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2001–2010: Decade to Roll Back Malaria in Developing Countries, Particularly in Africa

Consolidating gains and accelerating efforts to control and eliminate malaria in developing countries, particularly in Africa, by 2030

Note by the Secretary-General

The Secretary-General has the honour to transmit to the General Assembly the report of the Director General of the World Health Organization, submitted in accordance with Assembly resolution [72/309](#).



Report of the Director-General of the World Health Organization on consolidating gains and accelerating efforts to control and eliminate malaria in developing countries, particularly in Africa, by 2030

Summary

The present report is submitted in accordance with General Assembly resolution [72/309](#). It provides a review of progress in the implementation of the resolution, focusing on the adoption and scaling-up of interventions recommended by the World Health Organization in malaria-endemic countries. It elaborates on the challenges limiting the full achievement of the targets and provides recommendations to ensure that progress towards the goals of the Global Technical Strategy for Malaria 2016–2030 is accelerated in the coming years.

I. Introduction

1. While malaria is a preventable and treatable disease, it continues to have a devastating impact on the health and livelihood of people around the world. In 2017, there were an estimated 219 million cases of malaria and 435,000 malaria-related deaths in 87 countries. Children under the age of 5 years in sub-Saharan Africa account for nearly two thirds of global deaths from malaria.

2. The present report highlights progress and challenges in the control and elimination of malaria in the context of General Assembly resolution [72/309](#). It draws heavily on the *World Malaria Report 2018*, a World Health Organization (WHO) analysis based on the latest available data (2017) received from malaria-endemic countries and organizations supporting global efforts against malaria. Data from 2018 are being collected and reviewed by WHO.

3. In May 2015, the World Health Assembly endorsed the Global Technical Strategy for Malaria 2016–2030, a technical framework for all countries working to control and eliminate malaria. The Global Technical Strategy sets the goals of reducing malaria case incidence and death rates by at least 90 per cent by 2030 (compared with 2015 levels), eliminating malaria in at least 35 countries and preventing the re-establishment of malaria in all countries that are malaria-free. Its near-term milestones for 2020 include reductions in case incidence and mortality rates of at least 40 per cent and the elimination of malaria in at least 10 countries. For 2025, the milestones are a reduction in case incidence and mortality rates of at least 75 per cent and the elimination of malaria in at least 20 countries.

4. Together with AIDS, tuberculosis and other neglected tropical diseases, malaria is included under target 3.3 of the Sustainable Development Goals, the aim of which is to “end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases” by 2030. With regard to malaria, WHO interprets that target to mean the attainment of the goals of the Global Technical Strategy. Expanded access to malaria interventions will also contribute to the broader health and development agenda embodied in the Goals and to global efforts to move towards universal health coverage.

5. In recent years, the pace of progress in the global malaria response has stalled and critical near-term targets of the Global Technical Strategy are unlikely to be met. To respond to this challenge, WHO and the RBM Partnership to End Malaria, a joint effort with partners and donors, have catalysed a new approach to intensify support for countries that carry the highest burden of disease. The “High burden to high impact” initiative, launched in November 2018, is founded upon four pillars: (a) political will to reduce malaria deaths; (b) strategic information to drive impact; (c) better guidance, policies and strategies; and (d) a coordinated national malaria response.

6. The success of efforts to control and eliminate malaria is measured through an analysis of trends in the disease burden, access to key malaria control tools and progress towards the goals of the Global Technical Strategy. WHO recommends a multipronged strategy to reduce the malaria burden, including the scaling-up of vector control interventions, preventive therapies, diagnostic testing, quality-assured treatment and robust malaria surveillance.

II. Current situation

7. After many years of impressive reductions in the global malaria burden, as shown in the annual *World Malaria Report*, WHO noted a worrying trend in the *World*

Malaria Report 2017: that progress had levelled off. This trend was confirmed in the latest edition of the report, published in November 2018. No significant gains were made in reducing the number of malaria cases worldwide from 2015 to 2017. The estimated number of malaria deaths in 2017 stood at 435,000, a number similar to the previous year. The world is not on a trajectory to achieve two near-term milestones of the Global Technical Strategy: reducing case incidence and mortality rates globally by at least 40 per cent by 2020.

