

Short Communication

Status of Malaria in the W.H.O. Western Pacific Region

Arvind Nath

National Institute of Malaria Research, New Delhi, India.

DOI: <https://doi.org/10.24321/2455.7048.202211>

I N F O

Corresponding Author:

Arvind Nath, National Institute of Malaria Research, New Delhi, India.

E-mail Id:

natha.hq@icmr.gov.in

Orcid Id:

<https://orcid.org/0000-0002-8474-5135>

How to cite this article:

Nath A. Status of Malaria in the W.H.O. Western Pacific Region. *Epidem Int.* 2022;7(3):8-12.

Date of Submission: 2022-09-16

Date of Acceptance: 2022-10-06

A B S T R A C T

Objective: The objective of this paper is to present a birds-eye view of the Malaria situation in the W.H.O. Western Pacific Region.

Methods: The methods included online searches related to Malaria for each country such as from W.H.O., World Bank and journal articles as well as national program documents. **Findings:** Twenty-eight countries, territories, and areas (American Samoa, Australia, Brunei Darussalam, China, Cook Islands, Fiji, French Polynesia, Guam, Hong Kong SAR, Japan, Kiribati, Macao SAR, Marshall Islands, Federated States of Micronesia, Mongolia, Nauru, New Caledonia, New Zealand, Niue, Northern Mariana Islands, Palau, Pitcairn Islands, Samoa, Singapore, Tokelau, Tonga, Tuvalu, and Wallis and Futuna) are free of indigenous Malaria while the remaining nine (Cambodia, Lao People's Democratic Republic, Malaysia, Papua New Guinea, Philippines, Republic of Korea, Solomon Islands, Vanuatu and Viet Nam) are progressing towards that target.

Conclusion: Cambodia and Malaysia are most likely to receive a certification for Malaria elimination in the immediate future.

Keywords: Malaria, W.H.O., W.P.R.O., Human, Strains

Introduction

The W.H.O. Western Pacific Region includes the following thirty-seven countries, territories, and areas: American Samoa (USA), Australia, Brunei Darussalam, Cambodia, China, Cook Islands, Fiji, French Polynesia (France), Guam (USA), Hong Kong SAR (China), Japan, Kiribati, Lao People's Democratic Republic, Macao SAR (China), Malaysia, Marshall Islands, Micronesia (the Federated States of), Mongolia, Nauru, New Caledonia (France), New Zealand, Niue, Northern Mariana Islands (USA), Palau, Papua New Guinea, Philippines, Pitcairn Islands (UK), Republic of Korea, Samoa, Singapore, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Viet Nam, and Wallis and Futuna (France).



Figure 1. Map of W.H.O.'s Western Pacific Region [Source: 1]

Methods

The study design included online searches related to Malaria for each country such as W.H.O., World Bank and journal articles as well as national program documents.

Results

1. American Samoa (USA): There is no transmission of Malaria in American Samoa.²
2. Australia: Malaria was declared to be free from indigenous Malaria in 1981 although imported cases continue to occur.³
3. Brunei Darussalam: The country has been declared free of Malaria since 1987.⁴
4. Cambodia: According to one reference, there were 3959 cases of Malaria in Cambodia in 2021.⁵
5. China: On 30 June 2021, China was certified by the W.H.O. to be Malaria-free.⁶
6. Cook Islands: There is no risk of Malaria in the Cook Islands.⁷
7. Fiji: There is no risk of Malaria in Fiji.⁸
8. French Polynesia (France): There is no risk of Malaria in French Polynesia.⁹
9. Guam (USA): There is no Malaria transmission in Guam.¹⁰
10. Hong Kong SAR (China): As of 8 August 2022, there were 77 imported cases of Malaria in Hong Kong SAR.¹¹
11. Japan: There is no Malaria transmission in Japan.¹²
12. Kiribati: There is no risk of Malaria in Kiribati.¹³
13. Lao People's Democratic Republic: According to one reference, there were 20,712 cases of Malaria in Lao PDR in 2017.¹⁴ This reduced to 3505 cases in 2020.¹⁵
14. Macao SAR (China): There is no risk of Malaria in Macao.¹⁶
15. Malaysia: Zoonotic Malaria, caused by *P. knowlesi*, has increased markedly in Malaysia, from 376 cases in 2008 to 3575 cases in 2021. Besides this, there were 111 imported cases of human Malaria in 2021 among newly recruited foreign labor.¹⁷
16. Marshall Islands: There is no risk of Malaria in the Marshall Islands.¹⁸
17. Micronesia (Federated States of Micronesia): Malaria is not present in the Federated States of Micronesia.¹⁹
18. Mongolia: Malaria is not present in Mongolia.²⁰
19. Nauru: There is no risk of Malaria in Nauru.²¹
20. New Caledonia (France): New Caledonia is free from Malaria.²²
21. New Zealand: There is no Malaria transmission in New Zealand.²³
22. Niue: There is no Malaria transmission in Niue.²⁴
23. Northern Mariana Islands (USA): There is no Malaria transmission in the Northern Mariana Islands.²⁵
24. Palau: There is no Malaria transmission in Palau.²⁶
25. Papua New Guinea: In 2017, there were 478,340

