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Malaria: From declaration to action, and intensifying dengue vector control

The South-East Asia Region bears the second-highest global burden of malaria in terms of morbidity and mortality, and accounts for 58% of the global burden of *Plasmodium vivax*. Among the 15 countries that contributed 80% of the global estimated total malaria cases in 2016, India is the only country outside the African Region. However, the Region has made substantial progress in reducing malaria, with a 46% and 60% reduction in reported malaria cases and deaths between 2010 and 2016 respectively. Two Member States have been certified as malaria-free – Maldives and Sri Lanka – while three other Member States have been identified as having the potential to eliminate malaria by 2020. All Member States of the Region have committed to malaria elimination by 2030 at the latest.

A high-level meeting of the 11 Member States of the Region was held in November 2017 in New Delhi, India, where the ministers of health of all Member States made a commitment towards a malaria-free South-East Asia Region by 2030 through signing of the Ministerial Declaration on Accelerating and Sustaining Malaria Elimination. In parallel, the Regional Action Plan 2017–2030 towards 0. Malaria-Free South-East Asia Region was launched along with a framework for a South Asia subregional cross-border collaboration network to eliminate malaria.

Acceleration of malaria elimination in the South-East Asia Region will require the operationalization of the Ministerial Declaration. The attached working paper proposes seven key action points, including high-level monitoring of progress towards malaria elimination at country and regional levels.

Dengue has emerged as a virulent and rapidly increasing vector-borne disease in the world. With 10 out of 11 Member States endemic, the WHO South-East Asia Region is among the highest burden regions for dengue. Of the 2.5 billion people around the world living in dengue endemic countries and at risk of contracting dengue fever, 1.3 billion live in dengue endemic areas in 10 countries of the WHO South-East Asia (SEA) Region.

In spite of the control efforts, there is a significant increase in the number of dengue cases over the years though significant improvement has been made in case management and reduction of Case Fatality Rate to below 0.5%. However, integrated surveillance, early warning and response systems, and effective vector control needs to be strengthened in the Region.

The attached working paper was presented to the High-Level Preparatory (HLP) Meeting for its review and recommendations. The HLP reviewed the paper and made the following recommendations for consideration by the Seventy-first Session of the Regional Committee:

Actions by Member States

- Operationalize the Ministerial Declaration on Accelerating and Sustaining Malaria Elimination in the South-East Asia Region and intensify dengue vector control activities through the implementation of the proposed seven key action points. In addition, due attention should also be given to vector control for chikungunya and Zika virus disease.
- Draft a resolution on the elimination of malaria and the prevention and control of dengue, chikungunya and Zika virus disease for consideration at the Seventy-first Session of the Regional Committee for South-East Asia.

Actions by WHO

- Support Member States in their efforts to achieve national and regional targets on malaria elimination and the control of dengue, chikungunya and Zika virus disease, with specific focus on improved clinical management and intensified vector control.
- Facilitate cross-border collaboration on the elimination and control of malaria, dengue, chikungunya and Zika virus disease in the Region.

This working paper and the HLP Meeting recommendations are submitted to the Seventy-first Session of the WHO Regional Committee for South-East Asia for its consideration.

Introduction

1. Eradication of malaria once galvanized the world. It was the first-ever large-scale programme on eradication of a disease; however, the effort was discontinued in 1969. Malaria elimination came back onto the agenda through the WHO Global Technical Strategy for Malaria 2016–2030 (GTS), with its vision of a world free of malaria, endorsed by the World Health Assembly in 2015. The GTS shares the same timeline as the Sustainable Development Goals (SDGs), which in its Goal 3, target 3, calls on the world to end the epidemic of malaria by 2030 – this is interpreted as meaning the achievement of the 2030 targets of the GTS for malaria 2016–2030. The GTS fully embraces the concept of universal health coverage (UHC); equity in access to health services is a guiding principle of the GTS.
2. The WHO South-East Asia Region was the first Region, after the adoption of the SDGs and the GTS, to have two of its Member States certified as malaria-free: Maldives and Sri Lanka. Several other Member States are close to interruption of local transmission. All Member States have included malaria elimination targets by latest 2030 in their national malaria strategic plans.
3. Dengue has emerged as the most widespread and rapidly increasing vector-borne disease in the world. With 10 of the 11 Member States endemic, the WHO South-East Asia Region is among the highest burden regions for dengue in the world. There has been an increase in both scale and frequency of dengue outbreaks in the Region during the past 10 years. Though the Region has done well in keeping the case-fatality rate (CFR) low, prevention of dengue, especially in relation to effective vector control, needs to be strengthened in South-East Asia.

