



衛生防護中心
Centre for Health Protection

Scientific Committee on Vector-borne Diseases

Global Malaria Risk Summary September 2013

Introduction

Malaria is a notifiable disease in Hong Kong. Since 1998, annual malaria notifications ranged from 23 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. Based on an initial discussion on malaria epidemiology, the Scientific Committee on Vector-borne Diseases (the Committee) developed the “Guidelines on Malaria Chemoprophylaxis for Travellers from Hong Kong” for reference by healthcare professionals.

3. In support of the Guidelines, the Committee also 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

4. This document serves to provide general reference for healthcare professionals in their management of potential travellers to areas with malaria risk. It is to be used together with the “Guidelines on Malaria Chemoprophylaxis for Travellers from Hong Kong”, published by the Committee which is available in the website of the Centre for Health Protection of the Department of Health.



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Methods and Explanatory Notes

5. 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 (US), the United Kingdom (UK), and Canada also compile malaria epidemiology information together with recommendation for outbound travellers.

6. 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.

7. As regards the recommendation, it is notable that mosquito-bite prevention is highlighted in all authorities. There are also minor differences in the recommended chemoprophylactic agents to be used in areas with emerging chloroquine-resistant malaria. While both WHO and UK recommend using chloroquine and proguanil for chemoprophylaxis in travellers visiting areas with emerging chloroquine resistance and atovaquone-proguanil, doxycycline or mefloquine in areas with high risk of drug resistance, US and Canada categorize the prophylaxis regime into two categories - chloroquine-sensitive or chloroquine-resistant areas only and recommend using atovaquone-proguanil, doxycycline, or mefloquine in chloroquine-resistant areas.¹

8. 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.

¹ In 2012 updates, Nepal, Sri Lanka and Tajikistan are under countries with emerging chloroquine resistance according to WHO. WHO recommended chloroquine + proguanil chemoprophylaxis for these three countries while CDC recommended atovaquone/proguanil, doxycycline, or mefloquine for these countries.

Updates from October 2012 to September 2013

9. Over the past year, the Centers for Disease Control and Prevention (CDC) of US and the Public Health England (PHE) of UK provided updated malaria situation and recommendations on malaria prevention for travellers. From time to time, WHO, US CDC, UK PHE and the Public Health Agency of Canada issued updated reports on malaria outbreaks. **Annex 2** of this document has been updated accordingly with the changes detailed below.

Major Outbreak Reports

10. Over the past year, no major change in malaria burden has been reported.

11. US CDC provided an update on malaria cases in Greece as of 21 December 2012. Between January 1 and December 1, 2012, Greece has reported a total of 83 cases of malaria. Among them, 17 were locally acquired cases caused by *P. vivax*. No locally transmitted malaria cases have been reported in Athens.

Updates in the Global Malaria Risk Summary for Countries with Change in Risk Category and Recommendation

12. This year, six countries namely Egypt, Greece, Libya, Mauritius, Morocco and Oman have their malaria risk categories and recommendations revised.

13. The malaria risk of Egypt has changed from “Risk of chloroquine-sensitive malaria exists in certain areas (risk category: 3B)” to “Malaria risk reported to be very limited (risk category: 2)”. According to WHO, the risk description of Egypt was “Very limited *P. falciparum* and *P. vivax* malaria risk may exist from June through October inclusive in El Faiyûm governorate (no indigenous cases reported since 1998)”. There has been no recommendation. According to US CDC, there is no malaria transmission in Egypt. The UK’s update also stated that there is no risk of malaria in this country. Although Canada stated that “Very limited risk in El Faiyum area only; (no risk in tourist areas including Nile River cruises),” its guideline did not recommend any chemoprophylaxis. Since the risk of malaria in Egypt is limited according to both WHO and Canada and no chemoprophylaxis is recommended, the malaria risk and recommendation are changed to 2 and II respectively – Malaria risk reported to be very limited and malaria prevention may be required

14. The malaria risk of Greece has changed from “Risk of chloroquine-sensitive malaria exists in certain areas (risk category: 3B)” to “Malaria risk reported to be very limited (risk category: 2)”. US has revised that there is no malaria transmission in this country. According to WHO, the risk description is “Very limited malaria risk may exist from May to October in villages of the Evrotas delta area in Lakonia district (an area of 20 km²) in agricultural area with large migrant populations. There is no risk in tourist areas.” The PHE of UK reported that “The risk of malaria in Greece is very low. Sporadic cases of locally acquired malaria have been reported in Greece annually since 2009.” All health authorities reported no chloroquine resistance and recommended no chemoprophylaxis to travellers visiting Greece. Therefore, the malaria risk and recommendation are changed to 2 and II respectively.

15. The malaria risk of Libya has changed from “Malaria risk reported to be very limited (risk category: 2)” to “No malaria risk (risk category: 1)”. The UK’s update has revised the risk of malaria transmission in Libya from “Risk very low” to “No risk of malaria”. Moreover, no malaria risk in this country is also reported by WHO, US CDC and Health Canada. As such, the malaria risk is amended to risk category 1 instead of 2.

16. The malaria risk of Mauritius has changed from “Risk of chloroquine-sensitive malaria exists in certain areas (risk category: 3B)” to “No malaria risk (risk category: 1)”. The UK guideline has amended the transmission risk of malaria from “Risk low” to “No risk of malaria”. Moreover, both WHO and US CDC have also stated that there is no malaria risk in Mauritius. Chloroquine resistance has not been reported and no indigenous cases were reported since 2004. Although Canada stated that “Risk of malaria is confined to rural areas only and there is no risk on Rodrigues Island” and recommended chemoprophylaxis in its guideline in 2009, the document was not updated recently. Furthermore, in its notes, Canadian authority recommended that travel health practitioners keep abreast of potential changes by regular monitoring of the WHO and US CDC information. As such, the malaria risk is regarded as risk category 1 instead of 3B.

17. The malaria risk of Morocco has changed from “Malaria risk reported to be very limited (risk category: 2)” to “No malaria risk (risk category: 1)”. The UK has amended the risk description of this country from “Risk very low (few rural areas only)” to “No risk of malaria”. In addition, WHO and US CDC reported no malaria risk in their travel health documents. Although Canada stated that “Risk may exist in rural areas of Chefchaouen province; no risk in Tangier, Rabat, Casablanca, Marrakech and Fes”, no chemoprophylaxis is recommended as the risk is very limited. Since the Canadian guideline has not been updated recently, the malaria risk is revised to risk category 1 instead of 2.

