



## 衛生防護中心 Centre for Health Protection

### Scientific Committee on Vector-borne Diseases

### Global Malaria Risk Summary October 2019

#### Purpose

This document serves to provide a general reference for healthcare professionals who provide health advice to travellers from Hong Kong to areas with malaria risk.

#### Background

2. In Hong Kong, malaria is a notifiable disease under the Prevention and Control of Disease Ordinance (Cap 599) and notification data since 1946 are available. The annual number of cases was at a record high in 1946 with more than 2,000 cases recorded. In the past few decades, the number of cases had been decreasing markedly. After an upsurge related to Vietnamese migrants recorded in 1989, the annual number of cases remained at below 400. Since the 1970s, there has been a shift from locally-acquired to imported infections, and the last local indigenous case was recorded in 1998.

3. In the past 10 years (2009 - 2018), the Centre for Health Protection (CHP) of the Department of Health recorded a total of 265 cases, with the annual number of cases ranging from 20 to 41. All cases, except one, were imported from endemic countries, mainly from India, Nigeria and Pakistan. The remaining case was an unclassified one with possibility of recrudescence from past subclinical infection of *Plasmodium malariae*.



4. The Scientific Committee on Vector-borne Diseases (SCVBD) under the CHP compiled the first “Global Malaria Risk Summary” (hereafter referred to as “the Summary”) in 2007, which described the malaria risk of endemic countries and areas for reference by healthcare professionals. The previous update of the Summary was conducted in September 2017. This paper highlights the major changes in the global epidemiology of malaria from September 2017 to July 2019.

## Methods and Explanatory Notes

5. Understanding the global epidemiology of malaria relies on accurate disease and laboratory surveillance information provided by relevant countries and areas. Apart from the World Health Organization (WHO), overseas health authorities including the Centers for Disease Control and Prevention (CDC) of the United States (US), the Public Health Agency of Canada (PHAC), Public Health England (PHE) and the National Travel Health Network and Centre (NaTHNaC) of the United Kingdom (UK) also compile epidemiological information on malaria periodically, together with recommendations for their outbound travellers. The Summary is compiled based on the epidemiological information as well as malaria prevention measures recommended by WHO and the above health authorities.

6. While the information on malaria risk published by the health authorities most often concurs, there may be different levels of details and occasional discrepancies among different sources. To allow for a better assessment of the risks, the details of such discrepancies are described in the Summary. In general, in countries and areas with malaria risk, the risk is lower in areas at altitudes greater than 2,000 metres (m) or in well-developed urban areas.

7. The majority of malaria infections can be prevented by avoiding mosquito bites and taking malaria chemoprophylaxis as appropriate. WHO continues to state that *P. falciparum* resistance to chloroquine is nearly universal in the latest version of its guideline. WHO, CDC and PHAC recommend chemoprophylaxis by atovaquone-proguanil, doxycycline or mefloquine for all countries and areas with reported chloroquine-resistant malaria. CDC also recommends use of tafenoquine in adults without

glucose-6-phosphate dehydrogenase deficiency for countries and areas with reported chloroquine-resistant malaria. Similarly, PHE recommends atovaquone-proguanil, doxycycline or mefloquine for travellers visiting areas with high risk of chloroquine resistance, but chloroquine plus proguanil can be used for travellers visiting areas with little chloroquine resistance. The local reference on malaria chemoprophylaxis for clinicians in Hong Kong is available from the “Guidelines on Malaria Chemoprophylaxis for Travellers” which can be accessed at the webpage of SCVBD (<https://www.chp.gov.hk/en/static/24009.html>).

8. In order to better reflect the current epidemiology and recommendations, a set of risk and recommendation categories was developed and adopted in the Summary. A total of five risk categories and the respective recommendation categories on malaria prevention measures are defined (**Annex 1**). **Annex 2** shows the details of the respective risk and recommendation categories for each country or area. Additional accounts of the specific risk descriptions together with the discrepancy of risk information from different sources are provided to allow for a better understanding and risk assessment of the situation. **Annex 3** summarises the risk and recommendation profiles of the countries or areas in the six WHO regions.

9. The global situation is continuously evolving with possible changes of the risk situation of countries and areas from time to time. Healthcare professionals are advised to visit websites of WHO and relevant health authorities for the most recent updates when necessary (please refer to paragraph 13).

## Updates on Global Situation

10. According to WHO, 219 million cases of malaria were estimated to occur worldwide in 2017, as compared to 239 and 217 million cases in 2010 and 2016 respectively.<sup>1</sup> The number of deaths from malaria in 2017 was estimated to be 435,000, as compared to 607,000 and 451,000 in 2010 and 2016 respectively.<sup>1</sup> In 2017, 93% of all malaria deaths occurred in the WHO African Region, and 266,000 (61%) of all malaria deaths globally affected children aged under five years.<sup>1</sup> Updates on the risk of malaria in individual countries and areas are detailed below.

## Summary of Countries and Areas with Changes in Risk Category and Recommendation

11. Since September 2017, 10 countries and areas had their malaria risk categories and recommendations revised: The Americas - Argentina, Belize, Costa Rica and Paraguay; European - Cyprus, Kyrgyzstan, Tajikistan and Turkey; South East Asia - Sri Lanka; and Western pacific - Mainland China.

- (a) **Argentina:** The risk category changed from “risk of chloroquine-sensitive malaria exists in certain areas (risk category 3B)” to “malaria risk reported to be very limited (risk category 2)”. WHO certified Argentina as malaria-free in 2019, and CDC, PHAC and PHE stated that there is no malaria risk or transmission in Argentina. However, PHE recommended mosquito bite prevention in all areas of the country.
- (b) **Belize:** The risk category changed from “risk of chloroquine-sensitive malaria exists in certain areas (risk category 3B)” to “malaria risk reported to be very limited (risk category 2)”. According to WHO and PHAC, there is risk of malaria transmission in certain areas, such as some areas of Stan Creek. PHE stated that there is low risk of malaria in rural Belize, while CDC stated that there were rare locally transmitted cases in the country but not in Belize City and islands frequented by tourists. All four health authorities recommended mosquito bite prevention.
- (c) **Costa Rica:** The risk category changed from “risk of chloroquine-sensitive malaria exists in certain areas (risk category 3B)” to “malaria risk reported to be very limited (risk category 2)”. According to WHO, while there was very low malaria risk historically due almost exclusively to *P. vivax*, there is currently negligible or no risk of malaria transmission in the country. CDC, PHAC and PHE stated that there is limited local transmission in certain areas, including some areas of Limon Province. All four health authorities recommended mosquito bite prevention.

- (d) **Paraguay:** The risk category changed from “risk of chloroquine-sensitive malaria exists in certain areas (risk category 3B)” to “malaria risk reported to be very limited (risk category 2)”. According to WHO, the last indigenous case was reported in 2011. While WHO certified Paraguay as malaria-free in 2018, and CDC, PHAC and PHE reported no malaria risk, according to WHO, some receptivity and vulnerability persist in historically endemic departments such as Alto Paraná, Canindeyú and Caaguazú. Both WHO and PHE recommended mosquito bite prevention.
- (e) **Cyprus:** The risk category changed from “no malaria risk (risk category 1)” to “malaria risk reported to be very limited (risk category 2)”. While WHO certified Cyprus as malaria-free in 1967 and CDC stated that there is no malaria transmission, PHAC and NaTHNaC stated that some cases among tourists visiting Esentepe (northern part of the country) were reported in 2017. In addition, PHAC remarked that local transmission is presumed to be occurring in that region. Both PHAC and NaTHNaC recommended mosquito bite prevention.
- (f) **Kyrgyzstan:** The risk category changed from “malaria risk reported to be very limited (risk category 2)” to “no malaria risk (risk category 1)”. WHO certified Kyrgyzstan as malaria-free in 2016, and CDC, PHAC and PHE also reported no malaria risk.
- (g) **Tajikistan:** The risk category changed from “risk of chloroquine-resistant malaria exists in certain areas (risk category 4B)” to “malaria risk reported to be very limited (risk category 2)”. According to WHO, previous risk was due predominantly to *P. vivax* but no indigenous cases of *P. falciparum* and *P. vivax* have been reported since 2009 and 2015 respectively. CDC and PHAC remarked that there were rare indigenous cases, while PHE stated that there is very low risk of malaria in areas below an altitude of 2,000 m. All four health authorities recommended mosquito bite prevention.