8. The WHO African region continued to shoulder more than 90 per cent of the global malaria burden in 2017. Eleven countries – 10 in Africa, plus India – accounted for approximately 70 per cent of global malaria deaths. In the 10 African countries hardest hit by malaria (Burkina Faso, Cameroon, Democratic Republic of the Congo, Ghana, Mali, Mozambique, Niger, Nigeria, Uganda and United Republic of Tanzania), there were an estimated 3.5 million more cases of malaria in 2017 than in the previous year.

9. *Plasmodium falciparum* remained the most prevalent malaria parasite in the WHO African and South-East Asia regions in 2017, accounting for more than 99 and 62 per cent of malaria cases, respectively. *P. vivax* was the predominant parasite in the WHO region of the Americas, representing 74 per cent of cases.

Vector control measures

10. Since 2000, expanded access to, and use of, insecticide-treated mosquito nets has made a major contribution to the reductions seen in the global malaria burden. However, current levels of insecticide-treated net coverage still fall far short of needs: in 2017, only half of people at risk of malaria in sub-Saharan Africa slept under an insecticide-treated net. The proportion of households with sufficient nets (i.e. one for every two people) remained inadequate, at 40 per cent.

11. Spraying the inside walls of homes with insecticides (indoor residual spraying) is another powerful way to reduce malaria transmission. Globally, indoor residual spraying protection declined from a peak of 5 per cent in 2010 to 3 per cent in 2017, with decreases seen in all WHO regions. The declines are occurring as countries switch from using pyrethroid insecticides to more expensive alternatives to mitigate mosquito resistance to pyrethroids.

12. The WHO *Global Vector Control Response 2017–2030* outlines a plan to support countries in mounting coordinated efforts to counter the increasing burden and threat of all vector-borne diseases, including malaria. The strategic approach proposed in the response was strongly supported by member States at the seventieth World Health Assembly, in May 2017.

Preventive therapies

13. To protect women in areas of moderate and high malaria transmission in Africa, WHO recommends intermittent preventive treatment in pregnancy with the antimalarial drug sulfadoxine-pyrimethamine. Among the 33 African countries that reported on levels of such treatment in 2017, an estimated 22 per cent of eligible women received the recommended three or more doses of the drug, compared with 17 per cent in 2015.

14. Since 2012, seasonal malaria chemoprevention has been recommended by WHO for children aged from 3 to 59 months living in areas of highly seasonal malaria transmission in the Sahel subregion of Africa. In 2017, 15.7 million children in 12 countries in that subregion were protected through seasonal malaria chemoprevention programmes. However, some 13 million eligible children did not benefit from that intervention, mainly owing to a lack of funding.

Diagnostic testing and treatment

15. Since 2010, WHO has recommended the diagnostic testing of all suspected malaria cases when patients seek treatment at health clinics or pharmacies or by community health workers. According to surveys conducted in 30 countries in sub-Saharan Africa between 2010 and 2017, the percentage of children with a fever receiving a malaria diagnostic test in the public health sector reached a median of 59 per cent over the period 2015–2017, up from a median of 33 per cent for the period 2010–2012.

16. According to the *World Malaria Report 2018*, children are more likely to be given artemisinin-based combination therapies, which are the most effective antimalarial drugs, if medical care is sought in the public sector. However, access to care remains low: national-level surveys show that only about one third (36 per cent) of children with a fever are taken to a health-care provider in the public sector, and an even higher proportion (40 per cent) receive no health care at all. Treatment access is particularly low in remote and rural areas, with only 3 per cent of febrile children gaining access to care through community health workers.

17. Community-based health programmes can significantly reduce malaria-related child mortality in rural communities. Through the Rapid Access Expansion Programme, for example, WHO and partners supported the scaling-up of integrated community case management in the Democratic Republic of the Congo, Malawi, Mozambique, the Niger and Nigeria. From 2013 to 2018, the Programme supported the training and deployment of more than 8,400 community health workers in hard-to-reach areas. More than 8 million cases of malaria, pneumonia and diarrhoea among young children were diagnosed and treated in the areas in which the Programme was implemented; it had a significant impact in reducing child mortality in those areas. On the basis of lessons learned, integrated community case management has been scaled up beyond initial districts and provinces in the five countries.

