



衛生防護中心

Centre for Health Protection

**Scientific Committee on Vector-borne Diseases**

**Global Malaria Risk Summary October 2017**

## **Introduction**

Malaria is a notifiable infectious disease in Hong Kong. Since 1998, annual malaria notifications ranged from 20 to 55 cases and the vast majority of these cases were imported from outside Hong Kong. The last local indigenous malaria case was reported in 1998, yet there was no definite source of infection identified.

2. The Scientific Committee on Vector-borne Diseases (the Committee) compiled the malaria risk of various countries or administrative areas for healthcare professionals' reference in October 2010. The Committee recommended this "Global Malaria Risk Summary" (the Risk Summary) be updated and reviewed on an annual basis at the Committee meetings. This paper highlights the major changes in the global malaria epidemiology in the past one year.

## **Objectives**

3. This document serves to provide general reference for healthcare professionals in their management of potential travellers to areas with malaria risk.



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## Methods and Explanatory Notes

4. Understanding the global distribution of areas with malaria risk relies on accurate disease and laboratory surveillance information supplied by various countries and administrative areas. Apart from the World Health Organization (WHO), the health authorities in the United States, the United Kingdom, and Canada also compile malaria epidemiology information together with recommendation for outbound travellers.

5. This Risk Summary is compiled based on the epidemiology information as well as malaria prevention strategies recommended by these health authorities. While information on malaria risk published by these overseas 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 Risk Summary. Nonetheless, as a general principle, even in countries with malaria risk, the risk of malaria infection is generally lower in areas with altitudes greater than 2,000 m or in well-developed city areas.

6. As regards the recommendation, it is notable that mosquito-bite prevention is highlighted in all authorities. In the latest version of guideline, WHO continues to state that *P. falciparum* resistance to chloroquine is nearly universal. WHO, Centers for Disease Control and Prevention (CDC) and Public Health Agency of Canada (PHAC) recommends chemoprophylaxis by atovaquone-proguanil, doxycycline, or mefloquine for all countries with reported chloroquine-resistant malaria. On the other hand, Public Health England (PHE) still recommends using chloroquine plus proguanil for chemoprophylaxis in travellers visiting areas with little chloroquine resistance, and atovaquone-proguanil, doxycycline or mefloquine in areas with high risk of chloroquine resistance.

7. In order to better reflect the current epidemiology and recommendations, we have developed a set of risk and recommendation categories. A total of five main categories of risk levels with the respective

recommended malaria prevention approaches are defined as shown in Annex 1. Annex 2 shows the Risk Summary with the respective risk and recommendation categories for each country or administrative area. Additional accounts of the specific risk descriptions together with the discrepancy of risk information among different sources are given to allow for a better understanding and risk assessment of the situation. Annex 3 summarizes the risk and recommendation profiles of the countries or administrative areas in the six WHO regions.

## **Updates from March 2016 to September 2017**

8. Over the past year, WHO, CDC, PHAC and PHE provided updated malaria situation and recommendations on malaria prevention for travellers. From time to time, these health authorities also issued updated reports on malaria outbreaks. Annex 2 of this document has been updated accordingly with the changes detailed below.

### **I. Major Outbreak Reports / Updates on Malaria Situation**

9. In Burundi, a slow-onset malaria outbreak started around October 2015. In the last trimester of 2016, the risk of malaria was exacerbated due to climate factors related to El Niño, massive population displacement and lack of preventive measures among the population. Between January and mid-March of 2017, the country reported a total of 1,784,965 cases of malaria; more than the cumulative cases reported during the same period in the previous years: 1,648,394 cases in 2016 and 753,324 cases in 2015. In March 2017, the Government of Burundi declared an outbreak of malaria (in 10 out of all 18 provinces). WHO coordinated technical assistance to support the country to implement effective evidence-based and coordinated response.

10. According to the European Centre for Disease Prevention and Control (ECDC), in its latest report released on 20 September 2017, France, Italy, Greece and the United Kingdom have reported malaria cases acquired within the European Union since May 2017. In September 2017, France reported two locally acquired malaria cases in Moulins in the Auvergne-Rhône-Alpes region. Both cases attended an event and were infected with *P. falciparum*. Prior to the

two reported cases, a case of *P. falciparum* imported from Burkina Faso was identified in the same area. Investigation on whether there was association between the imported and the two locally acquired cases or whether the cluster resulted from an imported infected mosquito was ongoing. Italy reported a fatal case of falciparum malaria in September 2017 with no travel history to malaria endemic countries and the case had been to Bibione in Veneto region for holidays. Moreover, the hospital in Trento where the case was admitted to also identified two other patients infected with *P. falciparum*. They had stayed in the same ward in the hospital. The investigation was inconclusive, as breaches in infection control that could have resulted in an iatrogenic transmission were not identified and competent vectors were not found in the area of Trento after the entomological investigation. Further investigation would be conducted on the link between the cases and the source of infection.

11. In Greece, five locally acquired cases of *P. vivax* malaria were reported as of 17 August 2017. Four of the cases were likely to have been exposed in the region of Dytiki Ellada in western Greece whereas one case was likely to have been exposed in Sterea Ellada in central Greece. These cases were considered to be introduced, resulting from local transmission following recent introduction of *P. vivax* into the area. In addition, Greece reported one locally acquired case in the region of Ipeiros, who was hospitalised in a ward where a patient was treated for *P. falciparum* malaria and did not have travel history to malaria endemic countries. The investigation suggested that the case could be the result of either nosocomial vector-borne transmission or nosocomial transmission of iatrogenic origin. However, similar to the cases in Italy, the investigation was inconclusive as breaches in infection control and competent vectors in the area were both not identified. On the other hand, the United Kingdom reported three cases of *P. vivax* malaria in travellers returning from Esentepe, the northern part of Cyprus in September 2017. Based on the currently available information, local transmission in Cyprus cannot be excluded. Nevertheless, local transmission due to an imported case of malaria with subsequent onward transmission to nearby residents or visitors by local vectors is possible.

12. In Cabo Verde (Cape Verde), an unprecedented increase in incidence of malaria was detected in July 2017. Between January and June 2017,

11 sporadic cases were reported, many of which had recent travel history from either Angola or Nigeria. However, between 30 June and 30 July 2017, 45 indigenous cases and one imported case were notified, compared to an average of one locally acquired case reported each year during the past five years. All the 45 locally acquired cases, which were due to *P. falciparum*, resided in the capital city of Praia, Santiago Island. Cabo Verde was previously a low malaria risk area with limited local transmission during the rainy season from September to November each year and the local transmission has been restricted to Praia thus far. In response to the outbreak, CDC recommended that travellers to the city of Praia take antimalarials in addition to antimosquito measures to prevent malaria. Effective antimalarial options included atovaquone-proguanil, doxycycline and mefloquine.

13. The Costa Rican Ministry of Health reported limited local transmission of malaria, with 9 cases of locally transmitted malaria reported from March to 13 September 2017. Cases were reported in areas including Matina Canton in Limon Province, Sarapiquí Canton in Heredia Province and Pital District in San Carlos Canton in Alajuela Province. There was no official report on the species of malaria parasite or the origin of the cases in Heredia and Alajuela Province. Two cases in Matina Canton could possibly be relapse cases, related to a previous outbreak at the end of 2016 when 4 cases of locally transmitted *P. vivax* were reported in the same district. This was the first local transmission of malaria in Costa Rica since 2011 except a small outbreak in late 2016. CDC recommended travellers to adopt anti-mosquito measures while antimalarials were not recommended as of September 2017.

## **II. Updates in the Global Malaria Risk Summary for Countries with Change in Risk Category and Recommendation**

14. Since our last update in February 2016, no countries have had their malaria risk categories and recommendations revised.