- (h) **Turkey:** The risk category changed from “risk of chloroquine-sensitive malaria exists in certain areas (risk category 3B)” to “malaria risk reported to be very limited (risk category 2)”. According to WHO, no locally-acquired cases have been reported since 2010. While WHO and CDC stated that there is no risk of malaria transmission in Turkey, PHE stated that there is very low risk of malaria in the country and PHAC stated that there is limited malaria risk from May to October due exclusively to *P. vivax* in Mardin Province which borders Syria. Both PHAC and PHE recommended mosquito bite prevention.
- (i) **Sri Lanka:** The risk category changed from “risk of chloroquine-resistant malaria exists in certain areas (risk category 4B)” to “malaria risk reported to be very limited (risk category 2)”. While WHO certified Sri Lanka as malaria-free in 2016, and CDC, PHAC and PHE stated that there is no malaria risk or transmission in Sri Lanka, PHE recommended mosquito bite prevention.
- (j) **Mainland China:** The risk category changed from “risk of chloroquine- and mefloquine-resistant malaria exists in certain areas (risk category 5B)” to “malaria risk reported to be very limited (risk category 2)”. According to WHO, China has achieved tremendous success in malaria elimination and no indigenous cases have been reported since 2017. However, CDC, PHAC and PHE stated that there is risk of malaria in certain areas, such as some areas of Yunnan Province. While PHAC recommended use of chemoprophylaxis in the rural parts of Yunnan Province, WHO, CDC and PHE did not recommend use of chemoprophylaxis in general and they only recommended mosquito bite prevention.

## Other Updates for Countries and Areas without Change in Risk Category and Recommendation

12. A total of 23 countries and areas distributed in five of the six WHO Regions have major updates in the risk descriptions on the geographical and seasonal distribution, predominant species and resistance pattern of malaria. Nonetheless, there is no change in their risk categories and recommendations. The following summarises the changes with respect to each of the WHO Regions.

- (a) African Region: Three of the 48 countries and areas in the region, namely, Algeria, Botswana and Mayotte, had their risk descriptions updated.
  - (i) WHO certified Algeria as malaria-free in 2019. PHE stated that there is no risk of malaria and recommends mosquito bite prevention in all areas of the country.
  - (ii) For Botswana, CDC removed the city of Francistown from the list of areas without malaria risk and reported malaria risk in Northeast (including Francistown), Ghanzi, Mahalapaye and Serowe Palapye.
  - (iii) For Mayotte, WHO stated that there is significant reduction in malaria burden with the island transitioning into the elimination phase and continued to recommend chemoprophylaxis.
- (b) Region of the Americas: 11 of the 46 countries and areas in the region have their risk descriptions updated, including Bolivia, Brazil, Colombia, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama and Venezuela.
  - (i) For Bolivia, while WHO stated that the malaria risk is due almost exclusively to *P. vivax* (99.9%), CDC stated that the malaria risk is due to *P. vivax* (93%) and *P. falciparum* (7%).

- (ii) For Brazil, WHO updated the malaria risk from being caused by “*P. vivax* (84%), *P. falciparum* (15%) and mixed infections (1%)” to “*P. vivax* (88.8%), *P. falciparum* (10.6%) and mixed infections (0.5%)”.
- (iii) For Colombia, WHO classified the malaria risk in the country to high, moderate and lesser risks and updated the risk descriptions in some municipalities in the departments of Antioquia, Amazonas, Bolívar, Cauca, Chocó, Córdoba, Guainía, Guaviare, Nariño, Risaralda, Valle del Cauca, Vaupés and Vichada.
- (iv) For French Guiana, PHE revised the malaria risk description of the city of Cayenne and Devil’s Island (Ile du Diable) from “no risk” to “low risk”.
- (v) For Guatemala, WHO updated the malaria risk from being caused “predominantly by *P. vivax* (with some risk caused by *P. falciparum*)” to “almost exclusively by *P. vivax* (99.9%)”.
- (vi) For Guyana, CDC expanded the list of areas with risk of malaria from all areas with altitude below 900 m to all areas.
- (vii) For Honduras, WHO added that there is high risk of *P. falciparum* transmission in Colon, and that no chloroquine-resistant *P. falciparum* has been reported.
- (viii) For Mexico, CDC added that there were rare cases in San Luis Potosi.
- (ix) For Nicaragua, WHO updated the malaria risk from “being caused predominantly by *P. vivax* (82%)” to “being caused by *P. vivax* (79.2%) and *P. falciparum* (20.8%)”. According to WHO, the risk due to *P. falciparum* is high mainly in Región Autónoma del Atlántico Norte, specifically in the municipalities of Rosita, Siuna, Bonanza, Puerto Cabezas, and Waspán. In addition, WHO added that no *P. falciparum* resistance to chloroquine has been reported.

- (x) For Panama, according to CDC, chloroquine can be used as chemoprophylaxis in Ngäbe-Buglé.
  - (xi) For Venezuela, WHO updated the malaria risks in some municipalities in different states.
- (c) Eastern Mediterranean Region: None of the 21 countries and areas in the region had their risk descriptions updated.
- (d) European Region: Three of the 53 countries and areas in the region, namely, Georgia, Greece and Uzbekistan, had their risk descriptions updated.
- (i) For Georgia, WHO added that no locally-acquired cases have been reported since 2010.
  - (ii) For Greece, PHAC added that there is limited local transmission in western and central Greece.
  - (iii) WHO certified Uzbekistan as malaria-free in 2018 as no locally-acquired cases have been reported since 2011. Both WHO and PHE recommended mosquito bite prevention.
- (e) South-East Asia Region: Four of the 11 countries and areas in the region had their risk descriptions updated, including India, Myanmar, Nepal and Thailand.
- (i) For India, according to WHO, the majority of malaria cases were reported from the eastern and central parts of the country and from states which have large forest, hilly and tribal areas. These states include Odisha, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra and some north-eastern states such as Tripura, Meghalaya and Mizoram.

- (ii) For Myanmar, WHO stated that there is no transmission in cities and urban areas.
  - (iii) For Nepal, according to WHO, malaria infection is present in southern Terai region, mostly inner Terai (plain land), along the forests, foothills, forest fringes and in upper hilly river valleys. Malaria transmission is mostly seasonal (from March to October), with peaks during the rainy season (from May to August).
  - (iv) For Thailand, CDC recommended use of atovaquone-proguanil, doxycycline, or tafenoquine as chemoprophylaxis in the provinces that border Myanmar, Cambodia, and Laos, the provinces of Kalasin, Plai Phraya district of Krabi, Nakhon Si Thammarat, Narathiwat, Pattani, Phang Nga (including Phang Nga City), Rayong, Sakon Nakhon, Songkhla, Surat Thani, and Yala.
- (f) Western Pacific Region: Two of the 34 countries and areas in the region, namely Malaysia and the Philippines, had their risk description updated.
- (i) For Malaysia, WHO stated that all urban, suburban and coastal areas are free from malaria.
  - (ii) For the Philippines, WHO updated the list of areas at risk of malaria from “all areas with altitude below 600 m except 22 provinces” to “nine remaining endemic provinces”.