18. The malaria risk of Oman has changed from “Chloroquine-resistant malaria exists in certain areas (risk category: 4B)” to “Malaria risk reported to be very limited (risk category: 2)”. The UK has updated the risk of malaria transmission in this country from “Risk variable, chloroquine resistance present (remote rural areas only)” to “Sporadic local transmission of malaria has been reported as a result of international importation”. The recommendation is also revised from “chloroquine plus proguanil” to “chemoprophylaxis is not recommended”. WHO supported UK’s risk description as well as stated that there were some local outbreaks reported in 2010 and 2011. However, it recommended “mosquito bite prevention only”. The US CDC reported that there is no malaria risk in its document. Although Canada described “Limited risk in remote areas of Musandam Province” and reported *P. falciparum* resistant to chloroquine in its guideline, no chemoprophylaxis is recommended. Since the Canadian guideline has not been updated recently, the malaria risk and recommendation concluded from other guidelines are regarded as 2 and II respectively.

Other Updates in the Global Malaria Risk Summary for countries without Change in Risk Category and Recommendation

19. A total of 30 countries/administrative areas distributed in the six WHO regions have updates in the risk descriptions about the geographical and seasonal distribution, altitude, predominant species and resistance pattern of malaria. Nonetheless, there is no change in their risk categories and recommendations. The following summarizes the changes with respect to each of the WHO Regions.

- (1) African Region: Five of the 47 countries/areas in the region have their risk descriptions updated. They are Botswana, Ethiopia, Mozambique, Swaziland and United Republic of Tanzania.
 - For Botswana, the US has revised the areas with malaria risk from “risk in Central, Chobe, Ghanzi, Northeast and Northwest” to “risk in the districts of Central and North West (including Chobe National Park)”. Since Chobe and Ghanzi are still included in the at-risk areas of malaria transmission in the guidelines from WHO and Canada, Northeast is removed from the risk description.
 - For Ethiopia, the prevalence of malaria species is amended from “*P. falciparum* 76%, *P. vivax* 24%, *P. malariae* and *P. ovale* rare.” to “*P. falciparum* 60%–70%, *P. vivax* 30%–40%, *P. malariae* and *P. ovale* rare.” based on US’s update.
 - For Mozambique, the prevalence of malaria species is amended from “*P. falciparum* 98%, *P. malariae* and *P. ovale* 2%, and *P.*

vivax rare” to “*P. falciparum* 90%, *P. malariae*, *P. ovale* and *P. vivax* rare” according to US’s information.

- For Swaziland, “Manzini” is included as one of the at-risk areas according to US’s update. Moreover, “Very low risk in the west of the country” is added to the risk description based on UK’s information.
- For the United Republic of Tanzania, “Zanzibar” is added to the at-risk areas according to UK’s update.

(2) Region of the Americas: The prevailing species of malaria parasites and the areas at risk for contracting malaria in 8 out of the 46 countries/areas in the Americas have been updated. They are Belize, Brazil, Ecuador, Guyana, Honduras, Jamaica, Panama and Peru.

- For Belize, the prevalence of malaria species changed from “*P. vivax* 100%” to “*P. vivax* 95% and *P. falciparum* 5%” based on US’s update.
- For Brazil, the US has revised “Rare cases in Belem city.” to “Risk present in Belem city”. The corresponding recommendation for this city is also amended from “mosquito avoidance only” to “Atovaquone/ proguanil; doxycycline; or mefloquine”. As such, Belem city is added to the at-risk areas.
- For Ecuador, “Amazon basin” is added as an area with malaria risk according to UK’s information.
- For Guyana, the US has revised the description on malaria risk from “Risk in all rural areas below 900 m (<2,953 ft), including Georgetown.” to “All areas <900 m (2,953 ft). Rare cases in the cities of Amsterdam and Georgetown.”. Therefore, “the city of Amsterdam” is included in the at-risk areas.
- For Honduras, the risk description stated by US CDC is updated as “Present throughout the country and in Roatán and other Bay Islands. None in San Pedro Sula and Tegucigalpa.” instead of “Present throughout the country at altitudes below 1,000 m (<3,281 ft) and in Roatán and other Bay Island. None in Tegucigalpa and San Pedro Sula.”. Hence, the “altitudes below 1,000 m” will be deleted from the risk description.
- For Jamaica, the malaria risk described by US CDC is updated

from “rare local cases in Kingston” to “no malaria transmission”. However, limited risk of malaria is still reported by WHO, Health Canada and UK PHE. Therefore, the risk category of this country remains at 2.

- For Panama, the US has updated the risk description from “Present in provinces east of the Panama Canal towards the border with Colombia (provinces of Panama east of the canal and Darien). Also in provinces of Veraguas, Chiriqui, Ngobe Buble, Cocle, and Kuna Yala (San Blas). None in Panama City or in the former Canal Zone.” to “Transmission throughout the country. None in urban areas of Panama City or in the former Canal Zone.”.
- For Peru, “the coastal region south of Chiclayo” is added to the list of areas with no risk of malaria transmission according to UK’s update.

(3) Eastern Mediterranean Region: Four of the 22 countries/areas in the region have their risk descriptions updated. They are Afghanistan, Iran, Saudi Arabia and Sudan.

- For Afghanistan, the risk description is amended from “in all areas at altitudes below 2,000 m from April to December” to “in all areas at altitudes below 2,500 m from April to December” according to US’s update.
- For Iran, “Fars Province” is added as one of the at-risk areas based on US’s report.
- For Saudi Arabia, “emirate of Al Bahah” is no longer described as the area with malaria risk according to US, but this area is still included by Canada.
- For Sudan, “Very low risk in Khartoum” is added to the risk description in accordance with UK’s information.

(4) European Region: Four of the 53 countries/areas in the region have their risk descriptions updated. They are Azerbaijan, Georgia, Kyrgyzstan and Uzbekistan.

- For Azerbaijan, the recommendation provided by the US has changed from “Atovaquone/proguanil, chloroquine, doxycycline, mefloquine, or primaquine” to “Mosquito avoidance only”. The UK has also changed its recommendation from “Chloroquine” to “Bite avoidance plus

awareness of risk”. As WHO, US CDC, UK PHE and Health Canada still reported that malaria risk exists in certain areas of the country with no chloroquine resistance, the malaria risk category remains at 3B.