Biological threats to malaria control

18. WHO continues to closely monitor three biological threats to malaria control and elimination: (a) mosquito resistance to insecticides used in core vector control tools; (b) parasite resistance to antimalarials; and (c) histidine-rich protein 2/3 (HRP2/3) gene deletions in *P. falciparum* parasites. All available data can be found on the WHO website through the Malaria Threats Map tool.¹

Insecticide resistance

19. Global progress in malaria control is threatened by the rapid development and spread of mosquito resistance to the insecticides used in insecticide-treated nets and indoor residual spraying. Of the 80 malaria-endemic countries that provided data for the period from 2010 to 2017, resistance to at least one insecticide in one malaria vector from one collection site was detected in 68 countries; 57 of those 68 countries reported resistance to two or more insecticide classes.

20. Despite an increasing number of reports of insecticide resistance, evidence of its public health impact is scarce. A large WHO multi-country evaluation conducted over five years found that insecticide-treated nets continued to provide significant protection against malaria, even in areas in which mosquitoes had developed resistance to pyrethroids (the only insecticide class used in such nets).²

¹ Available at <http://apps.who.int/malaria/maps/threats/>.

² The findings of the study are available at www.who.int/malaria/publications/atoz/insecticide-resistance-implications/en/.

21. To prevent an erosion of the impact of core vector control tools, WHO has underscored the critical need for all malaria-endemic countries to develop and apply effective insecticide resistance management strategies. WHO also highlights the urgent need for new and improved malaria control tools in the global response to the disease.

Drug resistance

22. Protecting the efficacy of antimalarial drugs is another critical priority for WHO. Most studies conducted between 2010 and 2017 show that overall efficacy rates of artemisinin-based combination therapies exceed 95 per cent outside the Greater Mekong subregion. Overall, the immediate threat of antimalarial drug resistance is low; drug failure is unlikely to have played a role in the recent global trends documented in the *World Malaria Report*.

23. Within the Greater Mekong subregion, partial resistance to artemisinin has been detected in Cambodia, the Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam over the past decade. Resistance to the partner drugs of artemisinin-based combination therapies has been detected in the same countries, except for Myanmar. To tackle this challenge, the ministers of health of the subregion adopted the Strategy for Malaria Elimination in the Greater Mekong Subregion (2015–2030); priority actions are targeted at areas in which multidrug-resistant parasites have been detected. At the seventy-first World Health Assembly, in May 2018, the ministers of health of the subregion renewed their political commitment to eliminating malaria in the subregion by 2030 by collectively signing a ministerial call for action.

24. With support from WHO and partners, all countries in the Greater Mekong subregion have aligned their national malaria plans with the WHO subregional strategy and are now reporting monthly malaria surveillance data to a regional data-sharing platform funded by the Global Fund to Fight AIDS, Tuberculosis and Malaria; the platform stores surveillance data to facilitate information-sharing and analysis. By accelerating efforts to prevent, diagnose and treat malaria among at-risk communities, many countries in the subregion have seen a steep downward trend in their malaria burden: between 2012 and 2017, the number of malaria cases and deaths fell by 75 and 93 per cent, respectively, in the subregion.

Histidine-rich protein 2/3 gene deletions

25. In some countries, increasing levels of histidine-rich protein 2/3 (HRP2/3) gene deletions threaten the ability of health providers to diagnose and appropriately treat people infected with *P. falciparum* malaria. An absence of the gene enables parasites to evade detection by HRP2/3-based rapid diagnostic tests. Although the prevalence of HRP2/3 gene deletions in most countries with high malaria transmission remains low, further surveillance is required. WHO has developed a global response plan and is working with countries to measure the prevalence of gene deletions and to help them to address the implications for case management.

Elimination and certification

26. While progress in the global response to malaria has levelled off, a subset of countries with a low burden of malaria is moving swiftly towards elimination. The Global Technical Strategy calls for the elimination of malaria in at least 10 countries by 2020; to meet that target, a country that had malaria transmission in 2015 must achieve at least one year of zero indigenous cases by 2020. According to the *World Malaria Report 2018*, that target is likely to be met.