## Limitations and Disclaimers

13. The information presented in the Summary is gathered from the following reports and websites:

(a) WHO

(i) WHO (2019). Country list - Vaccination requirements and recommendations for international travellers; and malaria situation per country – 2019 edition (updated on 1 July 2019). Available at: <https://www.who.int/ith/ith-country-list-new.pdf?ua=1>, accessed 16 July 2019.

(ii) WHO (2019). Countries and territories certified malaria-free by WHO. Available at: <https://www.who.int/malaria/areas/elimination/malaria-free-countries/en/>, accessed 16 July 2019.

(b) CDC

(i) CDC (2019). Health Information for International Travel 2020 – The Yellow Book. Chapter 2 Preparing International Travelers. Available at: <https://wwwnc.cdc.gov/travel/yellowbook/2020/preparing-international-travelers/yellow-fever-vaccine-and-malaria-prophylaxis-information-by-country>, accessed 16 July 2019.

(c) PHAC

(i) PHAC (2018). Canadian Recommendations for the Prevention and Treatment of Malaria 2014. (Appendix I: Malaria Risk and Recommended Chemoprophylaxis by Geographic Area, updated on November 2018). Available at: <https://www.canada.ca/en/public-health/services/catmat/appendix-1-malaria-risk-recommended-chemoprophylaxis-geographic-area.html>, accessed 16 July 2019.

(d) Health authorities of UK

- (i) PHE (2019). Guidelines for malaria prevention in travellers from the UK 2019. Available at:

<https://www.gov.uk/government/publications/malaria-prevention-guidelines-for-travellers-from-the-uk>, accessed 30 September 2019.

- (ii) NaTHNaC (2019). NaTHNaC Website [commissioned by the Public Health England]. Available at:

<https://travelhealthpro.org.uk/countries>, accessed 16 July 2019.

14. Disease situation may change rapidly over time. Moreover, under-reporting and delayed reporting of the disease in various countries or areas may affect the timeliness of malaria risk assessment. Healthcare professionals are advised to refer to the latest information from the above websites as well as information from other relevant health authorities for the latest outbreak situations when necessary.

## **Annexes**

Annex 1: Key to the Global Malaria Risk Summary

Annex 2: Global Malaria Risk Summary (As of July 2019)

Annex 3: Risk Profile Statistics

Centre for Health Protection

October 2019

## Annex 1: Key to Global Malaria Risk Summary

Risk Category	General Description of the Risk	Recommendation Category	Recommendation Description
1	<b>No malaria risk</b> (as reported by WHO, CDC, PHAC and PHE)	I	General precaution during travel
2	<b>Malaria risk reported to be very limited</b>	II	Malaria prevention may be required  (a) Advise to undertake mosquito bite prevention (b) Obtain update on latest epidemiology
3	<b>Risk of chloroquine-sensitive malaria only</b>  <i>3A: Risk of malaria exists in the whole administrative area</i>  <i>3B: Risk of malaria exists in certain areas</i>	III	Malaria prevention recommended  (a) Advise to undertake mosquito bite prevention (b) When travelling to at-risk areas, consider chemoprophylaxis using chloroquine
4	<b>Chloroquine-resistant malaria have been reported</b>  <i>4A: Risk of malaria exists in the whole administrative area</i>  <i>4B: Risk of malaria exists in certain areas</i>	IV	Malaria prevention recommended  (a) Advise to undertake mosquito bite prevention (b) When travelling to areas at risk of chloroquine-resistant malaria, consider chemoprophylaxis using atovaquone/proguanil, doxycycline, or mefloquine. (c) When travelling to areas at risk of chloroquine-sensitive malaria, consider chemoprophylaxis using chloroquine.
5	<b>Malaria resistant to both chloroquine and mefloquine have been reported</b>  <i>5A: Risk of malaria exists in the whole administrative area</i>  <i>5B: Risk of malaria exists in certain areas</i>	V	Malaria prevention recommended  (a) Advise to undertake mosquito bite prevention. (b) When travelling to areas at risk of mefloquine-resistant malaria, consider chemoprophylaxis using atovaquone/proguanil or doxycycline, BUT NOT mefloquine (c) When travelling to areas at risk of chloroquine-resistant malaria, consider chemoprophylaxis using atovaquone/proguanil, doxycycline, or mefloquine