- For Georgia, there is no malaria transmission based on US’s update. However, malaria risk still exists in the southeastern part of the country as reported by WHO, Health Canada and UK PHE. Therefore, the overall risk remains as risk category 3B.
 - For Kyrgyzstan, the latest US’s update has changed the risk description to “No malaria transmission”. According to UK, “Very low risk in the southwest of Kyrgyzstan, in areas bordering Tajikistan and Uzbekistan, from June to October.” replaced the description “Risk low (South West, May-October)”. The recommendation was revised from “Chloroquine” to “Bite avoidance plus awareness of risk”. Both WHO and Canada have not changed the at-risk areas and recommendation. Therefore, the risk category remains unchanged as 3B, but the at-risk period is shortened to “June to October”.
 - For Uzbekistan, US CDC has changed the risk description from “Rare cases along the Afghanistan and Tajikistan borders. No cases reported in 2009.” to “No malaria transmission.”. However, the at-risk areas and recommendations reported by WHO, UK PHE and Health Canada remain unchanged. As such, the risk category and recommendation are kept as 3B and III respectively.
- (5) South-east Asia Region: 5 of the 11 countries in the region have updated their at-risk areas and anti-malarial resistance/tolerance pattern. They are India, Indonesia, Nepal, Sri Lanka and Thailand.
- For India, the statement “there is a risk of malaria in the Andaman and Nicobar Islands and no risk in the Lakshadweep islands” is added to the risk description based on UK’s information. As the recommended chemoprophylaxis for travellers visiting the Andaman and Nicobar Islands is chloroquine plus proguanil, this area is included to the at-risk areas with emerging chloroquine-resistant malaria.
 - For Indonesia, in accordance with US CDC, the city of Ubud is added to the list of areas with no malaria risk. Moreover, the areas of Ujung Kulong, Sukalumi, and Pangandaran in Java are specified as the areas with low transmission of malaria.

- For Nepal, the areas at altitudes below which the risk of malaria exists is changed from “< 1,200m (3,937ft)” to “< 2,000m (6,562ft)” according to US.
 - For Sri Lanka, “Kandy” is added as an area with no malaria risk based on UK’s update.
 - For Thailand, as regards the resistance pattern, WHO has added “Artemisinin resistance reported near the border with Myanmar.” in its travel health guideline.
- (6) Western Pacific Region: Four of the 34 countries/areas in the region have their risk descriptions updated. They are Malaysia, Papua New Guinea, the Philippines and Singapore.
- For Malaysia, according to UK’s update, high risk of malaria in “Malaysia East Sabah only except Kota Kinabalu” has been updated to “in inland areas of eastern Sabah and in the inland, forested areas of Sarawak”. “The rest of Malaysian Borneo including the coastal areas of Sabah and Sarawak” and “the city of Kuala Lumpur” are described as areas with very low risk of malaria transmission.
 - For Papua New Guinea, the areas at altitudes below which the risk of malaria exists is changed from “< 1,800m (5,906ft)” to “< 2,000m (7,218ft)” based on US’s information.
 - For the Philippines, “islands of Basilu, Sulu (Jolo) and Tawi-Tawi” are added to the at-risk areas according to US CDC.
 - For Singapore, the risk of malaria transmission reported by the UK is changed from “Very low risk” to “No risk”.

Travel Health Service

20. The Port Health Office of the Department of Health has two Travel Health Centres to offer individual travel health assessment for travellers, and give health advice, travel health information, travel-related vaccinations and other preventive medications. People planning to visit malaria-endemic countries may contact the travel health enquiry phone lines for travel health advice and, if necessary, book appointment in the Travel Health Centres for pre-travel health risk assessment and advice, including anti-mosquito measures and anti-malarial chemoprophylaxis to be taken. Health promotion activities on travel health including talks, seminars and exhibitions are arranged periodically

to increase the awareness of malaria risk in endemic countries for outbound travellers. More information on Travel Health Service is available at: <http://www.travelhealth.gov.hk/>

Limitation and disclaimers

21. The information presented in this paper is quoted from the following reports:

- (a). WHO. International travel and health 2012 edition, Country list: yellow fever vaccination requirements and recommendations; and malaria situation.
- (b). (i) Centers for Disease Control and Prevention. Health Information for International Travel 2014 – The Yellow Book. Atlanta: US Department of Health and Human Services, Public Health Service.
- (c). (i) Guidelines for malaria prevention in travellers from the United Kingdom. Public Health England, August 2013.
(ii) National Travel Health Network and Centre (NaTHNaC) Website [commissioned by the Public Health England].
- (d). Public Health Agency of Canada. Canadian Recommendations for the Prevention and Treatment of Malaria among International Travellers, July 2009.

22. 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

23. This Risk Summary will be updated in the fourth quarter of 2014. 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 4 October 2013)

Annex 3: Risk Profile Statistics

Centre for Health Protection

October 2013

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Key References

World Health Organization

1. WHO. *International travel and health 2012 edition, Country list: yellow fever vaccination requirements and recommendations; and malaria situation* [Cited 2013 October 4].
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United States

2. Centers for Disease Control and Prevention. *Health Information for International Travel 2014 – The Yellow Book*. Atlanta: US Department of Health and Human Services, Public Health Service. [Cited 2013 October 4].
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Canada

4. Public Health Agency of Canada. *Canadian Recommendations for the Prevention and Treatment of Malaria among International Travellers*, July 2009. Volume 35S1 [cited 2012 October 15].
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Reference Websites for Updated Epidemiology on Malaria

- i. World Health Organization. News on Malaria.
Available from: <http://www.who.int/topics/malaria/news/en/index.html>
- ii. Centers for Disease Control and Prevention, US. Traveler's Health: Outbreak.
Available from: <http://wwwn.cdc.gov/travel/default.aspx>
- iii. Public Health England, UK. Malaria: News.
Available from:
http://www.hpa.org.uk/infections/topics_az/malaria/news.htm
- iv. National Travel Health Network and Centre, UK. Health professionals: Clinical Updates
Available from: <http://nathnac.org/pro/index.htm>
- v. Public Health Agency of Canada. Travel Health: Notice and International Reports.
Available from:
http://www.phac-aspc.gc.ca/tmp-pmv/index-eng.php?utm_source=Error%20404&utm_medium=Error%20404

- vi. The Travel Health Service, Department of Health, Hong Kong.
Available from: <http://www.travelhealth.gov.hk/>
- vii. Guidelines on Malaria Chemoprophylaxis for Travellers from Hong Kong. Scientific Committee on Vector-borne Diseases. Centre for Health Protection, Department of Health, Hong Kong.
Available from:
http://www.chp.gov.hk/files/pdf/Guidelines_on_Malaria_Chemoprophylaxis_for_Travellers_from_Hong_Kong.pdf

Annex 1: Key to Global Malaria Risk Summary

Risk Category	General Description of the Risk	Recommendation	Recommendation Description
1	No malaria risk (as reported by WHO, US CDC, UK PHE and Health Canada)	I	General precaution during travel
2	Malaria risk reported to be very limited	II	Malaria prevention may be required <ul style="list-style-type: none"> ➤ Advise to undertake mosquito bite prevention. ➤ Obtain update on latest epidemiology.
3	Risk of chloroquine-sensitive malaria only 3A: <i>Risk of malaria exists in the whole administrative area</i> 3B: <i>Risk of malaria exists in certain areas</i>	III	Malaria prevention recommended <ul style="list-style-type: none"> ➤ Advise to undertake mosquito bite prevention. ➤ When travel to at-risk areas, consider chemoprophylaxis using chloroquine.
4	Chloroquine-resistant malaria have been reported 4A: <i>Risk of malaria exists in the whole administrative area</i> 4B: <i>Risk of malaria exists in certain areas</i> 4C: <i>Emerging chloroquine-resistant malaria exists in certain areas</i>	IV	Malaria prevention recommended <ul style="list-style-type: none"> ➤ Advise to undertake mosquito bite prevention. ➤ When travel to areas at risk of chloroquine-resistant malaria, consider chemoprophylaxis using atovaquone/proguanil, doxycycline, or mefloquine. ➤ When travel to areas at risk of emerging chloroquine-resistant malaria, consider chemoprophylaxis using chloroquine + proguanil (recommended by WHO and UK PHE) or atovaquone/proguanil, doxycycline, or mefloquine (recommended by US CDC and/or Health Canada). ➤ When travel to areas at risk of chloroquine-sensitive malaria, consider chemoprophylaxis using chloroquine.

