World Health Organization

THE MEKONG MALARIA ELIMINATION PROGRAMME

Countries of the Greater Mekong are stepping up to end malaria

BULLETIN #7

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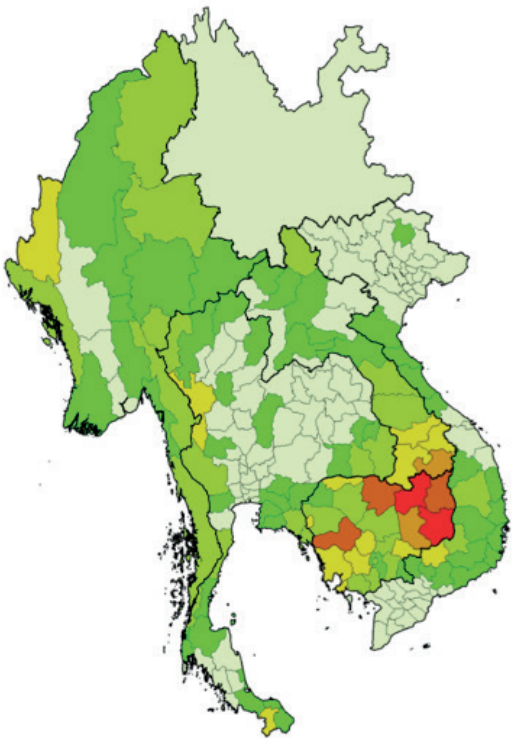
BACKGROUND

Countries of the Greater Mekong Subregion (GMS) are accelerating toward their shared goal of malaria elimination by 2030. The six GMS countries – Cambodia, China (specifically Yunnan Province), the Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam – have achieved remarkable progress. Between 2012 and 2017, the reported number of malaria cases[1] fell by 75%. Malaria deaths fell by 93% over the same period.

Although 2017 saw an overall decline in malaria cases across the GMS, case increases were reported in several areas of the Subregion. Worryingly, preliminary estimates from the first half of 2018 suggest that the total number of cases in the GMS increased by 32% compared to the corresponding period last year. The estimated increase was mainly in a few provinces of Cambodia and Viet Nam, and largely attributed to an increase in *P. vivax* malaria. Accelerated action is needed, now more than ever, to continue the track of substantial progress in the Subregion.

The recent increase in cases can be attributed to a number of factors, including stock-outs of antimalarial drugs, delays in rolling out the drug treatment for *P. vivax* malaria, low utilization of mosquito nets, and increased population movement into areas of active transmission. Other factors, such as improved coverage of testing and better data collection, also affect the number of cases reported. Most cases have been reported in remote, forested areas, where hard-to-reach populations are disproportionately affected by malaria.

MAP 1.
Regional map of malaria incidence by province (Jan-Jun 2018)



The annual population is based on the estimate submitted by each country to the *World malaria report 2017*.

Reaching at-risk communities is a top priority. Strengthened and focused technical support is critical to support communities in the remaining endemic areas. By ensuring equitable access to malaria prevention, diagnosis and treatment interventions for all at risk, GMS countries can advance not only the goal of elimination, but also universal health coverage.

As countries approach elimination, the role of malaria surveillance systems continues to be critically important. Stronger, more sensitive surveillance systems are necessary for tracking down every malaria case. In this latest Bulletin, updates are provided on the range of surveillance activities in the GMS, including country-specific data.

1. In this publication, reported cases include cases reported from all sources of public health facilities, community health workers and the private sector, except for data from Cambodia and Myanmar, which do not include the private sector. Myanmar data do not include data from non-governmental organizations (NGOs). The case count in China includes only indigenous cases. This Bulletin presents available data as of October 2018.