27. A special WHO initiative established in 2017, known as the “E-2020 initiative”, is working to support 21 malaria-eliminating countries in their efforts to reach one

year of zero indigenous cases. Two member countries, China and El Salvador, reported zero cases in 2017, a first for both. That same year, an additional seven member countries reported fewer than 100 indigenous cases, strongly indicating that elimination by 2020 is within reach.

28. Countries that achieve at least three consecutive years of zero indigenous cases are eligible to apply for an official WHO certification of malaria elimination. In 2018, Paraguay and Uzbekistan reached that milestone. Seven other countries have been certified as malaria-free since 2000: United Arab Emirates (2007), Morocco and Turkmenistan (2010), Armenia (2011), Maldives (2015) and Kyrgyzstan and Sri Lanka (2016).

29. In 2017, WHO released a framework for malaria elimination to provide guidance on the activities and strategies required to achieve the elimination of malaria and prevent the re-establishment of transmission in all countries, regardless of where they lie on the spectrum of transmission intensity. It is intended to inform national strategic plans for the elimination of malaria and should be adapted to local contexts.

Eradication

30. In August 2016, WHO established a strategic advisory group on malaria eradication to advise it on the feasibility, potential strategies and cost of eradicating malaria over the next decades, building on the goals and targets set in the Global Technical Strategy and in the context of the Sustainable Development Goals. To date, the group has defined cross-cutting work packages that span a breadth of domains: biological, technical, financial, socioeconomic, political and environmental. A final report summarizing key findings and recommendations will be published in late 2019.

31. The group developed a report for the WHO Executive Board at its 141st session that clarifies current terminology on “elimination” and “eradication” and affirms the long-standing commitment of WHO to eradication, without specifying an end date for the achievement of that goal.³ Members of the Board expressed strong appreciation for the report and for the creation of the group.

Surveillance

32. A malaria surveillance system comprises the tools, procedures, people and structures that generate information on malaria cases and deaths. Strong surveillance systems enable ministries of health to identify gaps in programme coverage and respond effectively to disease outbreaks, guide changes in programme planning so that resources are directed to populations most in need and regularly assess the impact of control measures in reducing disease burden.

33. Strengthening surveillance systems is a key pillar of the Global Technical Strategy, as part of which countries are urged to substantially expand malaria surveillance and transform it into a core intervention that is as important as vector control, diagnostic testing or treatment. In addition to helping to accelerate progress towards the 2030 targets, increased investment in malaria surveillance will ease the current reliance on model-based disease estimation methods.

34. According to the *World Malaria Report 2018*, while malaria case detection rates were gradually improving, the routine surveillance systems in 52 countries with a moderate-to-high malaria burden captured only 60 per cent of estimated malaria cases; improved data from those countries would have a substantial impact on future estimates of malaria burden and trends. A lack of data from private health service providers continues to be a major surveillance bottleneck.

³ Available at http://apps.who.int/gb/ebwha/pdf_files/EB141/B141_3-en.pdf?ua=1.

Global guidance from the World Health Organization

35. The Global Technical Strategy provides countries with evidence-based technical guidance. It was developed in close consultation with malaria-endemic countries and their partners, and the process was overseen by the Malaria Policy Advisory Committee and a dedicated steering committee.

36. The document is built on three pillars: (a) ensure universal access to malaria prevention, diagnosis and treatment; (b) accelerate efforts towards the elimination and attainment of malaria-free status; and (c) transform malaria surveillance into a core intervention. The pillars are complemented by two supporting elements: (a) harnessing innovation and expanding research; and (b) strengthening the enabling environment.

37. The Global Technical Strategy provides the technical underpinning for the *Action and Investment to Defeat Malaria 2016–2030: For a Malaria-Free World*, a report released in 2015. The focus of that document is on supporting the implementation of the Global Technical Strategy through global advocacy, resource mobilization, partner harmonization and the engagement of the public and private sectors. It positions malaria firmly within the Sustainable Development Goals agenda.

38. In 2018, WHO issued *Malaria Surveillance, Monitoring and Evaluation: A Reference Manual*. The document provides guidance to both malaria-endemic countries and countries that have eliminated the disease but remain susceptible to the re-establishment of transmission. The WHO process for the evaluation of vector control tools, technologies and approaches was recently revised to better meet the needs of countries at risk of vector-borne diseases or in which such diseases are endemic.

