lao Health System Development (2009–2017)</b>	
<b>Operational Manual for Entomological Surveillance for Malaria Vectors in Lao PDR (draft)</b>	
<b>Malaria Treatment Guidelines for Provincial and District Hospitals (updated 2015)</b>	
What is/are the first-line treatment(s) for uncomplicated <i>P. falciparum</i> malaria?	AL + SD PQ (0.25 mg/kg)
What is/are the second-line treatment(s) for uncomplicated <i>P. falciparum</i> malaria?	ASMQ + SLD PQ (0.25 mg/kg)
What is/are the first-line treatment(s) for uncomplicated <i>P. vivax</i> malaria?	AL + PQ (0.25 mg/kg x 14 days (if G6PD normal) or 0.75 mg/kg weekly x 8 weeks)
What is the first-line treatment for severe malaria?	Artesunate injection
In pregnancy, what is the first-line treatment for uncomplicated <i>P. falciparum</i> malaria in the <b>first trimester</b> ?	Quinine (oral); there are plans to update treatment policy to allow use of AL in the first trimester for MIP
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? (Include any plans for training providers on the new policy.)	Yes, NMCP plans to update treatment policy to allow use of AL in the first trimester of pregnancy.
In pregnancy, what is/are the current first-line treatment(s) for uncomplicated <i>P. falciparum</i> malaria in the <b>second and third trimesters</b> ?	AL
What is/are the first-line treatment(s) for <i>P. vivax</i> malaria during pregnancy?	First trimester: CQ second and third trimester: AL
In pregnancy, what is the first-line treatment for severe malaria?	For malaria in pregnant women without complications: AL in any trimesters of pregnancy;  For severe malaria in pregnant women: Artesunate IV or IM, or AL if oral administration is doable.
Is prereferral treatment of severe disease recommended at peripheral health facilities? If so, with what drug(s)?	Artesunate injection
Is prereferral treatment of severe disease with rectal artesunate recommended for community health workers?	None

<b>Community Health Policy, 2019</b>	
How many CHWs are currently providing iCCM?	Not available
What is the country's target for the # of CHWs providing iCCM?	2,500
What % of the country's target is met?	N/A
Does the country have a policy that enables the routine, regular payment of salaries/stipends for CHWs?	Yes, incentive
Do CHWs have the authority to test and treat all ages for malaria?	Yes
<b>Prevention of Malaria in Pregnancy Policy, 2016</b>	
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?	IPTp is not implemented in Lao PDR.
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?	No, <a href="#">National Reproductive, Maternal, Newborn and Child Health Strategy (2016–2025)</a> recommends at least four ANC visits; however the ANC guidelines and handbook were updated to reflect the WHO-recommended eight contacts.
What is the status of training ANC providers on the WHO recommended eight or more contacts?	Some providers have been trained in the updated ANC guidelines and handbook.
Have HMIS/DHIS2 and ANC registers been updated to include eight or more contacts?	No; currently HMIS and the ANC registers capture four visits.
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?	IPTp is not implemented in Lao PDR.
Is ANC/IPTp provided by facility staff conducting ANC outreach to communities?	IPTp is not implemented in Lao PDR.
Can CHWs deliver IPTp and if so, which specific cadres and beginning with which dose? How many districts are targeted for c-IPTp implementation?	IPTp is not implemented in Lao PDR.

AL: artemether and lumefantrine; ANC: antenatal care; DHIS2: District Health Information System-2; HMIS: health management information system; iCCM: integrated community case management; IPTp: intermittent preventive treatment for pregnant women; MCH: mean corpuscular hemoglobin; PQ: primaquine; 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	<ul style="list-style-type: none"> <li>• Case management</li> <li>• Surveillance and response</li> <li>• Vector control</li> <li>• Commodities</li> <li>• Targeted drug administration</li> </ul>	Nationwide	\$14.5 million	January 2021–December 2023
Bill & Melinda Gates Foundation	<ul style="list-style-type: none"> <li>• Strategic planning</li> <li>• Routine surveillance systems support</li> <li>• Emergency operations centers/malaria integration</li> <li>• Subnational technical support (five provinces)</li> </ul>	National + five southern provinces	\$5 million	August 2020–September 2024
Domestic	<ul style="list-style-type: none"> <li>• Human resources</li> <li>• Long-lasting insecticidal nets</li> <li>• Rapid diagnostic tests</li> </ul>	Nationwide	\$516,251	Annual