COMMITMENT TO A COMMON GOAL

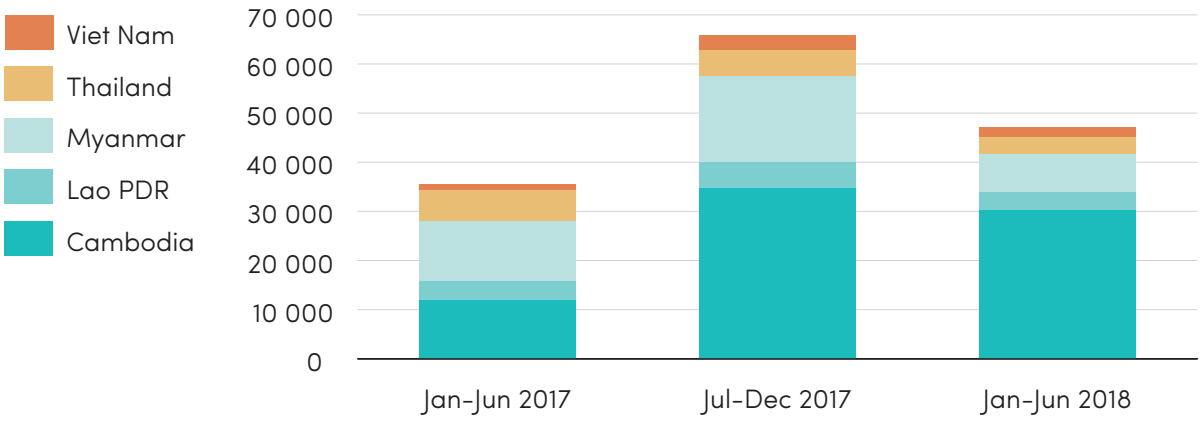
During the 71st World Health Assembly (WHA) in May 2018, the GMS Ministers of Health signed the *Ministerial Call for Action to Eliminate Malaria in the GMS before 2030*, renewing their commitment to hastening elimination. The Call for Action urges rapid implementation of the WHO *Strategy for malaria elimination in the GMS (2015-2030)*. This subregional strategy, adopted by GMS Ministers of Health in 2015, aims to eliminate *P. falciparum* malaria by 2025 and all species of human malaria by 2030.

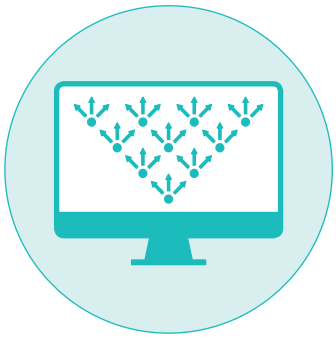
The 2018 Call for Action highlights the necessary steps on the road to elimination. Collaboration across borders, coordination among partners and multi-sectoral responses are fundamental to achieving elimination by 2030.

WHO is committed to helping countries implement the GMS malaria elimination strategy and the recent Call for Action. Through its six GMS country offices, regional offices in Manila and New Delhi, and headquarters in Geneva, WHO continues to provide technical support to the Subregion. The WHO Mekong Malaria Elimination (MME) programme, established in 2017, is a subregional team in Phnom Penh dedicated to supporting elimination in the GMS though partnership coordination, communication with external stakeholders and cross-border initiatives.

Financial and technical support from regional and international partners has played a vital role in the Subregion's elimination efforts. The WHO MME programme hosted a Partnership Forum earlier this year, bringing together numerous partners to discuss challenges and lessons learned. Donors, including the Australian Department of Foreign Affairs and Trade, the Bill & Melinda Gates Foundation, the Global Fund to Fight AIDS, Tuberculosis and Malaria, the UK Department for International Development and the US Agency for International Development, are helping countries tackle the remaining hurdles on the road to elimination.

FIGURE 1.
Malaria case distribution in GMS countries





REGIONAL DATA-SHARING PLATFORM

All GMS countries are collecting and reporting monthly surveillance data to a regional web-based platform. The regional data-sharing platform (RDSP) – funded through the Regional Artemisinin-resistance Initiative (RAI) of the Global Fund to Fight AIDS, Tuberculosis and Malaria – collects and stores surveillance data to facilitate information-sharing and analysis by countries. The WHO MME programme hosts the RDSP through the district health information system (DHIS2) software.

The platform equips GMS countries with a range of applications, from outbreak monitoring to cross-country data-sharing. A key advantage of the platform is its capacity to provide detailed depictions of the epidemiological situation. Understanding where cases are located, particularly in border areas, is crucial to informing strategic decisions in the Subregion.

An important feature of the RDSP is having early access to disaggregated data from countries, currently at monthly intervals. This has contributed to facilitating a targeted response. WHO is working with national malaria control programmes (NMCPs) to enhance the RDSP, particularly with regard to timeliness and completeness of data reporting. More detailed collection and disaggregation of surveillance data, including data at the health facility or village levels, will help pin down where transmission is occurring.

Data from the RDSP also help improve coordination and communication among countries, partners and other stakeholders. External communication materials, such as the quarterly MME Epidemiology Summary, utilize the most up-to-date RDSP data. Cross-border meetings, too, use these data to prompt more thorough examinations of malaria at the border.

More refined data will continue to become available as countries strengthen their surveillance activities. In the GMS, surveillance systems are undergoing many changes, such as case-based investigation and integrated Drug Efficacy Surveillance (iDES). As such, it is important for countries to periodically review their surveillance systems and make necessary adjustments to standard operating procedures (SoPs) based on epidemiology and programmatic needs.