confirmed cases of Malaria in Papua New Guinea. Out of these, 76% were due to *P. falciparum* and 23% were due to *P. vivax*.²⁷ The incidence of Malaria per 1000 population at risk during 2020 was 164.3.²⁸

26. Philippines: In 2017, there were 3950 confirmed cases of Malaria in the Philippines. Out of these, 86% were due to *P. falciparum* and 13% were due to *P. vivax*.²⁹ The incidence of Malaria per 1000 population at risk during 2020 was 0.7.³⁰
27. Pitcairn Islands (UK): There is no Malaria transmission in the Pitcairn Islands.³¹
28. Republic of Korea: In 2020, there were 356 confirmed cases of Malaria in the Republic of Korea.³²
29. Samoa: Malaria is not present in Samoa.³³
30. Singapore: The W.H.O. declared Singapore Malaria-free in 1982.³⁴
31. Solomon Islands: In 2017, there were 52,463 confirmed cases of Malaria in the Solomon Islands. Out of these, 42% were due to *P. falciparum* and 57% were due to *P. vivax*.³⁵ The incidence of Malaria per 1000 population at risk during 2020 was 167.7.³⁶
32. Tokelau: There is no risk of Malaria in Tokelau.³⁷
33. Tonga: There is no risk of Malaria in Tonga.³⁸
34. Tuvalu: Malaria is not present in Tuvalu.³⁹
35. Vanuatu: In 2017, there were 1071 confirmed cases of Malaria in Vanuatu. Out of these, 25% were due to *P. falciparum* and 74% were due to *P. vivax*.⁴⁰ The incidence of Malaria per 1000 population at risk during 2020 was 3.⁴¹
36. Viet Nam: In 2008, there were 11,355 cases of Malaria in Viet Nam.⁴² On the other hand, there were 1376 cases of the disease in the country in 2020.⁴³
37. Wallis and Futuna (France): There is no risk of Malaria in Wallis and Futuna.⁴⁴

Discussion

Cambodia has pledged to eliminate Malaria by 2025 through its National Strategic Plan for Malaria Elimination (NSP 2011-2025).⁴⁵ However, in 1999, the country had 140,000 cases of the disease and even in 2018, had 60,000 cases of Malaria.⁴⁶ In 2018, Cambodia's National Center for Parasitology, Entomology and Malaria Control (CNM) implemented a plan to reduce parasite reservoirs in high-risk populations by providing technical support to the provinces, strengthening coordination, and ensuring the full implementation of interventions. This led to a decrease in the number of Malaria cases, so much so that Cambodia, in 2020, announced that it can eliminate *Plasmodium falciparum* earlier by 2023 instead of 2025.⁴⁷

Lao PDR has pledged to eliminate Malaria by 2030.⁴⁸ However, from 2011 to 2014, the country experienced an outbreak in which there were 50000 cases of Malaria 2014 alone. This led the country's National Center for

Malariology, Parasitology and Entomology (CMPE) to launch a new electronic Malaria information system which was integrated with the existing national online health information system. With the help of epidemiological maps and datasets, the Malaria staff were now able to pick up any unusual trends which might indicate an impending epidemic. This has helped to bring down the number of cases to its present status. In 2020, the country launched “Elimination, Surveillance and Response Guidelines” which has further emphasized the need for proactive tracking, testing, and treating of every case of Malaria.⁴⁹