## **III. Other Updates in the Global Malaria Risk Summary for Countries without Change in Risk Category and Recommendation**

15. A total of 38 countries/administrative areas distributed in the six WHO regions have updates in the risk descriptions about 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: Eight of the 48 countries/areas in the region, namely Botswana, Burundi, Cabo Verde, Madagascar, Mayotte, Namibia, Swaziland and Zimbabwe have their risk descriptions including prevailing species of malaria parasites updated.
- (i) For Botswana, there was malaria risk in Central district, in addition to North West district, according to CDC. On the other hand, PHAC stated that no malaria risk was found in North East district.
  - (ii) For Burundi, the Government declared an outbreak of malaria in 10 out of all 18 provinces in March 2017, according to WHO.
  - (iii) For Cabo Verde, CDC described an increase in malaria cases in Praia on Santiago Island and recommended use of atovaquone-proguanil, doxycycline, or mefloquine as chemoprophylaxis.
  - (iv) For Madagascar, the risk description that there were rare cases in the city of Antananarivo by CDC was included to provide additional information about at-risk areas.
  - (v) For Mayotte, the prevalence of malaria species was updated from “*P. falciparum* (40-50%), *P. vivax* (35-40%), *P. ovale* (<1%)” to “*P. falciparum* (93%), *P. vivax* (5%), *P. malariae* and *P. ovale* (2%)” with increasing prevalence of *P. falciparum* reported, according to CDC.
  - (vi) For Namibia, WHO has revised the risk description in Kunene region, Zambesi region and Kavango region where malaria risk was found throughout the year along the Kunene river in Kunene region, Zambesi river in Zambesi region and Okavango river in Kavango regions (West and East). On the other hand, there was no malaria risk in city of Windhoek, according to CDC.
  - (vii) For Swaziland, PHAC considered no malaria risk in Mbabane.
  - (viii) For Zimbabwe, Victoria Falls has been included as one of the at-risk areas, as described by PHAC.
- (b) The Americas Region: Risk descriptions including the prevailing species of malaria parasites and the areas at risk for contracting malaria in 13 out

of the 46 countries/areas in the Americas have been updated. They are Argentina, Belize, Brazil, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Paraguay, Peru, Suriname and Venezuela. For Argentina, WHO updated that no local cases were reported since 2011 in any part of the country while PHAC has removed the risk description that there was malaria risk at rural areas of northern Jujuy Province.

- (i) For Belize, CDC has updated the prevalence of malaria species from *P. vivax* (95%) and *P. falciparum* (5%) to predominantly due to *P. vivax*. On the other hand, Cayo, a district in the country has been removed from the at-risk areas, according to PHAC.
- (ii) For Brazil, WHO stated that malaria risk existed in one of the nine states of the Amazon region. Moreover, there was residual risk of *P. vivax* transmission in Atlantic forest areas of the states of São Paulo, Minas Gerais, Rio de Janeiro and Espirito Santo.
- (iii) For Colombia, the prevalence of malaria species was updated from predominately *P. vivax* (73%) and *P. falciparum* (27%) to equal prevalence of *P. vivax* (50%) and *P. falciparum* (50%), according to CDC. Besides, WHO has further elaborated on the risk description in Departments of Antioquia, Bolivar, Cauca, Chocó, Cordoba and Narino. Nevertheless, according to PHAC, there was no risk in cities of Baranquilla, in addition to Bogotá, Cartagena and on the islands of San Andrés and Providencia in the Caribbean Sea.
- (iv) For Costa Rica, WHO has removed the canton of Matina from areas with very low risk of malaria and advised that there was negligible or no risk of malaria transmission in the country. Nevertheless, PHE continued to state that there was a risk of malaria in Limon Province. In addition, limited local transmission was reported in Matina Canton in Limon Province, Sarapiquí Canton in Heredia Province and Pital District in San Carlos Canton in Alajuela Province, according to CDC.
- (v) For Dominican Republic, WHO commented that malaria transmission increased in the National district and the provinces of Santo Domingo and La Altagracia, specifically in Bávaro district in 2015. On the other hand, there was little to no malaria transmission in the resort areas of Romana and Samaná and the city of Puerto Plata, in addition to the cities of Santiago and Santo Domingo, according to PHAC.
- (vi) For Ecuador, WHO has updated the prevalence of malaria

species from *P. vivax* (86%) and *P. falciparum* (14%) to *P. vivax* (67%) and *P. falciparum* (33%), with fewer *P. vivax* found. WHO also specified that malaria risk of *P. vivax* is present in some provinces of the country, predominantly in the Amazon region, especially the provinces of Morona Santiago, Pastaza, Orellana and Sucumbíos while malaria risk due to *P. falciparum* is present in Esmeraldas Province and in the Amazon region, especially the provinces of Pastaza and Morano Santiago.

- (vii) For El Salvador, WHO has rephrased the risk description in rural areas and described that they were prone to migration from Central American countries. Moreover, WHO stated that sporadic *P. vivax* malaria cases are reported from specific parts of the country.
  - (viii) For Guatemala, WHO has elaborated on the malaria risk due to *P. falciparum*, which is limited to the municipality of Masagua in the department of Escuintla. WHO further stated that the risk is highest in the departments of Escuintla and Alta Verapaz; moderate in the departments of Suchitepéquez, Retalhuleu and Izabal and low in the rest of the departments.
  - (ix) For Paraguay, WHO has revised the malaria risk due to *P. vivax* from moderate to low and added that the last indigenous case in the country was recorded in 2011.
  - (x) For Peru, the number of highest-risk districts increased from 32 to 45 and the largest number of cases were concentrated in the regions of Amazonas, Junin, San Martin and principally Loreto. In addition, the number of highest-risk districts for *P. falciparum* cases in Loreto decreased from 19 to 14, according to WHO.
  - (xi) For Suriname, WHO stated that the coastal area has been malaria-free since 1968.
  - (xii) For Venezuela, WHO has reclassified the malaria risk in Anzoategui state from high to moderate risk to low risk and has elaborated on the information about malaria risk in different municipalities in Bolívar and Sucre. According to PHE, there was high risk of malaria in all areas south of and including the Orinoco River and Angel Falls.
- (c) Eastern Mediterranean Region: Four of the 21 countries/areas in the region have their risk descriptions updated. They are Egypt, Iran, Oman and Pakistan.
- (i) For Egypt, WHO stated that no indigenous cases was reported since 1998. In addition, CDC, PHAC and PHE commented that there was no malaria transmission in the country.



- (ii) For Iran, the prevalence of malaria species was updated from *P. vivax* (88%) and *P. falciparum* (12%) to relatively higher prevalence of *P. vivax* (93%) and relatively lower prevalence of *P. falciparum* (7%), according to CDC. Moreover, PHE stated that the malaria risk was along the Azerbaijan border in Ardabil and near the Turkmenistan border in North Khorasan.
  - (iii) For Oman, PHAC has updated the risk description from no malaria risk to sporadic transmission of *P. falciparum* and *P. vivax* that may occur subsequent to international importation of parasites. Moreover, local outbreaks of *P. falciparum* and *P. vivax* were reported in North Sharqiya region in 2010 while local cases were also reported in 2011 and 2012. The risk description follows that of WHO.
  - (iv) For Pakistan, PHAC has included the information that malaria risk is lower in the north in winter.
- (d) European Region: Four of the 53 countries/areas in the region have their risk descriptions including reported case updated. They are Azerbaijan, Greece, Kyrgyzstan and Turkey.
- (i) For Azerbaijan, the month with malaria risk started from June instead of May and lasted till October, according to WHO.
  - (ii) For Greece, the months with malaria risk in certain high-risk agricultural areas have extended from May to October to May to November, according to CDC.
  - (iii) For Kyrgyzstan, PHE stated that there was no risk in the rest of the country.
  - (iv) For Turkey, PHE stated that there is low malaria risk along the border plain with Syria, around Adana and to the east of Adana. In addition, WHO stated that no locally acquired cases were reported in 2015. For the areas without risk, CDC has removed the description that there was no risk on the Incerlik US Air Force base and on typical cruise itineraries and advised that there is no malaria transmission in the country.
- (e) South-East Asia Region: Five of the 11 countries in the region have updated their at-risk areas, prevailing species of malaria parasites and reported case. They are Bangladesh, Bhutan, Indonesia, Nepal and Sri Lanka.
- (i) For Bangladesh, CDC has updated the prevalence of malaria species with more than half of *P. falciparum*, remaining *P. vivax* and *P. malariae* to *P. falciparum* (90%), *P. vivax* (10%) and rarely *P. malariae*.

