World Health Organization

THE MEKONG MALARIA ELIMINATION PROGRAMME

# Countries of the Greater Mekong ready for the “last mile” of malaria elimination

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## ABBREVIATIONS

| | |
|---|---|
| ACT | artemisinin-based combination therapy |
| CIFIR | case investigation, foci investigation and response |
| COVID-19 | Coronavirus disease 2019 |
| eCDS | electronic communicable diseases system |
| FTAT | focal testing and treatment |
| GMS | Greater Mekong subregion |
| GPARC | Global Plan for Artemisinin Resistance Containment |
| G6PD | glucose-6-phosphate dehydrogenase |
| HPH | health promoting hospitals |
| iDES | integrated drug efficacy surveillance |
| IMPE | Institute of Malariology, Parasitology, and Entomology |
| IPT | Intermittent preventive treatment for travellers who visit malaria- |
| Lao PDR | Lao People's Democratic Republic |
| MEAF | Malaria Elimination Action Framework (Cambodian) |
| M&E | monitoring and evaluation |
| MME | Mekong Malaria Elimination programme |
| MMP | mobile and migrant populations |
| MMW | mobile malaria workers |
| NIMPE | National Institute of Malariology, Parasitology, and Entomology |
| NMP | national malaria programme |
| PPE | personal protective equipment |
| QGIS | quantum geographic information systems |
| RAI | Regional Artemisinin-resistance Initiative |
| SDG | Sustainable Development Goals |
| SOP | standard operating procedure |
| TDA | targeted drug administration |
| WHO | World Health Organization |

## KEY MESSAGES

- Despite the emergence of the COVID-19 pandemic, all countries of the Greater Mekong subregion (GMS) have continued to achieve great progress towards the malaria elimination targets outlined in the GMS strategy. Between 2012 and 2019, the number of malaria cases in the six GMS countries fell by 83%; malaria deaths fell by 95% over the same period. The annual reductions in cases and deaths surpassed those of previous years, which is commendable given the context and challenges faced by all countries in 2020.
- There continues to be a steep decline in the presence of *P. falciparum* malaria cases – a primary target in view of the ongoing threat of antimalarial drug resistance. In the first nine months of 2020, *P. falciparum* cases dropped by 67% in the GMS compared to the same period in 2019.
- Over the last year, Cambodia, the Lao People's Democratic Republic and Myanmar have accelerated and intensified their malaria elimination efforts. In the next 12 months, it is expected that similar intensive elimination efforts will be adopted by all GMS countries.
- In the face of the dual challenge of antimalarial drug resistance and COVID-19, the GMS countries were able to maintain and even increase their malaria services in 2020. The risk of disruptions to malaria programming was generally avoided through the creation of country-led risk assessments and operational plans which ensured the adaptation and continuation of malaria activities.
- With less than 50 000 cases and 10 deaths reported across the subregion this year, GMS countries are now preparing to enter "the last mile" of malaria elimination. Recent efforts to combat resistance to antimalarial drugs have shown promising results, and the goal of eliminating *P. falciparum* appears to be within reach. As a result, the GMS countries recently revised their targets to eliminate *P. falciparum* by 2023. Maintaining this momentum will require more nuanced, proactive, and targeted approaches.

## BACKGROUND

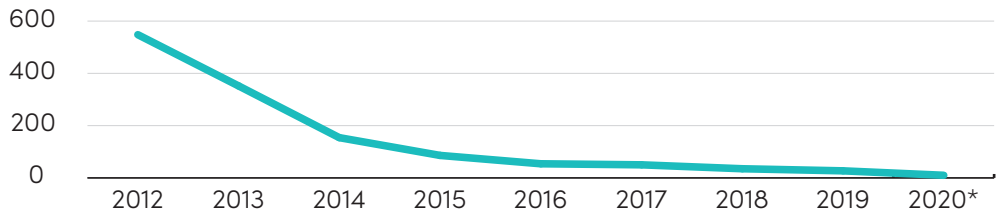
The past year has tested the resilience of malaria elimination approaches in the GMS. The countries of the GMS – Cambodia, China (Yunnan Province), Lao People's Democratic Republic (PDR), Myanmar, Thailand and Viet Nam – continue to make significant gains in their efforts to eliminate malaria by 2030. Despite the rapid emergence and spread of COVID-19, all national malaria programmes (NMPs) have ensured that malaria control measures were not hampered or neglected.