Malaysia is nearing the elimination of human-only Plasmodium species. However, the increase in *P. knowlesi* Malaria incidence is posing a major challenge.⁵⁰ The Papua New Guinea National Malaria Control Program introduced in 2011 a revised “test and treat” protocol. This was evaluated in health surveys up to 2016.⁵¹ The Philippines Department of Health runs the Malaria Control and Elimination Program. The aim is to eliminate Malaria by 2030.⁵² The Republic of Korea had made 2021 their target to be Malaria-free.³² The Solomon Islands have targeted 2034 to be Malaria-free. They are envisaging Malaria to be a notifiable disease during 2022.⁵³ Vanuatu has a “National Strategic Plan for Malaria Elimination 2021 - 2030” in place to tackle the disease.⁵⁴ In Vietnam, Malaria occurs primarily in the hilly and forested areas of the central and southern provinces. The disease peaks during the months of December to February.⁵⁵ The country’s national malaria control program began in 1992. It consisted of prompt case detection and treatment, indoor residual spraying, and the distribution of insecticide-treated nets. Financial support for the program has been provided by the Global Fund to Fight AIDS, Tuberculosis and Malaria to the National Institute of Malaria, Parasitology, and Entomology (NIMPE) of the Ministry of Health (MOH). Approximately two-thirds of Vietnam’s malaria cases are caused by *Plasmodium falciparum*, with *Plasmodium vivax* making up the rest. Of greatest concern is the documented emergence of artemisinin-resistant malaria strains, especially in the highland areas.⁵⁶

Conclusion

Cambodia has only three years left to reach its national goal of eliminating malaria. To complete the final mile by the deadline, one must make all effort. There are only 8 years left till Lao PDR achieves its goal of eradicating malaria nationwide. Additionally, it must use every effort to finish the last mile before the deadline. Malaysia needs to address the growing zoonotic malaria issue. The severity of the malaria problem in Papua and New Guinea is due to the high number of malaria cases in such a tiny nation. Only eight years remain for the Philippines to eradicate malaria. By 2017, the Republic of Korea had established guidelines

requiring the reporting of malaria cases from all sources. Despite their modest size, the Solomon Islands also have a severe malaria problem. Malaria is a concern in Vanuatu, but it can be solved in a few years. In order for Vietnam to achieve its national goal of eradicating malaria by 2030, only 8 more years are needed. To complete the final mile by the deadline, one must make all effort.

Source of Funding: None

Conflict of Interest: None

References

1. World Health Organization. 2022;8. Available at <https://www.who.int/westernpacific/#> Accessed on.
2. https://relief.unboundmedicine.com/relief/view/cdc-yellow-book/204204/all/American_Samoa_US_ Accessed on. 2022;8.
3. <https://www.nhmrc.gov.au/about-us/news-centre/australias-investment-eradicating-malaria>. Accessed on. 2022;8.
4. Ministry of Health, Brunei Darussalam. Available at 2022;8. <https://www.moh.gov.bn/SitePages/Malaria%20Vigilance,%20Entomology%20and%20Vector%20Units.aspx>. Accessed on.
5. The Phnom Penh Post. Cambodia on track for total eradication of Malaria PM. 2022;4. Available at <https://www.phnompenhpost.com/national/cambodia-track-total-eradication-malaria-pm>. Accessed on.
6. World Health Organization. 2022;8. Available at <https://www.who.int/news/item/30-06-2021-from-30-million-cases-to-zero-china-is-certified-malaria-free-by-who>. Accessed on.
7. <https://www.travelpharm.com/cook-islands-australasia-i258>. Accessed on. 2022;8
8. <https://www.travelpharm.com/fiji-australasia-i259>. Accessed on. 2022;8.
9. <https://www.travelpharm.com/french-polynesia-australasia-i260>. Accessed on. 2022;8.
10. https://relief.unboundmedicine.com/relief/view/cdc-yellow-book/204288/all/Guam_US_. Accessed on 2022;8.
11. <https://hongkongfp.com/2022/08/08/hong-kong-logs-77-imported-malaria-infections-2-people-in-serious-condition/>. Accessed on. 2022;8.
12. Centers for Disease Control and Prevention, USA. Available at <https://wwwnc.cdc.gov/travel/yellowbook/2020/preparing-international-travelers-yellow-fever-vaccine-and-malaria-prophylaxis-information-by-country/japan>. Accessed on. 2022;8.
13. <https://www.travelpharm.com/kiribati-australasia-i267>. Accessed on. 2022;8.
14. *P. vivax* information hub. 2018. Available at <https://www.vivaxmalaria.org/lao-peoples-democratic-republic>. Accessed on. 2022;3.