- (ii) For Bhutan, the prevalence of malaria species was updated from *P. falciparum* (60%) and *P. vivax* (40%) to relatively higher prevalence of *P. falciparum* (70%) and relatively less *P. vivax* (30%), according to CDC.
  - (iii) For Indonesia, both CDC and PHAC stated that there was no malaria risk in Gili Islands and the Thousand Islands (Pulau Seribu), in addition to cities of Jakarta, Ubud, other cities and urban areas, or resort areas of Bali and Java.
  - (iv) For Nepal, PHAC has updated the risk description to the presence of risk in rural areas of the 20 Terai districts bordering India; with occasional outbreaks of *P. falciparum* from July to October and seasonal transmission of *P. vivax* in 45 districts of the inner Terai and mid-hills. The risk description follows that of WHO.
  - (v) For Sri Lanka, there was low malaria risk in the area north of Vavuniya; very low to no risk in the rest of the country and no risk in Colombo and Kandy, according to PHE. PHAC stated that the last locally transmitted case was reported in October 2012. CDC commented that there is no malaria transmission while WHO has not provided any details of malaria risk in the country.
- (f) Western Pacific Region: Four of the 34 countries/areas in the region have their risk description updated. They are Mainland China, Lao People's Democratic Republic, Singapore and Solomon Islands.
- (i) For Mainland China, WHO stated that cases of *P. falciparum* resistant to artemisinin-derived drugs have not yet been identified. Moreover, there was limited transmission in Guangxi and Motuo County in Tibet, according to PHAC.
  - (ii) For Lao People's Democratic Republic, there was risk of mefloquine-resistant malaria along the Laos-Cambodia border and Laos-Vietnam border, in addition to the provinces of Bokèo and Louang Namtha along the Laos-Burma border and along the Laos-Thailand border in the provinces of Saravan and Champasack, according to CDC.
  - (iii) For Singapore, human *P. knowlesi* infection was reported, according to WHO.
  - (iv) For Solomon Islands, there was no risk in a few outlying eastern and southern islets, as described by WHO.

## Limitation and disclaimers

16. The information presented in this paper is quoted from the

following reports:

- (a) WHO. International travel and health 2012 edition (List of countries, territories and areas: vaccination requirements and recommendations for international travellers, including yellow fever and malaria, updated on 16 February 2017).
- (b) Centers for Disease Control and Prevention. Health Information for International Travel 2018 – The Yellow Book. Atlanta: US Department of Health and Human Services, Public Health Service.
- (c) Public Health Agency of Canada. Canadian Recommendations for the Prevention and Treatment of Malaria 2014. (Appendix I: Malaria Risk and Recommended Chemoprophylaxis by Geographic Area, updated on August 2017)
- (d) (i) Public Health England. Guidelines for malaria prevention in travellers from the UK 2016.  
(ii) National Travel Health Network and Centre (NaTHNaC) Website [commissioned by the Public Health England].

17. While great efforts have been made to ensure that the epidemiology information in this Risk Summary is maintained as up-to-date as possible, disease situation may change rapidly over time. Moreover, under-reporting and delayed reporting of the disease in various countries or administrative areas included in the Risk Summary may affect the timeliness of malaria risk assessment. Healthcare professionals are advised to review the latest outbreak situations when necessary.

## **Feedbacks and Enquiries**

18. This Risk Summary will be tentatively updated in 2018. Any feedbacks and enquiries are welcome to be sent to the Centre for Health Protection.

## **Annexes**

### **Annex 1: Key to the Global Malaria Risk Summary**

**Annex 2:** Global Malaria Risk Summary (As of September 2017)

**Annex 3:** Risk Profile Statistics

**October 2017**

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## Key References

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- Public Health Agency of Canada. Travel Health: Notice and International Reports.  
Available at: <http://www.phac-aspc.gc.ca/tmp-pmv/notices-avis/index-eng.php>
- National Travel Health Network and Centre, UK. Health professionals: Clinical Updates  
Available at: <https://travelhealthpro.org.uk/>
- The Travel Health Service, Department of Health, Hong Kong.  
Available at: <http://www.travelhealth.gov.hk/>

## Annex 1: Key to Global Malaria Risk Summary

Risk Category	General Description of the Risk	Recommendation	Recommendation Description
1	<b>No malaria risk</b> (as reported by WHO, US CDC, UK PHE and Health Canada)	I	General precaution during travel
2	<b>Malaria risk reported to be very limited</b>	II	Malaria prevention may be required <ul style="list-style-type: none"> <li>➤ Advise to undertake mosquito bite prevention.</li> <li>➤ Obtain update on latest epidemiology.</li> </ul>
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 <ul style="list-style-type: none"> <li>➤ Advise to undertake mosquito bite prevention.</li> <li>➤ When travel to at-risk areas, consider chemoprophylaxis using chloroquine.</li> </ul>
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 <ul style="list-style-type: none"> <li>➤ Advise to undertake mosquito bite prevention.</li> <li>➤ When travel to areas at risk of chloroquine-resistant malaria, consider chemoprophylaxis using atovaquone/proguanil, doxycycline, or mefloquine.</li> <li>➤ When travel to areas at risk of chloroquine-sensitive malaria, consider chemoprophylaxis using chloroquine.</li> </ul>

Risk Category	General Description of the Risk	Recommendation	Recommendation Description
5	<p><b>Malaria resistant to both chloroquine and mefloquine have been reported</b></p> <p><b>5A:</b> <i>Risk of malaria exists in the whole administrative area</i></p> <p><b>5B:</b> <i>Risk of malaria exists in certain areas</i></p>	V	<p>Malaria prevention recommended</p> <ul style="list-style-type: none"> <li>➤ Advise to undertake mosquito bite prevention.</li> <li>➤ When travel to areas at risk of mefloquine-resistant malaria, consider chemoprophylaxis using atovaquone/proguanil or doxycycline, BUT NOT mefloquine.</li> <li>➤ When travel to areas at risk of chloroquine-resistant malaria, consider chemoprophylaxis using atovaquone/proguanil, doxycycline, or mefloquine.</li> </ul>