## Annex 2: Global Malaria Risk Summary (As of July 2019)

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
African	Algeria	2	WHO certified Algeria as malaria-free in 2019.  PHE stated that there is no risk of malaria and recommended mosquito bite prevention in all areas.	II
African	Angola	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Benin	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Botswana	4B	Malaria risk predominantly due to <i>P. falciparum</i> exists from November to June. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in the northern parts of the country: Bobirwa, Boteti, Chobe (including Chobe National Park), Ngamiland, the Okavango Delta area, the Tutume districts/sub-districts, Northeast (including Francistown), Ghanzi, Mahalapye and Serowe Palapye.  (b) There is no risk in the city of Gaborone and low to no risk in the southern half of the country.	IV
African	Burkina Faso	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
African	Burundi	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Cabo Verde (Cape Verde)	2	Limited malaria risk predominantly due to <i>P. falciparum</i> exists from August to November. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) On Santiago Island and Boa Vista Island.	II
African	Cameroon	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Central African Republic	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Chad	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Comoros	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
African	Congo	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Côte d'Ivoire (Ivory Coast)	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Democratic Republic of the Congo	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Equatorial Guinea	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Eritrea	4B	Malaria risk due to <i>P. falciparum</i> and <i>P. vivax</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas below 2,200 m. (b) There is no risk in Asmara.	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
African	Ethiopia	4B	<p>Malaria risk due to <i>P. falciparum</i> (60%–70%), <i>P. vivax</i> (30%–40%) and rarely <i>P. malariae</i> and <i>P. ovale</i> exists throughout the year.</p> <p><i>P. falciparum</i> and <i>P. vivax</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: In all areas below 2,500 m.</p> <p>(b) There is no risk in Addis Ababa.</p>	IV
African	Gabon	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas.</p>	IV
African	Gambia	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas.</p>	IV
African	Ghana	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas.</p>	IV
African	Guinea	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas.</p>	IV
African	Guinea-Bissau	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas.</p>	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
African	Kenya	4B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas below 2,500 m.</p> <p>(b) There is normally little risk in the city of Nairobi and in the highlands (above 2,500 m) of Central, Eastern, Nyanza, Rift Valley and Western provinces.</p>	IV
African	Lesotho	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
African	Liberia	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas.</p>	IV
African	Madagascar	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas, with the highest risk in the coastal areas. Rare cases in the city of Antananarivo have been reported.</p>	IV
African	Malawi	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas.</p>	IV
African	Mali	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas.</p>	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
African	Mauritania	4B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in Adrar and Inchiri during the rainy season from July to October, and in all other areas throughout the year except the northern areas (Dakhlet-Nouadhibou and Tiris-Zemour).</p>	IV
African	Mauritius	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
African	Mayotte (France)	4A	<p>Low malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p>There is significant reduction in the malaria burden with the island transitioning into the elimination phase.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: low risk in all areas.</p>	IV
African	Mozambique	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i>, exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas.</p>	IV
African	Namibia	4B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in the regions of Ohangwena, Omaheke, Omusati, Oshana, Oshikoto and Otjozondjupa from November to June. The risk is year-round along the Kunene river in Kunene Region, Zambesi river in Zambesi Region and Okavango river in Kavango regions (West and East).</p> <p>(b) There is no malaria risk in the city of Windhoek.</p>	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
African	Niger	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Nigeria	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Rwanda	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Sao Tome and Principe	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Senegal	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas. There is less risk in the central western regions from January to June.	IV
African	Seychelles	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
African	Sierra Leone	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
African	South Africa	4B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in the low altitude areas of Mpumalanga Province (including the Kruger National Park), Limpopo Province and north-eastern KwaZulu-Natal Province. The risk is highest from September to May.</p>	IV
African	South Sudan	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas.</p>	IV
African	Swaziland (Eswatini)	4B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in the northern and eastern areas bordering Mozambique and South Africa, including all of the Lubombo district and the eastern half of Hhohho, Manzini and Shiselweni districts (mainly Big Bend, Mhlume, Simunye and Tshaneni). The risk is highest from November to May.</p> <p>(b) There is very low risk in the rest of the country and no risk in Mbabane.</p>	IV
African	Tanzania, United Republic of	4B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas below 1,800 m and in Zanzibar.</p>	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
African	Togo	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Uganda	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Zambia	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
African	Zimbabwe	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas. The risk is high in areas below 1,200 m from November to June, and low during the rest of the year. There is risk throughout the year in Zambezi Valley, including Victoria Falls.  (b) There is very low risk in Bulawayo and Harare.	IV
The Americas	Anguilla (UK)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Antigua and Barbuda	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Argentina	2	WHO certified Argentina as malaria-free in 2019.  PHE stated that there is no risk of malaria and recommended mosquito bite prevention in all areas.	II
The Americas	Bahamas	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
The Americas	Barbados	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Belize	2	Malaria risk predominantly due to <i>P. vivax</i> exists throughout the year.  At-risk area: (a) Malaria risk exists in some areas of Stan Creek and is negligible elsewhere.  (b) There is no risk in Belize City and islands frequented by tourists.	II
The Americas	Bermuda (UK)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Bolivia (Plurinational State of)	4B	According to WHO, malaria risk due almost exclusively to <i>P. vivax</i> (99.9%) exists throughout the year.  According to CDC, malaria risk due to <i>P. vivax</i> (93%) and <i>P. falciparum</i> (7%) exists. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) In all areas below 2,500 m, risk of malaria is highest in the northern departments of Beni and Pando, especially in the localities of Riberalta, Guayaramerín and Sena.  (b) There is no risk in the city of La Paz.	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
The Americas	Brazil	4B	<p>Malaria risk due to <i>P. vivax</i> (88.8%), <i>P. falciparum</i> (10.6%) and mixed infections (0.5%) exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in most forested areas below 900 m within the nine states of the Amazon region [Acre, Amapá, Amazonas, Maranhão, Mato Grosso (northern part), Pará (except Belém City), Rondônia, Roraima and Tocantins (western part)]. The transmission intensity varies from one municipality to another, and is higher in jungle-mining areas, agricultural settlements, indigenous areas and some peripheral urban areas of Cruzeiro do Sul, Manaus and Pôrto Velho. Malaria also occurs on the periphery of large cities such as Boa Vista, Macapá, Marabá, Rio Branco and Santarém.</p> <p>(b) There is residual risk of <i>P. vivax</i> transmission in the Atlantic forest areas of the states of São Paulo, Minas Gerais, Rio de Janeiro and Espírito Santo.</p> <p>(c) There is negligible or non-existent risk in the states outside the administrative region of Amazonas. There is no malaria in the cities of Brasília, Rio de Janeiro, São Paulo and at Iguassu Falls.</p>	IV
The Americas	British Virgin Islands	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Canada	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Cayman Islands (UK)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Chile	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
The Americas	Colombia	4B	<p>Malaria risk due to <i>P. falciparum</i> (50%) and <i>P. vivax</i> (50%) exists throughout the year.</p> <p>Chloroquine resistance has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: In all areas below 1,700m.</p> <p>(b) The risk is high in some municipalities of the departments of Antioquia (El Bagre, Vigía del Fuerte, Segovia, Tarazá, Zaragoza, Cáceres, Nechí, Murindó, Anorí, Remedios, Mutatá, Frontino, San Pedro de Urabá, Dabeiba, Valdivia and Cauca), Amazonas (Tarapacá, La Pedrera, Puerto Nariño, Leticia, Miriti-Paraná and La Chorrera), Bolívar (Montecristo, Norosi, Tiquisio and San Pablo), Cauca (Timbiquí), Chocó (Bagadó, Nóvita, Lloró, Tadó, Río Quito, El Cantón del San Pablo, Río Iro, Atrato, Bojaya, San José del Palmar, Quibdó, Bajo Baudó, Medio San Juan, Carmen de Darien, Nuquí, Medio Baudó, Alto Baudó, Istmina, Bahía Solano, Medio Atrato, Juradó, Sipí, Unión Panamericana, Condoto and Certegui), Córdoba (Puerto Libertador and Tierralta), Guainía (Inirida and La Guadalupe), Nariño (Roberto Payán, Olaya Herrera, El Charco, Mosquera, Barbacoas, Santa Barbarba, Magüi, Francisco Pizarro, and San Andrés de Tumaco), Risaralda (Pueblo Rico and La Virginia), Valle del Cauca (Cartago), Vaupés (Taraira and Yavarate) and Vichada (Puerto Carreño and Cumaribo).</p> <p>(c) The risk is moderate in the following municipalities of the departments of Antioquia (Urrao, Chigorodó, Apartadó, Necoclí and Yondo), Amazonas (El Encanto and Puerto Santander), Bolívar (Santa Rosa del Sur and Río Viejo), Cauca (Guapi and López), Chocó (El Litoral de San Juan, Riosucio, Acandí, and Unguía), Córdoba (San José de Uré and La Apartada), Guaviare (San José de Guaviare, Miraflores, Calamar and El Retorno), Nariño (La Tola) and Vaupés (Pacoa).</p> <p>(d) There is lesser risk in some municipalities of Amazonas, Caqueta, Guaviare, Guainia, Meta, Putumayo, Vaupes and Vichada.</p>	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
The Americas	Colombia	4B	(e) There is no risk in the cities of Baranquilla, Bogotá, Cartagena, Medellin and on the islands of San Andrés and Providencia.	IV
The Americas	Costa Rica	2	Very low malaria risk was historically due almost exclusively to <i>P. vivax</i> . There is negligible or no risk of malaria transmission in the country.  At-risk area: (a) Rare local cases in Matina Canton in Limón Province, Sarapiquí Canton in Heredia Province and Pital District in San Carlos Canton in Alajuela Province have been reported.  (b) There is no risk in the city of Limon.	II
The Americas	Cuba	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Dominica	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Dominican Republic	3B	Malaria risk due exclusively to <i>P. falciparum</i> exists throughout the year. There is no evidence of <i>P. falciparum</i> resistance to any antimalarial drug.  At-risk area: (a) There is risk especially in the western provinces of Dajabón, Elias Pina and San Juan.  (b) In 2015, transmission increased in the National District and the provinces of Santo Domingo and La Altagracia, specifically in Bávaro district.  (c) There is little to no malaria transmission in the resort areas of Romana and Samaná and the cities of Santo Domingo, Santiago, and Puerto Plata.	III