Current situation and response to malaria and dengue

4. The South-East Asia Region achieved all the targets for malaria set under the Millennium Development Goals (2000–2015) agenda. In this Region, 1.35 billion people are at risk of malaria. This Region has the second-highest malaria burden globally. It accounts for 58% of the global burden of *Plasmodium vivax* malaria. Among the 15 countries that contributed 80% of the global estimated total malaria cases in 2016, India was the only country outside the African Region. WHO is in the process of developing an initiative to tackle the high malaria burden in these countries. From 2010 to 2016, the SEA Region – among all malaria-endemic WHO regions – showed the largest reduction in malaria morbidity and mortality, with 44% and 60% reduction in estimated morbidity and mortality, respectively, and 46% and 60% decrease in reported confirmed cases and malaria-related deaths, respectively. In 2016, 1.4 million confirmed cases of malaria and 557 malaria deaths were reported. India and Indonesia accounted for 80% and 16% of the reported cases, and 60% and 30% of malaria deaths in 2016, respectively. Nearly 63% of the cases in the SEA Region are due to *Plasmodium falciparum*.
5. Two Member States of the Region have successfully eliminated the disease: Maldives has been malaria-free since 1984 and was certified by WHO in 2015. Sri Lanka interrupted indigenous malaria transmission in October 2012 and was certified as malaria-free in September 2016. This has helped to create an important momentum for malaria elimination in the Region and beyond, and reduced the number of malaria-endemic Member States in the SEA Region from 11 to nine. Lessons learnt have been published, and the two Member States have become resources for technical strategizing and advocacy.

6. In 2016, WHO identified 21 countries – known as “E2020 countries” – with the potential to interrupt local transmission by the year 2020. Three of these countries are in SEA Region – Bhutan, Nepal and Timor-Leste. Bhutan reported only 18 indigenous cases in 2016, and is targeting malaria elimination this year; in Timor-Leste, the decline has been steep, from 40 250 in 2010 to 94 indigenous cases in 2016; and Nepal reported 507 indigenous cases in 2016. The WHO E2020 initiative, financially assisted by the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), brings these countries together and provides technical and financial support to facilitate the achievement of the set goals.

7. The remaining endemic Member Countries in the Region too are making notable progress. The Democratic People’s Republic of Korea, which has *Plasmodium vivax* malaria only, has successfully fought back a malaria resurgence through reducing cases from almost 300 000 in 2001 to around 5000 in 2016. Bangladesh continues to show progress, including through effective detection and management of cases at the community level. India has seen a marked reduction of malaria in the north-eastern states in recent years, and launched and started to roll out its National Framework for Malaria Elimination 2016–2030 and National Strategic Plan 2017–2022. Indonesia is pursuing a subnational elimination approach, with nearly half of the subnational malaria-endemic units having become malaria-free. Malaria is among those diseases whose progress is regularly monitored at the highest political level.

8. In the Greater Mekong Subregion, Myanmar had the highest malaria disease burden (and the third-highest burden in the SEA Region), but has seen a remarkable reduction in reported cases in the past two years by halving reported malaria cases between 2014 and 2016. Thailand also saw significant progress in the reduction of malaria, with a case-based surveillance system in place, and is following a subnational elimination approach with 35 out of 76 provinces recently having been declared as malaria-free. Both countries, together with China, Cambodia, Lao People’s Democratic Republic and Viet Nam, pursue a joint subregional malaria elimination initiative based on the Strategy for Malaria Elimination in the Greater Mekong Subregion (2015–2030), in response to the serious situation of malaria multidrug resistance. The target is to eliminate *Plasmodium falciparum* by 2025, and all malaria species by latest 2030. A multicountry, multipartner initiative is in place, coordinated by the WHO Mekong Malaria Elimination Programme. The Global Fund has recently granted US\$ 242 million for implementation of the initiative.

9. Recognizing the need for high-level political commitment, in November 2017 in New Delhi, India, the ministers of health of all Member States made a commitment towards a malaria-free South-East Asia Region by 2030 through signing of the Ministerial Declaration on Accelerating and Sustaining Malaria Elimination. In parallel, the Regional Action Plan 2017–2030 towards 0. Malaria-Free South-East Asia Region was launched, along with a framework for a South-Asia subregional cross-border collaboration network to eliminate malaria.

10. In December 2017, in Nay Pyi Taw, Myanmar, the countries of the Greater Mekong Subregion committed to a Ministerial Call for Action to Eliminate Malaria in the Greater Mekong Subregion before 2030 in response to antimalarial drug resistance, which was signed on 22 May 2018 in Geneva at a side event held on the occasion of the seventy-first World Health Assembly that highlighted the importance of a country-led and country-owned response to malaria and universal health coverage (UHC).