## Annex 2: Global Malaria Risk Summary (As of September 2017)

Region	Country/Area	Risk Category	Risk Description	Recommendation
African	Algeria	2	<p>Malaria risk is limited.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Small foci of local transmission of <i>P. vivax</i> have previously been reported in the 6 southern and south-eastern wilayas (Adrar, El Oued, Ghardaia, Illizi, Ouargla, and Tamanrasset).</li> <li>- 59 local cases of <i>P. falciparum</i> and <i>P. vivax</i> transmission reported in 2012 in areas under the influence of trans-Saharan migration.</li> </ul>	II
African	Angola	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas.</li> </ul>	IV
African	Benin	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas.</li> </ul>	IV
African	Botswana	4B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists.</p> <p><i>P. falciparum</i> resistant to chloroquine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in the northern provinces of the country: Bobirwa, Boteti, Chobe, Ngamiland, the Okavango Delta area, the Tutume districts/sub-districts; Central and North West district from November to June.</li> <li>- No risk in North East district and the city of Gaborone and Francistown. Low to no risk in the southern half of the country.</li> </ul>	IV
African	Burkina Faso	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			- Chloroquine-resistant malaria: in all areas.	
African	Burundi	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> (86%) exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in all areas.</p> <p>- The Government of Burundi declared an outbreak of malaria in 10 out of all 18 provinces in March 2017.</p>	IV
African	Cabo Verde (Cape Verde)	2	<p>Limited malaria risk, due predominantly to <i>P. falciparum</i>, exists from August to November inclusive. <i>P. falciparum</i> resistant to chloroquine reported.</p> <p>At-risk area:</p> <p>- In Santiago Island and Boa Vista Island from August through November.</p> <p>- Chloroquine-resistant malaria: An increase in malaria cases in Praia on Santiago Island.</p>	II
African	Cameroon	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in all areas.</p>	IV
African	Central African Republic	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in all areas.</p>	IV
African	Chad	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in all areas.</p>	IV
African	Comoros	4A	Malaria risk predominantly due to <i>P.</i>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p><i>falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in all areas.</p>	
African	Congo	4A	<p>Malaria risk due to <i>P. falciparum</i> (90%), <i>P. ovale</i> (5-10%) and rarely <i>P. vivax</i>, exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in all areas.</p>	IV
African	Côte d'Ivoire (Ivory Coast)	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in all areas.</p>	IV
African	Democratic Republic of the Congo (formerly Zaire)	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in all areas.</p>	IV
African	Equatorial Guinea	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in all areas.</p>	IV
African	Eritrea	4B	<p>Malaria risk due to <i>P. falciparum</i> and <i>P. vivax</i> exists throughout the year.</p> <p>Resistance to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in all areas below 2,200 m.</p> <p>- No risk in Asmara.</p>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
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> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p><i>P. vivax</i> resistant to chloroquine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: In all areas below 2,500 m.</li> <li>- No risk in Addis Ababa.</li> </ul>	IV
African	Gabon	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas.</li> </ul>	IV
African	Gambia	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas.</li> </ul>	IV
African	Ghana	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>-Chloroquine-resistant malaria: in all areas.</li> </ul>	IV
African	Guinea	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas.</li> </ul>	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> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas.</li> </ul>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
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 and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: In all areas below 2,500 m.</li> <li>- 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.</li> </ul>	IV
African	Lesotho	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
African	Liberia	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas.</li> </ul>	IV
African	Madagascar	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas, with the highest risk in the coastal areas. Rare cases in the city of Antananarivo.</li> </ul>	IV
African	Malawi	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas.</li> </ul>	IV
African	Mali	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas.</li> </ul>	IV
African	Mauritania	4B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists.</p> <p><i>P. falciparum</i> resistant to chloroquine reported.</p>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			At-risk area: - Chloroquine-resistant malaria: in Adrar and Inchiri during the rainy season from July through October. Throughout the year in all other areas in the country except in the northern areas of Dakhlet-Nouadhibou and Tiris-Zemour.	
African	Mauritius	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
African	Mayotte (French territorial collectivity)	4A	Malaria risk due to <i>P. falciparum</i> (93%), <i>P. vivax</i> (5%), <i>P. malariae</i> and <i>P. ovale</i> (2%), exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - Chloroquine-resistant malaria: in all areas.	IV
African	Mozambique	4A	Malaria risk, due to <i>P. falciparum</i> (90%), and rarely <i>P. malariae</i> , <i>P. ovale</i> and <i>P. vivax</i> , exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - Chloroquine-resistant malaria: in all areas.	IV
African	Namibia	4B	Malaria risk predominantly due to <i>P. falciparum</i> exists. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - Chloroquine-resistant malaria: in the regions of Ohangwena, Omaheke, Omusati, Oshana, Oshikoto and Otjozondjupa from November to June. Throughout the year along the Kunene river in Kunene region, Zambesi river in Zambesi region and Okavango river in Kavango regions (West and East).  - No malaria in city of Windhoek.	IV
African	Niger	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine reported.  At-risk area: - Chloroquine-resistant malaria: in all areas.	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
African	Nigeria	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - 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> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - 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> resistant to chloroquine reported.  At-risk area: - 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> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - Chloroquine-resistant malaria: in all areas. Less risk in the central western regions from January through June.	IV
African	Seychelles	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
African	Sierra Leone	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - Chloroquine-resistant malaria: in all areas.	IV
African	South Africa	4B	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - Chloroquine-resistant malaria: in the low altitude areas of Mpumalanga Province (including the Kruger National Park), Northern	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			Province (Limpopo) and north-eastern KwaZulu-Natal. The risk is highest from September to May.	
African	South Sudan	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - Chloroquine-resistant malaria: in all areas.	IV
African	Swaziland	4B	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine reported.  At-risk area: - 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). Risk is highest from November to May.  - Very low risk in the west of the country.  - No risk in Mbabane.	IV
African	Tanzania, United Republic of	4B	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - Chloroquine-resistant malaria: in all areas below 1,800 m, and in Zanzibar.	IV
African	Togo	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine reported.  At-risk area: - 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> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area:	IV



Region	Country/Area	Risk Category	Risk Description	Recommendation
			- Chloroquine-resistant malaria: in all areas including the main towns of Fort Portal, Jinja, Kampala, Mbale and Kigezi.	
African	Zambia	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - Chloroquine-resistant malaria: in all areas including Lusaka.	IV
African	Zimbabwe	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - Chloroquine-resistant malaria: in all areas. The risk is high in areas below 1200m from November to June; and low during the rest of the year. The risk is throughout the year in the Zambezi Valley including at Victoria Falls, and very low risk exists in Bulawayo and Harare.	IV
The Americas	Anguilla (U.K.)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Antigua and Barbuda	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Argentina	3B	Malaria risk due exclusively to <i>P. vivax</i> .  Risk is very low, being limited to certain areas: - Departments of Oran and San Martin in Salta Province in the north, and to a lesser extent to Chaco, Corrientes and Misiones Provinces.  - No risk in Iguassu Falls and the rest of Argentina.  - No local cases reported since 2011 in any part of the country.	III
The Americas	Bahamas	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Barbados	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Belize	3B	Malaria risk, due predominantly to <i>P. vivax</i> , exists throughout the year.  At-risk area:	III

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>- All districts but varies within regions. Risk is present especially in Toledo and Stan Creek Districts.</p> <p>- No risk in Belize City and islands frequented by tourists.</p>	
The Americas	Bermuda (U.K.)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Bolivia (Plurinational State of )	4B	<p>Malaria risk due predominantly to <i>P. vivax</i> (94%) exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in all areas below 2,500 m, in the Amazon basin except in the city of La Paz.</p> <p>- Falciparum malaria occurs in Santa Cruz and in the northern departments of Beni and Pando, especially in the localities of Guayaramerín and Riberalta.</p>	IV
The Americas	Brazil	4B	<p>Malaria risk due to <i>P. vivax</i> (84%), <i>P. falciparum</i> (15%) and mixed infection (1%) exists throughout the year.</p> <p>Multidrug-resistant <i>P. falciparum</i> reported. <i>P. vivax</i> resistant to chloroquine reported.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in most forested areas below 900 m within the nine states of the “Legal Amazonia” region (Acre, Amapá, Amazonas, Maranhão (western part), Mato Grosso (northern part), Pará (except Belém City), Rondônia, Roraima and Tocantins (western part)). Transmission intensity varies from one municipality to another, and is higher in jungle areas of mining, agricultural settlements, indigenous areas, and in 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, Maraba, Rio Branco and Santarém.</p> <p>- Residual risk of <i>P. vivax</i> transmission in Atlantic forest areas of the states of São Paulo, Minas Gerais, Rio de Janeiro and Espirito Santo.</p> <p>- Malaria transmission risk is negligible or</p>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			non-existent in the states outside "Legal Amazonia".  - No transmission at Iguassu Falls; Little to no transmission in the Pantanal region; in the cities of Brasília, Recife, Rio de Janeiro, São Paulo and Salvador.	
The Americas	British Virgin Islands	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Canada	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Cayman Islands (U.K.)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Chile	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Colombia	4B	Malaria risk, due to <i>P. falciparum</i> (50%) and <i>P. vivax</i> (50%), exist throughout the year. <i>P. falciparum</i> resistant to chloroquine is present. Resistance to sulfadoxine–pyrimethamine reported.  At-risk area: - Chloroquine-resistant malaria: In all rural areas below 1,700m.  - Risk is high in some municipalities of the Departments of Antioquia (Apartadó, Turbo, Neococli, San Juan de Urabá, Arboletes, Cáceres, El Bagre, Tarazá, Zaragoza, Segovia Nechi, Caucasia, Remedios and Mutatá), Bolivar (San Pablo, Tiquisio, Talaigua Nuevo, Cantagallo y Norosí), Cauca (Guapi, Timbiquí and López de Micay), Chocó (all municipalities), Cordoba (the municipalities of Tierralta, Puerto Libertador, Valencia and Monteliebano), Narino (Tumaco, Barbacoas, Roberto Payan, Mosquera, El Charco, Magui Payan, Santinga, Pizarro, Santa Bárbara de Iscuandé). At a lower level, risk is also present in some municipalities of Amazonas, Caqueta, Guaviare, Guainia, Meta, Putumayo, Vaupes, and Vichada.  - No risk in the cities of Baranquilla, Bogotá, Cartagena and on the islands of San Andrés and Providencia in the Caribbean Sea.	IV
The Americas	Costa Rica	3B	Malaria risk, almost exclusively due to <i>P. vivax</i> , exists throughout the year.	III