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

Annex 2: Global Malaria Risk Summary (As of 4 October 2013)

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"> - 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, Tamanrasset). - Five local cases of <i>P. falciparum</i> transmission reported in 2010 in areas under the influence of trans-Saharan migration. 	II
African	Angola	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"> -Chloroquine-resistant malaria: in all areas. 	IV
African	Benin	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"> -Chloroquine-resistant malaria: in all areas. 	IV
African	Botswana	4B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists. <i>P. falciparum</i> resistant to chloroquine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> - Chloroquine-resistant malaria: in the northern provinces of the country: 	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			Bobirwa, Boteti, Central, Chobe, Ghanzi, Ngamiland, the Okavango Delta area, the Tutume districts/sub-districts, and North West district from November to June. - No risk in the city of Gaborone and Francistown.	
African	Burkina Faso	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	Burundi	4A	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. At-risk area: -Chloroquine-resistant malaria: in all areas.	IV
African	Cameroon	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	Cape Verde	2	Limited malaria risk predominantly due to <i>P. falciparum</i> exists from August to November inclusive. <i>P. falciparum</i> resistant to chloroquine reported.	II

Region	Country/Area	Risk Category	Risk Description	Recommendation
			At-risk area: - In São Tiago Island and Boa Vista Island (18 locally acquired cases reported in 2010) from August through November.	
African	Central African Republic	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	Chad	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	Comoros	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	Congo	4A	Malaria risk predominantly due to <i>P. falciparum</i> (90%), while <i>P. ovale</i> is 5-10% and <i>P. vivax</i> rare, exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			At-risk area: -Chloroquine-resistant malaria: in all areas.	
African	Côte d'Ivoire (Ivory Coast)	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	Democratic Republic of the Congo (formerly Zaire)	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	Equatorial Guinea	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	Eritrea	4B	Malaria risk due to <i>P. falciparum</i> and <i>P. vivax</i> exists throughout the year. Resistance to chloroquine and sulfadoxine-pyrimethamine reported. At-risk area: - Chloroquine-resistant malaria: in all areas below 2,200 m. - No risk in Asmara.	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%), <i>P. malariae</i> and <i>P. ovale</i> rare, exists throughout the year.</p> <p><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"> - Chloroquine-resistant malaria: In all areas below 2,500 m. - No risk in Addis Ababa. 	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"> -Chloroquine-resistant malaria: in all areas. 	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"> -Chloroquine-resistant malaria: in all areas. 	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"> -Chloroquine-resistant malaria: in all 	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			areas.	
African	Guinea	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	Guinea-Bissau	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	Kenya	4B	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistance to chloroquine and sulfadoxine-pyrimethamine reported. At-risk area: - Chloroquine-resistant malaria: In all areas below 2,500 m. - 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.	IV
African	Lesotho	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
African	Liberia	4A	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			reported. At-risk area: -Chloroquine-resistant malaria: in all areas.	
African	Madagascar	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, with the highest risk in the coastal areas.	IV
African	Malawi	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	Mali	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	Mauritania	4B	Malaria risk predominantly due to <i>P. falciparum</i> exists. <i>P. falciparum</i> resistant to chloroquine reported. At-risk area: - Chloroquine-resistant malaria: in Adrar and Inchiri during the rainy	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			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 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	Mozambique	4A	Malaria risk, predominantly due to <i>P. falciparum</i> (90%), while <i>P. malariae</i> , <i>P. ovale</i> and <i>P. vivax</i> rare, 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 and in Caprivi and Kavango regions.	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
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
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	São Tomé and Príncipe	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.	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			At-risk area: -Chloroquine-resistant malaria: in all areas. Less risk in the central western regions from January through June.	
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 Province (Limpopo) and north-eastern KwaZulu-Natal as far south as the Tugela River. Risk is highest from October to May.	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	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			(mainly Big Bend, Mhlume, Simunye and Tshaneni). - Very low risk in the west of the country.	
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: -Chloroquine-resistant malaria: in all areas including the main towns of Fort Portal, Jinja, Kampala, Mbale and Kigezi.	IV
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	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			areas including Lusaka.	
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.	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 exclusively due to <i>P. vivax</i> is low. At-risk area: - Confined to rural areas along the borders with Plurinational State of Bolivia (lowlands of Jujuy and Salta provinces) and with Paraguay (lowlands of Chaco, Corrientes and Misiones provinces). - No risk in Iguassu Falls.	III
The Americas	Bahamas	3B	At-risk area: - Sporadic local transmission of <i>P. falciparum</i> has been reported in recent years on Great Exuma island only, subsequent to international importation of parasites. - There is currently no known risk of malaria on the other islands of the Bahamas.	III
The Americas	Barbados	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	Belize	3B	<p>Malaria risk due to <i>P. vivax</i> (95%) and <i>P. falciparum</i> (5%) exists throughout the year.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> - All districts but varies within regions. Risk is moderate in Toledo and Stan Creek Districts; and low in Cayo, Corozal and Orange Walk. - No risk in Belize City and islands frequented by tourists. 	III
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 predominantly due to <i>P. vivax</i> (94%) 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"> - Chloroquine-resistant malaria: in all areas below 2,500 m, in the Amazon basin and in the following departments: Beni, Chuquisaca, Cochabamba, La Paz, Pando, Santa Cruz, and Tarija except in the city of La Paz. - Falciparum malaria occurs in Santa Cruz and in the northern departments of Beni and Pando, especially in the localities of Guayaramerín and Riberalta. 	IV
The Americas	Brazil	4B	<p>Malaria risk due to <i>P. vivax</i> (84%) and <i>P. falciparum</i> (15%) 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>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<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, Rondônia, Roraima and Tocantins). Transmission intensity varies from one municipality to another, and is higher in jungle areas of mining, agricultural settlements less than 5 years old, 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 Belem, Boa Vista, Macapá, Maraba, Rio Branco and Santarém.</p> <p>- Malaria transmission risk is negligible or non-existent in the states outside "Legal Amazonia". No transmission at Iguassu Falls.</p>	
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	<p>Malaria risk due to <i>P. vivax</i> (72%) and <i>P. falciparum</i> (27%) is high throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine exists in Amazonia, Pacífico and Urabá-Bajo Cauca.</p> <p>Resistance to sulfadoxine–pyrimethamine reported.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in all rural areas below 1,700 m, especially in municipalities of the regions of Amazonia, Orinoquía, Pacífico and</p>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>Urabá-Bajo Cauca. Transmission intensity varies by department, with the highest risk in Antioquia, Amazonas, Chocó, Córdoba, Guaviare, La Guajira, Nariño and Vichada. <i>P. falciparum</i> exists in Amazonia, Pacifico and Uraba-Bajo Cauca.</p> <p>- No risk in Bogotá and Cartagena.</p>	
The Americas	Costa Rica	3B	<p>Malaria risk almost exclusively due to <i>P. vivax</i> exists throughout the year.</p> <p>At-risk area:</p> <p>- In Alajuela, Limón, Guanacaste, and Heredia provinces. Highest risk exists in the cantons of Matina.</p> <p>- Negligible or no risk of malaria transmission exists in the other cantons of the country. No risk in Limón city (Puerto Limón).</p>	III
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. No evidence of <i>P. falciparum</i> resistant to any antimalarial drug.</p> <p>At-risk area:</p> <p>- In all areas (including resort areas), especially in western provinces of Dajabón, Elias Pina, San Juan and in La Altagracia province, as well as all rural areas of the Dominican Republic especially in areas bordering Haiti.</p> <p>- No risk in the cities of Santo Domingo and Santiago.</p>	III