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
The Americas	Ecuador; Including the Galápagos Islands	4B	<p>Malaria risk due to <i>P. vivax</i> (67%) and <i>P. falciparum</i> (33%) exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas below 1,500 m and the Amazon basin, with moderate transmission risk in coastal provinces.</p> <p>(b) Malaria risk due to <i>P. vivax</i> is present in some provinces of the country, predominantly in the Amazon region, especially the provinces of Morona Santiago, Pastaza, Orellana and Sucumbíos.</p> <p>(c) Malaria risk due to <i>P. falciparum</i> is present in some provinces of the country with predominance on the coast, especially the province of Esmeraldas as well as in the Amazon region, especially the provinces of Pastaza and Morano Santiago.</p> <p>(d) The risk is low in Quito and in provinces that are part of the Inter-Andean or Sierra region. There is no risk in Cuenca, the cities of Guayaquil, other cities and villages in the Andean highlands or on the Galápagos Islands.</p>	IV
The Americas	El Salvador	2	<p>Malaria risk due almost exclusively to <i>P. vivax</i> is very low throughout the year.</p> <p>At-risk area:</p> <p>(a) In rural areas prone to migration from Central American countries.</p> <p>(b) Sporadic <i>P. vivax</i> malaria cases are reported from specific parts of the country.</p>	II

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
The Americas	French Guiana	4A	<p>Malaria risk due to <i>P. vivax</i> (55%) and <i>P. falciparum</i> (45%) is high throughout the year. Multidrug-resistant <i>P. falciparum</i> has been reported in areas influenced by Brazilian migration.</p> <p>At risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas. The risk is high in nine municipalities of the territory bordering Brazil (Oiapoque river valley) and Suriname (Maroni river valley). In the other 13 municipalities, transmission risk is low or negligible.</p> <p>(b) The risk is low in the city of Cayenne and Devil's Island (Ile du Diable).</p>	IV
The Americas	Grenada	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Guadeloupe (France); Saint Barthelemy (France); Saint Martin (France)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Guatemala	3B	<p>Malaria risk due almost exclusively to <i>P. vivax</i> (99.9%) exists throughout the year.</p> <p>At risk area:</p> <p>(a) In areas below 1,500 m.</p> <p>(b) The risk of malaria is highest in the departments of Escuintla (especially in the municipalities of Gomera, Masagua, Santa Lucia Cotzumalguapa and Tiquisate) and Alta Verapaz (in the municipalities of Telemán, Panzós and La Tinta).</p> <p>(c) The risk is moderate in the departments of Suchitepéquez, Retalhuleu and Izabal.</p> <p>(d) The risk is low in the rest of the departments (Chiquimula, Zacapa, Baja Verapaz, San Marcos, Peten, Jutiapa, Jalapa, El Progreso, Santa Rosa, Guatemala, Chimaltenango, Huehuetenango and Quiche).</p> <p>(e) There is no risk in Guatemala City, Antigua and Lake Atitlán.</p>	III

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
The Americas	Guyana	4B	<p>Malaria risk due to <i>P. falciparum</i> (53%), <i>P. vivax</i> (36%) and mixed infections (11%) is high throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all parts of the interior.</p> <p>(b) The risk is highest in Regions 1 and 7-9; and very low in Regions 3-6.</p> <p>(c) Rare cases occurred in the cities of Amsterdam and Georgetown. Sporadic cases of malaria have been reported from the densely populated coastal belt.</p>	IV
The Americas	Haiti	3A	<p>Malaria risk due exclusively to <i>P. falciparum</i> exists throughout the year.</p> <p>No <i>falciparum</i> resistance to chloroquine has been reported.</p> <p>At risk area:</p> <p>(a) In all areas.</p>	III
The Americas	Honduras	3B	<p>Malaria risk due to <i>P. vivax</i> (79%), <i>P. falciparum</i> (20%) and mixed infections (~0.8%) exists throughout the year.</p> <p>No <i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) In Roatán and other Bay Islands. Malaria transmission risk due to <i>P. vivax</i> is high in the departments of Colon and Gracias a Dios, and moderate in Atlántida, El Paraiso, Olancho and Yoro. <i>P. falciparum</i> transmission risk is high in Colon and Gracias a Dios.</p> <p>(b) There is no risk in San Pedro Sula and Tegucigalpa.</p>	III
The Americas	Jamaica	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Martinique (France)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
The Americas	Mexico	3B	<p>Malaria risk due almost exclusively to <i>P. vivax</i> exists intermittently throughout the year.</p> <p>At-risk area:</p> <p>(a) In some rural areas that are not often visited by tourists. The risk is low in Chiapas State (Costa) and very low in the states of Campeche, Chihuahua, Durango, Jalisco, Nayarit, Quintana Roo, San Luis Potosi, Sinaloa, Sonora and Tabasco.</p> <p>(b) There is minimal or no malaria transmission in the major resort areas on the coasts, including the city of Acapulco or along the Mayan Rivera, including the cities of Cancún, Cozumel and Playa del Carmen. No malaria risk exists along the US-Mexico border.</p>	III
The Americas	Montserrat (UK)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Netherlands Antilles (Bonaire, Curaçao, Saba, St. Eustasius, and St. Maarten)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Nicaragua	3B	<p>Malaria risk due to <i>P. vivax</i> (79.2%) and <i>P. falciparum</i> (20.8%) exists throughout the year.</p> <p>No <i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Malaria risk exists in a number of municipalities, mainly in Región Autónoma del Atlántico Norte, with sporadic transmission also reported in Boaca, Chinandega, Jinoteca, León, Managua, Matagalpa and Región Autónoma Atlántico Sur. Cases are reported from other municipalities in the central and western departments but the risk in these areas is considered to be very low or negligible.</p> <p>(b) Risk due to <i>P. falciparum</i> is high mainly in Región Autónoma del Atlántico Norte, specifically in the municipalities of Rosita, Siuna, Bonanza, Puerto Cabezas and Waspán.</p>	III

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
The Americas	Panama	4B	<p>Malaria risk predominantly due to <i>P. vivax</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) The risk is low east of the Canal Zone; very low west of the Canal Zone; and negligible or non-existent in Panama City and in the Canal Zone.</p> <p>(b) Chloroquine-resistant malaria: in the provinces of Darien, Kuna Yala and eastern Panama province.</p> <p>(c) Chloroquine-sensitive malaria: in Ngäbe-Buglé.</p>	IV
The Americas	Paraguay	2	<p>WHO certified Paraguay as malaria-free in 2018. The last indigenous case was reported in 2011.</p> <p>Very low risk of malaria due exclusively to <i>P. vivax</i> persists in historically endemic departments such as Alto Paraná, Canindeyú and Caaguazú.</p> <p>PHE stated that there is no risk of malaria in Paraguay and recommended mosquito bite prevention.</p>	II