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Very low risk in Limon Province. Limited local transmission was reported in Matina Canton in Limon Province, Sarapiquí Canton in Heredia Province, and Pital District in San Carlos Canton in Alajuela Province.</li> <li>- Negligible or no risk of malaria transmission exists in the country.</li> <li>- No risk in Limon city (Puerto Limon).</li> </ul>	
The Americas	Cuba	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Dominica	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Dominican Republic	3B	<p>Malaria risk exclusively due to <i>P. falciparum</i> exists throughout the year.</p> <p>No evidence of <i>P. falciparum</i> resistant to any antimalarial drug.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- In all areas (including resort areas), except little to no transmission in the the resort areas of Romana and Samaná and cities of Puerto Plata, Santiago and Santo Domingo.</li> <li>- There is risk especially in the western provinces of Dajabón, Elias Pina, San Juan, as well as rural areas bordering Haiti. Risk is also present in Santo Domingo and La Altagracia province.</li> <li>- In 2015, transmission increased in the National district and the provinces of Santo Domingo and La Altagracia, specifically in Bávaro district.</li> </ul>	III
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> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas below 1,500 m and Amazon basin, with moderate transmission risk in coastal provinces.</li> <li>- Malaria risk due to <i>P. vivax</i> malaria is present in some provinces of the country, predominantly in the Amazon region,</li> </ul>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>especially the provinces of Morona Santiago, Pastaza, Orellana and Sucumbíos.</p> <p>- 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>- The risk is low in Quito and in provinces that are part of the Inter-Andean or Sierra region. No risk in Cuenca, the cities of Guayaquil, Quito, other cities and villages in the Andean highlands or the Galápagos Islands.</p>	
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>- In rural areas prone to migration from Central American countries.</p> <p>- Sporadic <i>P. vivax</i> malaria cases are reported from specific parts of the country.</p>	II
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> reported in areas influenced by Brazilian migration.</p> <p>At risk area:</p> <p>- Chloroquine-resistant malaria: in all areas. 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>- No risk in the city of Cayenne or Devil's Island (Ile du Diable).</p>	IV
The Americas	Grenada	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Guadeloupe, including St. Barthelemy and Saint Martin (France)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I

Region	Country/Area	Risk Category	Risk Description	Recommendation
The Americas	Guatemala	3B	<p>Malaria risk, predominantly due to <i>P. vivax</i>, exists throughout the year.</p> <p>At risk area:</p> <ul style="list-style-type: none"> <li>- In areas below 1,500 m.</li> <li>- Malaria risk due to <i>P. falciparum</i> is limited to the municipality of Masagua in the department of Escuintla.</li> <li>- 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). The risk is moderate in the departments of Suchitepéquez, Retalhuleu and Izabal. 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, Quiche).</li> <li>- No risk in Guatemala City, Antigua or Lake Atitlán.</li> </ul>	III
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> resistant to chloroquine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all parts of the interior below 900 m.</li> <li>- Highest risk occurs in Regions 1, 7, 8 and 9; and very low risk in Regions 3, 4, 5 and 6. Rare cases in the cities of Amsterdam and Georgetown. Sporadic cases of malaria have been reported from the densely populated coastal belt.</li> </ul>	IV
The Americas	Haiti	3A	<p>Malaria risk exclusively due to <i>P. falciparum</i> exists throughout the year.</p> <p>No falciparum resistance to chloroquine reported.</p> <p>At risk area:</p> <ul style="list-style-type: none"> <li>- The whole country.</li> </ul>	III
The Americas	Honduras	3B	<p>Malaria risk, due to <i>P. vivax</i> (79%), <i>P. falciparum</i> (20%) and mixed infection (~0.8%), exists throughout the year.</p>	III

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>At-risk area:</p> <ul style="list-style-type: none"> <li>- In all areas and 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 Paraíso, Olancho and Yoro. <i>P. falciparum</i> transmission risk is high in Gracias a Dios; and a few cases are also reported in Colon, Olancho and Yoro.</li> <li>- No risk in San Pedro Sula and Tegucigalpa.</li> </ul>	
The Americas	Jamaica	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Martinique (France)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
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> <ul style="list-style-type: none"> <li>- In some rural areas that are not often visited by tourists. Low risk in the states of Chiapas (Costa) and Oaxaca. Very low risk in the states of Campeche, Chihuahua, Durango, Jalisco, Nayarit, Quintana Roo, Sinaloa, Sonora, and Tabasco.</li> <li>- No malaria risk exists along the United States-Mexico border and in the major resort areas on the coasts, including the city of Acapulco or along the Mayan Riviera, including the cities of Cancún, Cozumel, and Playa del Carmen.</li> </ul>	III
The Americas	Montserrat (U.K.)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Netherlands Antilles (Bonaire, Curaçao, Saba, St. Eustasius, and St. Martin)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Nicaragua	3B	<p>Malaria risk, due predominantly to <i>P. vivax</i> (82%), exists throughout the year.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Low malaria risk exists throughout the year in a number of municipalities, mainly in Región Autónoma del Atlántico Norte, with sporadic transmission also reported in Boaca, Chinandega, Jinotega, León, Matagalpa,</li> </ul>	III

Region	Country/Area	Risk Category	Risk Description	Recommendation
			Managua 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.	
The Americas	Panama	4B	<p>Malaria risk due to <i>P. vivax</i> (&gt;99%). <i>P. falciparum</i> resistant to chloroquine has been reported in Darién and San Blas provinces.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- In all areas, except none in urban areas of Panama City or in the former Canal Zone.</li> <li>- Chloroquine-resistant malaria: in provinces east of the Canal Zone towards the border with Colombia, including Darién and San Blas (Kuna Yala).</li> <li>- Chloroquine-sensitive malaria: in provinces west of the Canal Zone along the Atlantic coast and the border with Costa Rica and Colombia, including Bocas del Toro, Chiriquí, Colón, Ngäbe Buglé, Panama and Veraguas.</li> </ul>	IV
The Americas	Paraguay	3B	<p>Malaria risk, due almost exclusively to <i>P. vivax</i>, is low. The last indigenous case was recorded in 2011.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- In the departments of Alto Paraná, Caaguazú, and Canendiyú.</li> <li>- No or negligible transmission risk in the other departments.</li> </ul>	III
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> resistant to chloroquine and sulfadoxine-pyrimethamine reported. <i>P. vivax</i> resistant to chloroquine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: In all departments below 2,000 m, including cities of Iquitos and Puerto Maldonado. The 45 highest-risk districts where the largest number of cases are concentrated 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. Risk is also high in the</li> </ul>	IV



Region	Country/Area	Risk Category	Risk Description	Recommendation
			Amazon basin along the border with Brazil.  - No risk in cities of Arequipa, Ica, Moquegua, Nazca, Puno and Tacna. Travellers who will visit only Lima and its vicinity, coastal areas south of Lima, coastal region south of Chiclayo or the highland tourist areas (Cusco, Machu Picchu, and Lake Titicaca) are not at risk and need no prophylaxis.	
The Americas	Puerto Rico (U.S.)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Saint Kitts and Nevis (Saint Christopher and Nevis) (U.K.)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Saint Lucia	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Saint Vincent and the Grenadines	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Suriname	5B	Malaria risk, due to <i>P. falciparum</i> (40%), <i>P. vivax</i> (58%), and mixed infections (2%), has decreased in recent years and occurs throughout the year.  <i>P. falciparum</i> resistant to chloroquine, sulfadoxine-pyrimethamine and mefloquine reported. Some decline in quinine sensitivity also reported.  At-risk area: - In all areas in the interior of the country beyond the coastal savannah area, with highest risk mainly along the eastern border and in gold-mining areas. Risk is also present in provinces of Brokopondo and Sipaliwini. Risk is low or negligible in Paramaribo city and the other seven coastal districts along the Atlantic Coast.  - No risk in coastal area since 1968.	V
The Americas	Trinidad and Tobago	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Turks and Caicos (U.K.)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	United States of America	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	Uruguay	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I