As of October 2020, the GMS countries had reported 47 525 malaria cases and 10 deaths, representing reductions of 38% and 9%, respectively, compared to the same period in 2019 (77 196 cases and 11 deaths by October 2019). Concurrently, the subregion recorded 8550 *P. falciparum* cases by October 2020, a drop of 67% from the 25 856 cases recorded by October 2019. The gains accomplished by the end of 2020 are a testament to the strong support provided by all stakeholders to the respective NMPs.

Beginning in early 2020, a combination of regional and national health measures were put in place to address the pandemic. These have inevitably affected the operational modalities of the GMS countries and partners as they have adjusted procedures concerning prevention and case management services to maintain a safe environment for patients, clients, and staff. Despite the temporary lockdowns, all countries pursued their drug resistance monitoring activities through both therapeutic efficacy studies (TES) and/or integrated drug efficacy surveillance (iDES).

Routine TES have shown that drug-resistant *P. falciparum* parasites are still present but have not worsened nor expanded beyond the region. As countries have begun to adopt more intensive elimination approaches, the subsequent decrease in *P. falciparum* cases has meant that national stakeholders are transitioning from TES in favour of iDES. Revisions were also made in national treatment guidelines, in line with recommendations on second-line drugs and alternative artemisinin-based combination therapies (ACTs) from the 2019 TES meeting.[1] Notably, NMPs, national regulatory authorities, partners and WHO Country Offices were able to jointly address operational challenges related to drug regulatory requirements such as drug importation/distribution, shortages of essential antimalarials (in some countries) and the need to fast track the registration for new ACTs.

FIGURE 1.
**Malaria deaths in the six GMS countries (2012-2020)**




*The year 2020 covers January to October.

All countries have continued to enhance their existing surveillance systems, providing more granularity, sensitivity and timeliness of data in order to guide their malaria activities, including outbreak responses. This has enhanced the quality of data captured within WHO's Malaria Elimination Database for the Mekong. WHO continues to collect aggregate district and lower level data across all six countries and, from 2020, has increased the frequency of its epidemiology reports from a quarterly to monthly basis. The Malaria Elimination Database enables the GMS countries to strengthen surveillance, enhance monitoring and evaluation (M&E), and perform analyses on malaria distribution and trends.

The GMS countries continue to make promising progress towards the targets outlined in the *Strategy for malaria elimination in the Greater Mekong*

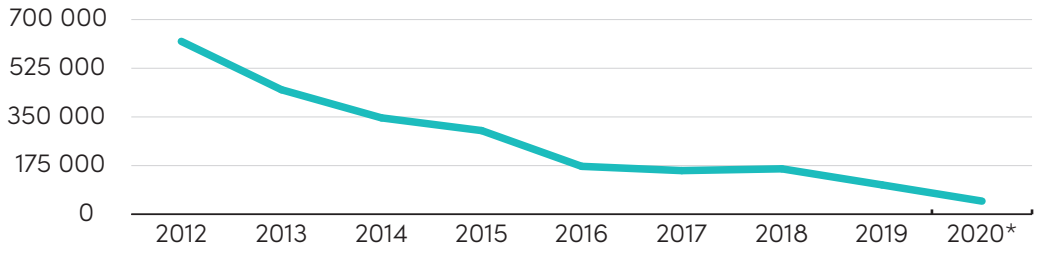
1 Seventh meeting of the Greater Mekong subregion (GMS) therapeutic efficacy studies (TES) network, Yangon, Myanmar, 28-29 October 2019 : meeting report. Manila: Regional Office for the Western Pacific; 2019 (https://apps.who.int/iris/bitstream/handle/10665/334049).