Region	Country/Area	Risk Category	Risk Description	Recommendation
The Americas	Ecuador; Including the Galápagos Islands	4B	<p>Malaria risk due to <i>P. vivax</i> (87%) and <i>P. falciparum</i> (13%) 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"> - Chloroquine-resistant malaria: in all areas below 1,500 m and Amazon basin, with moderate transmission risk in coastal provinces. - No risk in the cities of Guayaquil, Quito, cities of inter-Andean region, the central highland tourist areas, or the Galápagos Islands. 	IV
The Americas	El Salvador	3B	<p>Malaria risk, almost exclusively due to <i>P. vivax</i>, is very low throughout the year.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> - In rural areas of migratory influence from Guatemala, in Santa Ana and Ahuachapán, and La Unión departments. - Sporadic vivax malaria cases are reported from other parts of the country. 	III
The Americas	French Guiana	4A	<p>Malaria risk, due to <i>P. falciparum</i> (45%) and <i>P. vivax</i> (55%), is high throughout the year.</p> <p>Multidrug-resistant <i>P. falciparum</i> reported in areas influenced by Brazilian migration.</p> <p>At risk area:</p> <ul style="list-style-type: none"> -Chloroquine-resistant malaria: in all areas. Risk is high in nine municipalities of the territory bordering Brazil (Oiapoque river 	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			valley) and Suriname (Maroni river valley). In the other 13 municipalities, transmission risk is low or negligible. - No risk in the city of Cayenne or Devil's Island (Ile du Diable).	
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
The Americas	Guatemala	3B	Malaria risk predominantly due to <i>P. vivax</i> exists throughout the year. At risk area: - In areas below 1,500 m. There is moderate risk in the departments of Escuintla and Izabal; and low risk in Alta Verapaz, Baja Verapaz, Chiquimula, Peten, Suchitepequez and Zacapa. - No risk in Guatemala City, Antigua or Lake Atitlán.	III
The Americas	Guyana	4B	Malaria risk, due to <i>P. falciparum</i> (45%), <i>P. vivax</i> (44%) and mixed infections (10%), is high throughout the year. <i>P. falciparum</i> resistant to chloroquine reported. At-risk area: - Chloroquine-resistant malaria: in all parts of the interior below 900 m. Highest risk occurs in Regions 1, 2, 4, 7, 8 and 9 and 10; and very low risk in Regions 3, 5 and 6. Rare cases in the cities of Amsterdam and Georgetown.	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			- Sporadic cases of malaria have been reported from the densely populated coastal belt.	
The Americas	Haiti	3A	Malaria risk exclusively due to <i>P. falciparum</i> exists throughout the year. At risk area: The whole country.	III
The Americas	Honduras	3B	Malaria risk, due to <i>P. vivax</i> (85%), <i>P. falciparum</i> (14%) and mixed infection (1%), exists throughout the year. At-risk area: - In all areas and in Roatán and other Bay Islands. Risk exists in the outskirts of Tegucigalpa and San Pedro Sula. Malaria transmission risk due to <i>P. vivax</i> is high in the departments of Gracias a Dios and Islas de la Bahia, and moderate in Atlantida, Colon, Olancho, Valle and Yoro. <i>P. falciparum</i> transmission risk is high in Gracias a Dios; and a few cases are also reported in Atlantida, Colon, Islas de la Bahia, Olancho and Yoro. - No risk in San Pedro Sula and Tegucigalpa.	III
The Americas	Jamaica	2	Malaria risk due to <i>P. falciparum</i> is very limited. At-risk area: - In the City of Kingston. - No local cases reported in 2010-2011.	II
The Americas	Martinique (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	Mexico	3B	<p>Malaria risk, almost exclusively due to <i>P. vivax</i>, exists throughout the year.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> - In some rural areas that are not often visited by tourists. Moderate risk in the states of Chiapas and Oaxaca (mainly in Costa and Loxichas). Very low risk in the states of Chihuahua, Durango, Jalisco, Nayarit, Quintana Roo, Sinaloa, Sonora, and Tabasco. - No malaria risk exists along the United States-Mexico border and in the major resorts along the Pacific and Gulf coasts. 	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 predominantly due to <i>P. vivax</i> (82%) exists throughout the year.</p> <p>At-risk area:</p> <p>Low malaria risk exists throughout the year in a number of municipalities, mainly in Region autonoma del atlantico Norte, with sporadic transmission also reported in Boaca, Chinandega, Jinoteca, Leon, Matagalpa, Managua and Region Autonoma del Atlantico Sur. Cases are reported from other municipalities in the central and western departments but the risk in these areas is considered to be very low or negligible.</p>	III