Region	Country/Area	Risk Category	Risk Description	Recommendation
The Americas	Venezuela (Bolivarian Republic of)	4B	<p>Malaria risk, due to <i>P. vivax</i> (75%) and <i>P. falciparum</i> (25%), exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: There is moderate to high risk in some rural areas of Amazonas, Bolívar and Delta Amacuro states. There is low risk in Anzoátegui, Apure, Monagas and Zulia. <i>P. falciparum</i> malaria is mostly restricted to municipalities in jungle areas of Amazonas (Alto Orinoco, Atabapo, Atures, Autana, Manapiare,) and Bolívar (Angostura, Cedeño, El Callao, Gran Sabana, Heres, Piar, Rocio, Sifontes) and Sucre (Benítez, Bermúdez, Cajigal y Arismendi). High risk in all areas south of and including the Orinoco river and Angel Falls.</li> <li>- No risk in Caracas and Margarita Island.</li> </ul>	IV
Eastern Mediterranean	Afghanistan	4B	<p>Malaria risk due to <i>P. falciparum</i> and <i>P. vivax</i> exists. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas at altitude below 2,500 m from April to December.</li> </ul>	IV
Eastern Mediterranean	Bahrain	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Eastern Mediterranean	Djibouti	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>-Chloroquine-resistant malaria: in all areas.</li> </ul>	IV
Eastern Mediterranean	Egypt	2	<p>Malaria risk, due to <i>P. falciparum</i> and <i>P. vivax</i>, is very limited.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- In El Faiyûm governorate from June through October.</li> <li>- No indigenous cases reported since 1998.</li> </ul>	II

Region	Country/Area	Risk Category	Risk Description	Recommendation
Eastern Mediterranean	Iraq	2	Limited malaria risk exclusively due to <i>P. vivax</i> may exist.  At-risk area: - In areas in the north below 1,500 m (in provinces of Duhok, Erbil, Sulaimaninya from May through November.  - No indigenous cases reported since 2009.	II
Eastern Mediterranean	Islamic Republic of Iran	4B	Malaria risk due to <i>P. vivax</i> (93%), and very limited risk due to <i>P. falciparum</i> (7%), exists. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - Chloroquine-resistant malaria: In rural areas of the Fars Province, Sistan–Baluchestan Province and the southern, tropical part of Hormozgan and Kerman Provinces from March to November. Along the Azerbaijan border in Ardabil and near the Turkmenistan border in North Khorasan.	IV
Eastern Mediterranean	Jordan	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Eastern Mediterranean	Kuwait	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Eastern Mediterranean	Lebanon	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Eastern Mediterranean	Libya	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Eastern Mediterranean	Morocco	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Eastern Mediterranean	Oman	2	Malaria risk, due to <i>P. falciparum</i> and <i>P. vivax</i> , is limited. There is sporadic local transmission. <i>P. falciparum</i> resistant to chloroquine reported.  At-risk area: - Chloroquine-resistant malaria:  US: Sporadic transmission in Dakhliyah, North Batinah, and North and South Sharqiyah.  WHO and Canada: Sporadic transmission of <i>P. falciparum</i> and <i>P. vivax</i> may occur subsequent to international importation of parasites. In 2010, local outbreaks of <i>P. falciparum</i> and <i>P. vivax</i> were reported in North Sharqiya region. Local cases were also reported in 2011 and	II

Region	Country/Area	Risk Category	Risk Description	Recommendation
			2012.	
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> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas (including all cities) below 2,500 m, especially in rural areas from July to December. Risk is lower in the north in winter.</li> </ul>	IV
Eastern Mediterranean	Qatar	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Eastern Mediterranean	Saudi Arabia	4B	<p>Limited malaria risk, predominantly due to <i>P. falciparum</i>, exists from September to January inclusive.</p> <p><i>P. falciparum</i> resistant to chloroquine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: exists in foci along the southern border with Yemen, Asir (excluding the high altitude areas above 2,000 m) and Jizan.</li> <li>- No risk in urban areas of Jeddah, Mecca, Medina, Riyadh, and Ta'if.</li> </ul>	IV
Eastern Mediterranean	Somalia	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas. Risk is relatively low and seasonal in the north. It is higher in the central and southern parts of the country.</li> </ul>	IV
Eastern Mediterranean	Sudan	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas. Risk is low and seasonal in the north. It is higher in the central and southern parts of the country. Malaria risk on the Red Sea coast is very limited. Very low risk in Khartoum.</li> </ul>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
Eastern Mediterranean	Syrian Arab Republic (Syria)	2	Malaria risk is very limited, and is exclusively due to <i>P. vivax</i> . No indigenous cases reported since 2005, however, the reporting system has been disrupted since 2010.  At-risk area: In foci along the northern border, especially in rural areas of El Hasaka Governorate, from May through October.	II
Eastern Mediterranean	Tunisia	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Eastern Mediterranean	United Arab Emirates	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Eastern Mediterranean	Yemen	4B	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year, but mainly from September through February. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - Chloroquine-resistant malaria: in all areas below 2,000 m. Very limited risk on Socotra Island.  - No risk in Sana'a city.	IV
European	Albania	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Andorra	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Armenia	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Austria	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Azerbaijan	2	Malaria risk exclusively due to <i>P. vivax</i> exists. Four locally acquired cases were reported in 2011, and no locally acquired case in 2013.  At-risk area: - In rural areas below 1,500 m, mainly in the area between the Kura and the Arax rivers, from June to October.  - No risk in Baku city.	II
European	Belarus	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I

Region	Country/Area	Risk Category	Risk Description	Recommendation
European	Belgium	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Bosnia and Herzegovina	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Bulgaria	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Croatia	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Cyprus	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Czech Republic	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Denmark	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Estonia	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Finland	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	France	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Georgia	2	<p>Malaria risk, due exclusively to <i>P. vivax</i>, may exist locally.</p> <p>No case reported in 2010, one locally acquired case reported in 2011, no locally acquired case was reported in 2013.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- WHO, UK: Limited risk may exist in the rural eastern and southeastern part of the country bordering Azerbaijan from June to October.</li> <li>- US: No malaria transmission</li> <li>- Canada: Limited risk in the eastern areas bordering Azerbaijan from June to October. No risk in the city of Tbilisi.</li> </ul>	II
European	Germany	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Greece	2	<p>Malaria risk is very limited, and is due exclusively to <i>P. vivax</i>.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Very limited malaria risk may exist from May to November in certain high-risk agricultural areas. There is no risk in tourist</li> </ul>	II

Region	Country/Area	Risk Category	Risk Description	Recommendation
			areas.	
European	Hungary	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Iceland	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Ireland	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Israel	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Italy	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Kazakhstan	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Kyrgyzstan	2	<p>Malaria risk is limited, and is due exclusively to <i>P. vivax</i>.</p> <p>No locally acquired cases reported between 2011 and 2013</p> <p>At-risk areas:</p> <ul style="list-style-type: none"> <li>- Very limited malaria risk exists in some southern and western parts of the country, mainly in areas bordering Tajikistan and Uzbekistan – Batken, Osh and Jalal-Abad regions and in the outskirts of Bishkek from June through October.</li> <li>- No risk in the rest of Kyrgyzstan.</li> </ul>	II
European	Latvia	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Lithuania	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Luxembourg	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Malta	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Monaco	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Montenegro	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Netherlands	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Norway	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Poland	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I