Global partnership and political commitment

39. The Roll Back Malaria Partnership was transformed in 2016 to enhance its contribution to the fight against malaria. The strategic objectives of the newly branded RBM Partnership to End Malaria are: (a) to keep malaria high on the political and development agendas through a robust multisectoral approach, with a view to ensuring continued commitment and investment to achieve the milestones and targets of the Global Technical Strategy and the *Action and Investment to Defeat Malaria 2016–2030* report; (b) to promote and support regional approaches to the fight against malaria anchored in existing political and economic platforms, such as regional economic communities; and (c) to promote and advocate sustainable malaria financing, with substantial increases in domestic financing.

40. African Heads of State continue to meet twice per year for a dedicated malaria forum at the African Union summit to reaffirm their commitment to eliminating malaria by 2030. At the thirty-first such summit meeting, in July 2018, the African Union Commission and the RBM Partnership to End Malaria launched “Zero malaria starts with me”, a grass-roots campaign that empowers communities to take greater ownership of malaria prevention and care. Through the African Leaders Malaria Alliance, 49 Heads of State and Government work across national and regional borders to facilitate action and accountability in the region’s efforts to combat malaria.

41. Countries in the Asia-Pacific region, with leadership from Australia and Viet Nam, launched the Asia Pacific Leaders Malaria Alliance in October 2013. Its mission is to support and facilitate the elimination of malaria throughout the region by 2030, or earlier if possible. WHO supports the secretariat of the Alliance at the Asian Development Bank in Manila through the provision of technical guidance. The Leaders’ Dashboard of the Alliance enables countries to track malaria elimination

progress and achievements across all sectors; it was developed in close collaboration with WHO, drawing on indicators from the *World Malaria Report 2017*.

III. Urgent funding needs

42. In 2017, an estimated \$3.1 billion was invested in malaria control and elimination efforts globally. The Governments of malaria-endemic countries contributed \$900 million (28 per cent). As in previous years, the United States of America was the largest international source of malaria financing, providing \$1.2 billion (39 per cent) in 2017. Of the \$3.1 billion invested in 2017, \$1.3 billion was channelled through the Global Fund to Fight AIDS, Tuberculosis and Malaria.

43. Funding has plateaued since 2010, and the level of investment in 2017 was less than half of the estimated \$6.6 billion required annually, by 2020, to meet the goals of the Global Technical Strategy. In 24 of 41 countries with a high malaria burden that rely mainly on external financing for their malaria programmes, the average level of funding available per person at risk of malaria fell during the period 2015–2017 compared with the period 2012–2014. Insufficient funding is the greatest threat to the gains achieved in the global response to malaria.

IV. Recommendations

44. The findings set out in the *World Malaria Report* over the past two years signal a clear need for greater investment in malaria control, particularly in countries in the WHO African region that have a high malaria burden. Adequate and predictable financing is essential to sustaining progress in the fight against malaria. Malaria-endemic countries are urged to increase the domestic resources that they make available to combat the disease.

45. There is an urgent need to make more effective use of the tools currently available for the prevention, diagnosis and treatment of malaria, particularly in high-burden settings. Gaps in the coverage of proven interventions must be found and filled. The “high burden to high impact” approach will support countries in scaling up the appropriate mixes of interventions using accessible and affordable front-line services.

46. There is also a critical need to strengthen malaria surveillance and data quality in all malaria-endemic regions. Additional financing is required to support the sharing and analysis of best practices to address programmatic challenges, to improve monitoring and evaluation and to conduct regular financial planning and gap analysis.

47. To achieve better impact and to ensure that successes are sustained, countries are encouraged to increasingly adopt a multisectoral approach to malaria control and to build on synergies with other development priorities, including universal health coverage.

48. The contributions of the scientific community and the private sector remain essential: new products such as improved diagnostic tools and vaccines, more effective medicines, new insecticides and more durable insecticide-treated bed nets are fundamental to ensuring sustained progress in efforts to combat the disease. Progress in combating malaria can be maintained only through a concerted and focused multi-stakeholder effort, built on the foundation of political commitment, continuous scientific advancement and vigorous innovation.