Region	Country/Area	Risk Category	Risk Description	Recommendation
The Americas	Panama	4B	<p>Malaria risk due to <i>P. vivax</i> (99%), <i>P. falciparum</i> (1%) exists.</p> <p><i>P. falciparum</i> resistant to chloroquine has been reported in Darién and San Blas provinces.</p> <p>At-risk area: in all areas.</p> <ul style="list-style-type: none"> - Chloroquine-resistant malaria: in provinces east of the Canal Zone towards the border with Colombia, including Darién, San Blas (Kuna Yala), San Blas Islands, and Panama. - Chloroquine-sensitive malaria: in provinces west of the Canal Zone along the Atlantic coast and the border with Costa Rica, including Bocas del Toro, Chiriqui, Colon, Ngobe Bugle and Veraguas. - No or negligible risk in Panama City or the Canal Zone itself. 	IV
The Americas	Paraguay	3B	<p>Malaria risk almost exclusively due to <i>P. vivax</i> is moderate.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> - In the departments of Alto Paraná, Caaguazú, and Canendiyú. - No or negligible transmission risk in the other departments. 	III
The Americas	Peru	4B	<p>Malaria risk, due to <i>P. vivax</i> (89%) and <i>P. falciparum</i> (11%), 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>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>- Chloroquine-resistant malaria: In all departments below 2,000 m, including cities of Iquitos and Puerto Maldonado. The 23 highest-risk districts are concentrated in the departments of Ayacucho, Junín, Loreto, Madre de Dios, Piura, San Martín and Tumbes. Ninety nine percent of <i>P. falciparum</i> cases are reported from Loreto, which is situated in the Amzaon and contains 18 of the highest-risk districts in the country. Risk is also high in the Amazon basin along the border with Brazil.</p> <p>- No risk in cities of Arequipa, Moquegua, Puno, Ica, Nazca and Tacna. Travelers who will visit only Lima and its vicinity, coastal areas south of Lima, coastal region south of Chiclayo or the highland tourist areas (Cuzco, Machu Picchu, and Lake Titicaca) are not at risk and need no prophylaxis.</p>	
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 (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%), mixed infections (2%), has decreased in recent years and occurs throughout the year. <i>P. falciparum</i> resistant to chloroquine,	V

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>sulfadoxine-pyrimethamine and mefloquine reported. Some decline in quinine sensitivity also reported.</p> <p>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 (Nickerie, Coronie, Saramacca, Wanica, Commewijne, and Marowijne north of latitude 5°N).</p>	
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 Islands (U.K.)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
The Americas	United States	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
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.</p> <p>Risk of <i>P. falciparum</i> malaria is mostly restricted to municipalities in jungle areas of Amazonas and Bolívar. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area: - Chloroquine-resistant malaria: US/Canada: In some rural areas of Apure, Amazonas, Anzoategui, Barinas, Bolívar, Sucre, Táchira, Monagas, Zulia, Delta Amacuro and in</p>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>Angel Falls.</p> <p>WHO: There is moderate to high risk in some rural areas of Amazonas, Anzoategui, Bolívar and Delta Amacuro states. There is low risk in Apure, Monagas, Sucre 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 (Cedeño, El Callao, Heres, Gran Sabana, Piar, Raul Leoni, Rocio, Sifontes and Sucre).</p> <p>UK: High risk in all areas south of and including the Orinoco river.</p> <p>- Emerging chloroquine-resistant malaria:</p> <p>UK: in rural areas of Apure, Monagas, Sucre and Zulia states in the north of the Orinoco River.</p> <p>- No risk in Caracas and Margarita Island.</p>	
The Americas	Virgin Islands, British	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Eastern Mediterranean	Afghanistan	4B	<p>Malaria risk due to <i>P. vivax</i> and <i>P. falciparum</i> exists.</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 at altitude below 2,500 m from April to December.</p>	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.</p> <p><i>P. falciparum</i> resistant to chloroquine</p>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			and sulfadoxine-pyrimethamine reported. At-risk area: -Chloroquine-resistant malaria: in all areas.	
Eastern Mediterranean	Egypt	2	Malaria risk due to <i>P. falciparum</i> and <i>P. vivax</i> is very limited. No indigenous cases reported since 1998. At-risk area: - In El Faiyûm governorate from June through October. - No risk in tourist areas, including Nile River cruises.	II
Eastern Mediterranean	Iran	4B	Malaria risk due to <i>P. vivax</i> (88%) and <i>P. falciparum</i> (12%) exists. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported. At-risk area: - Chloroquine-resistant malaria: In rural areas of the provinces of Fars Province, Sistan–Baluchestan Province and the southern, tropical part of Hormozgan and Kerman Provinces from March to November; in Ardebil and East Azerbaijan provinces north of the Zagros mountains (summer months). - Emerging chloroquine-resistant malaria: UK: In the rural south eastern provinces from March to November and in the north, along the Azerbaijan border in Ardabil and near the Turkmenistan border in North Khorasan.	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
Eastern Mediterranean	Iraq	3B	Limited malaria risk exclusively due to <i>P. vivax</i> exists. At-risk area: - In Basrah province and in areas in the north below 1,500 m (in provinces of Duhok, Erbil, Ninawa, Sulaimaniya, and Ta'mim) from May through November. - No risk in Baghdad, Tikrit, and Ramadi. - No indigenous cases reported since 2009.	III
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 (Libyan Arab Jamahiriya)	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 with sporadic local transmission. <i>P. falciparum</i> resistant to chloroquine reported. At-risk area: - Chloroquine-resistant malaria: Canada: Limited risk in remote areas of Musandam Province. - WHO/UK: Sporadic transmission of <i>P. falciparum</i> and <i>P. vivax</i> may occur	II

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>subsequent to international importation of parasites.</p> <p>- WHO: 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.</p>	
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> <p>- Chloroquine-resistant malaria: in all areas (including all cities) below 2,500 m.</p>	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> <p>- Chloroquine-resistant malaria: exists in foci along the southern border with Yemen, Al Bahah, Al Madinah, Asir (excluding the high altitude areas above 2,000 m), Jizan, Makkah, Najran, and Tabuk provinces.</p> <p>- No risk in urban areas of Jeddah, Mecca, Medina, Riyadh, and Ta'if.</p>	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>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			At-risk area: -Chloroquine-resistant malaria: in all areas. Risk is relatively low and seasonal in the north. It is higher in the central and southern part of the country.	
Eastern Mediterranean	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
Eastern Mediterranean	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. Risk is low and seasonal in the north. It is higher in the central and southern part of the country. Malaria risk on the Red Sea coast is very limited. Very low risk in Khartoum.	IV
Eastern Mediterranean	Syria (Syrian Arab Republic)	3B	Malaria risk exclusively due to <i>P. vivax</i> is very limited. No indigenous cases reported since 2005. At-risk area: In foci along the northern border, especially in rural areas of El Hasaka Governorate, from May through October.	III
Eastern Mediterranean	Tunisia	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
Eastern	United	1	No malaria risk reported by WHO, US	I

Region	Country/Area	Risk Category	Risk Description	Recommendation
Mediterranean	Arab Emirates		CDC, UK PHE and Health Canada.	
Eastern Mediterranean	Yemen	4B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year, but mainly from September through February.</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"> -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	3B	<p>Malaria risk exclusively due to <i>P. vivax</i> exists. Four locally acquired cases were reported in 2011 according to WHO.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> - In rural areas below 1,500 m, mainly in the area between the Kura and the Arax rivers, from May to October. - No risk in Baku. 	III
European	Belarus	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
European	Belgium	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I