Region	Country/Area	Risk Category	Risk Description	Recommendation
European	Portugal	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Republic of Moldova	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Romania	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Russia Federation	2	Very limited malaria risk, due exclusively to <i>P. vivax</i> .  At-risk area: - In areas under influence of intense migration from southern countries in the Commonwealth of Independent States.	II
European	San Marino	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Serbia	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Slovakia	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Slovenia	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Spain	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Sweden	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Switzerland	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Tajikistan	4B	Malaria risk exists, and is predominantly due to <i>P. vivax</i> . <i>P. falciparum</i> resistant to chloroquine reported in the southern part of the country.  At-risk area: - Chloroquine-resistant malaria: in all areas below 2,000 m particularly in southern border areas (Khatlon Region), and in some central (Dushanbe), western (Gorno-Badakhshan), and northern (Leninabad Region) areas from June through October. There is a low risk of malaria in areas below 2,000m during the rest of the year.	IV
European	The Former Yugoslav Republic of Macedonia	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Turkey	3B	Limited malaria risk, due to <i>P. vivax</i> predominantly and <i>P. falciparum</i> sporadically,	III



Region	Country/Area	Risk Category	Risk Description	Recommendation
			exists from May to October.  At-risk area: - Low malaria risk along the border plain with Syria, around Adana and to the east of Adana. The risk is low from May to October, and very low during the rest of the year.  - No locally acquired cases were reported in 2015.  - No risk in the main tourist areas in the west and southwest of the country.	
European	Turkmenistan	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Ukraine	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	United Kingdom (with Channel Islands and Isle of Man)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Uzbekistan	2	Limited malaria risk due exclusively to <i>P. vivax</i> exists. No locally acquired cases reported between 2011 and 2013.  At-risk area: - Limited malaria risk from June to October, in some villages located in the southern and eastern parts of the country bordering Afghanistan, Kyrgyzstan and Tajikistan.	II
South-East Asia	Bangladesh	4B	Malaria risk, due to <i>P. falciparum</i> (90%) and <i>P. vivax</i> (10%) and rare <i>P. malariae</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.  At-risk area: - Malaria risk exists throughout the year but transmission occurs only in rural areas, in 13 of 64 districts. - High risk in Chittagong Hill Tract districts (Bandarban, Rangamati and Khagrachari), Chittagong district and Cox Bazaar district. - Low risk exists in the districts of Hobigonj, Kurigram, Moulvibazar, Mymensingh, Netrakona, Sherpur, Sunamgonj and Sylhet. - Most parts of the country, including Dhaka City, have no risk of malaria.	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
South-East Asia	Bhutan	4B	<p>Malaria risk (<i>P. falciparum</i> 70%, <i>P. vivax</i> 30%) exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: In rural areas below 1,700 m of the southern belt districts of: Chukha, Dagana, Chirang, Pemagatshel, Samtse (Samchi), Samdrup Jongkhar, Sarpang (Geyleg-phug) and Zhemgang (Shemgang).</li> <li>- No transmission occurs in the four following districts: Bumthang, Gasa, Paro and Thimphu. Seasonal transmission during the rainy summer months occurs in focal areas in the rest of country according to WHO.</li> </ul>	IV
South-East Asia	Myanmar (formerly Burma)	5B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>Mefloquine resistance reported in Kayin state and the eastern part of Shan state.</p> <p>Emerging artemisinin resistance suspected in south-eastern Myanmar.</p> <p><i>P. vivax</i> resistant to chloroquine reported.</p> <p>Human <i>P. knowlesi</i> infection reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine and Mefloquine resistant malaria: States of Bago, Kachin, Kayah, Kayin, Shan and Tanintharyi.</li> <li>- Chloroquine-resistant malaria: Present at altitudes below 1,000 m. Risk is highest in remote rural, hilly and forested areas of the country as well as in some coastal areas in Rahkine State.</li> <li>- No risk in the cities of Yangon and Mandalay.</li> </ul>	V
South-East Asia	Democratic People's Republic of Korea (North Korea)	2	<p>Limited malaria risk, due exclusively to <i>P. vivax</i>.</p> <p>At risk area:</p> <p>In some southern areas.</p>	II
South-East Asia	India	4B	<p>Malaria risk exists throughout the year, with overall 40% -50% of cases due to <i>P. falciparum</i> and the remainder due to <i>P. vivax</i>.</p>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area: - Chloroquine-resistant malaria: US/Canada: In all areas below 2,000 m, including Delhi and Mumbai (Bombay).</p> <p>WHO: Risk of falciparum malaria is relatively higher in the north-eastern states, in the Andaman and Nicobar Islands, Chhattisgarh, Gujarat, Jharkhand, Karnataka (with exception of the city of Bangalore), Madhya Pradesh, Maharashtra (with the exception of the cities of Mumbai, Nagpur, Nasik and Pune), Orissa and West Bengal (with the exception of the city of Kolkata).</p> <p>UK: Chemoprophylaxis is recommended in the states of Assam and Orissa; the districts of East Godavari, Srikakulam, Vishakhapatnam and Vizianagaram in the state of Andhra Pradesh; and the districts of Balaghat, Dindori, Mandla and Seoni in the state of Madhya Pradesh. It no longer considers malaria risk to be high enough to routinely justify use of chemoprophylaxis in the rest of India including Goa and the Andaman and Nicobar Islands.</p> <p>- There is no transmission in parts of the states (areas &gt;2000m) of Himachal Pradesh, Jammu and Kashmir, and Sikkim. There is also no risk in the Lakshadweep islands.</p>	
South-East Asia	Indonesia	4B	<p>Malaria risk exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p><i>P. vivax</i> resistance to chloroquine reported.</p> <p>Human <i>P. knowlesi</i> infection reported in the province of Kalimantan.</p> <p>At-risk area: - Chloroquine-resistant malaria: Most areas of the five eastern provinces of East Nusa Tenggara, Maluku, North Maluku, Papua and West Papua. Also, in rural areas of Kalimantan (Borneo), Nusa Tenggara Barat (includes the island of Lombok), Sulawesi, and Sumatra. Low transmission risk in rural areas of Java including Pangandaran, Sukalumi and Ujung Kulong.</p>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			- No risk in the cities of Jakarta, Ubud, other cities and urban areas, or resort areas of Bali and Java, and Gili Islands and the Thousand Islands (Pulau Seribu).	
South-East Asia	Maldives	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
South-East Asia	Nepal	4B	<p>Malaria risk predominantly due to <i>P. vivax</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At risk area:</p> <p>- Chloroquine-resistant malaria:</p> <p>WHO and Canada: in rural areas of the 20 Terai districts bordering with India. Occasional outbreaks of <i>P. falciparum</i> from July to October. Seasonal transmission of <i>P. vivax</i> takes place in 45 districts of the inner Terai and mid-hills.</p> <p>US: in all areas below 2,000 m (except see below).</p> <p>UK: in all areas below 1,500 m (except see below).</p> <p>- No risk in Kathmandu or on typical Himalayan treks.</p>	IV
South-East Asia	Sri Lanka	4B	<p>No locally acquired cases reported since October 2012.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <p>- Low malaria risk in the area north of Vavuniya. Very low to no risk in the rest of the country.</p> <p>- No risk of malaria in Colombo and Kandy.</p>	IV
South-East Asia	Thailand	5B	<p>Malaria risk exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>Resistance to mefloquine and to quinine reported from areas near the borders with Cambodia and Myanmar. Artemisinin resistance reported near the border with Myanmar.</p> <p><i>P. vivax</i> resistant to chloroquine reported.</p> <p>Human <i>P. knowlesi</i> infection reported.</p>	V