11. Dengue is a major public health concern throughout tropical and sub-tropical regions of the world. Of the 2.5 billion people around the world living in dengue endemic countries and at risk of contracting dengue fever, 1.3 billion live in dengue endemic areas in 10 countries of the SEA Region.

12. All Member States in the Region except the Democratic People's Republic of Korea being endemic to dengue, the Region contributes to more than half of the global burden of dengue. Five countries (India, Indonesia, Myanmar, Sri Lanka and Thailand) are among the 30 most highly endemic countries in the world. In spite of the control efforts, there has been a significant increase in the number of dengue cases over the years, though improvement has been made in case management and reduction of CFR to below 0.5%.

13. Dengue cases can be reduced and outbreaks prevented through coordinated epidemiological and entomological surveillance and promoting the principles of integrated vector management (IVM). This requires adequate infrastructure, and financial and human resources at the national and local level. Human resource shifting/sharing should be sought wherever the dengue control programme can make use of underutilized human resources or expertise in other vector-borne diseases. In countries from where malaria is eliminated, for example, the trained staff can support dengue prevention and control programmes.

Challenges in the elimination of malaria and control of dengue

14. Malaria is preventable and treatable. Despite significant progress, a number of important challenges remain. Member States of the SEA Region face daunting challenges, as malaria epidemiology as well as socioeconomic and health systems in this Region exhibit enormous complexity:

- (1) High-burden areas exist close to low-burden areas, requiring different programmatic approaches within countries (especially large countries), with elimination approaches side by side with intensified high-burden reduction activities, and prevention of re-establishment of malaria for malaria-free areas.
- (2) Sustained financing for malaria elimination is a big challenge as domestic financing in the Region for malaria is low and external funds are increasingly being phased out as most countries are becoming middle-income countries.
- (3) Many countries need to strengthen their surveillance systems, including case-based surveillance and relevant data platforms, to make surveillance a core intervention as a prerequisite to achieving elimination.
- (4) Many people in malaria-affected areas continue to lack access to lifesaving malaria prevention tools – which are mainly long-lasting insecticidal mosquito nets (LLINs) or indoor residual spraying (IRS), diagnostic testing and treatment. With malaria being rolled back so significantly in most Member States of the Region, malaria transmission often remains entrenched in difficult-to-reach remote areas and vulnerable and at-risk populations, including disadvantaged communities, communities in border and conflict areas, and refugees and migrants. Reaching those areas and communities, providing access to malaria interventions, and actively engaging them in the process of eliminating malaria is mandatory for reaching national and regional goals. Conducting relevant operational research will help to find solutions so that available technical tools can be adapted to the local conditions and appropriate local responses generated.

15. The high burden of *Plasmodium vivax* malaria necessitates a change in the management of malaria cases, including finding practical ways to ensure the safety of radical treatment with primaquine, and achieving high rates of adherence to the treatment regimens.

16. Multidrug resistance, including partial resistance to artemisinin and resistance to partner drugs resulting in failure of artemisinin-based combination therapies (ACT), has been detected in multiple locations in the Greater Mekong Subregion. Failure to eliminate these parasites could lead to their further spread. A subregional response has been initiated (see above). Monitoring malaria drug resistance throughout the Asia Pacific region in order to monitor the potential spread and emergence of new strains is a high WHO priority.

17. Resistance of malaria-transmitting mosquitoes to insecticides, widespread among some Member States of the Region, is a further threat to eliminating the disease in the Region. Quality data on insecticide resistance need to be generated from all countries, and vector control interventions need to be better targeted and carried out at high quality and coverage.

18. Collaboration across borders is required to ensure that countries reaching elimination can achieve and sustain their achievements.

19. Challenges in control and prevention of dengue:

- (1) rise in number and size of densely populated urban cities
- (2) increased global travel has facilitated the spread of the virus
- (3) lack of an effective dengue vaccine
- (4) extensive and indiscriminate use of insecticides has resulted in insecticide resistance
- (5) weak programmatic capacity (financial and human resource)
- (6) poor intersectoral collaboration
- (7) weak or ineffective integrated surveillance (epidemiological, entomological and meteorological) and early warning and response systems (EWARS).