Region	Country/Area	Risk Category	Risk Description	Recommendation
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	3B	<p>Malaria risk exclusively due to <i>P. vivax</i> exists locally.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> - In the eastern and south-eastern part of the country near Azerbaijan border and Kura River and in the districts of Gardabani, Marneuli and Signaghis in the Kakheti and Kven Kartli regions from June to October. - No cases reported in 2010 and one locally acquired case reported in 2011 according to WHO. - No risk in Tbilisi. 	III
European	Germany	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I

Region	Country/Area	Risk Category	Risk Description	Recommendation
European	Greece	2	<p>Malaria risk exclusively due to <i>P. vivax</i> is very limited.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> - According to WHO, very limited malaria risk may exist from May to October in villages of the Evrotas delta area in Lakonia district (an area of 20 km²) in agricultural area with large migrant populations. There is no risk in tourist areas. - According to UK NaTHNaC, the risk of malaria in Greece is very low. Sporadic cases of locally acquired malaria have been reported in Greece annually since 2009. 	II
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	3B	<p>Malaria risk exclusively due to <i>P. vivax</i> exists.</p> <p>At-risk areas:</p> <ul style="list-style-type: none"> - Risk exists in some southern and western parts of the country, mainly in areas bordering Tajikistan and Uzbekistan – Batken, Osh and Jalal-Abad regions from June through October. Risk also exists in the capital city Bishkek. 	III

Region	Country/Area	Risk Category	Risk Description	Recommendation
			- The first case of autochthonous <i>P. falciparum</i> malaria was reported in 2004 in the southern part of the country, in an area bordering Uzbekistan.	
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	Macedonia, The Former Yugoslav Republic of	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	Moldova	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
European	Portugal	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	2	Very limited malaria risk exclusively due to <i>P. vivax</i> . At-risk area: - In areas under influence of intense migration from southern countries in	II

Region	Country/Area	Risk Category	Risk Description	Recommendation
			the Commonwealth of Independent States.	
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	<p>Malaria risk predominantly due to <i>P. vivax</i> exists.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported in the southern part of the country.</p> <p>At-risk area:</p> <p>- Chloroquine-resistant malaria: in all areas below 2,500 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.</p>	IV
European	Turkey	3B	<p>Limited malaria risk, due to <i>P. vivax</i> predominantly and <i>P. falciparum</i> sporadically, exists from May to October.</p> <p>At-risk area:</p> <p>- In the southeastern part of the country, including the Provinces of</p>	III

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>Adana, Adryaman, Batman, Bingol, Bitlis, Diyarbakir, Elazig, Gaziantep, Hakkari, Hatay, Icel, Kahraman, Kilis, Maras, Mardin, Mus, Osmaniye, Sanliurfa, Siirt, Sirnak, and Van.</p> <p>- A few sporadic cases were reported in 2010 and 2011.</p> <p>- No risk in the main tourist areas in the west and southwest of the country, on the Incerlik U.S. Air Force base and on typical cruise itineraries.</p>	
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	3B	<p>Malaria risk exclusively due to <i>P. vivax</i> exists with sporadic cases reported.</p> <p>At-risk area: From May to October, in some villages located in the southern and eastern parts of the country bordering Afghanistan, Kyrgyzstan and Tajikistan. Sporadic cases reported in Uzunskiy, Sariassiskiy, and Shurchinskiy districts (Surkhanda-Rinskaya Region).</p>	III
South-East Asia	Bangladesh	4B	<p>Malaria risk, due to <i>P. falciparum</i> (>50%) and remainder <i>P. vivax</i>, exists throughout the year.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			At-risk area: - Chloroquine-resistant malaria: in all areas, except in the city of Dhaka according to US CDC.	
South-East Asia	Bhutan	4B	<p>Malaria risk (<i>P. falciparum</i> 60%, <i>P. vivax</i> 40%) exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area: - Chloroquine-resistant malaria: In rural areas below 1,700 m of the southern belt districts of: Chhukha, Dagana, Chirang, Geyleg-phug, Pemagatshel, Samchi, Samtse, Samdrup Jongkhar, Sarpang and Zhemgang.</p> <p>- 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.</p>	IV
South-East Asia	Myanmar (formerly Burma)	5B	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported. Mefloquine resistance reported in Kayin state and the eastern part of Shan state. Emerging artemisinin resistance suspected in south-eastern Myanmar. <i>P. vivax</i> resistant to chloroquine reported. Human <i>P. knowlesi</i> infection reported.</p> <p>At-risk area: - Chloroquine and Mefloquine resistant malaria: States of Bago, Shan, Kayah, Kachin, Kayin, and Tanintharyi.</p>	V

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>- 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.</p> <p>- No risk in the cities of Yangon and Mandalay.</p>	
South-East Asia	East Timor (Timor-Leste)	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: -Chloroquine-resistant malaria: in all areas.</p>	IV
South-East Asia	India	4B	<p>Malaria risk with overall 40% to 50% of cases 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: - Chloroquine-resistant malaria: US/Canada: In all areas below 2,000 m, including Delhi and Mumbai (Bombay). WHO: Risk of falciparum malaria and drug resistance are 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</p>	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>the exception of the city of Kolkata).</p> <p>UK: High risk in the state of Assam.</p> <p>- Emerging Chloroquine-resistant malaria:</p> <p>WHO/US: In all other areas below 2,000 m, including Delhi and Mumbai (Bombay).</p> <p>UK: In Goa, the Andaman and Nicobar Islands.</p> <p>- There is no transmission in parts of the states of Himachal Pradesh, Jammu and Kashmir, Sikkim and 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:</p> <p>- Chloroquine-resistant malaria: Most areas of the five eastern provinces of Papua, West Papua, Maluku, North Maluku and East Nusa Tenggara. Also, in rural areas of Kalimantan (Borneo), Nusa Tenggara Barat (includes the island of Lombok), Sulawesi, and Sumatra. Low transmission in rural areas of Java including Ujung Kulong, Sukalumi, and Pangandaran.</p> <p>- No risk in the cities of Jakarta, Ubud, other cities and urban areas, or resort areas of Bali and Java.</p>	IV
South-East Asia	Korea, North (Democratic)	3B	<p>Malaria risk exclusively due to <i>P. vivax</i> is limited.</p>	III