15. World Health Organization. Newsroom.. Available at [https://www.who.int/news-room/feature-stories/detail/towards-zero-harnessing-data-to-eliminate-malaria-in-the-lao-people-s-democratic-republic#:~:text=Lao%20People's%20Democratic%20Republic%20\(PDR, recent%20history%20of%20malaria%20outbreaks](https://www.who.int/news-room/feature-stories/detail/towards-zero-harnessing-data-to-eliminate-malaria-in-the-lao-people-s-democratic-republic#:~:text=Lao%20People's%20Democratic%20Republic%20(PDR, recent%20history%20of%20malaria%20outbreaks.). Accessed on. 2022;3.
16. <https://www.travelpharm.com/macau-asia-i378>. Accessed on. 2022;9.
17. <https://www.nst.com.my/news/nation/2022/04/791628/new-threat-increasing-zoonotic-malaria-infections>. Accessed on. 2022;9.
18. <https://www.travelpharm.com/marshall-islands-australasia-i268>. Accessed on. 2022;9.
19. <https://www.fitfortravel.nhs.uk/destinations/australasia-pacific/federated-states-of-micronesia#Malaria>. Accessed on. 2022;9.
20. <https://www.fitfortravel.nhs.uk/destinations/asia-east/mongolia#Malaria>. Accessed on. 2022;9.
21. <https://www.travelpharm.com/nauru-australasia-i269>. Accessed on. 2022;9.
22. <https://www.newcaledonia.travel/nz/health-safety>. Accessed on. 2022;9.
23. <https://wwwnc.cdc.gov/travel/yellowbook/2020/preparing-international-travelers/yellow-fever-vaccine-and-malaria-prophylaxis-information-by-country/new-zealand>. Accessed on. 2022;12.
24. https://relief.unboundmedicine.com/relief/view/cdc-yellow-book/204357/all/Niue__New_Zealand_. Accessed on. 2022;12.
25. https://relief.unboundmedicine.com/relief/view/cdc-yellow-book/204360/all/Northern_Mariana_Islands__US__Includes_Saipan__Tinian__and_Rota_Island. Accessed on. 2022;12.
26. <https://relief.unboundmedicine.com/relief/view/cdc-yellow-book/204364/all/Palau>. Accessed on. 2022;12.
27. World Health Organization. Malaria 2021 Country Profile: Papua New Guinea. Available at https://cdn.who.int/media/docs/default-source/malaria/country-profiles/2018/profile_png_en.pdf?sfvrsn=bdd572d9_3&download=true. Accessed on. 2022;12.
28. World Bank 2020. Available at <https://data.worldbank.org/indicator/SH.MLR.INCD.P3?locations=PG>. Accessed on. 2022;12.
29. World Health Organization. Malaria Country Profile: Philippines. Available at https://cdn.who.int/media/docs/default-source/malaria/country-profiles/2018/profile_phl_en.pdf?sfvrsn=fdc04d20_3&download=true. Accessed on. 2022;13.
30. World Bank 2020. Available at <https://data.worldbank.org/indicator/SH.MLR.INCD.P3?locations=PH>, Accessed on. 2022;13.
31. https://relief.unboundmedicine.com/relief/view/cdc-yellow-book/204370/all/Pitcairn_Islands__UK_. Accessed on. 2022;13.
32. Asia Pacific Leaders Malaria Alliance. Country Progress Updates. Republic of Korea. Available at <https://www.aplma.org/countries/republic-of-korea>. Accessed on. 2022;13.
33. <https://www.fitfortravel.nhs.uk/destinations/australasia-pacific/samoa#Malaria>. Accessed on. 2022;13.
34. <https://www.healthxchange.sg/men/health-scares-outbreaks/malaria-symptoms-treatment>. Accessed on. 2022;13.
35. World Health Organization. Malaria 2021 Country Profile: Solomon Islands. Available at https://cdn.who.int/media/docs/default-source/malaria/country-profiles/2018/profile_slb_en.pdf?sfvrsn=2a1440ef_3&download=true. Accessed on. 2022;13.
36. World Bank 2020. Available at <https://data.worldbank.org/indicator/SH.MLR.INCD.P3?locations=SB>. Accessed on. 2022;13.
37. <https://www.travelpharm.com/tokelau-australasia-i265>. Accessed on. 2022;13.
38. <https://www.travelpharm.com/tonga-australasia-i266>. Accessed on. 2022;13.
39. <https://www.fitfortravel.nhs.uk/destinations/australasia-pacific/tuvalu#Malaria>. Accessed on. 2022;13.
40. World Health Organization. Malaria 2021 Country Profile. Vanuatu. Available at https://cdn.who.int/media/docs/default-source/malaria/country-profiles/2018/profile_vut_en.pdf?sfvrsn=6e35f38d_3&download=true. Accessed on. 2022;13.
41. World Bank 2020. Available at <https://data.worldbank.org/indicator/SH.MLR.INCD.P3?locations=VU>. Accessed on. 2022;13.
42. World Health Organization. Health Topics. Available at <https://www.who.int/vietnam/health-topics/malaria#:~:text=Viet%20Nam%20has%20achieved%20remarkable,deaths%20was%20reduced%20by%2076%25>. Accessed on. 2022;10.
43. World Bank 2022. Available at <https://tradingeconomics.com/vietnam/malaria-cases-reported-wb-data.html>. Accessed on. 2022;5.
44. <https://www.travelpharm.com/wallis-and-futuna-australasia-i274>. Accessed on. 2022;13.
45. Sovannaroeth S, Ngor P, Khy V. Accelerating malaria elimination in Cambodia: an intensified approach for targeting at-risk populations. *Malar J.* 2022;21-209. <https://doi.org/10.1186/s12936-022-04234-2>. Available at <https://malariajournal.biomedcentral.com/articles/10.1186/s12936-022-04234-2>. Accessed