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Mefloquine-resistant malaria: In areas near the border with Cambodia, Lao People's Democratic Republic, and Myanmar (Burma).</li> <li>- Chloroquine-resistant malaria: In rural, especially forested and hilly, areas of the whole country, mainly towards the international border with Cambodia, Lao People's Democratic Republic, and Myanmar (Burma), including the southernmost provinces, and in rural, forested areas in districts of Phang Nga and Phuket.</li> <li>- No risk in cities of Bangkok, Chiang Mai, Chiang Rai, Koh Phangan, Koh Samui and Pattaya, and the main tourist resorts of Phuket island. However, there is a risk in some other areas and islands.</li> </ul>	
South-East Asia	Timor-Leste (East Timor)	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At risk area:</p> <ul style="list-style-type: none"> <li>-Chloroquine-resistant malaria: in all areas.</li> </ul>	IV
Western Pacific	Australia; Including Cocos (Keeling) Islands	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Brunei Darussalam	2	<p>Malaria risk is very low to none.</p> <p>Human <i>P. knowlesi</i> infection reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Obtain latest epidemiology.</li> </ul>	II
Western Pacific	Cambodia	5B	<p>Malaria risk, due predominantly to <i>P. falciparum</i> and <i>P. vivax</i>, exists throughout the year.</p> <p><i>P. falciparum</i> resistance to chloroquine and sulfadoxine-pyrimethamine has been reported throughout the country.</p> <p><i>P. falciparum</i> resistance to artesunate, mefloquine, lumefantrine and piperaquine has been reported in western Cambodia and extending to the centre of the country.</p> <p><i>P. vivax</i> resistant to chloroquine has been reported in eastern Cambodia.</p> <p>At-risk area:</p>	V

Region	Country/Area	Risk Category	Risk Description	Recommendation
			- Present throughout the country, except very low to negligible risk in Phnom Penh, area close to Tonle Sap, including Siem Reap city, and the temple complex at Angkor Wat.	
Western Pacific	China	5B	<p>Malaria risk, including <i>P. falciparum</i>, exists.</p> <p><i>P. falciparum</i> malaria occurs in Yunnan and to a lesser extent in Hainan throughout the year. Resistance to chloroquine and sulfadoxine-pyrimethamine has been reported and cases resistant to artemisinin-derived drugs have not yet been identified.</p> <p><i>P. falciparum</i> resistant to mefloquine exists along China-Myanmar border in Western Yunnan province.</p> <p>- Limited risk of chloroquine-sensitive malaria exists in rural areas of southern and some central provinces, including Anhui, Guizhou, Henan, Hubei, and Jiangsu. Limited transmission in Guangxi and Motuo County in Tibet.</p> <p>- There is no malaria risk in urban areas or northern China.</p> <p>- Travellers to popular tourist areas, including Yangtze River cruises, are at very low to no risk, and do not need to take chemoprophylaxis.</p>	V
Western Pacific	Cook Islands (New Zealand)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Fiji	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	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	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I

Region	Country/Area	Risk Category	Risk Description	Recommendation
Western Pacific	Guam (U.S.)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Japan	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Kiribati (formerly Gilbert Islands), includes Tarawa, Tabuaeran (Fanning Island), and Banaba (Ocean Island)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	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> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At risk area:</p> <ul style="list-style-type: none"> <li>- High risk of malaria in the whole country, except in Vientiane where there is low to no risk.</li> <li>- Risk of mefloquine-resistant malaria in the provinces of Bokèo and Louang Namtha along the Laos-Burma border, and along the Laos-Thailand border in the provinces of Saravan and Champasack, along the Laos-Cambodia border, and along the Laos-Vietnam border.</li> </ul>	V
Western Pacific	Malaysia	4B	<p>Malaria risk, due to <i>P. falciparum</i> (40%) and <i>P. vivax</i> (50%), exists only in limited foci.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>Human <i>P. knowlesi</i> infection reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: Risk is high in limited foci in the deep hinterland of Malaysian Borneo (inland areas of eastern Sabah, and inland forested areas of Sarawak), and to a lesser extent in the inland forested areas of peninsular Malaysia.</li> <li>- Very low risk in the rest of peninsular Malaysia, including the Cameron Heights, and</li> </ul>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			the city of Kuala Lumpur.  - Very low risk in the rest of Malaysian Borneo including the coastal areas of Sabah and Sarawak.	
Western Pacific	Marshall Islands	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Micronesia (Federated States of), includes: Yap Islands, Pohnpei, Chuuk, and Kosrae	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Mongolia	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Nauru	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	New Caledonia (France)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	New Zealand	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Niue (New Zealand)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Northern Mariana Islands (US) Includes Saipan, Tinian, and Rota Island	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Palau	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Papua New Guinea	4B	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported. <i>P. vivax</i> resistant to chloroquine reported.  At-risk area: - Chloroquine-resistant malaria: in all areas below 2,000 m.	IV
Western Pacific	Philippines	4B	Malaria risk exists throughout the year. <i>P. falciparum</i> 70%-80%, <i>P. vivax</i> 20%-30%. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported. Human <i>P. knowlesi</i> infection reported in the province of Palawan.	IV



Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in areas below 600 m, on islands of Basilu, Luzon, Mindanao, Mindoro, Palawan, Sulu (Jolo) and Tawi-Tawi.</li> <li>- No risk in the 22 provinces of Aklan (including Borocay Island), Albay, Benguet, Bilaran, Bohol, Camiguin, Capiz, Catanduanes, Cavite, Cebu, Guimaras, Iloilo, Northern Leyte, Southern Leyte, Marinduque, Masbate, Eastern Samar, Northern Samar, Western Samar, Siquijor, Sorsogon, Surigao Del Norte, metropolitan Manila, other urban areas, or in the plains.</li> </ul>	
Western Pacific	Pitcairn Islands (U.K.)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	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> <ul style="list-style-type: none"> <li>- Risk limited to the months from March to December in rural areas in the northern parts of Gangwon-do and Gyeonggi-do Provinces and Incheon City (towards the Demilitarized Zone DMZ).</li> </ul>	II
Western Pacific	Samoa (formerly Western Samoa)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Samoa, American (U.S.)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Singapore	2	<p>Human <i>P. knowlesi</i> infection was reported.</p> <p>No malaria risk reported by US CDC, UK PHE and Health Canada.</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. vivax</i> resistant to chloroquine reported.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> <li>- Chloroquine-resistant malaria: in all areas except in a few outlying eastern and southern islets.</li> </ul>	IV
Western Pacific	Tokelau (New Zealand)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I

Region	Country/Area	Risk Category	Risk Description	Recommendation
Western Pacific	Tonga	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Tuvalu	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Western Pacific	Vanuatu	4A	<p>Malaria risk, predominantly due to <i>P. falciparum</i>, is low to moderate throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p><i>P. vivax</i> resistant to chloroquine reported.</p> <p>At-risk area:</p> <p>-Chloroquine-resistant malaria: in all areas.</p>	IV
Western Pacific	Viet Nam (Vietnam)	5B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year.</p> <p>Resistance to chloroquine, sulfadoxine-pyrimethamine and mefloquine reported.</p> <p>At-risk area:</p> <p>- Mefloquine-resistant malaria: in the southern part of the country in the provinces of Tay Ninh, Song Be, Lam Dong, Ninh Thuan, Khanh Hoa, Dak Lak, Gia Lai, and Kon Tum.</p> <p>- Chloroquine-resistant malaria: in all areas. High-risk areas are the highland areas below 1,500 m south of 18°N, notably in the 4 central highlands provinces Dak Lak, Dak Nong, Gia Lai and Kon Tum, Binh Phuoc province, and the western parts of the coastal provinces, Khanh Hoa, Ninh Thuan, Quang Nam and Quang Tri.</p> <p>- No risk in urban centres, the Red River delta, the Mekong delta, and the coastal plain areas of central Viet Nam including Da Nang, Haiphong, Hanoi, Ho Chi Minh City (Saigon), Nha Trang, Phu Quoc Island and Qui Nhon.</p>	V

### Annex 3: Risk Profile Statistics

**Table 1: Risk categories versus countries/administrative areas in the six WHO regions**

Region	1	2	3A	3B	4A	4B	4C	5B	Total
African	3	2			34	9			48
The Americas	25	1	1	9	1	8		1	46
Eastern Mediterranean	9	4			3	5			21
European	45	6		1		1			53
South-East Asia	1	1			1	6		2	11
Western Pacific	22	3			2	3		4	34
<b>Total</b>	105	17	1	10	41	32	0	7	213

**Table 2: Recommendation categories versus countries/administrative areas in the six WHO regions**

Region	I	II	III	IV	V	Total
African	3	2		43		48
The Americas	25	1	10	9	1	46
Eastern Mediterranean	9	4		8		21
European	45	6	1	1		53
South-East Asia	1	1		7	2	11
Western Pacific	22	3		5	4	34
<b>Total</b>	105	17	11	73	7	213