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
The Americas	Peru	4B	<p>Malaria risk due to <i>P. vivax</i> (84%) and <i>P. falciparum</i> (16%) exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in rural areas in inter-Andean valleys below 2,300 m and in the high and low Amazonian jungle regions. The 45 highest-risk districts where the largest number of cases are concentrated are in the regions of Amazonas, Junin, San Martin and principally Loreto. 98% of <i>P. falciparum</i> cases are reported from Loreto, which is situated in the Amazon and contains 14 of the highest-risk districts in the country.</p> <p>(b) There is no risk in Lima Province, the cities of Arequipa, Ica, Moquegua, Nazca, Puno, Tacna, the coastal region south of Chiclayo and the highland tourist areas (Cusco, Machu Picchu and Lake Titicaca).</p>	IV
The Americas	Puerto Rico (US)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Saint Kitts and Nevis (Saint Christopher and Nevis) (UK)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Saint Lucia	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Saint Vincent and the Grenadines	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
The Americas	Suriname	5B	<p>Malaria risk due to <i>P. falciparum</i> (40%), <i>P. vivax</i> (58%) and mixed infections (2%) exists throughout the year but continues to decrease in recent years.</p> <p><i>P. falciparum</i> resistance to chloroquine and mefloquine has been reported. Some decline in quinine sensitivity has also been reported.</p> <p>At-risk area:</p> <p>(a) In the interior of the country beyond the coastal savannah area, with the highest risk mainly along the eastern border and in the gold-mining areas.</p> <p>(b) Paramaribo City and the other seven coastal districts have been free from malaria transmission since 1968.</p>	V
The Americas	Trinidad and Tobago	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Turks and Caicos (UK)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	US	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
The Americas	Uruguay	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
The Americas	Venezuela (Bolivarian Republic of)	4B	<p>Malaria risk due to <i>P. vivax</i> (74.6 %) and <i>P. falciparum</i> (25.4 %) exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) There is risk in all areas south of and including the Orinoco river and Angel Falls.</p> <p>(b) Chloroquine-resistant malaria: the risk is high in some areas of Amazonas, Bolívar, Delta Amacuro and Sucre states; moderate in Zulia State; and low in Anzoátegui and Monagas states.</p> <p>(c) The risk of <i>P. falciparum</i> malaria is mostly restricted to municipalities in areas of Amazonas (Alto Orinoco, Atabapo, Atures, Autana and Manapiare), Bolívar (Angostura, Cedeño, El Callao, Gran Sabana, Heres, Piar, Rocio and Sifontes), Delta Amacuro and Sucre (Benítez, Bermúdez, Cajigal and Arismendi) states.</p> <p>(d) There is no risk in the city of Caracas and on Margarita Island.</p>	IV
Eastern Mediterranean	Afghanistan	4B	<p>Malaria risk due to <i>P. falciparum</i> and <i>P. vivax</i> exists from April to December.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas below 2,500 m from April to December.</p>	IV
Eastern Mediterranean	Bahrain	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Eastern Mediterranean	Djibouti	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas.</p>	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
Eastern Mediterranean	Egypt	2	No indigenous cases have been reported since 1998. Very limited malaria risk due to <i>P. falciparum</i> and <i>P. vivax</i> may exist from June to October.  At-risk area: (a) In El Faiyûm Governorate from June to October.	II
Eastern Mediterranean	Iran	4B	Malaria risk due to <i>P. vivax</i> (93%) and very limited risk due to <i>P. falciparum</i> (7%) exists from March to November. <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in the rural areas of Fars Province, Sistan–Baluchestan Province, the southern, tropical parts of Hormozgan and Kerman Provinces, along the Azerbaijan border in Ardabil and near the Turkmenistan border in North Khorasan from March to November.	IV
Eastern Mediterranean	Iraq	2	No indigenous cases have been reported since 2009. Limited malaria risk due exclusively to <i>P. vivax</i> may exist from May to November.  At-risk area: (a) In areas in the north below 1,500 m (Duhok, Erbil and Sulaimaniya provinces) from May to November.	II
Eastern Mediterranean	Jordan	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Eastern Mediterranean	Kuwait	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Eastern Mediterranean	Lebanon	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Eastern Mediterranean	Libya	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Eastern Mediterranean	Morocco	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
Eastern Mediterranean	Oman	2	<p>There is sporadic transmission of malaria due to <i>P. falciparum</i> and <i>P. vivax</i>.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: sporadic transmission in Dakhliyah, North Batinah and North and South Sharqiyah.</p> <p>(b) Sporadic transmission of <i>P. falciparum</i> and <i>P. vivax</i> may occur subsequent to international importations of parasites.</p> <p>(c) In 2010, local outbreaks of <i>P. falciparum</i> and <i>P. vivax</i> were reported in Ash Sharqiyah North Governorate. Local cases were also reported in 2011 and 2012.</p>	II
Eastern Mediterranean	Pakistan	4B	<p>Malaria risk due to <i>P. falciparum</i> and <i>P. vivax</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas (including all cities) below 2,500 m, especially in rural areas from July to December. The risk is lower in the north in winter.</p>	IV
Eastern Mediterranean	Qatar	1	<p>There is no malaria risk as reported by WHO, CDC, PHAC and PHE.</p>	I
Eastern Mediterranean	Saudi Arabia	4B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year, mainly from September to January.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: local transmission is reported only in villages on the border with Yemen (except in the high-altitude areas above 2,000 m of Asir Province).</p> <p>(b) There is no risk in the cities of Jeddah, Mecca, Medina, Riyadh and Ta'if.</p>	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
Eastern Mediterranean	Somalia	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas. The risk is higher in the central and southern parts of the country and relatively low and seasonal in the north.</p>	IV
Eastern Mediterranean	Sudan	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas. The risk is higher in the central and southern parts of the country and low and seasonal in the north.</p> <p>(b) Malaria risk on the Red Sea coast is very limited. The risk in Khartoum is very low.</p>	IV
Eastern Mediterranean	Syrian Arab Republic (Syria)	2	<p>Malaria risk is very limited and is exclusively due to <i>P. vivax</i>. No indigenous cases have been reported since 2005, but the reporting system has been disrupted since 2010.</p> <p>At-risk area:</p> <p>(a) In foci along the northern border, especially in the rural areas of El Hasaka Governorate, from May to October.</p>	II
Eastern Mediterranean	Tunisia	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Eastern Mediterranean	United Arab Emirates	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
Eastern Mediterranean	Yemen	4B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year, mainly from September to February.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas below 2,000 m. There is very limited risk on Socotra Island.</p> <p>(b) There is no risk in Sana'a city.</p>	IV
European	Albania	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Andorra	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Armenia	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Austria	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Azerbaijan	2	<p>Malaria risk exclusively due to <i>P. vivax</i> exists from June to October.</p> <p>No locally-acquired cases have been reported since 2013.</p> <p>At-risk area:</p> <p>(a) In rural areas below 1,500 m, mainly in the area between the Kura and the Arax rivers, from June to October.</p> <p>(b) There is no risk in Baku City.</p>	II
European	Belarus	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Belgium	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Bosnia and Herzegovina	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Bulgaria	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Croatia	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
European	Cyprus	2	WHO certified Cyprus as malaria-free in 1967.  According to PHAC and NaTHNaC, some cases in tourists visiting Esentepe in the northern part of the country were reported in 2017. PHAC remarked that local transmission is presumed to be occurring in that region.  PHAC and NaTHNaC recommended mosquito bite prevention.	II
European	Czech Republic	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Denmark	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Estonia	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Finland	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	France	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Georgia	2	Limited malaria risk due exclusively to <i>P. vivax</i> may exist locally from June to October. No locally-acquired cases have been reported since 2010.  At-risk area: (a) There is limited risk in the eastern part of the country bordering Azerbaijan and very low risk in the rural southeast of Georgia from June to October.  (b) There is no risk in the city of Tbilisi.	II
European	Germany	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Greece	2	Malaria risk is very limited and is due exclusively to <i>P. vivax</i> .  At-risk area: (a) Very limited malaria risk may exist from May to November in certain high-risk agricultural areas. There is limited local transmission in western and central Greece.  (b) There is no risk in tourist areas.	II
European	Hungary	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
European	Iceland	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Ireland	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Israel	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Italy	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Kazakhstan	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Kyrgyzstan	1	WHO certified Kyrgyzstan as malaria-free in 2016. There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Latvia	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Lithuania	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Luxembourg	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Malta	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Monaco	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Montenegro	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Netherlands	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	North Macedonia	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Norway	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Poland	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Portugal	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Republic of Moldova	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Romania	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
European	Russia	2	Malaria risk is very limited and is due exclusively to <i>P. vivax</i> .  At-risk area: (a) In areas under influence of intense migration from southern countries of the Commonwealth of Independent States.	II
European	San Marino	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Serbia	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Slovakia	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Slovenia	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Spain	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Sweden	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Switzerland	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Tajikistan	2	Previous malaria risk was predominantly due to <i>P. vivax</i> .  No indigenous cases of <i>P. falciparum</i> and <i>P. vivax</i> have been reported since 2009 and 2015, respectively.  <i>P. falciparum</i> resistance to chloroquine has been reported.  At-risk area: (a) In areas below 2,000 m, particularly in southern areas (Khatlon Region) and in some central (Dushanbe), western (Gorno-Badakhshan Autonomous Region) and northern (Leninabad Region) areas from June to October.  (b) There is no risk of malaria in areas above 2,000 m.	II