*subregion (2015–2030).*[2] However, malaria programming has undoubtedly been affected by the emergence of COVID-19, which appeared in the region in early 2020.

The Mekong Malaria Elimination (MME) programme has supported surveillance activities by providing regular analysis on global stocks of malaria drugs and commodities as well as on activities, and by convening regular meetings on the risks and impact of COVID-19 on malaria services. These data-sharing and analysis exercises have supported all six countries in conducting risk assessments and later adopting operational plans to ensure the continuation of essential malaria services during the pandemic. The plans were developed in line with recommendations outlined in the WHO technical guidance document *Tailoring malaria interventions in the COVID-19 response.*[3]

The dramatic experience and scrutiny placed on health programming as a result of the pandemic has also increased awareness and attention to the problem of malaria in the GMS. The unique situation posed by COVID-19 presented the MME programme with a "window of opportunity" to intensify and refine its malaria elimination approaches. The potential risk of mobile and migrant populations (MMPs) moving from non-endemic to endemic areas prompted countries to endorse more aggressive approaches. The emphasis has now shifted from country-based interventions to foci-based approaches which involve foci mapping and cleaning. During this period a number of countries have begun adopting malaria elimination intensification plans and more aggressive approaches which formalize these foci-based approaches.

FIGURE 2.
**Malaria cases in the six GMS countries (2012-2020)**




*The year 2020 covers January to October.

All countries have been active in accelerating their malaria elimination efforts. Cambodia, Lao PDR and Myanmar have started implementing national intensification plans and more aggressive approaches in hotspots. In Thailand, malaria elimination activities are being increasingly mainstreamed and malaria programming continues to be integrated into the national health system. Viet Nam has also focused on strengthening its surveillance system in hotspot areas. This includes reporting all malaria

2 Strategy for malaria elimination in the Greater Mekong subregion (2015–2030). Geneva: World Health Organization; 2015 (https://apps.who.int/iris/handle/10665/208203).

3 Tailoring malaria interventions in the COVID-19 response. Geneva: World Health Organization; 2020 (https://www.who.int/publications/m/item/tailoring-malaria-interventions-in-the-covid-19-response).

cases within 48 hours followed by foci investigation and response in order to emphasize and expand early diagnosis and prompt treatment for forest goers and communities living at forest fringes.

## REACHING THE UNREACHED

The current period has been marked by an increased focus on implementing strategies to support vulnerable and hard-to-reach populations – including forest goers and mobile and migrant populations. These populations are at the highest risk of contracting malaria as they are located in remote areas and tend to work and live in conditions that limit the effectiveness of standard vector control and case management approaches. Population movement has always been a challenge in malaria control and elimination programmes. The mass movement among endemic and non-endemic zones increases the risk of importing cases into malaria-free areas and spreading drug-resistant parasites to new areas.

As part of their commitments to reduce malaria transmission among hard-to-reach populations, all countries have been engaged in accelerating their malaria elimination efforts. In the next 12 months, it is expected that all countries will continue implementing more aggressive approaches to reach the unreached in hotspots. The aggressive approaches will ensure a more agile and effective methodology for responding to local epidemiology efforts. These will align with priorities outlined in the 2030 Sustainable Development Goals (SDGs) and the World Health Assembly resolutions which call for health systems to place a special emphasis on the poor, vulnerable, and marginalized segments of the population.

*Foci mapping to reach the unreached, ©WHO*

Cambodia's intensification plan covers seven provinces that account for over 80% of the country's malaria caseload. [4] The plan focuses on strengthening coordination, depleting parasite reservoirs in high-risk populations and ensuring full implementation of malaria interventions including more aggressive approaches. It has been developed in line with the Government's *Malaria elimination action framework* (MEAF) covering the periods 2016–2020 and 2021–2025. Core actions include rolling out "test-and-treat services" for travellers to malaria-risk areas and MMPs by deploying 100 rurally-based mobile malaria workers (MMWs) through active case detection in forested areas.