Strategic issues

20. Adopted during a high-level meeting in New Delhi, India, on 29 November 2017, the Ministerial Declaration on Accelerating and Sustaining Malaria Elimination in the South-East Asia Region, based on country and regional analyses and strategic/action plans, emphasized the following strategic issues:

- (1) the need for sustained political commitment at all administrative levels;
- (2) resource mobilization for adequate and sustained funding;
- (3) elimination approach as a part of UHC with a focus on marginalized and key populations;
- (4) making notification of malaria and dengue operational;
- (5) ensuring that malaria elimination and dengue control programmes at national and subnational levels are fully staffed with personnel having the required skills and motivation and are led by competent senior staff;
- (6) commitment by administrative and technical leadership to malaria elimination and dengue control at all administrative levels;
- (7) mounting a multisectoral response;
- (8) ensuring quality malaria and dengue-related supplies;

- (9) adopting innovations and new programmatic interventions in the programmes;
- (10) intercountry/regional coordination and collaboration on relevant aspects of the elimination efforts, including cross-border activities;
- (11) effective monitoring and evaluation and oversight of the elimination efforts.

The way forward

21. The way forward for a malaria-free SEA Region at this point is to make the Ministerial Declaration on Accelerating and Sustaining Malaria Elimination in the South-East Asia Region operational. To this end, and in order to intensify dengue vector control, the following seven key action areas are proposed:

(1) **Emphasis on the local response and adoption of a subnational framework**

In line with national strategic plans and based on local stratification by intensity of malaria transmission, mount a tailored response to suit the local situation. As acknowledged by WHO in its GTS, due to the fact that progress in malaria elimination is often achieved at varying speeds in different parts of a country and in different parasite species, and as is already being done in certain Member States of the Region, adopt a framework of subnational elimination, which will encourage ownership by provinces and districts, and pave the way for overall national elimination and subsequent validation.

(2) **Generation of data as the core of planning**

Generate malaria and dengue-related health and non-health data (including case-based data with geo-mapping) for estimation of the disease burden, resource needs (human resources, commodities, financial) and detailed microplanning to underpin the subnational framework as well as measuring the achievements against targets.

(3) **Translation of political commitment into action on the ground**

Led by the Minister of Health, malaria elimination and dengue control needs to be advocated as being a priority throughout the political hierarchy including the grass-roots level of each country. Development of an advocacy plan and setting up of local multisectoral task forces to ensure effective coordination and implementation could facilitate translation of the political commitment into action at the ground level. Strengthen an empowered national task force (or similar body) in each country, which provides technical guidance, monitors performance of the malaria and dengue vector control programme and evaluates progress towards achieving key milestones.

(4) **Needs assessment coupled with resource mobilization**

A gap analysis, linked with the subnational malaria elimination framework, should be a prerequisite for any resource mobilization. National and local needs assessment on dengue vector control should be undertaken.

(5) **Operationalization of cross-border initiatives**

In line with the Framework for a South-Asia subregional cross-border collaboration network to eliminate malaria, and recognizing the need for a cross-border initiative for countries that are rapidly moving towards malaria elimination in the Region, establish data visualization platforms as the initial step in operationalization of cross-border initiatives to facilitate complementary action in response to active transmission across borders. This can be further complemented by developing a costed measurable action plan with mapping of population mobility, web-based exchange of data on malaria cases, drug and vector resistance, strengthening of district programmes on both sides, joint district-to-district action plans, with an enabled role of WHO as was done for polio eradication. The borders can be prioritized in order of importance for malaria elimination.

Item 10 of the Ministerial Declaration has recognized the value of operationalizing cross-border initiatives.

(6) **South-to-south collaboration on medicines and other commodities**

To secure adequate quality-assured supplies for malaria and dengue diagnosis, treatment and vector control and to prevent stock-outs, participate, where needed, in regional public procurement, regional stockpiles or regulatory cooperative mechanisms (such as the South-East Asia Regulatory Network [SEARN]).

(7) **Reviewing and reporting to the Regional Committee on the progress in malaria elimination and dengue vector control in the SEA Region**

In line with the Ministerial Declaration, which requests WHO to follow up periodically on implementation of the Declaration, review and report to the Regional Committee on the progress of malaria elimination and dengue vector control in the South-East Asia Region, including through the use of a regional scorecard.

Conclusions

22. The Regional Committee is requested to review the proposed way forward and provide recommendations with the overall objective of making the Ministerial Declaration on Accelerating and Sustaining Malaria Elimination in the South-East Asia Region operational, and significantly intensifying vector control of dengue, chikungunya and Zika virus disease. The draft resolution on the elimination of malaria and the control of dengue, chikungunya and Zika virus disease, jointly developed by Sri Lanka and Thailand, is submitted for consideration.