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
European	Turkey	2	Limited malaria risk due exclusively to <i>P. vivax</i> exists from May to October. No locally-acquired cases have been reported since 2010.  At-risk area: (a) There is limited malaria risk in Mardin Province which borders Syria.  (b) There is no risk in the main tourist areas in the west and southwest of the country.	II
European	Turkmenistan	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Ukraine	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	UK (with Channel Islands and Isle of Man)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
European	Uzbekistan	2	Limited malaria risk due exclusively to <i>P. vivax</i> exists from June to October. No locally-acquired cases have been reported since 2011. WHO certified Uzbekistan as malaria-free in 2018.  At-risk area: (a) In some villages located in the southern and eastern parts of the country bordering Afghanistan, Kyrgyzstan and Tajikistan.	II

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
South-East Asia	Bangladesh	4B	<p>Malaria risk due to <i>P. falciparum</i> (90%), <i>P. vivax</i> (10%) and rarely <i>P. malariae</i> exists throughout the year with a peak from May to October.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Transmission occurs in 13 of 64 districts in both rural and urban areas.</p> <p>(b) There is high risk in Chittagong Hill Tract districts (Bandarban, Rangamati and Khagrachari), Chattogram District and Cox's Bazaar District; and low risk in the districts of Hobigonj, Kurigram, Moulvibazar, Mymensingh, Netrakona, Sherpur, Sunamgonj and Sylhet.</p> <p>(c) Most parts of the country, including Dhaka City, have no risk of malaria.</p>	IV
South-East Asia	Bhutan	4B	<p>Malaria risk due to <i>P. falciparum</i> (70%) and <i>P. vivax</i> (30%) exists.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in rural areas below 1,700 m in the southern belt districts of the country, namely, Chukha, Dagana, Pemagatshel, Samdrup Jongkhar, Samtse, Sarpang and Zhemgang.</p> <p>(b) No transmission occurs in the districts of Bumthang, Gasa, Paro and Thimphu.</p> <p>(c) Seasonal transmission occurs during the rainy summer months in focal areas in the rest of the country.</p>	IV
South-East Asia	Democratic People's Republic of Korea (North Korea)	2	<p>Limited malaria risk due exclusively to <i>P. vivax</i> exists.</p> <p>At risk area:</p> <p>(a) In some southern areas of the country.</p>	II

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
South-East Asia	India	4B	<p>Malaria risk due to <i>P. falciparum</i> and <i>P. vivax</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas, including the cities of Bombay (Mumbai) and Delhi except on the Lakshadweep islands and areas above 2,000 m in parts of Himachal Pradesh, Jammu and Kashmir and Sikkim. The majority of malaria in India is reported from the eastern and central parts of the country and from states which have large forest, hilly and tribal areas. These states include Odisha, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra and some north-eastern states such as Tripura, Meghalaya and Mizoram.</p>	IV
South-East Asia	Indonesia	4B	<p>Malaria risk exists throughout the year.</p> <p><i>P. falciparum</i> and <i>P. vivax</i> resistance to chloroquine has been reported.</p> <p>Human <i>P. knowlesi</i> infection has been reported in the province of Kalimantan.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in most areas of the five eastern provinces of East Nusa Tenggara, Maluku, North Maluku, Papua and West Papua and in the rural areas of Kalimantan (Borneo), Nusa Tenggara Barat (including the island of Lombok), Sulawesi and Sumatra. There is low transmission risk in the rural areas of Java, including Pangandaran, Sukalumi and Ujung Kulong.</p> <p>(b) There is no risk in the cities of Jakarta, Ubud, other cities and urban areas, resort areas of Bali and Java, Gili Islands and the Thousand Islands (Pulau Seribu).</p>	IV
South-East Asia	Maldives	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
South-East Asia	Myanmar (formerly Burma)	5B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> and <i>P. vivax</i> resistance to chloroquine has been reported.</p> <p>Mefloquine resistance has been reported in Kayin State and the eastern part of Shan State. Emerging artemisinin resistance is suspected in south-eastern Myanmar.</p> <p>Human <i>P. knowlesi</i> infection has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine- and mefloquine-resistant malaria: in areas below 1,000 m in the states of Bago, Kachin, Kayah, Kayin, Shan and Tanintharyi.</p> <p>(b) Chloroquine-resistant malaria: in areas below 1,000 m. The risk is highest in remote rural, hilly and forested areas of the country as well as in some coastal areas in Rahkine State.</p> <p>(c) There is no transmission in cities and urban areas.</p>	V
South-East Asia	Nepal	4B	<p>Malaria risk predominantly due to <i>P. vivax</i> exists, with peaks during the rainy seasons. <i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>At risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas below 2,000 m and in southern Terai region, mostly inner Terai (plain land), along the forests, foothills, forest fringes and in upper hilly river valleys.</p> <p>(b) Malaria transmission is mostly seasonal (from March to October), with peaks during the rainy seasons (from May to August). The risk is predominantly due to <i>P. vivax</i> with occasional outbreaks of <i>P. falciparum</i> from July to October.</p> <p>(c) There is no risk in Kathmandu and on typical Himalayan treks.</p>	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
South-East Asia	Sri Lanka	2	WHO certified Sri Lanka as malaria-free in 2016.  PHE stated that there is no risk of malaria and recommends mosquito bite prevention.	II
South-East Asia	Thailand	5B	Malaria risk exists throughout the year. <i>P. falciparum</i> and <i>P. vivax</i> resistance to chloroquine has been reported. <i>P. falciparum</i> resistance to mefloquine and quinine has been reported from areas near the borders with Cambodia and Myanmar. Artemisinin resistance has been reported near the border with Myanmar. Human <i>P. knowlesi</i> infection has been reported.  At-risk area: (a) In rural, especially forested and hilly, areas of the country, mainly towards the international borders, including the southernmost provinces.  (b) Mefloquine-resistant malaria: in provinces that border Myanmar, Cambodia and Laos and in the provinces of Kalasin, Plai Phraya district of Krabi, Nakhon Si Thammarat, Narathiwat, Pattani, Phang Nga (including Phang Nga City), Rayong, Sakon Nakhon, Songkhla, Surat Thani and Yala.  (c) There is no risk in cities (e.g. Bangkok, Chiang Mai and Pattaya), urban areas, Samui Island and the main tourist resorts of Phuket island.	V
South-East Asia	Timor-Leste (East Timor)	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine has been reported.  At risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
Western Pacific	American Samoa (US)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Australia; Including Cocos (Keeling) Islands	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
Western Pacific	Brunei Darussalam	2	Malaria risk is very low to none. Human <i>P. knowlesi</i> infection has been reported.	II
Western Pacific	Cambodia	5B	<p>Malaria risk due to <i>P. falciparum</i> and <i>P. vivax</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p><i>P. falciparum</i> resistance to artesunate, mefloquine, lumefantrine and piperaquine has been reported in western Cambodia, extending to the centre of the country.</p> <p><i>P. vivax</i> resistance to chloroquine has been reported in eastern Cambodia.</p> <p>At-risk area:</p> <p>(a) Mefloquine-resistant malaria: in the provinces of Banteay Meanchey, Battambang, Kampot, Koh Kong, Odder Meanchey, Pailin, Preah Vihear, Pursat and Siem Reap bordering Thailand.</p> <p>(b) Chloroquine-resistant malaria: in the forested rural areas in the country.</p> <p>(c) There is very low to negligible risk in Phnom Penh and the temple complex at Angkor Wat.</p>	V