TABLE 1.
Standard operating procedures (SoPs) for malaria surveillance

COUNTRY	STANDARD OPERATING PROCEDURES FOR MALARIA SURVEILLANCE	YEAR
Cambodia	*Surveillance for malaria elimination, operational manual*	2017
China (Yunnan)	*National malaria elimination surveillance plan*	2015
Lao PDR	*Malaria elimination surveillance guideline* *Malaria burden reduction surveillance guideline*	2017 2017
Myanmar	*Malaria surveillance in elimination settings: an operational manual*	2017
Thailand	*Malaria elimination manual and manual for surveillance and rapid response teams (SRRT)* (being finalized)	2018
Viet Nam	*Guideline for malaria surveillance and control*	2016

TABLE 2.

National elimination plans and strategies

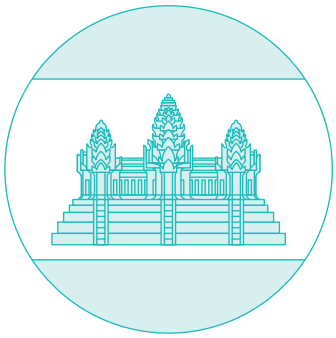
COUNTRY	NATIONAL ELIMINATION PLANS AND STRATEGIES IN THE GMS
Cambodia	*Malaria elimination action framework (2016-2020)*
China (Yunnan)	*National malaria elimination action plan (2010-2020)*
Lao PDR	*National strategic plan for malaria control and elimination (2016-2020)*
Myanmar	*National strategic plan for intensifying malaria control and accelerating progress towards malaria elimination (2016-2020)* *National plan for malaria elimination in Myanmar (2016-2030)*
Thailand	*National malaria elimination strategy (2017-2026)*
Viet Nam	*National strategy for malaria control and elimination in the period 2020 and orientation to 2030*

TABLE 3.

Data submission tracking by the six GMS countries

COUNTRY	DATA REPORTING		DATA LEVEL	PERIOD	DESCRIPTION
	2010-2017	JAN-JUN 2018			
Cambodia	Yes	Yes	Health facility	Monthly	Monthly data by health facility are available from January 2010 to June 2018.
China (Yunnan)	Yes	Yes	County	Monthly	Monthly data by county are available from January 2010 to June 2018.
Lao PDR	Yes	Yes	Health facility	Monthly	Monthly data by health facility are available from January 2017 to June 2018. Monthly data by district are available from 2010 to 2016.
Myanmar	Yes	Yes	Township	Monthly	Monthly data by township are available from January 2017 to June 2018. Annual data by township are available from 2010 to 2016.
Thailand	Yes	Yes	Province	Monthly	Starting from July 2017, Thailand has agreed to share monthly data by province.
Viet Nam	Yes	Yes	Province	Monthly	Monthly aggregate data by province are available from 2010 to present.

Validation of data is necessary before uploading. Countries submit data after checking for internal consistency and completeness. If any validation checks fail, then feedback is sent to countries for checking, confirming and resubmitting data.



CAMBODIA

Between 2012 and 2017, Cambodia reported a 19% increase in cases, including a 98% increase between 2016 and 2017. The seven northern provinces accounted for most (78%) malaria cases in 2017.

Preliminary estimates from January to June 2018 show a 155% increase in cases compared to the same period in 2017. Numerous factors help to explain the recent case increase, such as drug stock-outs, low use of mosquito nets, two years of disruption to the village malaria workers programme, and the high influx of people moving into forest areas where access to treatment is limited. Delays in the supply of the country's first-line treatment drug as well as the continued use of a failing drug also contributed to case increases. Other confounding factors (e.g. improved data compilation and reporting) influenced the total number of cases reported.

In view of the recent increase in cases, Cambodia is implementing an intensified response plan in the seven provinces with the highest malaria burden. This plan focuses on populations at high risk of infection, including migratory populations and forest workers.

Cambodia revised its *Surveillance operational manual*, outlining the SoPs for districts in the burden reduction and elimination phases. The country intends to annually revise the manual as new evidence and tools on intervention strategies become available.

With support from partners, Cambodia is piloting case-based surveillance – whereby every case is reported and investigated – in the seven elimination provinces with lower malaria burden. The country plans to expand case-based surveillance to seven more provinces in the second half of 2018.

A major hurdle has been the increasing number of *P. vivax* cases, which more than doubled between 2017 and 2018. From January to June 2018, 64% of all cases were *P. vivax*. Unlike the *P. falciparum* malaria parasite, *P. vivax* has the ability to become dormant and can cause relapses in a patient, and a specific drug regimen is needed to prevent these relapses. Cambodia is working to operationalize the treatment for *P. vivax* malaria.