The crux of the strategy is a shift from a passive to an active case detection approach and the inclusion of MMWs, which allows for outreach to remote and forested areas. To achieve this, Cambodia is adopting a synergetic strategy, including vector control and rigorous case management. At the peripheral level, a team of four WHO epidemiologists support surveillance and case mapping and facilitate coordination among stakeholders. As part of the foci response, a further objective of the intensification plan is to implement more aggressive approaches for high-risk populations such as targeted drug administration (TDA) and intermittent preventive treatment (IPT) for travellers who visit malaria-risk areas.

The preventive treatment is a novel approach that targets high-risk populations before they are exposed to malaria. This requires a high level of collaboration and the active inclusion of MMWs, villagers living in forested areas, and leaders of remote communities. Their engagement will capture important insights from the people most affected by this issue and will create an opportunity for local communities to engage in malaria interventions. The MME programme will ensure that the findings that emerge from Cambodia's preventive treatment approaches will be proposed to other GMS countries to consider for their own intensification efforts.

In June 2020 Myanmar stepped up efforts to reduce the number of *P. falciparum* cases in the hotspot townships and endemic forested areas. The initial approach has followed a similar model to Cambodia, with an emphasis on targeting rural forest goers through a combination of methods including active case detection through targeted screening and treatment; house-to-house visits to forest goers; and case investigation, foci investigation and response (CIFIR).

Due to the COVID-19 pandemic, WHO and partners have provided remote support to the country, including the provision of training on QGIS (quantum geographic information systems). In the second half of 2020, partners in Myanmar have begun to identify and determine high-transmission areas and select villages which will be supported by mobile malaria workers. In 2021, the MMWs aim to have two provincially-based epidemiologists to support both the NMCP and partners in the full implementation of malaria activities and aggressive approaches adapted to the country to accelerate malaria elimination.

Lao PDR has been implementing enhanced response (intensification) plans since mid-2019. These have included focal testing and treatment of all forest goers in 200 of the highest burden villages across 29 health facility coverage

4 Kampong Speu, Kratie, Mondulkiri, Pursat, Sihanoukville, Steung Ratanakiri and Steung Treng.

areas. These interventions were done in conjunction with the dissemination of information, education, and communication materials in collaboration with village chiefs. Outbreak alert thresholds were also incorporated into the malaria information system (DHIS2) in 2018, with aggressive, targeted response strategies linked to any breaches of these thresholds.

From 2021 Lao PDR plans to implement complementary enhanced response strategies to more aggressively target unreached forest goers. The additional strategies include the provision of forest packs which contain insecticide-treated nets, repellents and tailored information, education and communication materials; continued focal testing and treatments, such as weekly fever testing and/or testing of index case contacts of whole villages (such as households, neighbours or forest peers); the deployment of public health specialists/epidemiologists to support subnational data collection, surveillance and response; a combination of TDA and IPT for travellers to malaria risk areas; and weekly SMS reporting. Together, these actions will support Lao PDR towards achieving the goal of *P. falciparum* elimination by 2023.

## COVID-19 RESPONSES REFINE MALARIA ELIMINATION APPROACHES

The COVID-19 pandemic has defined malaria responses in 2020, and is expected to continue to do so in the upcoming year. Although the GMS countries have been relatively successful in managing COVID-19 case numbers, the associated public health measures and border restrictions have put a strain on their existing health systems. All countries and partners have had to adjust programming to safely serve communities with malaria prevention and case management, in line with COVID-19 health measures. However, the increased perception of the risk of COVID-19 infections has also served as an opportunity to cement increased commitment to malaria elimination in the GMS. The success of these commitments is evident in the fact that malaria cases and deaths continued to decrease while testing remained steady between January and September 2020 when compared to the same period in 2019.[5]

Major disruptions were avoided, and all countries worked to ensure the supply of malaria drugs and commodities despite some global suspensions in production. One clear concern resulting from COVID-19 was the risk of the