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
Western Pacific	Mainland China	2	<p>According to WHO, China has achieved tremendous success in malaria elimination and no indigenous cases have been reported since 2017.</p> <p>At-risk area:</p> <p>(a) According to CDC, there are rare cases in the counties along the China-Myanmar border in Yunnan Province and Motuo County in Tibet.</p> <p>(b) According to PHAC, there is risk in the rural parts of Yunnan Province and limited transmission in the rural areas of Anhui, Hubei, Guangxi and Motuo County in Tibet. It also recommended chemoprophylaxis for travellers to the rural parts of Yunnan Province.</p> <p>(c) According to PHE, there is low risk in Yunnan and Hainan Provinces and very low risk in the rest of the country.</p> <p>(d) WHO, CDC and PHE recommended mosquito bite prevention.</p>	II
Western Pacific	Cook Islands (New Zealand)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Fiji	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	French Polynesia, includes the island groups of Society Islands (Tahiti, Moorea, and Bora-Bora); Marquesas Islands (Hiva Oa and Ua Huka); and Austral Islands (Tubuai and Rurutu)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Guam (US)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Japan	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
Western Pacific	Kiribati (formerly Gilbert Islands), includes Tarawa, Tabuaeran (Fanning Island), and Banaba (Ocean Island)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Lao People's Democratic Republic	5B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine and mefloquine has been reported.</p> <p>At risk area:</p> <p>(a) There is risk of malaria in the whole country except in Vientiane.</p> <p>(b) Mefloquine-resistant malaria: along the Laos-Myanmar border in the provinces of Bokeo and Louang Namtha, along the Laos-Thailand border in the provinces of Champasack and Saravan, along the Laos-Cambodia border and along the Laos-Vietnam border.</p>	V
Western Pacific	Malaysia	4B	<p>Malaria risk due to <i>P. falciparum</i>, <i>P. vivax</i>, <i>P. knowlesi</i>, <i>P. malariae</i>, and <i>P. ovale</i> exists only in limited foci throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>Human <i>P. knowlesi</i> infection has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in limited foci in the deep hinterland of the states of Sabah and Sarawak and the central areas of Peninsular Malaysia.</p> <p>(b) Urban, suburban and coastal areas are free from malaria.</p>	IV
Western Pacific	Marshall Islands	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
Western Pacific	Micronesia (Federated States of), includes: Yap Islands, Pohnpei, Chuuk, and Kosrae	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Mongolia	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Nauru	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	New Caledonia (France)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	New Zealand	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Niue (New Zealand)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Northern Mariana Islands (US) Includes Saipan, Tinian, and Rota Island	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Palau	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Papua New Guinea	4B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> and <i>P. vivax</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas below 2,000 m.</p>	IV

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
Western Pacific	Philippines	4B	<p>Malaria risk due to <i>P. falciparum</i> (70%-80%) and <i>P. vivax</i> (20%-30%) exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine has been reported.</p> <p>Human <i>P. knowlesi</i> infection has been reported on Palawan Island.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in nine remaining endemic provinces (Palawan, Sultan Kudarat, Davao del norte, Maguindanao, Sulu, Mindoro occidental, Tawi-tawi, Cagayan Valley and Davao City).</p> <p>(b) There is little to no risk in urban areas.</p>	IV
Western Pacific	Pitcairn Islands (UK)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Republic of Korea (South Korea)	2	<p>Malaria risk is limited and is due exclusively to <i>P. vivax</i>.</p> <p>At-risk area:</p> <p>(a) In the northern parts of Gangwon-do and Gyeonggi-do Provinces and Incheon City (towards the Demilitarized Zone) from March to December.</p>	II
Western Pacific	Samoa (formerly Western Samoa)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Singapore	2	<p>WHO certified Singapore as malaria-free in 1982.</p> <p>PHE stated that there is no risk of malaria and recommended mosquito bite prevention in all areas.</p>	II
Western Pacific	Solomon Islands	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> and <i>P. vivax</i> resistance to chloroquine has been reported.</p> <p>At-risk area:</p> <p>(a) Chloroquine-resistant malaria: in all areas except a few outlying eastern and southern islets.</p>	IV
Western Pacific	Tokelau (New Zealand)	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I

WHO Region	Country/Area	Risk Category	Risk Description	Recommendation Category
Western Pacific	Tonga	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Tuvalu	1	There is no malaria risk as reported by WHO, CDC, PHAC and PHE.	I
Western Pacific	Vanuatu	4A	Malaria risk exists throughout the year. <i>P. falciparum</i> and <i>P. vivax</i> resistance to chloroquine has been reported.  At-risk area: (a) Chloroquine-resistant malaria: in all areas.	IV
Western Pacific	Vietnam	5B	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine and mefloquine has been reported.  At-risk area: (a) Mefloquine-resistant malaria: in the southern part of the country in the provinces of Dac Lac, Gia Lai, Khanh Hoa, Kon Tum, Lam Dong, Ninh Thuan, Song Be and Tay Ninh.  (b) Chloroquine-resistant malaria: in all areas. High-risk areas are the highland areas below 1,500 m south of 18°N, notably in the four central highlands provinces of Dak Lak, Dak Nong, Gia Lai and Kon Tum; Binh Phuoc Province; and the western parts of the coastal provinces of Khanh Hoa, Ninh Thuan, Quang Nam and Quang Tri.  (c) There is no risk in urban centres, the Red River delta, the Mekong delta and the coastal plain areas of central Vietnam.	V

## Annex 3: Risk Profile Statistics

**Table 1: Risk categories of countries and areas in the six WHO Regions**

Region	1	2	3A	3B	4A	4B	5A	5B	Total
African	3	2			34	9			48
The Americas	25	5	1	5	1	8		1	46
Eastern Mediterranean	9	4			3	5			21
European	45	8							53
South-East Asia	1	2			1	5		2	11
Western Pacific	22	4			2	3		3	34
<b>Total</b>	105	25	1	5	41	30		6	213

**Table 2: Recommendation categories of countries and areas in the six WHO Regions**

Region	I	II	III	IV	V	Total
African	3	2		43		48
The Americas	25	5	6	9	1	46
Eastern Mediterranean	9	4		8		21
European	45	8				53
South-East Asia	1	2		6	2	11
Western Pacific	22	4		5	3	34
<b>Total</b>	105	25	6	71	6	213

## References

1. World Health Organization (2018). World Malaria Report 2018.  
Available at:  
<https://apps.who.int/iris/bitstream/handle/10665/275867/9789241565653-eng.pdf?ua=1>, accessed 16 July 2019.

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