- on. 2022;4.
46. Sandfort M, Vantaux A, Kim S. Forest malaria in Cambodia the occupational and spatial clustering of *Plasmodium vivax* and *Plasmodium falciparum* infection risk in a cross-sectional survey in Mondulkiri province, Cambodia. *Malar J.* 2020;19:413. <https://doi.org/10.1186/s12936-020-03482-4>. Available at <https://malariajournal.biomedcentral.com/articles/10.1186/s12936-020-03482-4>. Accessed on. 2022;4.
47. World Health Organization. Newsroom. Available at <https://www.who.int/news-room/feature-stories/detail/the-last-mile-of-malaria-elimination-in-cambodia>. United Nations Office for Project Services. Available at <https://www.unops.org/news-and-stories/stories/stamping-out-malaria-for-good/towards-a-malaria-free-laos>. Accessed on. 2022;3.
48. World Health Organization. Newsroom. Available at [https://www.who.int/news-room/feature-stories/detail/towards-zero-harnessing-data-to-eliminate-malaria-in-the-lao-people-s-democratic-republic#:~:text=Lao%20People's%20Democratic%20Republic%20\(PDR,recent%20history%20of%20malaria%20outbreaks](https://www.who.int/news-room/feature-stories/detail/towards-zero-harnessing-data-to-eliminate-malaria-in-the-lao-people-s-democratic-republic#:~:text=Lao%20People's%20Democratic%20Republic%20(PDR,recent%20history%20of%20malaria%20outbreaks). Accessed on. 2022;3.
49. Daniel J Cooper, Giri S Rajahram, Timothy William, Jenarun Jelip, Rashidah Mohammad, Joseph Benedict, Danshy A Alaza, Eva Malacova, Tsin W Yeo, Matthew J Grigg, Nicholas M Anstey, Bridget E Barber, *Plasmodium knowlesi* Malaria in Sabah, Malaysia, 2015–2017: Ongoing Increase in Incidence Despite Near-elimination of the Human-only *Plasmodium* Species, *Clinical Infectious Diseases* 2020;70(3):361–367, <https://doi.org/10.1093/cid/ciz237>. Available at <https://academic.oup.com/cid/article/70/3/361/5393645>. Accessed on 2022;13.
50. <https://www.pngimr.org.pg/wp-content/uploads/2019/05/The-Papua-New-Guinea-National-Malaria-Control-Program-Health-Facility-Surveys-2010-2016.pdf>. Accessed on. 2022;13.
51. <https://doh.gov.ph/malaria-control-program>. Accessed on. 2022;13.
52. <https://www.aplma.org/countries/solomon-islands>. Accessed on. 2022;13.
53. <https://www.nab.vu/document/health-national-strategic-plan-malaria-elimination>. Accessed on. 2022;13.
54. World Health Organization. Health Topics.. Available at <https://www.who.int/vietnam/health-topics/malaria#:~:text=Viet%20Nam%20has%20achieved%20remarkable,deaths%20was%20reduced%20by%2076%25>. Accessed on. 2022;10.
55. Pham K, Hotez PJ Vietnam Neglected tropical diseases in an emerging and accelerating economy. *PLoS Negl Trop Dis* 16(2): e0010140. <https://doi.org/10.1371/journal.pntd.0010140>. Available at <https://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0010140>. Accessed on. 2022;10.