CHINA

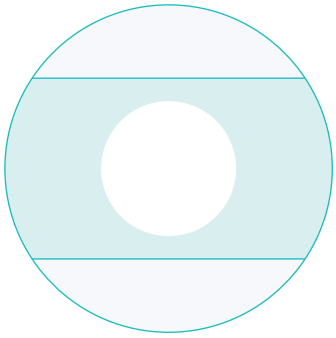
China has achieved tremendous success in malaria case reduction. Since 2017, no indigenous cases have been reported. In April 2018, Jiangxi province was verified by the country as malaria-free, and more provinces are expected to achieve this status in the coming months.

China began the process of subnational verification of malaria elimination at the end of 2017, with the plan to verify 24 provinces by 2020. The country's

"1-3-7" surveillance strategy is implemented nationwide and reviewed each year at the national level. The strategy involves three time-bound objectives: case notification within one day, case investigation within three days and foci investigation and targeted action within seven days.

Imported cases continue to be a major hurdle, however. So far this year, China has reported 1425 imported malaria cases and five malaria deaths (as of June 2018). China is countering the threat of cross-border transmission through engagement and leadership in regional elimination initiatives. Under its 'Belt and Road Initiative', China is involved in multiple projects, including the Lancang-Mekong project and the South-South Cooperation Assistance Fund.

Along with Sri Lanka and Myanmar, China hosted the side event at the 71st WHA where the Ministerial Call for Action was signed. The event focused on country-led and country-owned responses to malaria. A central message conveyed at the event was that malaria elimination and universal health coverage go hand in hand.



LAO PEOPLE'S DEMOCRATIC REPUBLIC

The number of malaria cases in the Lao People's Democratic Republic (Lao PDR) fell by 80% between 2012 and 2017, with a 40% decline reported between 2016 and 2017. According to preliminary estimates, the first half of 2018 saw a drop in cases of close to 10% compared to the same period last year.

The national malaria programme is focused on strengthening surveillance and accelerated burden reduction in the five southern provinces. Priorities include the deployment of trained village malaria workers in high burden villages in southern Lao PDR; the new case-based surveillance strategy in the northern elimination provinces; and, the outbreak detection and response strategy in the southern high burden provinces.

The country initiated a rollout of case-based surveillance and response in the 13 elimination-ready provinces in the north. The roll-out included the development of an elimination-capable surveillance system, as well as clear national guidelines and operational protocols linked to case and foci investigation and response. An outbreak response threshold in the five high burden provinces in the south has also been developed which is linked to the new surveillance and response guidelines for high burden provinces.

Lao PDR continues to enhance its routine malaria information system. In June 2018, all data from private sector health facilities, collected as part of the private public mix (PPM) project, were fully integrated into the system. As a result, Lao PDR is the first GMS country to analyse both public and private malaria case information together.

Although the surveillance system and guidelines have been developed and disseminated, the challenge now is to build health system support for the new reactive approaches, particularly in the areas of programme management, technical capacity, equipment and infrastructure.

MYANMAR

Myanmar dramatically reduced its malaria cases by 82% from 2012 to 2017, with an accelerated decrease of 23% from 2016 to 2017. According to preliminary estimates, the number of cases continued to fall between January and June 2018, representing a 36% decrease compared to the same period in 2017.

Myanmar has achieved substantial progress toward the targets of its *National malaria strategic plan 2016-2020*. Eight states and regions achieved an annual parasite incidence (API) of less than one case per 1000 population in 2017, against the country's target of five states or regions. Building national capacity for elimination standard surveillance, investigation and response is on the agenda for elimination settings. Another priority is the development of a national strategy for integrated community case management, by which village health volunteers provide malaria services primarily, in addition to services for dengue, lymphatic filariasis, leprosy, tuberculosis and HIV.

Surveillance has improved over recent years, capturing information from most health facilities, over 18 000 volunteers and 1500 general practitioners. In addition to implementing the "1-3-7" strategy pioneered by China, Myanmar has launched several new initiatives, such as piloting the tablet-based DHIS2 software in one township. A malaria elimination demonstration site is also under development in one township and will function as a learning laboratory for the programme.

Strong commitment from policy makers and effective partnerships have created a catalytic effect on programme success. Local and international partners help deliver equitable services to groups at high risk of infection like mobile populations, migrants and affected communities in hard-to-reach and conflict areas. At the same time, cross-border collaboration with China