Region	Country/Area	Risk Category	Risk Description	Recommendation
	People's Republic of Korea)		At risk area: In some southern areas.	
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> <ul style="list-style-type: none"> - Chloroquine-resistant malaria: WHO/Canada: in rural areas below 1,200 m of the 20 Terai districts bordering with India, with occasional outbreaks of <i>P. falciparum</i> from July to October. Seasonal transmission of <i>P. vivax</i> takes places in 45 districts of the inner Terai valleys of Udaypur, Sindhupalchowk, Makwanpur, Chitwan and Dang. US: in all areas below 2,000 m. UK: in all areas below 1,500 m. <p>- No risk in Kathmandu or on typical Himalayan treks.</p>	IV
South-East Asia	Sri Lanka	4C	<p>Malaria risk due to <i>P. vivax</i> (88%) and <i>P. falciparum</i> (12%) 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"> - Emerging chloroquine-resistant malaria: in all areas except no risk in the districts of Colombo, Galle, Gampaha, Kalutara, Kandy, Matara and Nuwara Eliya. 	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
South-East Asia	Thailand	5B	<p>Malaria risk exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine–pyrimethamine reported. Resistance to mefloquine and to quinine reported from areas near the borders with Cambodia and Myanmar. Artemisinin resistance reported near the border with Myanmar. <i>P. vivax</i> resistant to chloroquine reported. Human <i>P. knowlesi</i> infection reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> - Mefloquine-resistant malaria: In areas near the border with Cambodia, Laos, and Myanmar (Burma). - Chloroquine-resistant malaria: In rural, especially forested and hilly, areas of the whole country, mainly towards the international border with Cambodia, Laos, and Myanmar (Burma), including the southernmost provinces, and in rural, forested areas in districts of Phang Nga and Phuket. - No risk in cities (e.g. 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. 	V
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. Human <i>P. knowlesi</i> infection reported.</p> <p>At-risk area: Obtain latest epidemiology.</p>	II

Region	Country/Area	Risk Category	Risk Description	Recommendation
Western Pacific	Cambodia	5B	<p>Malaria risk predominantly due 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 piperazine has been reported in western Cambodia.</p> <p><i>P. vivax</i> resistant to chloroquine has been reported in eastern Cambodia.</p> <p>At-risk area: Present throughout the country, except very low to negligible risk in Phnom Penh, area close to Tonle Sap and the temple complex at Angkor Wat.</p>	V
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. Limited risk of <i>P. vivax</i> malaria exists in southern and some central provinces.</p> <p><i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported in Hainan and Yunnan.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> - Mefloquine-resistant malaria: Along China-Burma border in the western part of Yunnan province - Chloroquine-resistant malaria: In Hainan and Yunnan provinces - Chloroquine-sensitive malaria: In rural areas below 1,500 m, only during warm weather from July to November north of 33° North, from May to December between 33° North and 25° N and throughout the year below 25° 	V

Region	Country/Area	Risk Category	Risk Description	Recommendation
			<p>North, of following provinces: Anhui, Henan, Hubei, Jiangsu, Hainan, Fujian, Guangdong, Guangxi, Guizhou, Sichuan, Tibet (in the Zangbo River valley only), Hunan, Jiangxi, and Shandong. Some major river cruises may go through malaria-endemic areas in Anhui and Hubei provinces.</p> <p>- There is no malaria risk in urban areas.</p> <p>- Travellers to cities and popular tourist areas, including Yangtze River cruises, are not at risk and do not need to take chemo- prophylaxis.</p>	
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	Korea, South (Republic of Korea)	3B	Malaria risk exclusively due to <i>P. vivax</i> is limited. At-risk area: 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).	III
Western Pacific	Laos (Lao People's Democratic Republic)	5B	Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. falciparum</i> resistant to chloroquine and sulfadoxinepyrimethamine reported. At risk area: - Metfloquine-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 Saravane and Champassack. - Chloroquine-resistant malaria: in all areas except Vientiane.	V

Region	Country/Area	Risk Category	Risk Description	Recommendation
Western Pacific	Malaysia	4B	<p>Malaria risk, predominantly 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. <i>P. vivax</i> resistance to chloroquine reported. Human <i>P. knowlesi</i> infection reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> - Chloroquine-resistant malaria: in the rural areas of Malaysian Borneo (Sabah and Sarawak Provinces) and the inland forested areas of the peninsular Malaysia. - Very low risk in the rest of peninsular Malaysia, including the Cameron Heights, and the city of Kuala Lumpur, and in the rest of Malaysian Borneo including the coastal areas of Sabah and Sarawak. 	IV
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	1	No malaria risk reported by WHO, US	I

Region	Country/Area	Risk Category	Risk Description	Recommendation
	Zealand		CDC, UK PHE and Health Canada.	
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. At-risk area: - Chloroquine-resistant malaria: in areas below 600 m, on islands of Basilu, Luzon, Mindanao, Mindoro, Palawan, Sulu (Jolo) and Tawi-Tawi. - 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, Mindoro,	IV

Region	Country/Area	Risk Category	Risk Description	Recommendation
			Marinduque, Masbate, Eastern Samar, Northern Samar, Western Samar, Sequijor, Sorsogon, Surigao Del Norte, metropolitan Manila, other urban areas, or in the plains.	
Western Pacific	Pitcairn Islands (U.K.)	1	No malaria risk reported by WHO, US CDC, UK PHE and Health Canada.	I
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>Malaria risk exclusively due to <i>P. vivax</i> is very limited. One case of human <i>P. knowlesi</i> infection reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> - Local transmission of <i>P. vivax</i> was reported in Jurong Island, Sungei Kadut/Mandai Estate, and Sambawang between June and August 2009. - No malaria risk reported by US CDC, UK PHE and Health Canada. 	II
Western Pacific	Solomon Islands	4A	<p>Malaria risk predominantly due to <i>P. falciparum</i> exists throughout the year. <i>P. vivax</i> resistant to chloroquine reported. <i>P. falciparum</i> resistant to chloroquine and sulfadoxine-pyrimethamine reported.</p> <p>At-risk area:</p> <ul style="list-style-type: none"> -Chloroquine-resistant malaria: in all areas. 	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. <i>P. vivax</i> resistant to chloroquine reported.</p> <p>At-risk area: -Chloroquine-resistant malaria: in all areas.</p>	IV
Western Pacific	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: - Mefloquine-resistant malaria: in the southern part of the country in the provinces of Tay Ninh, Song Be, Lam Dong, Ninh Thuan, Khanh Hoa, Dac Lac, 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, Quang Tri, Quang Nam, Ninh Thuan and Khanh Hoa.</p> <p>- No risk in urban centres, the Red River delta, the Mekong delta, and the coastal plain areas of central Viet Nam including Hanoi, Ho Chi Minh City (Saigon), Can Tho, Da Nang, Hue, Nha Trang, Qui Nhon, and Haiphong.</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			33	9			47
The Americas	23	1	1	11	1	8		1	46
Eastern Mediterranean	9	2		2	4	5			22
European	45	2		5		1			53
South-East Asia	1			1	1	5	1	2	11
Western Pacific	22	2		1	2	3		4	34
Total	103	9	1	20	41	31	1	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		42		47
The Americas	23	1	12	9	1	46
Eastern Mediterranean	9	2	2	9		22
European	45	2	5	1		53
South-East Asia	1		1	7	2	11
Western Pacific	22	2	1	5	4	34
Total	103	9	21	73	7	213